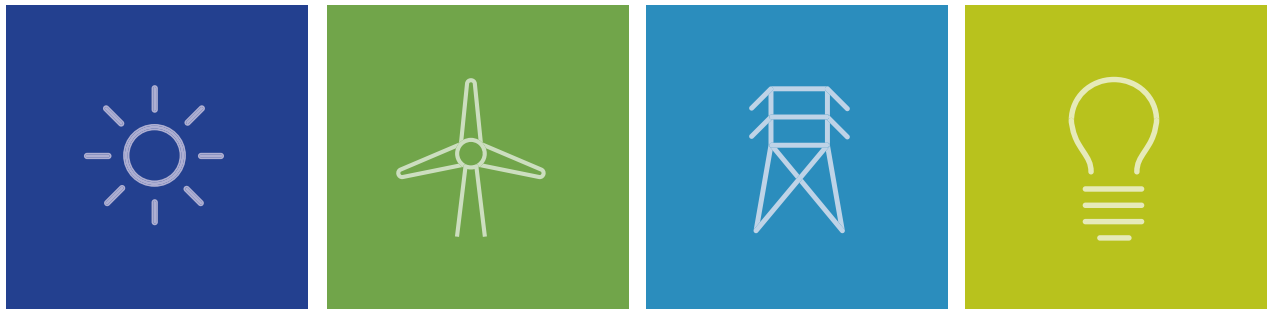


North Carolina

# Clean Energy Plan

*Transitioning to a 21st Century Electricity System*

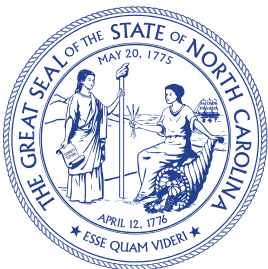


## Supporting Document

### **PART 4**

## Stakeholder Engagement Process & Comments

October 2019





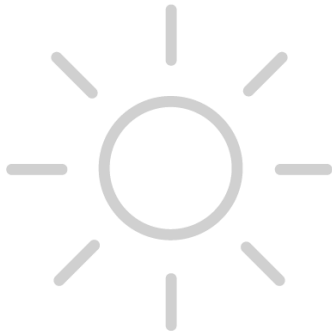
## Preface

The Clean Energy Plan was written by the Department of Environmental Quality as directed by [Executive Order No. 80](#).<sup>1</sup> DEQ was tasked with the creation of a CEP to encourage the use of clean energy resources and technologies and to foster the development of a modern and resilient electricity system. The purpose of the CEP is to outline policy and action recommendations that will accomplish these goals. The CEP is made up of the main document titled *Policy and Action Recommendations* and six supporting documents.



This supporting document, Part 4: Stakeholder Engagement Process and Comments, provides an overview of the stakeholder process used by DEQ to determine recommendations. There is a description of the process and its goals, followed by an in-depth look at the output of the stakeholder process. The section concludes by summarizing formally submitted comments, and relevant material from Workshops and supporting efforts are appended.

<sup>1</sup> <https://files.nc.gov/ncdeq/climate-change/EO80--NC-s-Commitment-to-Address-Climate-Change---Transition-to-a-Clean-Energy-Economy.pdf>





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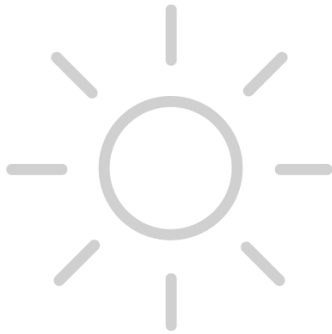
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## List of Abbreviations

CEP	Clean Energy Plan
CPRE	competitive procurement of renewable energy
CT	combustion turbine
DEQ	North Carolina Department of Environmental Quality
DER	distributed energy resource
DOA	Department of Administration
DOC	Department of Commerce
DOT	Department of Transportation
DROC	disaster recovery operations center
EDF	Environmental Defense Fund
EE	energy efficiency
EO80	Governor Cooper’s Executive Order 80
ESI	Energy Savings Initiative
EV	electric vehicle
GHG	greenhouse gases
GSA	Green Source Advantage
IOU	investor owned utility
IRP	Integrated Resource Plan
ISOP	Integrated System Operations Plan
LLC	limited liability company
NC	North Carolina
NCCAA	NC Community Action Association
NCETC	North Carolina Clean Energy Technology Center at NCSU
NC A&T	North Carolina Agricultural and Technical University
NCBPA	NC Buildings Performance Association
NCDOT	North Carolina Department of Transportation
NCEMC	North Carolina Electric Membership Cooperative
NCMA	North Carolina Manufacturers Alliance
NCORR	North Carolina Office for Recovery and Resiliency
NCSEA	North Carolina Sustainable Energy Association
NCSU	North Carolina State University
NCUC	North Carolina Utilities Commission
NI	Duke University Nicholas Institute
NRDC	Natural Resources Defense Council
PACE	Property Assessed Clean Energy
PIPP	Percentage of Income Payment Program
RAP	Regulatory Assistance Project
RE	renewable energy
RMI	Rocky Mountain Institute
RNG	renewable natural gas
RTI	Research Triangle Institute
SELC	Southern Environmental Law Center
TOU	Time of Use
UNC	University of North Carolina
USDA	U.S. Department of Agriculture
WMBE	Women Minority Owned Business Enterprise







## 1. Overview of Stakeholder Engagement Process

It is the intent of the Department of Environmental Quality (DEQ) that the Clean Energy Plan (CEP) will be a “living” document that provides a roadmap for pursuing our collective vision, with the idea that it can be revisited periodically as advancements in technology occur, implementation costs are reduced, and policies and regulatory actions take effect.

In preparing the CEP, DEQ created an open and inclusive public engagement process that sought stakeholder input to develop a series of policy, regulatory, administrative, and program recommendations that achieve the vision of a clean energy future as defined by the stakeholder community. The objectives of the stakeholder engagement were to build a collective understanding of stakeholder groups’ perspectives on the existing system and vision for the future, prioritize which existing structures are or are not supporting achievement of clean energy and to strengthen the stakeholder community’s capacity to collaborate in this work.

This chapter explains the overall engagement strategy and summarizes the feedback that was received throughout the process. All stakeholder-related materials and presentations from this process can be found on the [Clean Energy Plan development website](#).

### 1.1 Summary of Approach

The public engagement process conducted for the CEP development was comprised of four types of events, which are referred to as methods in this chapter. Method 1 was a series of facilitated stakeholder Workshops, which were day-long events attended by 60-80 experts and key stakeholders with a vested interest in clean energy. Method 2 involved broader public outreach, achieved through regional listening sessions. These events were half-day sessions intended to educate members of the public about the CEP development process and to receive feedback. Method 3 involved combining with existing venues or events to collect feedback. Method 4 was an online comment portal, where members of the public who were unable to attend any of the in-person events could respond to specific questions and submit general comments. All of these methods are described in more detail in [Section 1.3](#).

This chapter summarizes the outputs of the facilitated Workshops and other engagement methods, and is structured around three central themes:

- Vision building
- Changing energy landscape
- Prioritizing recommendations

These themes are representative of the approach to the public engagement process, and form the basis for the summary and discussion found later in this chapter.

### 1.2 Topics Explored

As a key part of developing the CEP, DEQ investigated and sought feedback on a range of topics. These topics were delineated at the start of the stakeholder process, but they evolved with the conversation occurring at public engagement events. Questions and topics that were covered during the public engagement process included:



- Ways to ensure all North Carolinians, including underserved communities, have access to clean, reliable, and affordable energy.
- The role of emerging technologies such as distributed energy resources (e.g. solar, storage, energy efficiency, demand management, microgrids, electric vehicles, wind), decreasing costs of those technologies, consumer preferences, and new energy service providers.
- The role of existing and new distributed energy resources (DERs) in transitioning North Carolina (NC) into a clean energy economy.
- The role of power sector transformation occurring in policy, regulatory spaces, and utility business models across the country.
- Creation of a more reliable and resilient power grid in the face of increasingly severe weather events.
- The ways in which clean energy can spur economic expansion and economic development, including innovation, workforce development and educational opportunities.
- The opportunities for reducing environmental and public health impacts, including opportunities for reducing carbon emissions in the power sector and the economy as a whole.
- Participants were asked to describe their interest in the CEP development process and their priority goals for participating. They were also asked about motivating factors for participating that they wanted DEQ and other state agencies to understand better.

When asked about their priority goals for contributing to the process, participants' answers revolved around several central themes. A sense of urgency about the impacts of carbon emissions globally and in NC was a large part of this conversation. Many participants were concerned for the safety of their or subsequent generations' future, and they highlighted the need for immediate action. Stakeholders urged DEQ and NC to be bold in their actions going forward, and they mentioned the need to prevent large fossil fuel infrastructure projects in the future. The idea that not all "clean energy" is clean was a comment heard frequently at Regional Listening Sessions; participants urged DEQ to concentrate on renewable sources of energy when creating the CEP, and to cease the use of fossil fuel-based energy sources. Equity and environmental justice was brought up repeatedly; participants mentioned that any clean energy solutions that are implemented need to be distributed in a way that benefits the most marginalized communities in the state.

Factors that participants wanted DEQ staff and other stakeholders to understand better followed along the same lines of the priorities for participating in the CEP development process. The short time window to address climate change was mentioned at most events as a central motivating factor for participating. The themes of equity and environmental justice, technological innovation, and access to clean and renewable energy sources were also central to participants' motivations. Many other environmental concerns were raised that, while not directly covered in the CEP, indicate a widespread interest in environmental issues and a state population that is engaged with these issues.

### **1.3 Stakeholder Engagement Methods**

DEQ utilized 4 methods of engagement to collect feedback and comments about the CEP: facilitated Workshops, regional listening sessions, combined events, and online and direct input. These four methods

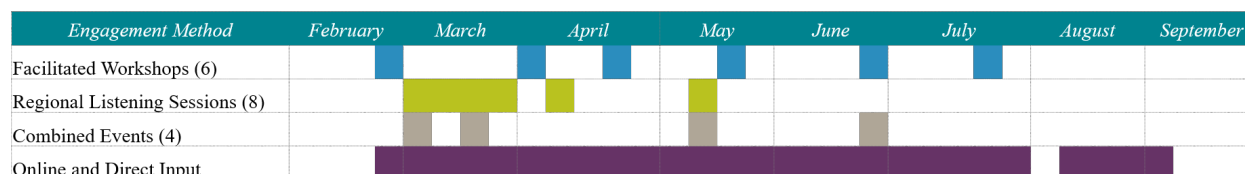


are described in detail below. Figure 1 illustrates the timeline of public engagement and the CEP development process. DEQ’s public engagement process was carried out from February to July 2019.

DEQ engaged with stakeholders from a variety of backgrounds and disciplines to understand their vision for NC’s clean energy future. The stakeholder group was made up of representatives from organizations in the categories listed below.

- Distributed energy resource/renewable energy system providers and integrators
- Investor-owned utilities, municipalities, and electric cooperatives
- Local governments, council of governments, and other supporting entities
- Elected officials
- Large corporate businesses and finance groups
- Manufacturing and industrial organizations and trade associations
- Healthcare and commercial buildings organizations
- Higher education institutions
- Environmental justice, underserved communities, and faith-based organizations
- Affordable housing and community development organizations
- Consumer advocates
- Youth and students
- Environmental organizations
- Energy efficiency system and service providers
- Residents of NC
- Others as requested

Throughout the series of Workshops and public meetings that are described in the following sections, DEQ and participating stakeholders identified needs, issues, barriers, solutions, unrealized opportunities, equity concerns and required actions. Stakeholders and members of the public engaged in the process, which helped DEQ better understand their vision for a clean energy future in NC. Throughout the stakeholder and public engagement process, participants were given information about future energy demand, generation and supply strategies, and national trends in power grid modernization to help frame the discussion around issues relevant in NC. Rate impacts, economic and job opportunities, environmental and health impacts were also considered. The public engagement process culminated with stakeholders recommending policy, regulatory, administrative, local government, public, and business actions for achieving NC’s clean energy future. This report documents all the actions recommended by stakeholders, which informed DEQ’s final recommendations for policy and other changes. DEQ’s final prioritized recommendations can be found in the Policy and Action Recommendations text of the CEP.



**Figure 1: DEQ Public Engagement Process Timeline**



### *1.3.1 Method 1- Facilitated Workshops (Raleigh)*

A series of six full-day, facilitated stakeholder Workshops were held in Raleigh from February to July 2019. These structured Workshops were organized to obtain feedback from a diverse group of stakeholders on key questions. Technical support was provided by the [Regulatory Assistance Project \(RAP\)](#), and facilitation support was provided by the [Rocky Mountain Institute \(RMI\)](#). Participants were required to submit a request to participate form for each Workshop to ensure commitment to the stakeholder process. Additional participants were added as necessary. Participating organizations were encouraged to nominate individuals with sufficient understanding of the electric power sector to represent their constituents. Table 1 below shows the event details from each Workshop, including the number of participants. See Table 2 for details of the six Workshops and points of discussion that were brought up in each Workshop.

*Table 1: Event Details from Facilitated Workshops*

Event	Location	Date	Number of Participants
Workshop 1	Raleigh	2/25/19	82
Workshop 2	Raleigh	4/1/19	72
Workshop 3	Raleigh	4/22/19	62
Workshop 4	Raleigh	5/22/19	62
Workshop 5	Raleigh	6/26/19	67
Workshop 6	Raleigh	7/24/19	76

The Workshops were organized around three themes: 1) vision building, 2) changing energy landscape and 3) recommendations, as described in more detail in Table 2.



**Table 2: Approach for Facilitated Stakeholder Workshops**

Workshop #1 (February 25, Raleigh)	Workshop #2 (April 1, Raleigh)
<p><u>Activities:</u></p> <ol style="list-style-type: none"> <li>1. Stakeholders discuss NC’s current energy direction and changing landscape; vision for a clean energy future; current policies, regulatory and business practices; and the ability of current policies/laws/practices to achieve the vision.</li> <li>2. Develop educational or framing materials</li> <li>3. Engage stakeholders to present perspectives</li> </ol> <p><u>Milestones:</u></p> <p>Stakeholders learn and share perspectives on their vision of a clean energy future how well the current system works through facilitated discussion.</p>	<p><u>Activities:</u></p> <ol style="list-style-type: none"> <li>1. Stakeholders share views and prioritize ideas from Workshop #1</li> </ol> <p><u>Milestones:</u></p> <p>Stakeholders share their positions on issues raised thus far; elements of agreement and disagreement are identified</p>
<p><b>Vision Building and Current Landscape: What is NC’s vision of a clean energy future, how different is it from the current direction, and how well do current policies, regulatory and business practices help achieve that vision?</b></p>	
Workshop #3 (April 22, Raleigh)	Workshop #4 (May 22, Raleigh)
<p><u>Activities:</u></p> <ol style="list-style-type: none"> <li>1. Identify policy and technology trends that are driving clean energy deployment, the opportunities presented by these trends, and barriers that exist to seizing those opportunities</li> <li>2. Develop educational or framing materials</li> <li>3. Engage outside expertise and data on technology trends and opportunities presented</li> <li>4. Engage stakeholders to present perspectives</li> </ol> <p><u>Milestones:</u></p> <p>Stakeholders learn and share perspectives on the changing technology and policy landscape for clean energy</p>	<p><u>Activities:</u></p> <ol style="list-style-type: none"> <li>1. Stakeholders share views and prioritize ideas from Workshop 3</li> </ol> <p><u>Milestones:</u></p> <p>Stakeholders share their positions on issues raised thus far; elements of agreement and disagreement are identified</p>
<p><b>Changing landscape: what policy and technology trends are influencing how we foster clean energy use?</b></p>	
Workshop 5 (June 26, Raleigh)	Workshop 6 (July 24, Raleigh)
<p><u>Activities:</u></p> <ol style="list-style-type: none"> <li>1. Stakeholders identify areas of policy or regulation that need to be developed or updated to overcome rules or practices that prevent NC from achieving the clean energy vision.</li> <li>2. Develop educational or framing materials</li> <li>3. Engage outside expertise on policy and regulation</li> <li>4. Engage stakeholders to present perspectives</li> </ol> <p><u>Milestones:</u></p> <p>Stakeholders better understand the suite of possible options for achieving NC’s clean energy vision.</p>	<p><u>Activities:</u></p> <ol style="list-style-type: none"> <li>1. Stakeholders share views and prioritize ideas from Workshop 5</li> </ol> <p><u>Milestones:</u></p> <p>Stakeholders share their positions on key elements of NC’s CEP; elements of agreement and disagreement are identified</p>
<p><b>Recommendations: What policy or regulatory actions should be taken to achieve the vision?</b></p>	



Expert and technical presentations were provided at several Workshops as part of the objective to build a collective understand of the energy landscape across all stakeholders. These individuals were invited to present at stakeholder Workshops due to their expertise in areas related to clean energy, renewable energy, grid modernization, and other topics that were of interest to the stakeholder group. Many of these expert presenters also participated in the stakeholder process. A full list of expert and technical presenters, along with the topics they discussed, is detailed in Table 3.

*Table 3: Expert and Technical Presenters at Facilitated Workshops*

Workshop	Presenter	Affiliation	Topic Covered
1	Kate Konschnik	Duke University Nicholas Institute	NC's Electricity System
	Jonas Monast	UNC-Chapel Hill School of Law	Regulatory Structures and Barriers
	Stephen Kalland	NCSU Clean Energy Tech Center (CETC)	DERs and Distribution Planning
	Brad Ives	UNC-Chapel Hill	Large-scale Renewable Energy
	Robert Cox	UNC-Charlotte Energy Production and Infrastructure Center	Grid Modernization and Resilience
	Jeffery Petrusa	RTI International	Clean Energy's Impacts on Job Growth
3	Stephen Kalland Ivan Urlab Charles Bayless	NCSU CETC NC Sustainable Energy Assoc. (NCSEA) NC Electric Cooperatives	New Clean Energy Opportunities
	Hannah Polikov Jonas Monast	Advanced Energy Economy UNC-CH School of Law	Evolving Regulatory Structures and Concepts
	Ric O'Connell Autumn Proudlove Robert Sipes	GridLab NCSU CETC Duke Energy	Grid Modernization and Planning
4	Daniel Brokshire Dallas Burtraw Zach Ambrose Brianna Esteves	NCSEA Resources for the Future Cities Initiative CERES	CEP Modeling and Other Collaborative Efforts
5	Franz Litz Amanda Levin Jennifer Weiss	Georgetown Climate Center NRDC Duke University Nicholas Institute	CEP Modeling and Other Collaborative Efforts
6	David Doctor	E4 Carolinas/ Southeast Energy Innovation Collaborative	Other Collaborative Efforts



### 1.3.2 Method 2: Regional Listening Sessions

The second method of public engagement employed by DEQ was a series of Regional Listening Sessions. These Listening Sessions were statewide outreach events organized in both metropolitan and rural areas to increase public access to the CEP development process and to engage with more residents of NC. Attendees were shown video recordings of Workshop 1 and were asked to provide feedback on a variety of questions, and were invited to comment outside the structured questions. These sessions were all open to the public. Regional Listening Sessions were held in the locations detailed in the Table 4 below. A full list of organizations that participated in regional listening sessions can be found in the Appendix.

**Table 4: Event Details from Regional Listening Sessions**

Location	Host	Date	Number of Participants
<b>Charlotte</b>	UNC-Charlotte EPIC	3/8/19	38
<b>Asheville</b>	The Collider	3/14/19	82
<b>Rocky Mount</b>	Rocky Mount Event Center	3/19/19	13
<b>Fayetteville</b>	Fayetteville State University	3/25/19	11
<b>Wilmington</b>	Cape Fear Community College	3/27/19	30
<b>Hickory</b>	Western Piedmont COG	3/29/19	23
<b>Elizabeth City</b>	Museum of the Albemarle	4/11/19	10
<b>Greensboro</b>	NC A&T State University	5/17/19	61

### 1.3.3 Method 3 - Combined Events with Other Venues

DEQ also sought feedback from the public at preexisting events throughout the state. These combined events involved an overview of EO 80, the CEP process, and requests for attendees to provide written feedback on the same survey questions and vision building activities provided to the Workshop attendees. Due to the nature of these events and the fact that DEQ did not convene them, discussion of the CEP with event participants during the combined event session was usually not an option. Participants were shown the online comment portal and were encouraged to submit additional feedback in that way. Feedback was sought at 4 events, the details of which are presented below.

**Table 5: Event Details from Combined Events**

Location	Host	Event Type	Date	No. of Participants
<b>Hickory</b>	North Carolina Manufacturers Alliance (NCMA)	Air Quality Compliance and Permitting Workshop	3/5/19	43
<b>Raleigh</b>	North Carolina Manufacturers Alliance (NCMA)	Air Quality Compliance and Permitting Workshop	3/19/19	53
<b>Raleigh</b>	Environmental Stewardship Initiative	Annual Conference	5/15/19	39
<b>Chapel Hill</b>	UNC Institute for the Environment	Environmental Leadership Fellows Training Workshop	6/25/19	18



### 1.3.4 Method 4: Online and Direct Input

Online input from the public was accepted from February 25 until July 31, 2019 on the DEQ CEP website and by email. There were 3 survey forms available on the website that had specific questions for members of the public to answer. These included a survey about citizen perspectives, a survey about key values to maintain in the State's electricity system of the future, and an opportunity to answer in-depth questions that were asked of Workshop participants at the end of Workshop 1. Additionally, a public comments email address was made available for use by members of the public to submit general feedback or comments about the CEP. Comments received in this manner were handled with public comments received during Regional Listening Sessions, and are included in the figures presented in Section 2: Overview of Stakeholder Feedback. There were 122 online participants from February to the end of July.

## **1.4 Other Related Stakeholder Processes**

Several other stakeholder processes were conducted concurrently with DEQ's CEP stakeholder engagement processes. While these initiatives were not conducted by DEQ, information gathered at the events were used to inform policy recommendations that are included in the CEP. The processes and work products that came from these initiatives are summarized below. For more information about these related efforts and their associated work products, see the Appendix.

Below are stakeholder engagement efforts that provided a process for soliciting input and working towards consensus on energy-related priorities for NC. Additional information regarding the three efforts below are provided in CEP Supporting Basis: Stakeholder Engagement. The recommendations generated from these related initiatives were incorporated into the CEP stakeholder process.

### 1.4.1 Cities Initiative (Environmental Defense Fund)

The program was designed to help NC municipalities reduce their greenhouse gas emissions. EDF conducted an initial survey to establish baseline information about goals, needs and priorities, then facilitated four half-day roundtables hosted in participating cities. Each session included experts, discussion and working groups and focused on identifying barriers, business needs, potential partnerships, innovative resources and consensus action items. Phase One of the program (which occurred in 2018) identified consensus action items that could reduce barriers and foster partnerships to enable faster and deeper GHG reductions. Phase Two of the program began in late 2019 to focus on implementation of consensus action items.

### 1.4.2 Energy Efficiency Roadmap (Duke University Nicholas Institute)

To capitalize on the energy efficiency opportunities in the state, the Nicholas Institute (NI), in partnership with NC DEQ initiated a process to develop a comprehensive state energy efficiency roadmap. This initiative, launched in August 2018, convened over 100 energy efficiency stakeholders to think collectively about this issue. Recognizing that considerable EE work was already being done within the state, the objective of the Roadmap is to build on the collective priorities and strengths of the state's energy stakeholders to identify and achieve a shared set EE policy goals and recommendations to inform the state-wide CEP. Recommendations related to economic development include developing





apprenticeship programs with a focus on energy efficiency, collecting workforce data and supporting a state-wide economic impact study, and creating a Clean Energy Fund or Green Bank, noting that employment in the solar industry in Connecticut has grown approximately 30% since the creation of that state's Green Bank.

### 1.4.3 Southeast Energy Innovation Collaborative (E4 Carolinas)

More than fifty energy organizations collaborated on issues and solutions with the objective to have the Southeast recognized as the nation's energy innovation leader. Task force recommendations included creating an energy industry inventory to improve promotion and access to regional energy assets, assessing energy workforce needs, facilitating better collaboration between community colleges and universities for job training and placement, modernizing electric grid planning, surveying NC's energy entrepreneurship ecosystem and expanding the deployment of energy innovation technologies.





## 2. Building a Collective Vision of NC's Energy Future

Facilitated stakeholder Workshops 1 and 2 were focused on vision building and establishing a collective understanding of NC's current electricity system. The main question that was asked of participants through various activities and questions was how well current policies, regulatory and business practices help achieve the vision laid out by the stakeholders.

### 2.1 Agreement on Current Electricity System

Participants were asked to delineate the extent to which they agreed with statements pertaining to NC's electricity system as it is now. The statements posed were as follows:

NC's electricity system as it is now:

1. Is set up to achieve what it was intended to achieve over the last 100 years
2. Gives customers options for controlling their energy use and the source of their energy
3. Supports the procurement of clean energy from a regulatory/utility business model perspective
4. Can physically accommodate increasing levels of renewable energy from a technology perspective
5. Suitably addresses equity concerns
6. Is reliable and resilient during severe weather events

Participants were asked to consider each statement individually, followed by a discussion about their answers. An online polling platform was used to collect participant responses, and paper forms were available in the case of technical difficulties. Survey results were collected at facilitated Workshop 1, all regional listening sessions, combined events, and via the online comment portal.



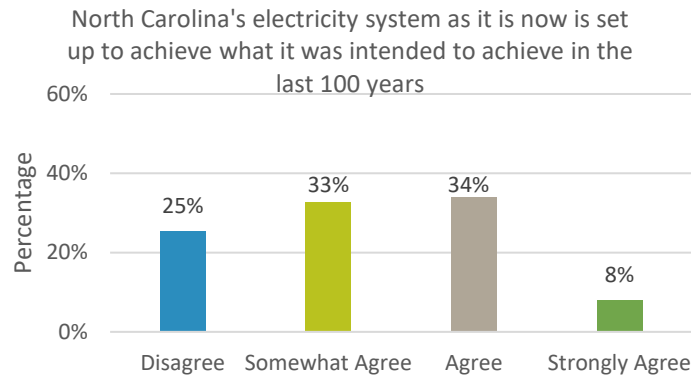
**Table 6: Total Responses for Survey Questions from All Events**

Category		Statement	Percentages					No. of Responses
			<i>Disagree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Total</i>	
1	State of Current System	...is set up to achieve what it was intended to achieve over the last 100 years	25%	33%	34%	8%	100%	553
2	Customer Choice	...gives customers options for controlling their energy use and the source of their energy	71%	20%	7%	2%	100%	456
3	Clean Energy Procurement	...supports the procurement of clean energy from a regulatory/utility business model perspective	57%	25%	13%	5%	100%	529
4	Grid Capacity for RE Integration	...can physically accommodate increasing levels of renewable energy from a technology perspective	34%	32%	21%	13%	100%	511
5	Equitable Access	...suitably addresses equity concerns	60%	25%	12%	3%	100%	502
6	Grid Reliability and Resiliency	...is reliable and resilient during severe weather events	36%	44%	17%	4%	100%	501

The results from all events together, which includes 18 total public engagement events and 122 online responses, are detailed in Table 4. There were between 456 and 553 responses to each question.

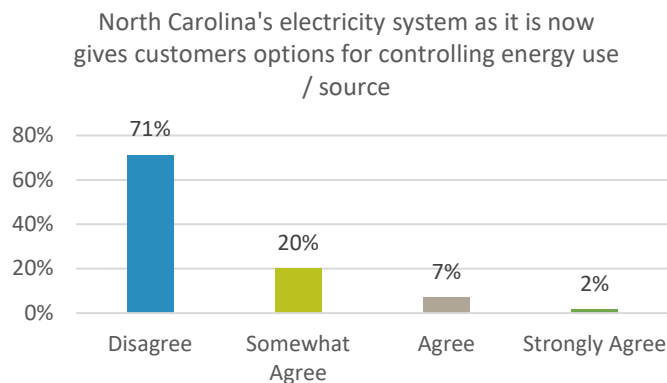


Based on results from Statement 1, a majority of participants indicated that they somewhat agreed or agreed that the electricity system as it exists in NC today was set up in a way to meet its intended objectives of serving loads reliably, affordably, and efficiently (Figure 2). While there was some consensus that the current system seemed to be organized in a way to meet goals of years past, participants also indicated that the system as it exists now is becoming outdated. Comments from regional listening sessions highlighted grid modernization efforts, storage technology, and other upgrades that the grid needs for a clean energy transition.



**Figure 2: Polling Results from All Events (Statement 1 – Current System)**

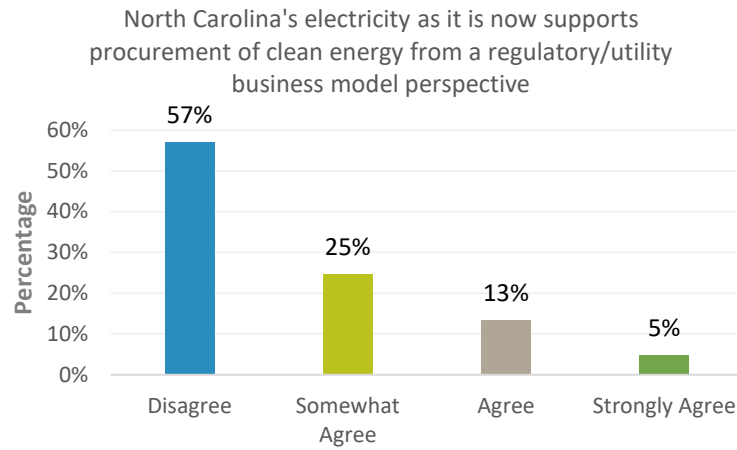
There was consensus on the part of participants that the current electricity system does not offer customers options for controlling their energy use and source, with 71% of respondents indicating that they disagreed with Statement 2 (Figure 3). Participants mentioned that the current utility business model does not allow for customers to choose between service providers, nor does it allow for choice in energy source. Participants of Workshops and listening sessions also mentioned that while programs for controlling and reducing energy use seemed to exist and be effective, the adequacy and size of such programs was insufficient, public awareness was limited, and individuals who could benefit from such programs were not getting access.



**Figure 3: Polling Results from All Events (Statement 2 – Customer Choice)**

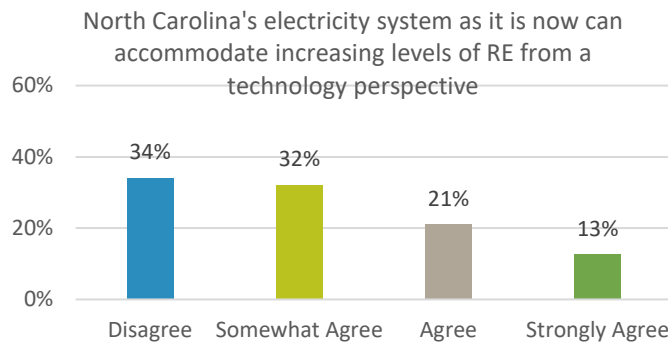


When asked about whether or not NC’s electricity system supports the procurement of clean energy from a regulatory or utility perspective, over half (57%) of polling respondents indicated that they disagreed with the statement (Figure 4). Many Listening Session participants indicated that while major utilities have existing programs that somewhat incentivize renewable energy, those programs are often underutilized. Participants also indicated that while they believe the electric grid is capable of handling increased clean energy resources, the current regulatory structure and regulated monopoly in the state leads to a disincentivized landscape for clean energy procurement.



**Figure 4: Polling Results from All Events (Statement 3 – Clean Energy Procurement)**

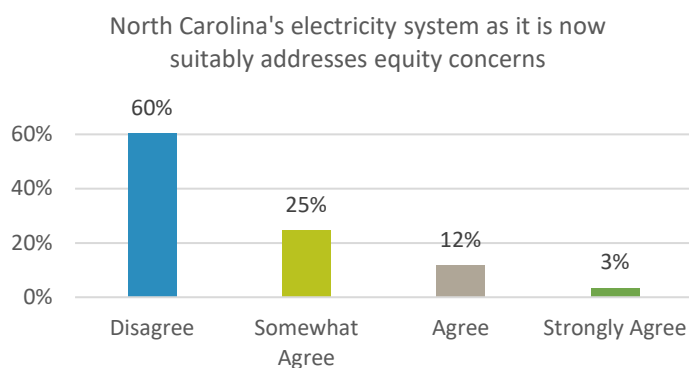
There was less of a consensus built around whether or not NC’s electric system is capable of accommodating increasing levels of renewable energy, with roughly half (53%) of participants stating that they somewhat agreed or agreed with the statement, and 34% stating they disagreed (Figure 5). In further discussions, participants commented that there is room for growth in terms of RE added to the grid, but that there does not seem to be an incentive to do so from a utility perspective. Participants mentioned that renewable energy is no longer cost prohibitive, so new renewable resources should be added to the grid at a higher rate than they are currently.



**Figure 5: Polling Results from All Events (Statement 4 – Grid Capacity for Renewable Energy)**

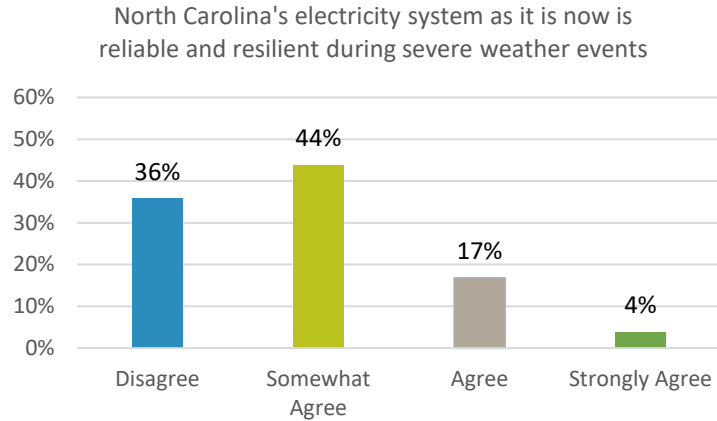


A major theme that emerged at most public engagement events was the issue of equitable access to energy. Members of the public expressed that low income and minority communities are often impacted the most by high energy costs, spending disproportionately large percentages of their monthly income on energy bills. The point was also raised that existing deployed renewable energy resources in NC do not necessarily benefit those low income or minority communities living closest to them. Participants wanted the CEP to address the environmental and societal impacts that existing fossil fuel infrastructure has on marginalized areas in the state, as well as the displaced jobs that would result from the transition to cleaner energy technologies as traditional plants are displaced or downscaled. Many Workshop 1 and regional listening session participants highlighted the need for equity and environmental justice to be considered not just as a component of the CEP, but as a central issue to be addressed throughout all potential recommendations. The polling results from this question are illustrated below in Figure 6.



**Figure 6: Polling Results from All Events (Statement 5 – Equitable Access)**

Participants indicated that they disagreed or somewhat agreed that NC’s electricity system is reliable and resilient in the face of severe weather (Figure 7). Many individuals, particularly in eastern locations that were hit harder by recent hurricanes, cited incidents where power was out for extended periods of time after major storms. But there was some discourse about the differences between reliability and resiliency, which was part of the reason for the lack of consensus. Overall, the participants indicated that NC’s electricity system is very reliable, providing power when called upon. However, the participants noted that due to size and frequency of past weather events and expected future events, the resiliency of the electricity system will be challenged to continue to provide vital services in the wake of disaster events and during periods of recovery.



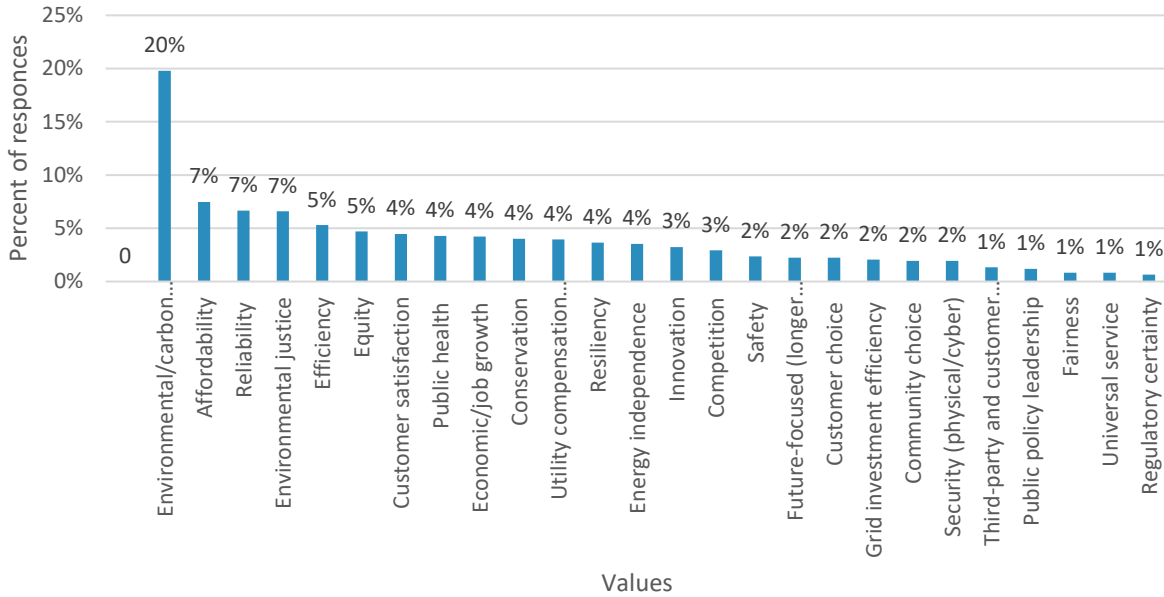
**Figure 7: Polling Results from All Events (Statement 6 – Reliability and Resiliency)**

## 2.2 Values to Uphold and Promote Going Forward

In addition to the interactive polling exercise described above, participants of Workshop 1 and Listening Sessions/combined events provided input about important values to consider in the development of a CEP and going forward into a clean energy future. Participants were provided a list of values created by DEQ staff, comprised of 27 values or tenants in the categories of Community and Society, Grid and Resource Planning, Consumer, and Economy, and were asked to pick their top three values from the entire list. Choices of values are as follows:

- Community choice
- Environmental justice
- Equity
- Fairness
- Affordability
- Public policy leadership
- Environmental/carbon reduction
- Conservation
- Efficiency
- Public health
- Universal service
- Regulatory certainty
- Future-focused (longer planning horizons, lower stranded assets)
- Utility compensation aligned with public interest
- Energy independence
- Safety
- Reliability
- Resiliency
- Security (physical/cyber)
- Adaptive
- Customer choice
- Customer satisfaction
- Third-party and customer data access/ownership
- Competition
- Innovation
- Economic/job growth
- Grid investment efficiency

Following the worksheet activity, participants of Listening Sessions engaged in a brief dialogue about why they voted in the manner they did, and DEQ was able to further develop an understanding of values that are important to members of the public. These values were used throughout the CEP development process to ensure the stakeholder activities, discussions, and prioritization of actions and recommendations were based on the public’s greatest needs.



**Figure 8: Selection of Key Values from All Events**

Figure 8 summarizes the consensus around key values selected by the stakeholders. There were 459 respondents to the values survey, across all engagement methods, with each participant marking three (3) top values. Environment and carbon reduction ranked first, at 20% of all responses, followed by affordability, reliability, and environmental justice at 7%. Other values below these top 4 were all at 5% or lower, with many falling in the 4% range. Many of the top values were related to community and society, including affordability, environmental justice, equity, and carbon reduction, among others. There was overwhelming consensus around the environment and carbon reduction value across all events, including from the business and industry community (represented at NCMA and ESI events), clearly indicating that the public believes this should be a top priority in a clean energy transition and future.

Community and social values were emphasized in many comments and points of discussion during these regional listening sessions, as was the need for a CEP that addresses decarbonization of the electricity sector. The environmental and carbon reduction value was ranked in the top 3 values in all the surveys including those at the Workshop, regional listening sessions and combined events. Affordability, equity, and environmental justice were also of high priority to participants, but were not always ranked in the top 3 values at every event.

### 2.3 Features of Existing Electricity System to Maintain

During the Public Engagement Process, participants were asked to consider what features of the existing system should be maintained going forward with a transition to a clean energy economy. Feedback was collected at Workshop 2, all regional listening sessions via notecards and worksheets and the online input portal.





Features of the system that participants wanted to retain included: grid reliability and safety, innovation, affordability, past and existing incentives for renewable energy, and NC's regional leadership in the growth of solar energy. Participants indicated that several of these features, particularly renewable energy incentives, should be maintained going forward but should be expanded well beyond their current scope to be more effective statewide. Although members of the public were concerned about the grid's reliability during severe weather events, most participants seemed to agree that the grid and electricity system is reliable on a routine basis, and provides safe and affordable power to residents of NC.

## **2.4 Challenges to the Deployment of Clean Energy Resources**

In order to help identify opportunities for the transition to a clean energy economy, participants in the public engagement process were asked to describe features of the existing energy system that they viewed as challenges to the deployment of clean energy resources and technology. Participants of Workshop 1 were asked to consider this question as part of their post-Workshop working group assignments, which were presented at Workshop 2. Listening Session participants were also asked to consider this same question at the end of the event. Feedback was collected on notecards during the event and via online submission after the event.

Challenges that were described and discussed at all events clustered around several common themes. Many participants identified myriad policy barriers to clean energy procurement, deployment, and research and development. One comment that was echoed often was the outdated nature of the utility business model. Members of the public and stakeholders that contributed to the discussion about this issue mentioned that the lack of customer voice in the decision making process related to energy and the lack of customer choice when it comes to the source of their energy. Participants also mentioned the lack of competition in the state and the ability to implement lower cost energy resources into system planning as barriers to NC's clean energy future.

A lack of equitable access to affordable and clean energy was another challenge that participants identified as something that needed to be changed going forward. As mentioned previously, Workshop and regional listening session participants recognized that the existing system does not equally benefit all users across the state, and should be modified to ensure that equitable access to clean energy is prioritized going forward.

## **2.5 Vision of a Clean Energy Future for North Carolina**

Feedback from Workshops, public engagement at Listening Sessions and other events, and online comments were compiled over the course of the CEP development process in order to determine a collective vision for a clean energy future. Participants from Workshop 1 were asked to consider the question of what their vision for a clean energy future would look like at the conclusion of Workshop 1, and were asked to present their thoughts at Workshop 2. The same questions that were asked to Workshop participants were also posed at regional listening sessions and via the online comment portal.

Workshop participants were separated into the following working groups to determine a collective vision:

1. Environmental groups
2. Utilities



3. Local governments
4. Consumer advocates
5. DER/RE providers and advocates
6. Business groups
7. Higher education

Each group was asked to respond to the following questions:

- What are the group's three priority goals for participating in the CEP process?
- What are some motivating factors for you, your organization, or the people your organization represents that you would like the state representatives and/or other stakeholders to understand better?
- What is your vision of a clean energy future for NC? (please state this in 1-2 sentences)
- What three features of the existing system do you see as challenges to deployment of clean energy resources that should be addressed going forward?
- What three features of the existing system do you want to ensure are maintained going forward to support deployment of clean energy resources?

Groups created brief presentations focusing on their answers to these questions, and their work products were presented at Workshop 2 and are included as reference material in the Appendix.

### 3. Assessing the Changing Energy Landscape

Workshops 3 and 4 were focused on identifying policy and technology trends that are influencing how clean energy use is fostered in NC. Presentations from experts focused on the changing landscape from the lens of new clean energy opportunities, evolving regulatory structures and concepts, and grid modernization and planning. During each of these presentation panels, participants were asked to consider the following questions:

1. National and state-level trends that present opportunities that I would like NC to explore
2. Barriers to capturing these opportunities in NC that need to be addressed
3. National and state-level trends that present challenges that I would like NC to avoid

Summaries of the issues raised by participants related to these questions are presented in the next two sections.

#### 3.1 National Trends

National and state-level trends related to new clean energy opportunities spanned a range of topics. Participants suggested that NC should focus on the trends around distributed energy planning at a utility level, (including specifics such as switching to a distributed resource planning model), evolving regulatory compensation structures to allow for more DDERS and EE, creating performance-based incentives for utilities, and increasing competition in the utility market. Energy efficiency was focused on as a resource, and participants wanted to see increased EE opportunities for large communities and industrial users. Additionally, participants noted that incentives should be structured to align with the benefits of reducing energy usage and GHG emissions. It was recognized that most of these options for



progress require utility or NCUC action, so participants highlighted the need for both of these entities to be involved in the conversation about new opportunities in the clean energy space in NC.

Participants also identified national trends that NC should avoid in the future. Current national trends related to new clean energy opportunities too often omit equity and environmental justice as a policy and system-level consideration, and participants urged NC to consider equity throughout the decision making process, not just as a single element. Participants also mentioned the heavy burden that low-income rate-payers bear.

### **3.2 Barriers to Action in NC**

Many participants identified the current utility structure and business model as a barrier to clean energy adoption, and called for third-party competition or business model reform to address this. There was an emphasis on education about issues related to clean energy, and participants noted that gaps in public knowledge about clean energy could prove to be a challenge in the coming years. In addition to having progressive policies related to clean energy adoption, participants underscored the need to improve public education related to the topic. Participants also emphasized that large investments in fossil fuel infrastructure that are being decided upon currently could complicate the transition to a clean energy economy, with outdated infrastructure becoming a stranded asset in the future. Finally, there was emphasis on the lack of focus on energy efficiency policy in the state, something participants had identified as something they wanted NC to explore going forward.

### **3.3 Workgroup Deliberation**

Based on the discussions at Workshop 3, participants organized into working groups based on one of the following seven topics:

1. Customer Access to Renewables
2. DERs and Interconnection
3. Grid Modernization
4. Utility Business Model
5. Utility System Planning and Investment
6. Equitable Access and Just Transition
7. Grid Resiliency Enhancements

Table 8 (next page) details the stakeholders that were a part of each working group. It is important to note the diverse mix of organizations that entered into conversations about what often developed into complex topics.



*Table 7: Memorandum Working Group Members*

Working Group Name	Working Group Members
Customer Access to Renewables	Paul Cameron (City of Durham), Christy Daniel (Duke Energy), Tobin Freid (Durham County), Erik Hall (NCSU), Kathy Kaufman (Town of Carrboro), Adam Long (UNC Chapel Hill), Greg Sponseller (City of Raleigh),
DERs and Interconnection	Sterling Bowen (private citizen), Richard Harkrader (Carolina Solar Energy), Autumn Proudlove (NC CETC), Elizabeth Severt (Cape Fear Public Utility Authority), David Tsai (Duke Energy)
Grid Modernization	Lori Collins (DEQ), Chris Doerfler (3DFS), Anne Lazarides (NC WARD), Greg Monty (NC A&T State University), Evan Shearer (Duke Energy), Joe Stevens (Duke Energy)
Utility Business Model	Sarah Adair (Duke Energy), Zach Ambrose (Ambrose Strategy), Daniel Brookshire (NCSEA), Dionne Delli-Gatti (EDF), Molly Diggins (Sierra Club) Nick Jimenez (SELC), Miriam Makhyoun (EQ Research), Ryan Miller (NCBPA) Paul Mott (NC Electric Cooperatives) Sally Robertson (NC WARN) John Thigpen (NRDC), Jennifer Weiss (Nicholas Institute), Michael Youth (NC Electric Cooperatives)
Utility System Planning and Investment	Charles Bayless (NC Electric Cooperatives), Vickie Foust (NC A&T State University), Simon Sandler (NC CETC), Will Scott (NC Conservation Network), Andrew White (First Solar)
Equitable Access and Just Transition	Jacquie Ayala (NC Justice Center), Dale Evarts (Private Citizen), Tiffany Hartung (The Nature Conservancy), Mike Hughes (Duke Energy), Aiden Graham (NC State AFL-CIO), Rory McIlmoil (Appalachian Voices), Daniel Parkhurst (Clean Air Carolina), Walter Robinson (NC State Climate Office), Nicole Spivey (Private Citizen), Alvin Warwick (IBEW), Rachel Weber (Dogwood Alliance)
Grid Resiliency Enhancements	Robert Cox (UNC-Charlotte), William Geisler (IROK Energy), CC Maurer (Advanced Energy), Vicki Lee Parker (NC Business Council), Jamie Russell (App State), Evan Shearer (Duke Energy)

In between Workshops 3 and 4, these stakeholders met with each other, outside experts, and other relevant organizations to create a 2-page memorandum that addressed the following questions:

1. Briefly describe the nature of this policy tension/question - what is happening?
2. To what extent does this policy tension exist in NC? If it exists, why is it relevant to the state?
3. What policy or regulatory action might be required to address the tradeoffs you see? What entity would need to take the action you've identified?
4. How are people in other places responding to this tension? What are the most innovative and promising solutions? Do these responses seem feasible in NC?
5. Are there ways you think NC should consider responding to this tension? What entity would need to take the action you've identified?



The stakeholder groups presented their draft memorandums during Workshop 4, where they answered questions and received feedback from the stakeholder group. Memos were then revised before Workshop 5, often involving much deliberation on the part of the stakeholders outside of the Workshops. Groups were also asked to note when there was consensus or disagreement about these questions amongst group members, as well as anything else related to the topic that the group wanted to comment on that was not already addressed. These memorandums may not represent consensus in all cases, but serve to highlight items of interest or importance that were needed to forward the vision outlines in previous Workshops. To see full group memorandums, see the Appendix.

## 4. Policy and Action Recommendations

### 4.1 Identifying Action Areas

After extensive review of comments and feedback from the Public Engagement Process, DEQ determined several general categories that were addressed most often during discussion.

- Utility Incentives and Comprehensive System Planning
- Customer Choice and Economic Development
- Equitable Access and Just Transition
- Carbon Reduction and Resilience
- Beneficial Electrification and Energy Efficiency

Within these categories, Action Areas were identified. The first seven of these served as the basis for stakeholder workgroups that were formed at Workshop 3. Each workgroup was tasked with creating a memorandum for consideration by DEQ containing specific policy recommendations to address their Action Area. Memorandums were submitted at Workshop 4 for review by the stakeholder participants, and then were revised prior to Workshop 5. The recommendations in these memorandums informed DEQ's policy recommendations presented in the Policy and Action Recommendations chapter of this report. For the full memorandums created by each workgroup, see the Appendix.

Workshops 5 and 6 focused on prioritizing recommendations that were determined throughout the Public Engagement Process. Stakeholders wrote down two recommendations that they found important, and then went through a prioritization exercise where each individual was asked to rank the importance of five other participants' proposed recommendations. From this scoring exercise, a list of prioritized recommendations was produced for break out discussion by the stakeholders. The following sections detail the proposed recommendations for each action area as well as the workgroups' sense of what entities would need to take action on each recommendation. Additional comments provided by the stakeholders about these recommendations are also included in Tables 8-12.

The prioritized recommendations that were elevated by the stakeholders during Workshops 5 and 6 form the basis of the Policy and Action Recommendations section of the CEP.

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## 4.1.1 Recommendations for Customer Choice and Economic Development

The following table presents the full list of recommendations for the strategy area *Customer Choice and Economic Development* that were considered by the stakeholder group.

**Table 8: Customer Choice and Economic Development Recommendations**

Focus Area	Specific Recommendation	Key Actors	Additional Information	Source of Recommendation
Increase customer access to clean energy resources	End ban on third-party sales of electricity	Legislature	Allow for new renewable energy procurement options	Memo, Cities Initiative
	Achieve greater participation from smaller customers by revising Duke Energy’s Green Source Advantage Program under HB589	Duke Energy, NCUC	Allow for new renewable energy procurement options by reducing cost and increasing ease of access of the Green Source Advantage program	Memo, Cities Initiative
	Expand the cap or redesign the solar rebates under HB589/allow more participation	Legislature		Memo
	Require utilities to invest in a specific amount of solar paired with storage	Legislature, NCUC		Memo
	Implement solar rebate program for co-ops/municipal utilities	Legislature		Memo
	Require utilities to offer virtual or group net metering	NCUC, Legislature, IOUs, Co-ops, Municipal providers	Provides options for renters and customers without suitable sites for solar and option to subscribe to community solar programs	Memo
	Require incorporation of value of solar when considering net metering terms	NCUC		Memo
	Require utilities to provide an easy option to purchase renewable energy through electric bills	NCUC, IOUs, Co-ops, Municipal providers	Provide a voluntary option for customers to be able to purchase renewable energy through their utility to serve their power needs, via a credit/billing mechanism on their utility bill.	Memo
	Restore the 35% renewable energy state tax credit	Legislature		Memo

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	Enact a statewide commercial PACE and Pay As You Save programs	Legislature, NCUC	NC allows PACE financing. However, the State does not have active PACE programs. Administration burden of the program at the county level is too high, and requires state-level approval.	Memo
	Aggregate data access at a safe level to allow local governments to prioritize programs (e.g. assistance to low-income, high energy-burden communities)	Legislature, NCUC or utility partnership	Due to privacy concerns, NC utilities do not provide third parties with access to customer usage data aggregated at a fine level. Utilities can propose aggregation of data at a level that enables cities to prioritize programs in energy-burden communities or meet other similar needs.	Cities Initiative
	Legislative action to provide market certainty for offshore wind (OSW) industry in North Carolina (developers, supply chain manufacturers, etc.)	Legislature, Governor		Other
	Assess and evaluate transmission infrastructure necessary to accommodate the electricity produced from OSW resources and wheel it to load centers in the Piedmont	IOUs, NCUC		Other
Facilitate interconnection of greater Distributed Energy Resources (DERs) and compensate them for the value added to the grid	Design tariffs that provide accurate price signals to demand-side resources about costs and value to the grid (e.g. more robust Time of Use (TOU) pricing and/or Real Time Pricing)	Legislature, NCUC	Utilities can send price signals to DER owners, which can help them maximize their return on investment. Tariffs can shift system peak which may need to be considered.	Memo
	Implement compensation tariffs for DERs such as Value of DERs tariff	Legislature, NCUC		Memo
	Improve interconnection processes	Legislature, NCUC, Utility partnership	Fast-tracking of interconnection for systems paired with energy storage, enforcement of required response time in the Interconnection Standard, interconnection standards as well as process improvements, utilities providing interconnection capacity by feeder or area so developers can target those feeders or areas	Memo
	Identify optimal locations for distributed generation based on current grid infrastructure	NCUC, Utility	Can be accomplished by compiling hosting capacity maps	Cities Initiative

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	Support compensation for generators or load that responds to dispatch signals or prices (e.g. storage-paired resources)	Legislature, NCUC, Utility	Bring Your Own Device program can provide compensation rate or incentive for participating. Rules for participants would need to be established (i.e., allowing utility to control the system at certain times)	Memo
	Inclusion of non-wires alternatives (NWAs) in the planning of T&D upgrades (e.g. distribution deferral through energy storage) procured typically through an RFP or a tariff designed to compensate NWA	Legislature, NCUC		Memo
	Upgrade electric grid to accommodate more DERs	Utilities	Physical or virtual changes to the distribution system that enable more variable load or greater utilization of DERs such as smart meters, improved communication infrastructure, data transparency and accessibility, voltage regulators or line and substation capacitors	Memo
Increase clean energy economic development opportunities	Develop a local government supported green energy bank	Legislative action and/or partnership		Cities Initiative
	Convene Entrepreneurship Task Force to foster innovation and commercialization of energy related businesses and technologies (include universities, investors, utilities, large energy companies, incubators, and entrepreneurs)	Governor, State Agencies, Local Governments, Businesses	1. Identify a lead organization (e.g., university) and invite members; 2. Create survey of region's energy entrepreneurship ecosystem; 3. Determine survey cost and identify funders; 4. Understand region's strengths and gaps	SEIC
	Identify the region's suppliers/supply of energy workforce and employers/demand for energy workforce to calculate the region's workforce shortage/surplus and other characteristics	Governor, State Agencies, Local Government, Universities, Businesses	Offer policy recommendations regarding energy workforce need; Guide colleges/universities in academic/training offerings	SEIC
	Develop a searchable online inventory of region's energy sectors and assets	State Agencies, Universities		SEIC
	Conduct (1) an OSW supply chain assessment and (2) a ports and other transportation infrastructure assessment to identify State assets and resource gaps for OSW industry in North Carolina	Dept of Commerce, Ports Authority, Dept of Transportation, chambers of commerce, economic developers		Other



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## 4.1.2 Recommendations for Equitable Access and Just Transition

The following table presents the full list of recommendations for the strategy area *Equitable Access and Just Transition* that were considered by the stakeholder group.

**Table 9: Equitable Access and Just Transition Recommendations**

Focus Area	Specific Recommendation	Key Actors	Additional Information	Source of Recommendation
Address equitable access and energy affordability	Develop roof top solar and community solar rebate programs to increase access to diverse groups of customers, especially low-income	Legislature, NCUC		Other
	Implement a Percentage of Income Payment Program (PIPP) combined with a weatherization component	Legislature, NCUC, DEQ, NCCAA	Ohio PIPP/ Electric Partnership Plan (EPP) and Maryland examples	Memo
	Eliminate or dramatically reduce fixed charges	NCUC		Memo
	Include non-energy benefits (NEBs) in cost-effectiveness testing	NCUC, Legislature		
	Invest more in low-income home repair, efficiency, and weatherization programs (also, see PiPP above), and appliance rental programs, particularly for multifamily housing and mobile homes.	Governor, Legislature, DEQ, NCORR, DHHS, Local Gov.		Memo
	Create a state-wide project management coordination system for delivery of energy efficiency, urgent repair, and weatherization programs, to hold these programs to a state-wide standard	DEQ, DHHS, Local Gov.		Memo
	Expand tariffed on-bill financing programs or rural cooperatives and municipal utilities by creating, hiring, or facilitating the NC Electric Membership Corp (NCEMC) to be a state-level program administrator	NCEMC, Local Gov.		Memo
	Create a Green Bank & Loan Loss Reserve Fund to make efficiency, renewables, and repair dollars available to gov. buildings, public power providers, rural electric cooperatives, schools, etc.	Governor, DEQ, Commerce, Third-Party administrator, Local Gov.	e.g., Greenbank network.org	Memo

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Foster a just transition to clean energy	Expand DEQ’s authority to require the use of Cumulative Impact Mapping & Analysis and an Environmental Justice Impact Analysis in decisions regarding permits and permit renewals	Legislature, Environmental Management Commissions, DEQ	Legislative action needed to give DEQ this authority; DEQ may need to make investments in monitoring program (\$\$ from state budget)	Memo
	Implement carbon pricing policy that dramatically reduces carbon emissions and sets up Polluter Pay Funds, with the majority of revenue going back to frontline and vulnerable communities	Legislature		Memo
	Target investment in resilient infrastructure and technical assistance for flood mitigation and climate adaptation/resilience planning in climate-vulnerable and low-income communities	DEQ, Housing Finance Agency, USDA, NCORR, Local Governments		Memo
	Increase funding to the NC housing trust fund to reduce the disproportionate burden communities of color and poor communities bear from climate impacts	Legislature		Memo
	Targeted investment in renewables, energy efficiency, home repair, and weatherization training programs through partnerships with schools	DEQ, Commerce, Education, Local Gov.		Memo
	Create long-term jobs with family-sustaining wages and benefits for low income communities in renewables/grid infrastructure industries	Legislature, DEQ, Commerce, Local Gov.		Memo
	Drive up labor standards in the solar industry by prioritizing contractors that provide family-sustaining wages and benefits for utility scale solar contracts, particularly those with any public funding	Commerce, Governor, Local Gov.		Memo
	Expand existing Registered Apprenticeship Programs (RAPs) to create career pathways across the energy sector	Commerce, Governor, DEQ, Local Gov, Higher Education		Memo
	Technical assistance for local community from state and utility in planning for community transition where power plants are retired	DEQ, Commerce, NCUC, IOUs, Local Gov, Higher Education		Memo
	Encourage Women Minority Owned Business Enterprise (WMBE) contracts and hiring through tax incentives and policy requirement	Governor, Commerce, Legislature		Memo
Develop best practices that guarantee protections for displaced fossil fuel workers	NCUC, Commerce, IOUs, DEQ, Local Gov.		Memo	

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## 4.1.3 Recommendations for Carbon Reduction and Resilience

The following table presents the full list of recommendations for the strategy area *Carbon Reduction and Resilience* that were considered by the stakeholder group.

**Table 10: Carbon Reduction and Resilience Recommendations**

Focus Area	Specific Recommendation	Key Actors	Additional Information	Source of Recommendation
Strengthen resilience and flexibility of the grid	Update the State Energy Assurance Plan to reflect 1) existing reporting requirements (fed, state, local, etc.) to reduce redundancies. 2) cybersecurity concerns and publicly available data	State agencies, Universities, Utilities		Memo
	Coordinate resilience planning with DROC (disaster recovery operations center) and require NC Emergency Management’s Recovery Support Functions to address cybersecurity concerns in conjunction with energy resiliency issues.	Governor, NC Office of Recovery and Resiliency, DEQ		Other
	Develop an active energy Resilience Planning Resource to assist local governments and disadvantaged communities	Universities, Governor, Local Government, State Agencies		Memo
	Use defense in depth or a layered grid approach to increase reliability and improve resilience	NCUC, Utilities		Memo
	Develop a system that formalizes how to quantify human costs of power outages	NCUC, Universities, Governor		Memo
	Create pilots that offer DER & community energy solutions and microgrids at state facilities an critical facilities (e.g., emergency responder stations, public shelters, medical facilities)	Governor, State agencies, Utilities, NCUC, Local government		Memo
Develop pathways to further	Set carbon mass cap on the electric power sector for 2030, 2040 and 2050	Legislature, NCUC	Amend Chapter 62 of the N.C. General Statutes to allow NCUC to consider additional objectives such as carbon emissions reduction. Establish	Memo

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decarbonize the electric power sector			measurement methods and tools to track the progress.	
	Require addition of carbon pricing when considering least cost resources for IRP	Legislature, NCUC	Amend Chapter 62 of the N.C. General Statutes to allow NCUC to consider additional objectives such as carbon reduction. For example, require economic costs and risks associated with climate change in least cost utility system planning.	Memo
	Increase renewable energy and energy efficiency targets in state renewable portfolio standard for 2030.	Legislature		Other
	Use innovative rate design to encourage customer behavior that helps achieve clean energy goals, such as “clean peak” generation and storage deployment	Legislature, NCUC	Can offer reduced dependence on gas combustion turbines (CTs) for peaking and encourage solar/storage pairing	Memo
	Evaluate benefits and disadvantages of establishing an instate carbon (GHG) emissions trading program or NC joining a regional carbon (GHG) emissions trading program	Governor, Legislature Environmental Management Commission, DEQ		Memo
	Incorporate GHG scoring for state funded projects (e.g. State Transportation Improvement Program, Clean Water State Revolving Fund, Drinking Water State Revolving Fund)	Governor, Legislature, state agencies, local government	1. Add GHG impact to project scoring formulas 2. State should ask for guidance on the scoring formula from cities with carbon goals or policies	Cities Initiative
	Develop implementation pathways for policy measures identified in a study currently underway that will determine the extent and location of available biogas/biomethane resources in the state and the percentage of NC’s GHG reductions that can be met with biomethane	Duke University, RTI, East Carolina University	RTI, International is leading an analysis between Itself, Duke University and East Carolina University to measure available biomethane and the probabilities, based on technical and economic factors, for its development. The analysis will include determining the climate, environmental, societal, and economic effects of the use of biogas and will recommend policy measures to accelerate biomethane development, and the best uses for the gas (ie, transportation fuel, RNG/pipeline, on-site energy generation).	

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	Facilitate renewable natural gas (RNG) transport to end users and buyers to accelerate development / accelerate GHG reductions from in-state biomethane sources	NCUC, Local Distribution Companies, Dept. of Transportation, Commerce, and Agriculture		
	Create technical support services for biomethane development, particularly for suppliers who own the waste but are not engaged in biomethane production for their primary income.	Governor, DOT, Dept. of Transportation, Commerce, and Agriculture		
Create strategies for electrification in transportation and consumer energy use sectors	Conduct an analysis of the costs and benefits of using electrification to reduce energy burden and GHG emissions in consumer end-use sectors in NC, such as in homes, buildings, transportation and agriculture sectors	DEQ, DOT, DOC, Universities,		
	Develop rate structures that help make charging EVs economic and encourage off-peak charging of vehicles (e.g. time of use pricing)	NCUC, Governor, Legislature	Rate design can make it economically viable to install charging in locations like multi-family dwellings, workplaces, and other public places. It can also help EV drivers save money as well as reduce overall power system costs and emissions	Other
	Amend building codes and standards to support EV adoption	Governor, NC Building Code Council, Legislature	For example, new multi-family and single family homes could be required to be EV-infrastructure ready	
	Increase the use of EVs in public transportation and evaluate options for transitioning public transit, public and private fleet transportation, and other modes of transport to higher utilization of EVs.	Public transit districts, local governments, private fleet managers, utilities		
	Increase electric transportation access for low-income consumers	Utilities, NCUC, Legislature		
	Adopt EV bulk purchasing programs to address EV adoption obstacles	DOA, DOC, Local government	Bring together local governments, nonprofits, electric utilities, auto dealerships, and auto manufacturers to boost EV sales through a combination of community engagement and EV purchasing incentives.	

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	Adopt procurement policies for all state agencies to purchase a certain number of EVs based on operational and economically feasible options for the agency.	Governor's office, DOA		
	Encourage public and private entities to promote EV adoption by offering EV charging infrastructure at the workplace.	Local and state government, private businesses	Private business owners can offer EV charging at workplaces, the state government could incentivize infrastructure at private locations, or the utilities can help by adopting rate design that encourages this, or they can offer incentives to get infrastructure installed.	

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## 4.1.4 Recommendations for Utility Incentives and Comprehensive System Planning

The following table presents the full list of recommendations for the strategy area *Utility Incentives and Comprehensive System Planning* that were considered by the stakeholder group.

**Table 11: Utility Incentives and Comprehensive System Planning Recommendations**

Focus Area	Specific Recommendation	Key Actors	Additional Information	Source of Recommendation
Modernize the electric grid to support clean energy resources	Require better utilization of energy efficiency, storage and renewables to manage peak demand	NCUC		Other
	Support regionally appropriate DERs	IOUs, Rural Cooperatives and Public Power providers	e.g., appropriately sited solar on the distribution grid. Ask utilities to analyze cities/towns and identify optimal locations for distributed generation based on current grid infrastructure	Memo, Cities Initiative
	Support energy storage that provides localized power to offset demand	State/Local Government, Private sector		Memo, Corporations and Large Users
	Utilize smart inverters, transformers and power controllers that facilitate bidirectional flow of power	IOUs, Rural Cooperatives and Public Power providers		Memo
	Utilize capacity improving investments to aid faster, more stable redirection of power as needed	IOUs, Rural Cooperatives and Public Power providers		Memo
	Assess feasibility of new incentive structures for suppliers, consumers, and technology providers to deliver solutions to the grid to enable high levels of renewable generation	NCUC, Legislature, Governor	Create a workgroup to evaluate this option	Memo, Corporations and Large Users
	Develop framework for transparent analysis and decision making	NCUC	Create a workgroup to evaluate this option, e.g., solar + storage projects beginning to out-compete new natural gas facilities	Memo
	Create a technical framework for real time asset management and situational awareness on the distribution grid	NCUC	Create a workgroup to evaluate this option	Memo

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	Explore alternate cost recovery and/or incentives for utilities and third parties to invest in grid upgrades, storage investments and renewable sources	NCUC, Legislature, Governor	Create a workgroup to evaluate this option. Develop a public/private entity supported state clean energy fund (e.g., green energy bank)	Memo, Corporations and Large Users, Cities Initiative
	Increase speed and transparency of the interconnection process by updating or easing interconnection rules to facilitate higher levels of DERs	NCUC, Legislature	Create a workgroup to evaluate this option. Request a SOP to provide early determinations if interconnection requests are feasible	Memo, Corporations and Large Users, Cities Initiative
	Create accountability of progress made towards grid modernization by setting goals, targets, timelines and communication mechanisms to inform stakeholders	NCUC	e.g., CO2 reduction, DER integration, reduction of outage time	Memo
Modernize utility business model	Shift to a performance-based regulatory model (potentially including but not limited to Multi-Year Rate Plans, Performance Incentive Mechanisms)	NCUC, Legislature		Memo
	Launch public process to align utility incentives with public interest and grid needs	NCUC, Governor		Memo
	Support beneficial electrification	NCUC, IOUs, Rural Cooperatives and Public Power providers, State/Local Government, Private sector	e.g., more electric-vehicle supply equipment (EVSE), potentially via a Low-Carbon Fuel Standard (LCFS); electric water heaters; heat pumps; etc.	Memo
	Implement revenue decoupling	NCUC, Legislature	i.e. remove linkage between utility revenue and kwh sales	Memo
	Support shared savings mechanisms	NCUC, IOUs, Rural Cooperatives and Public Power providers	i.e. utility sharing potential savings with customers for energy efficiency and demand-side management	Memo
	Explore and implement new procurement models to incentivize least cost procurement, including non-wires alternatives	NCUC, Legislature, Governor	e.g., green tariffs (already exploring with Green Source Advantage (GSA)), competitive solicitations (already exploring with Competitive Procurement of Renewable Energy (CPRE) program), aggregating DERs to	Memo



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			provide services (e.g., bring your own device (e.g., batteries, thermostat))	
	Explore and implement new tools to more quickly retire carbon-intensive utility assets			
Require comprehensive utility system planning processes and investment strategy reviews	Establish stakeholder-centered generation, transmission, and distribution system planning process that requires Duke Energy (DEP/DEC) to transition from an IRP to an Integrated System Operations Plan (ISOP) using a holistic, iterative and transparent process	Duke Energy (DEP/DEC), Legislature, NCUC, SCUC	Process should initially include an Integrated Resource Plan (IRP) and Integrated Distribution Plan (IDP), ultimately moving towards an Integrated System Operations Plan (ISOP) approach; implementation in 2022 (Duke's goal)	Memo, Southeast Energy Innovation Collaborative
	Enable early stakeholder intervention on plan submissions (filings) and require plans to demonstrate optimization of DER integration, costs, benefits, grid flexibility and compensation mechanisms.	Duke Energy (DEP/DEC), Legislature, NCUC, SCUC	Include full quantification of operation benefits of renewable resources, electric vehicle infrastructure build out, and energy storage	Memo
	Enforce interconnection study timelines for utility scale projects	Duke Energy, NCUC	Feasibility, systems, etc. studies have timelines that the utility is meant to keep, but currently there is no enforcement	Memo
	Expand utility cost benefit methodology to include societal and environmental benefits	NCUC, Legislature		Cities initiative

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## 4.1.5 Recommendations for Energy Efficiency

The following table presents the full list of recommendations for the strategy area *Energy Efficiency* that were considered by the stakeholder group. The recommendations, which were prioritized by Workshop participants, were developed by the Energy Efficiency Roadmap stakeholder process carried out by the Duke University Nicholas Institute. For the full Energy Efficiency Roadmap report, see the Appendix.

**Table 12: Energy Efficiency Recommendations**

Focus Area	Short-Term (1-3 years) Recommendation	Key Actors	Longer Term (3 + years) Discussion
<b>Energy Efficiency Advisory Council (EEAC)</b>	Establish an EEAC to oversee the implementation of the EE Roadmap recommendations (Rec 9)	Governor	
<b>Enhanced Data Tracking</b>	Collect data from existing sources (Rec 30) and apply methodology to state buildings (Rec 21)	Universities, NC State Agencies	Develop a data repository (Rec 31) and enable voluntary reporting of certain metrics (Rec 32)
	Enable “download my data” functionality for electric, natural gas and water utilities (Rec 27)	NCUC (IOU), Legislature (Munis/Co-ops)	Evaluate automatic Energy Data Transfer (Rec 29)
	Develop a database of utility rates (Rec 28)	NCUC (IOU), Legislature (Munis/Co-ops)	
<b>Education and Awareness</b>	Launch Energy Efficiency Everywhere (E3) campaign – educational materials for K-12 and community colleges (Rec 1)	Academic Institutions	
	Develop sector-specific EE Toolkit from existing and new online resources (Rec 3)	University or Non-Profit	
<b>Workforce and Economic Development</b>	Include EE jobs in the Dept. of Commerce’s workforce development assessment (Rec 5)	Dept. of Commerce	
	Collaborate with ApprenticeshipNC to launch an EE Apprenticeship program (Rec 4)	Non-profit	
<b>Building Code Improvements</b>	Increase energy awareness on NC Building Code Council (Rec 6)	Governor	Establish a defined pathway to net-zero energy-ready homes (Rec 7)

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<b>Statewide Clean Energy Fund</b>	Create NC Clean Energy Fund (Rec 18) to include utility financing programs (Rec 19)	Non-Profit	Add in fuel-neutral EE funding source to Clean Energy Fund (Rec 22)
<b>Regulatory (NCUC) changes / studies for evaluating EE programs</b>	Commence a cost-effectiveness study (Rec 24) to include evaluation of non-energy benefits (Rec 23)	NCUC	
	Develop new NCUC evaluation criteria for evaluation of all energy programs to include equity and economic development criteria (Rec 14)	NCUC	
<b>Improved EE program efficacy</b>	Establish minimum EE goals within existing REPS (Rec 26)	Legislature	Develop a required/mandatory EERS target (Rec 25)
	Allow flexible NC Agency Funding for EE projects (through NC OSBM) (Rec 20)	Legislature	
<b>Opportunities for new program development</b>	Develop new programs (utility and non-utility) to address needs in underserved markets (Rec 13) to include Hot Water Heat Pump (HWHP) rental program (Rec 16)	NCUC, Utilities	Utilize DSM savings for low-income programs (Rec 15)
	Increase funding for NC Housing Trust Fund to improve energy efficient affordable housing options in the state (Rec 17)	Legislature	
<b>Improved technical assistance for utilities and state agencies</b>	Develop a third party “EE Technical Assistance” administrator to assist municipal utilities, co-ops and state agencies with EE program development and administration (Rec 12)	Non-Profit, Utilities	
	Improve project management coordination for weatherization, urgent repair (Rec 10) with improved measurement and verification of programs (Rec 11)	Universities, Utilities	



## 5. Other Recommendations Submitted

### 5.1 Recommendations from the Corporate Sector

Companies that participated in the CEP stakeholder feedback sessions and signed the letter to Governor Cooper offered several specific suggestions for action (see the Appendix for the full letter). These suggestions were summarized by Ceres and presented at Workshop 4 in Raleigh.

The business community made the following recommendations:

- For energy efficiency, businesses recommended increasing efficiency in the built environment through improved building codes, financing mechanisms to mitigate up-front costs, and new directives and incentives for utility-based energy efficiency programs.<sup>2</sup>
- To improve access to renewable energy, businesses recommended offering more attractive utility green tariff programs, providing more choice in the energy marketplace with options such as third-party purchase power agreements (PPAs) and wholesale market options, and easing the interconnection process.<sup>3</sup>
- To promote the deployment of energy storage, businesses suggested creating incentives for investments such as tax abatement, facilitating integration of energy storage technology projects and making storage an integral part of utility planning.<sup>4</sup> Companies also had specific recommendations to accelerate the deployment of electric vehicles.

### 5.2 Recommendations from the Agriculture Sector

The following recommendations were offered by members of the agriculture industry from the Energy and Environment Innovation Foundation, LLC and Rivendell Farms of the Carolinas. These representatives participated in the CEP Workshops and submitted a letter which is included in the Appendix.

The proposed recommendations were:

- Conduct a combined farmland use and solar/renewable energy storage GIS mapping study to optimize the use and sustainability of farms, forests and solar production in NC.
- Provide financial incentives for NC Electric Cooperatives to build large community-based solar projects, leveraging the skills and experience of the Cooperatives in negotiating policies that keep the grid resilient, reduce carbon emissions and balance profits.
- Increase collaboration with the farm community to improve coal ash cleanups that may limit investment in solar power and renewable energy.
- Encourage farmers to install solar energy production facilities with a land use and solar energy benefits education and incentive program.

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<sup>2</sup> Ceres. (2019, May 22). NC Clean Energy Plan Stakeholder Workshop Presentation: Corporate Support for Clean Energy. Presented at CEP Facilitated Workshop #4.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.



## 5.3 Summary of Formally Submitted Comments

The following organizations and groups submitted formal comments about the CEP:

- American Federation of Labor and Congress of Industrial Organizations (AFL-CIO)
- Appalachian Voices
- Business Groups (*Ameresco, Appalachian Mountain Brewery, Arjuna Capital, CREE, Ingersoll Rand, Mars Inc., New Belgium Brewing, National Association of Energy Service Companies, Sierra Nevada Brewing Company, Schneider Electric, Unilever*)
- DEQ Environmental Justice Board - Clean and Equitable Transition Subcommittee
- Duke University
- Energy and Environment Innovation Foundation and Rivendell Farms
- Environmental Groups (*Southern Environmental Law Center, Environmental Defense Fund, NRDC, NC Conservation Network, Sierra Club, NC League of Conservation Voters*)
- NC Clean Energy Business Alliance (NCCEBA)
- NC Sustainable Energy Association (NCSEA)
- NC WARN
- Southern Environmental Law Center (SELC)
- UNC School of Law

These formal letters are included in the Appendix in their original form, but the recommendations that were proposed by these groups are summarized here in the order listed above. DEQ has incorporated those recommendations that are consistent with the priorities identified through the Workshop process and in alignment with the overall CEP goals.

### AFL-CIO

- DEQ should integrate “Just Transition” as a core principle of its CEP, utilizing the ILO’s framework for implementation, as well as codify best practices and include as recommended protections for displaced workers in the fossil fuel industry
- Create a “Just Transition Task Force” to oversee the implementation of EO 80 Recommendations and to outline best practices for displaced workers and communities impacted by coal plant closures and the transition to a renewable energy economy
- Provide guaranteed seats for stakeholders within Labor, workers in impacted industries, and residents of communities that stand to lose significant revenue in the tax base from coal plant closures
- Create a dedicated funding stream for workforce training, bridge funding for displaced and transitioning workers, and other priorities as identified by the “Just Transition Task Force”



- Look to other states, particularly those in the US Climate Alliance, for best practices and models for implementation of EO 80 Recommendations

### Appalachian Voices

- Important to include rural areas & the electric co-ops that serve them in planning & implementation of CEP
- Expanded investments in energy efficiency & distributed solar can address problem of energy cost to households below federal poverty level – disproportionately high now
- Co-ops set rates without public oversight or accountability; ignore need for energy efficiency investments, especially among low-income households
- Rural communities largely left out of benefitting from energy savings, jobs, and economic development due to expanded investment in renewables & energy efficiency
- Address significant barriers to expanding clean energy opportunities for rural and low-income communities: inequitable and harmful rate structures, lack of regulation of & lack of transparency of co-ops; commit a substantial amount of dedicated resources and administrative support for CEP implementation in rural communities

### Business Groups

- Increase energy efficiency in the built environment by improving building codes, financing mechanisms, and incentives for utility-based EE programs
- Increase customer access to renewables by offering more attractive utility green tariff programs and provide more choice in the energy marketplace with options like third party PPAs and wholesale market options
- Help businesses and large energy users save money, attract investments and talent, and stay competitive by offering more choice and competition for renewable energy
- Expand and promote the deployment of energy storage by creating incentives for this investment such as tax abatement, facilitating integration of energy storage technology projects and making storage an integral part of utility system planning
- Accelerate the deployment of electric vehicles through local and state-wide initiatives

### DEQ EJ Board - Clean and Equitable Transition Subcommittee

- Creating greater opportunities for historically under-utilized businesses to grow and prosper through enhanced local government contracting and procurement is necessary to generate greater equity and shared prosperity (Brichi, 2004; Edelman and Azemati, 2017; Robinson, 2017).
- Regarding necessary equity considerations, the DEQ CEP, especially in the Customer Choice and Economic Development bucket, must not only include recommendations for workforce development but also business development. For business development, the plan should stipulate that the State will develop strategies to ensure that the clean energy supply chain is inclusive and equitable, that is, creates contracting and procurement opportunities for historically underutilized businesses (i.e., MBEs, DBEs, WBEs, and veteran- and LGBTQ-owned enterprises). Research



shows that these types of businesses are far more likely to employ minority workers than majority-owned businesses.

- In both the public and private sectors, supplier diversity is increasingly becoming a necessity for success based on market-driven factors rather than simple contracting and procurement government-mandates. (Shah & Ram, 2006; ConnXus, 2017; Lazarus, 2017; Johnson, 2018). While continuing to acknowledge and striving to comply with anti-discrimination laws enacted roughly four decades ago (AAAEO, 2019), public and private sector entities are increasingly recognizing how disruptive demographic trends are dramatically transforming the world of contracting and procurement and, in the process, making supplier development a strategic imperative rather than just a compliance issue (D&B Supply Management Solutions, 2009; LePage, 2014; Lohrentz, 2016; Rutherford, 2016; Suarez, 2016a; Rimmer, 2017; Zerp, 2018; LISC Los Angeles, 2018; Hussain, 2019; Vazquez & Frankel, 2017; Weissman, 2017; Fairchild and Rose, 2018; Fulkerson, 2018). More specifically, organizations that embrace supplier development as a strategic imperative recognize that the innovative capacity of small diverse suppliers, who typically are more flexible, agile, and driven to succeed than large firms, can boost their performance, reduce the cost of goods and services, and drive continued business growth in an increasingly diverse marketplace (GEP, 2019). Many of these small firms are owned by people of color, women, and/or members of the LGBT community (Vazquez & Frankel, 2017; Suarez, 2019a; Rimmer, 2017; Suarez, 2019a).
- The fact that there is overlap between those communities which have historically been under-utilized for supply-side investment and those which are disproportionately impacted by climate change, mean that the intentional inclusion of these communities (communities of color, low income communities) must be a part of any plan to promote increased utilization of clean energy in an inclusive way.

## Duke University

### *Letter 1: Drew Shindell, Nicholas Professor of Earth Sciences*

- Include a section in the CEP on “Necessary Targets Beyond EO80” that acknowledges that new gas infrastructure may pose an unnecessary risk to the climate and health of NC citizens and the need for regulatory impact assessments (RIAs) that account for the impact of methane (including social cost)
- Include a permanent moratorium on new gas infrastructure in the state
- Require that the investor-owned utilities account for the social cost of emissions, including in-state and upstream methane, in their Integrated Resource Plans so that decision makers have a more accurate picture of the costs and impacts of natural gas

### *Letter 2: Role of Biogas in NC*

- Determine the extent and location of available biogas/biomethane resources in the state across all organic waste resources to determine the percentage of NC’s GHG reductions can be met with biomethane.
- Facilitate RNG transport to end users and buyers to accelerate development / accelerate GHG reductions from in-state biomethane sources.



## EEIF/Rivendell Farms

- Conduct a combined farmland use and solar/renewable energy storage GIS mapping study to optimize use and sustainability of farms, forests and solar production
- Involve key stakeholders in NC Department of Agriculture and key agricultural counties in the CEP development process
- Promote and provide financial incentives for work of the NC Electric Cooperatives to build several large community-based solar projects
- Expand and increase meetings of NC Energy Policy Council (like SC Energy Office)
- Find better and lower cost ways to pay for coal ash cleanups

## Environmental Groups

- Additional carbon emission reduction goals from the electrical use sector of 60% from 2005 levels by 2030, 85% by 2040, and carbon neutrality by 2050
- Establish a declining carbon emissions cap to incentivize flexible and cost-effective reduction opportunities, starting no later than 2021; design the policy to allow for emission allowance trading and explore participation in the Regional Greenhouse Gas Initiative (RGGI)
- Adoption of Performance-Based Ratemaking (PBR) using metrics that incentivize regulated utilities to reduce GHGs
- Establishment of a stand-alone energy efficiency resource standard that ramps up to 2.0% of retail sales in new energy efficiency savings annually by 2030

## NCCEBA

- Create a new energy policy that empowers market forces to drive innovation, clean energy, and lower costs
- Encourage decentralized, clean energy options for EV charging and energy storage; prohibit control by incumbent utilities
- Approving generation additions & retirements must include reducing carbon & lowest cost standards
- Improve grid management to make grid bi-directional and able to integrate more DERs instead of new charges, increase interconnection, add compensation for new grid services
- Prohibit members and staff of NCUC & NC Public Staff from working for a utility or any businesses they have been regulating for at least two (2) years

## NCSEA

- Reform NC's energy business model through electric decoupling and the establishment of performance-based regulation
- Reform NC's energy planning to include integrated distribution planning (IDP in IRPs, taking advantage of clean energy and cost savings opportunities of DERs)
- Expand the solar rebate program to include solar + storage to provide further benefits to the grid





- Start a “Green Bank” or revolving fund to allow for non-profits and government entities to utilize clean energy assets and technologies not feasible in the current market structure
- DERs and accountability in grid modernization to incorporate new clean energy assets on the grid

## NC WARN

- Establish a science-based emission reduction target
- New natural gas infrastructure is incompatible with NC’s climate goals and would exacerbate the problem of uneconomic stranded assets. Utility planning should account for the changing economics of natural gas vs. renewable energy; plans including significant renewable energy would provide least-cost energy to NC customers statewide
- Properly implemented energy efficiency (EE) and demand response (DR) programs are low-hanging fruit for rapid reduction of both electricity consumption and peak demand; building and equipment EE upgrades pay for themselves
- Establish a path for addressing the broadly identified issue of utility motivation; mandated EE components, aggressive EE savings rate address utility reluctance to reduce consumption; implement a savings-funded EE payment mechanism
- CEP should include a timeline for implementing recommendations, next steps included for each recommendation, as well as which parties can take those steps

## SELC

### *Letter 1: Comments Regarding the Inclusion of Swine Waste-to-Energy in the State CEP*

- Recommended that swine waste-to-energy projects that do not meet environmental performance criteria that aim to address environmental, public health, and racial equity concerns not be included in the CEP
- This technology should not be considered clean, even though it may reduce methane emissions from industrial hog operations

### *Letter 2: Role of Forest-Derived biomass in North Carolina’s CEP*

- Biomass is inconsistent with NC’s climate goals and is not “clean” and poses a threat to NC’s communities
- There are public health concerns related to biomass emissions of particulate matter, nitrous oxides, carbon monoxide, and carcinogens such as benzene and formaldehyde
- Biomass as an energy source is uneconomic, and is “significantly more expensive than clean energy alternatives like wind, solar, and energy efficiency.”

## UNC School of Law

- Need to reexamine the role of least cost planning, relationship between environmental impacts and consumer prices. It may be less costly to society to avoid potentially large rate increases in future by investing upfront in higher cost generation options.



- Recommendations for NCUC decision-making that would not require changes to existing law include: NCUC’s approach to least cost planning includes short-term as well as long-term considerations; near-term technological advances potentially alter electricity demand projections; current investments do not foreclose potential for new technologies and energy services to deliver consumer & environmental benefits; Identify investments that could lead to multiple benefits for the electricity sector
- Establish carbon pricing to limit emissions while also generating revenue to fund adaptation projects, and/or establish a broader market that extends beyond the electric power sector; consider joining the Regional Greenhouse Gas Initiative (RGGI) with other mid-Atlantic and northeastern states
- Establish limits on GHG emissions for power plants, and/or create emissions allowances for power plants
- Implement a carbon tax with revenues dedicated to resiliency and mitigation efforts, or implement a revenue-neutral carbon tax the returns revenues to NC residents



## 6. Summary of Comments on the Draft Clean Energy Plan

### 6.1 Introduction

The public comment period on the draft of the Clean Energy Plan (CEP) ran from August 16, 2019 through September 9, 2019. An online form was posted with thirteen comment categories for feedback on the CEP. The comment categories were:

- Utility tools and incentives
- Comprehensive utility system planning
- Grid modernization to support clean energy
- Customer access to clean energy
- Distributed energy resources interconnection and compensation
- Economic development opportunities
- Equitable access and energy affordability
- Just transition to clean energy
- Greenhouse gas emission and climate concerns
- Grid resiliency and flexibility
- Energy efficiency and demand management
- Transportation electrification
- Other/General

Commenters were instructed to choose the category of the plan they were responding to and allowed to add comments on up to three categories per submission. The public was also allowed to submit comment letters and/or supplemental information via email. The Department of Environmental Quality (DEQ) processed, reviewed, and evaluated all of the comments.

DEQ received 660 comments on the draft CEP during the public comment period, including 35 letters and 625 responses submitted through the online form.

The following organizations submitted letters by email or by United States Postal Service (USPS) mail:

- 350 Charlotte
- Abundant Power
- Align Renewable Natural Gas– Dominion Energy
- American Association of Retired Persons (AARP)
- Appalachian Voices
- Carolina Utility Customer’s Association (CUCA)
- Center for Biological Diversity
- Ceres Businesses for Innovative Climate and Energy Policy Network
- Dominion Energy
- Duke Energy
- Duke University
- E4 Carolinas



- Edison Electric Institute
- Energy Justice NC Coalition
- Electricities
- Environmental Defense Fund (EDF)
- Environment NC
- Gulf Cooperation Council
- Kairos Power
- Natural Resources Defense Council (NRDC)
- NC American Federation of Labor and Congress on Industrial Organizations (NC AFL-CIO)
- NC Association of Electric Cooperatives
- NC Clean Energy Business Alliance (NCCEBA)
- NC Conservation Network
- NC DEQ Environmental Justice & Equity Advisory Board – Clean Energy/Just Transition Subcommittee
- NC Farm Bureau
- NC Pork Council
- NC Sustainable Energy Association (NCSEA)
- NC Warn
- Nicholas Institute for Environmental Policy Solutions
- Nuclear Matters
- Resources for the Future
- Smithfield Foods, Inc.
- Southern Environmental Law Center (SELC)
- Vote Solar

In addition to these letters, online comments were received from the following:

- 350 Triangle
- Advanced Energy
- Alliance for Climate Education
- Alliance for Energy Democracy
- Alliance for Industrial Efficiency
- American Council for an Energy-Efficient Economy (ACEEE)
- Cavanaugh Solutions
- Chowan County
- City of Charlotte
- City of Raleigh
- Clean Water for NC
- Clearpath



- Coalition for Green Capital
- Cooper Development Association
- Down East Coal Ash Coalition
- East Coast Greenway Alliance
- Ecoplexus
- Enviva
- Friends of the Earth
- Mission: Data
- NC Building Performance Association
- NC Climate Justice Collective
- NC Climate Solutions Coalition
- NC Renewable Ocean Program
- NC State University
- Nuclear Energy Institute
- Protective Progress in Durham
- Rachel Carson Council
- Siemens
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Town of Smithfield
- Town of Wake Forest
- UNC Asheville
- UNC Chapel Hill
- Private citizens

## **6.2 Process for Evaluating Comments**

DEQ processed, reviewed and evaluated all of the comments submitted and incorporated responses relevant to the goals of the CEP and priorities identified by the stakeholders. Section 6.3 below provides a summary of the comments received during the public comment period, and a complete list of all comments received is included in Appendix A-6.



## 6.3 Summary of Comments

The comments generally focused around the following ten areas:

- Biogas
- Carbon
- Energy Efficiency
- Equity
- General/Other
- Natural Gas, Fracking, Pipelines and Use
- Nuclear Energy
- Regulatory Process
- Transportation
- Wood Pellets

In general, the majority of commenters expressed support for the CEP and the need to quickly implement the recommendations in the CEP. Of the ten categories, nuclear energy received the most comments. There were 245 comments submitted in support of nuclear as a zero emissions, carbon-free and clean energy resource. The second largest number of comments provided were in opposition to the wood pellets industry, with 72 comments submitted, while two additional comments were submitted in favor of woody biomass. The third largest number of comments provided were opposed to the natural gas fracking industry, averse to additional natural gas pipelines, and concerned that methane emissions from upstream activities and natural gas were not properly addressed in the CEP. The remaining comments submitted were distributed among the other categories and summarized below.

Many of the letters and comments submitted to DEQ were technical in nature and suggested changes to recommendations or the addition of new goals to the CEP. In particular, commenters expressed an urgency to emphasize key recommendations such as reforming the utility regulatory process, retirement of uneconomical generation assets, and setting carbon goals.

In regards to carbon policy, commenters suggested reduction goals of 70% by 2030 for the electric power sector. One commenter suggested setting an economy wide goal. Additionally, commenters proposed a comprehensive study on carbon policy for completion by December of 2020. Several letters were also submitted related to the carbon modeling discussion in the CEP.

Multiple commenters requested inclusion of biogas resources in the CEP and its ability to reduce methane emissions from the agricultural and waste sectors, as well as create economic opportunities in rural areas of the State.

Several commenters expressed a need for a modern regulatory framework which aligns with a clean energy future. As related to the regulatory framework, comments were provided to prioritize the following: performance-based regulation of utilities; revenue decoupling for electric utilities; and adopting tools to accelerate the retirement of generation assets that are not clean or economic.

Some of the comments and suggestions requested minimal or no changes to the CEP. For example, there were multiple requests for changes to the timing for implementation of recommendations in the CEP.



Others requested the addition of entities to various stakeholder groups. Further comments were provided on energy efficiency, energy financing mechanisms, affordable and accessible clean energy options for diversified populations, beneficial electrification, and additional renewable energy resources such as solar and wind.

DEQ appreciates and acknowledges all of the comments and letters sent in response to the CEP. The commitment and time dedicated by all of the organizations and individuals are greatly appreciated. DEQ sincerely endeavored to review all comments and balance any changes made to the CEP as a result of all public comments received. A complete list of all comments received during the public comment period is included in Appendix A-6.



## Appendix: Reference Material

The appendix includes 6 sections, as follows:

- A.1 Participating Individuals and Organizations .....57
- A-2 Workshop Breakout Group Presentations .....61
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## A.1 Participating Individuals and Organizations

The following is a complete list of organizations that participated throughout the stakeholder process or provided written comments about the CEP. Bolded names indicate facilitated Workshop participants that were present at one or more Workshop; individuals that participated in the Workshops are listed with the organization they represented. Organizations that were represented at regional listening sessions are not bolded, but are followed by the number of representatives present. Organizations that were involved in multiple parts of the public engagement process (the Workshop stakeholder process, regional listening sessions, and/or formally submitted comments) are delineated with a star (\*).

- Advanced Energy** (Brian Coble, CC Maurer)  
Alexander County (1)  
Alliance to Protect Our People and the Places We Live (APPPL) (1)
- Ambrose Strategy** (Zach Ambrose)  
Anchor QEA (1)
- API** (John White)
- Appalachian Energy Center** (Jamie Russell)
- \***Appalachian State University** (Jason Hoyle) (2)
- \***Appalachian Voices** (Rory McIlmoil) (1)  
Blue Horizons Project (1)  
Blue Ridge Community College (1)  
Blue Ridge Public Radio (1)  
Candidate for NC House of Representatives (1)
- Cape Fear Public Utility Authority** (Elizabeth Severt)  
CASE Consultants International (1)  
Cavanaugh & Associates (1)  
Center for Biological Diversity (1)  
Citizens Climate Lobby (2)  
City of Asheboro (2)  
City of Asheville (2)  
City of Charlotte (2)
- City of Durham** (Paul Cameron)  
City of Greensboro (3)
- City of Raleigh** (Megan Anderson, Greg Sponseller)  
City of Statesville (1)  
Civil Engineers, PLLC (1)
- Clean Air Carolina** (Daniel Parkhurst, Andrew Whelan)  
Climate Listening Project (1)  
Climate Reality Project (1)  
Council of Governments (1)  
Creation Care Alliance (1)  
DECAC (2)
- \***Dogwood Alliance** (Joseph Lee, Rachel Weber) (1)
- \***Duke Energy** (Sarah Adair, Conitsha Barnes, Christy Daniel, Stephen De May, Mike Hughes, Mark McIntire, Evan Shearer, David Tsai) (2)
- Duke University Nicholas Institute** (Kate Konschnik, Tim Profeta, Jennifer Weiss)
- Durham County** (Tobin Fried)
- Dynapower** (Chris Larsen)
- E4 Carolinas** (David Doctor)  
Earth Team Jubilee Church (1)  
East Carolina University (1)  
Eastern Band of Cherokee Indians (EBCI) (1)
- Energy & Environment Innovation Foundation** (Chris Hardin, Norbert Hector)  
Energy Innovation Task Force (ETIF) (1)
- Energy Intelligence Partners** (Ron DiFelice)
- EnerVision Battery, Inc.** (Tuan Vo)
- Enpira** (Daniel Kauffman)
- Entsorga Group** (Paolo Carollo)
- Environment North Carolina** (Drew Ball)  
Environmental Consultant (1)
- Environmental Defense Fund** (Dionne Delli-Gatti, Paelina DeStephano, Liz Shenaut) (1)  
Environmental Stewardship Greensboro (1)
- Enviva** (Chris Brown)
- EQ Research** (Miriam Makhyoun)
- Fayetteville PWC** (Keith Lynch)
- First Solar, Inc.** (Andrew White)  
Forge Greensboro (1)  
Forsyth Tech Community College (1)
- Franklin Energy** (Jesse Gary)  
French Broad River Garden Club (1)  
Green Form (1)  
Green Saves Green (1)  
GreenGo Energy UC, Inc. (2)



Henderson County (1)  
 Henderson County Democratic Party (1)  
**Hometown Strong** (Lilian Faulconer)  
 Intelli-Products, Inc. (2)  
**International Brotherhood of Electrical Workers**  
 (Alvin Warwick)  
**Interstate Renewable Energy Council** (Larry  
 Shirley)  
**KPMJ** (Raj Shelat)  
 Land of Sky Clean Vehicles Coalition (1)  
 Land of Sky Regional Council (1)  
 LaPlaca and Associates, LLC (1)  
 Mathis Consulting (1)  
 Mayor of Elizabeth City (1)  
 Mecklenburg County Air Quality (MCAQ) (1)  
 Middle Sound Lookout (1)  
 Mooresville Hydrail Initiative (1)  
 Mountain Xpress (1)  
 National Hurricane Center (2)  
**\*Natural Resource Defense Council** (Luis  
 Martinez, John Thigpen) (1)  
**\*NC A&T State University** (Vickie Foust, Greg  
 Monty) (11)  
 NC Aquariums (1)  
**\*NC Biotechnology Center** (Randall Johnson) (1)  
**NC Building Performance Association** (Ryan  
 Miller)  
**NC Business Council** (Vicki Parker)  
**NC Clean Energy Business Alliance (NCCEBA)\***  
 (Chris Carmondy)  
**NC Clean Energy Technology Center** (Allison  
 Carr, Stephen Kalland, Isaac Panzarella, Autumn  
 Proudlove, Simon Sandler)  
 NC Climate Solutions Coalition (1)  
**NC Conservation Network** (Pete Polonsky, Will  
 Scott)  
**NC Department of Commerce** (David Kaiser)  
 NC Division of Air Quality (DAQ) (2)  
**NC Electric Membership Cooperatives** (Charles  
 Bayless, Paul Mott, Michael Youth)  
 NC Environmental Justice Network (1)  
 NC House of Representatives (2)  
 NC Institute for Climate Studies (NCICS) (1)  
**NC Interfaith Power & Light** (Eric Scheier,  
 Susannah Tuttle)  
**NC Justice Center** (Jacquie Ayala)  
**NC Manufacturers Alliance** (Jimmy Carter)  
**NC State AFL-CIO** (Aiden Graham)

**NC State Climate Office** (Walter Robinson)  
**\*NC State University** (Erik Hall) (1)  
**NC Sustainable Energy Association** (Daniel  
 Brookshire, Ivan Uralab)  
**NC WARN** (Anne Lazarides, Sally Robertson)  
**NCUC Public Staff** (Layla Cummings, Jack Floyd)  
 New Belgium Brewing (1)  
 New Castle Community Schools (2)  
 Orange County Commission for the Environment (1)  
**Orsted** (Hayes Framme)  
**Ovanova** (John Carey, Daniel Kemp)  
**\*Private Citizens** (Brian Magi, Elias Varn, Nicole  
 Spivey, Dale Evarts, Sterling Bowen) (99)  
**Research Triangle Cleantech Cluster** (Emmit  
 Owens, Susan Sanford)  
 RM Radical Justice Group (1)  
**SAS Institute, Inc.** (Jerry Williams)  
**Self-Help Credit Union and Ventures Fund**  
 (Melissa Malkin-Weber)  
 Shaklee (2)  
**Siemens Industry, Inc.** (Tim Gasper)  
**\*Sierra Club** (Cassie Gavin, Molly Diggins, David  
 Rogers) (28)  
 South Wings (1)  
**Southeast Energy Efficiency Alliance** (Anne Blair)  
**Southeastern Wind Coalition** (Adam Forer,  
 Katherine Kollins, Jamie Simmons)  
 Southern Alliance for Clean Energy (2)  
**\*Southern Environmental Law Center** (Nicholas  
 Jimenez, Gudrun Thompson, Jasmine Washington)  
 (1)  
 Southern Forests Conservation Coalition (2)  
**Sunrise Movement** (Shaina Nanavati) (1)  
 Sustainability Advisory Committee on Energy and  
 the Environment (SACEE) (1)  
 Temple Emmanuel Environmental Movement  
 (TEEM) (1)  
 The Daily Advance (2)  
 The Lilies Project (1)  
**The Nature Conservancy** (Tiffany Hartung)  
**Town of Carrboro** (Kathy Kaufman)  
**Town of Cary** (Emily Barrett)  
**Triangle J Council of Governments** (Lyndsay  
 Gavin)  
 UNC Asheville (1)  
**UNC Chapel Hill** (Adam Long, James Bottomley,  
 Brad Ives)  
**\*UNC Chapel Hill School of Law** (Ethan  
 Blumenthal, Jonas Monast)



UNC Charlotte (2)

**UNC Charlotte EPIC** (Robert Cox, David Young)

UNC Greensboro (3)

Upper Coastal Plain Council of Governments  
(UCPCOG) (1)

**US Environmental Protection Agency** (Denise  
Mulholland, Carol Lenox, Dan Loughlin, Colby  
Tucker)

**US Fish and Wildlife Service** (Kathy Matthews)

**\*Volvo Technology of America** (Skip Yeakel) (1)

Wake Forest University (2)

Waste Reduction Partners (1)

Western Carolina University (1)

Western Piedmont Council of Governments  
(WPCOG) (1)

**Williams** (Kelly Adams, Mike Davis, Mackenzie  
King)

Wilson Community College (2)

WNC Renewables Coalition (1)

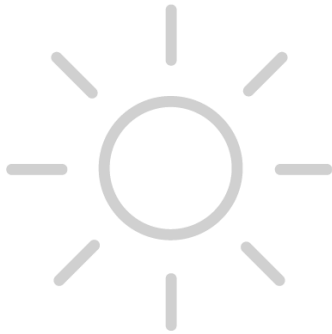
**WNC Renewables Coalition (Michelle Myers)**

Women Organizing for Wilmington (1)

**1ROK Energy, LLC (William Geisler)**

350 Wilmington (1)

**3DFS Software-Defined Electricity (Chris  
Doerfler)**

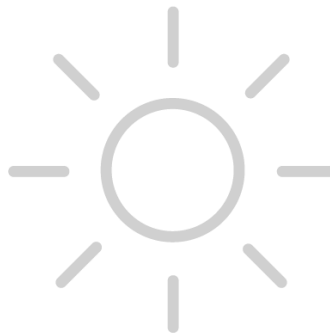




## A.2 Workshop Breakout Group Presentations

This section includes the breakout group presentations that were created by stakeholder process participants for Workshop 2. The presentations are included here in the following order:

1. Environmental Groups
2. Utilities
3. Local Governments
4. Consumer Advocates
5. Distributed Energy/Renewable Energy Service Providers
6. Business Groups
7. Higher Education Institutions





# Environmental Table

April 1, 2019  
Clean Energy Plan Goals

### 1. Targeting

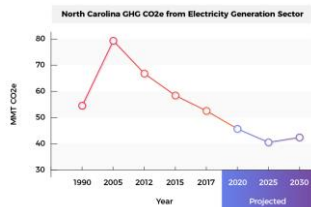
How much does the electric sector need to reduce emissions for NC to hit the EO80 statewide target of 40% reduction of GHG emissions below 2005 levels, assuming all other sectors essentially stay flat or see marginal reductions?

**Table 1-1: North Carolina GHG Emissions Inventory by Source Sector (MMT CO<sub>2</sub>e)**

Sector	Historic					Projected		
	1990	1995	2002	2010	2017	2020	2025	2030
<b>Electricity Use</b>	15,475	79,917	66,897	56,608	52,608	48,759	46,809	45,366
Electric Power Generation	46,28	73,27	53,89	51,89	45,32	38,34	32,99	34,76
Impacted Electricity	4,76	4,10	10,00	7,77	7,76	7,76	7,40	7,76
<b>Residential/Commercial/Industrial Combustion*</b>	26,77	26,82	18,66	21,63	20,93	22,45	23,26	23,92
Industrial	17,99	14,23	10,00	9,97	9,95	11,32	12,16	12,62
Commercial	3,76	3,86	4,17	5,76	5,72	5,64	5,76	5,80
Residential	5,02	8,73	4,49	5,90	5,26	5,49	5,35	5,50
<b>Transportation</b>	69,21	90,19	86,26	89,62	88,71	85,27	81,98	79,22
Gasoline & Diesel Highway	37,73	48,23	43,60	44,00	44,02	40,47	38,02	36,02
Non-Highway	3,08	6,96	4,72	4,98	4,62	4,74	4,91	5,12
Alternative Fuel Vehicles	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
<b>Agriculture</b>	7,96	10,65	10,56	10,18	10,02	10,01	10,47	10,64
Mansure Management	2,59	6,02	7,63	5,90	6,05	6,06	6,09	6,11
Agricultural Soil Management	2,87	2,74	3,18	2,74	2,84	2,82	2,78	2,75
Ruminant Enteric Fermentation	1,60	1,89	1,74	1,73	1,64	1,63	1,66	1,66
Manure of Agricultural Crop Waste	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
<b>Waste Management</b>	4,24	5,52	6,00	6,01	6,70	7,26	10,15	11,87
Municipal Solid Waste	3,47	7,22	7,52	6,82	7,69	7,52	8,26	9,96
Wastewater	0,92	1,29	1,17	1,61	1,68	1,77	1,92	2,06
<b>Land-Use Changes</b>	2,68	1,82	1,50	1,60	1,68	1,66	1,74	1,73
Natural Gas and Oil Systems	0,86	1,17	1,28	1,32	1,35	1,46	1,47	1,45
<b>Other Emissions</b>	116,89	184,74	188,18	184,82	186,88	183,07	178,28	182,87
Net Carbon Sink - LULUCF	-13,64	-21,66	-33,97	-24,18	-24,03	-24,43	-24,80	-24,69
<b>Net Emissions</b>	103,25	163,08	154,21	160,64	162,86	158,64	153,48	158,18
Percent Reduction in Net Emissions from 2005					34%		31%	

### 3. Look Beyond 2025

North Carolina must go further than EO80 after 2025 and actions before 2025 should not conflict with long-term deep decarbonization

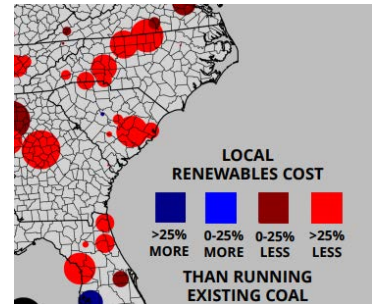


## What are our three priorities?

- 1. Targeting**  
Determine how much the electric sector needs to reduce emissions for NC to hit the EO80 statewide target of 40% reduction of GHG emissions below 2005 levels.
- 1. Equity**
  - a. Distribution of energy assets across the state
  - b. Value of resiliency
  - c. Need to distribute benefits and any costs equitably among ratepayers
  - d. Plan for economic transition of fossil fuel generation communities
- 1. Look Beyond 2025**  
North Carolina must go further than EO80 after 2025 and actions before 2025 should not conflict with long-term deep decarbonization

### 2. Equity

- a. Distribution of energy assets across the state
- b. Value of resiliency
- c. Need to distribute benefits and any costs equitably among ratepayers
- d. Plan for economic transition of fossil fuel generation communities



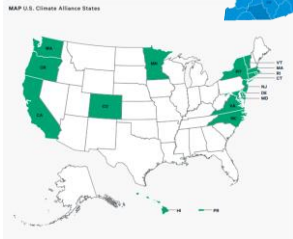
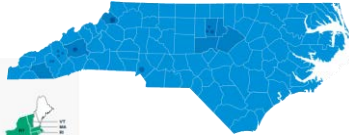
## Motivating Factors

### Urgency

We have 12 years to cut emissions in half to avoid a 1.5C temperature rise, according to the IPCC's report last year.



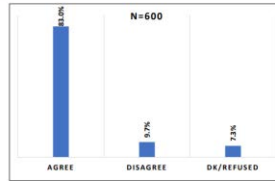
### Public Support



○ There is strong support nationally for moving states to 100% clean energy by 2045, including 79% of North Carolinians.

Source: Sierra Club, February 2019 Polling

Now, more than ever, state lawmakers should be reducing regulations and allowing for more private-sector development of renewable energy sources such as solar, wind and waste-to-energy technology.



	N=	Agree	Disagree	DK/Refused
RDU	192	78.6%	15.6%	5.7%
Charlotte	154	86.4%	5.2%	8.4%
Greensboro	107	84.1%	7.5%	8.4%
Wilmington	31	83.9%	16.1%	0.0%
East	63	81.0%	4.8%	14.3%
West	53	88.7%	7.5%	3.8%
Liberal	142	84.5%	9.9%	5.6%
Moderate	164	84.1%	8.5%	7.3%
Conservative	290	84.2%	11.2%	6.9%
Republican	197	85.3%	6.1%	8.6%
Democrat	257	79.4%	14.4%	6.2%
Unaffiliated	131	87.0%	6.9%	6.1%

Over 80% of all voters agree that lawmakers should be reducing regulations to allow for more private-sector development. Unaffiliated and Republican voters agreed over 85% while Democratic voters were just under 80%.

### What is our vision of a clean energy future in NC?

A full transition to 100% clean energy by 2045 through deployment of renewable energy, energy efficiency and other clean technologies.

We envision a just and equitable process in North Carolina to do our part in keeping global warming below 1.5C.

### What three features of the existing system are challenges for clean energy deployment?

1. Lack of alignment between utility incentives and public desire for 100% clean & renewable energy
2. Environmental and public health impacts are not factored into generation cost assessment
3. Limitations on financing options for renewable energy and energy efficiency

### What three features do you want to ensure are maintained going forward to support clean energy resources?

1. Support for strong homegrown solar and energy efficiency industries.
2. Maintain & expand the Renewable Energy Portfolio Standard & Residential Energy Conservation Codes.
3. Build upon our existing clean energy R&D cluster.

## Utility Group

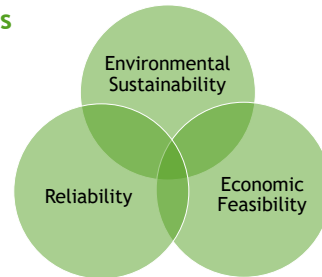
April 1, 2019

Sarah Adair, Duke Energy  
 Mike Davis, Williams | Transco  
 Jason Hoyle, New River Light & Power  
 Keith Lynch, Fayetteville PWC  
 Elizabeth Severt, Cape Fear Public Utility Authority  
 Michael D. Youth, NC Electric Cooperatives



This presentation reflects a collaborative effort of the workshop participants identified above; it does not necessarily reflect the official position of any one of the utilities identified above.

## Priorities



## Motivating Factors

- We recognize that our customers increasingly want:
  - Environmentally-friendly/low- to zero-carbon operations,
  - Reliability,
  - Affordability, and
  - Safe operations.
- Our customers also increasingly want:
  - Control,
  - Convenience, and
  - Choices.

## Visions

- Duke Energy's strategic vision includes generating cleaner energy and modernizing the grid to make it more secure and resilient and to give customers more options and control. We share EO80's objectives of continuing to reduce carbon emissions, expanding charging infrastructure to meet growing demand for zero-emission vehicles and continuing to promote and expand energy efficiency programs to help customers reduce and control energy use.
- Fayetteville PWC and New River Light & Power view clean energy as necessary to address climate change and as an opportunity to invest/retain capital in local communities, create blue/white/green collar jobs, increase property values, and earn a return on equity.
- NC's Electric Cooperatives envision a Brighter Energy Future where decisions are made not only based on affordability, reliability, and safety, but also with three new tenets in mind: low carbon, grid flexibility, and beneficial electrification.

## What is Working Well

- **Reliable and Affordable**
  - Utilities provide reliable service, 24/7
  - Long-term planning balances customer rate impact, generation balance and grid stability
- **Low carbon generation**
  - Existing nuclear units provide zero-carbon energy and are a critical component of a low-carbon portfolio, as well as, provide a capacity factor above 90%
  - North Carolina is second in the nation in solar capacity and continues to connect renewables to the grid

## Challenges

- Much of the existing electricity infrastructure was designed to be unidirectional, flowing from large central generation to transmission to distribution to load. The existing grid was not designed - from either an engineering or a financial perspective - for a high penetration of distributed energy resources.
- Lack of timely investment recovery mechanisms create barriers transitional grid modernization. (Duke Energy)
- Limits in full-requirements power supply contracts on implementing/supporting energy efficiency investments, peak demand reduction, and renewable energy generation options that our customers demand. (New River Light & Power)
- Customer surveys have taught us that different customers want different services - for example, one customer may place an emphasis on affordability, while another may place an emphasis on carbon attributes. Utilities strive to balance these customer desires.
- We need a mechanism to coordinate clean energy policy among the North Carolina Utilities Commission, the North Carolina Economic Development Board, the Energy Policy Council, and the Environmental Management Commission. (Williams | Transco)



# DEQ Clean Energy Workshop 2: Local Government Insights

APRIL 1, 2019

## Process for Local Government Feedback

- ▶ Discussion at original Raleigh stakeholder meeting among local governments in attendance
- ▶ Discussion among North Carolina members of the Southeast Sustainability Directors Network, made up of local government sustainability staff
- ▶ Input from EDF Cities Initiative

## 3 PRIORITY GOALS FOR PARTICIPATING IN THE CLEAN ENERGY PLAN

1. Define and remove barriers to achieving local greenhouse gas emission reduction goals
  1. Examples:
    1. Auto-adoption of most up-to-date building energy codes
    2. Deregulation of NC electricity market
    3. Incentives for solar - Better net-metering rates/incentives for battery storage
    4. Increase options for renewable energy procurement
    5. More options for retaining RECs
2. Speak for the needs of a unique constituency-local governments are both large ratepayers and can speak on behalf of their broader communities
3. Create integrated strategies that focus on demand-side and supply-side, prioritizing where there will be the biggest impact.

## MOTIVATING FACTORS

- ▶ The impacts of climate change are felt locally and local governments bear the greatest costs and effort to address these
- ▶ Strive to deliver on residents' expectations
- ▶ Local governments are leading by example, but our action is not enough to meet the reductions that need to be made
- ▶ Residents are asking for goals, such as 100% renewable energy, and we need state/utility support to meet those goals
- ▶ Belief that working together to align goals and strategies will amplify impacts

## VISION FOR A CLEAN ENERGY FUTURE

- ▶ North Carolina is a leader in clean energy, sustainable transportation, and waste management using a multi-sector approach that leverages partnerships that have long term benefits including risk mitigation and positive economic impacts. The socio-economic, environmental, and other benefits of clean energy are inclusive of lower-income communities, urban & rural communities and traditionally underserved regions of the state.

## EXISTING SYSTEM CHALLENGES

- ▶ Price for energy does not factor in the social and environmental costs of GHG emissions
- ▶ Lack of consumer choice
- ▶ Renewable energy procurement is expensive, complicated, limited
- ▶ Existing options for accessing clean energy are not equitable
- ▶ Lack of funding and finance options for energy and efficiency related investments
- ▶ Lack of accounting for GHG impacts in investment/funding decisions at the state level

## EXISTING SYSTEM BENEFITS

- ▶ Grid reliability
- ▶ Affordable energy
- ▶ Building codes— it is good to have state-level codes. However, more aggressive adoption of amendments would drive building energy performance.
- ▶ We have momentum in building a robust clean energy economy and have create further opportunities for innovation

# Consumer Protection

DEQ Clean Energy Plan Stakeholder Group

## Groups with influence on this conversation

- NC WARN
- NC Justice Center
- NC Interfaith Power & Light
- Pritchard Engineering
- Sunrise Movement
- Advanced Energy
- NCUC Public Staff
- DEQ's Environmental Justice Advisory Council

Environmental Justice  
+  
Consumer Advocacy  
=  
**Consumer Protection**  
?

No endorsement implied by any group

2

## We hope for a process & plan that is

### Clean

Provides a path to a verifiably pollution-free energy system

### Fair

Ensures that the system is equitable for all stakeholders  
Fairness = *equitable*, NOT *equal*

### Efficient

Enables an open system that maximizes each user's value

3

## Why

### Clean?

Science and Ethics: moral obligation to act

### Fair?

Burdens of life cycle impacts are felt based on socioeconomic status

### Efficient?

Urgency: there is limited time and infinite complexity

4

## Vision

We envision a just transition to a fair energy system that provides equal opportunity to all participants to maximize their clean energy potential.

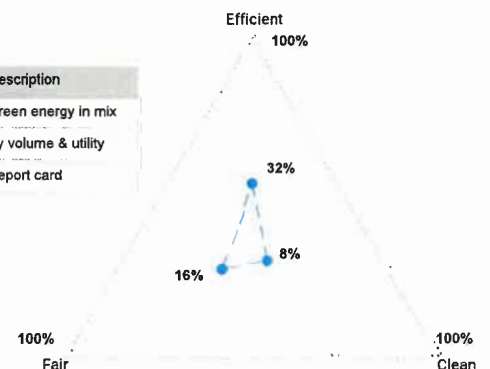
In this future, everyone can choose to exchange clean energy among each other over a reliable network at fair rates, efficiently providing abundant clean & affordable energy to all North Carolinians.

Clean - Fair - Efficient

5

## Status

	Score	Source	Description
Clean	8%	EPA	Green energy in mix
Fair	16%	EIA	By volume & utility
Efficient	32%	ACEEE	Report card



67

**Things to fix:**

**Access**

**Things to keep:**

**Market**

**Clean**

Absence of strong policy mandates and price signals toward cleanliness

**Clean**

A statewide standard for clean energy

**Fair**

Market constructs and impacts vary disproportionately by demographics

**Fair**

Compensating users for performance based on transparent metrics

**Efficient**

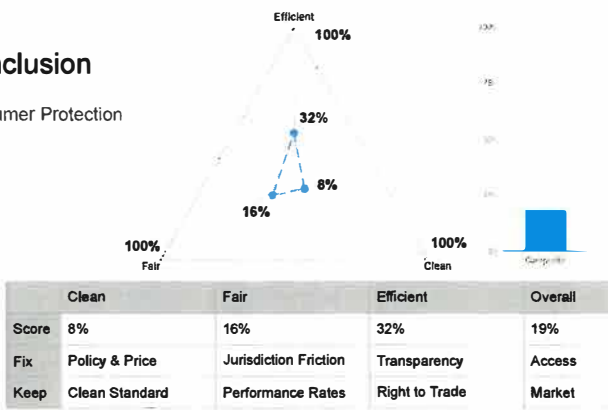
Current system does not allow us to maximize benefits of energy efficiency

**Efficient**

Allowing users to exchange their energy rights with each other

**Conclusion**

Consumer Protection



## STAKEHOLDER GROUP 9 DISTRIBUTED/RENEWABLE ENERGY PROVIDERS AND ADVOCATES

E.O. 80 Workshop #2  
April 1, 2019

## Renewable Energy Category Biofuels, Biomass, Hydro, Solar, Wind

- Kevin Alzamora **Ovanova** - kevin@ovanova.co
- Daniel Brookshire **North Carolina Sustainable Energy Association** - daniel@energync.org
- Chris Brown **Enviva** - christopher.brown@envivabiomass.com
- Chris Carmody **North Carolina Clean Energy Business Alliance** - director@ncceba.com
- Paolo Carollo **Entsorga** - carollo@entsorga.it
- Adam Forrer **Southeastern Wind Coalition** - adamf@sewind.org
- Hayes Framme **Orsted** - hayfr@orsted.com
- Richard Harkrader **Carolina Solar** - rmarkrader@carolinasolarenergy.com
- Daniel Kemp **Ovanova** - daniel@ovanova.co
- Katharine Kollins **Southeastern Wind Coalition** - katharinek@sewind.org
- Larry Shirley **Interstate Renewable Energy Council** - lshirleyjr@gmail.com

## Goals for Participating in Clean Energy Plan Process

1. Create a viable path for a rapid transition of NC's energy portfolio to primarily clean energy sources.
2. Ensure that the perspective of clean energy providers and advocates is considered in the final Clean Energy Plan.
3. Expand this stakeholder planning process to incorporate recommendations for policy and regulatory reforms of NC's energy system.

## Motivating Factors

- **Elements that are critical to a clean energy future**
  - **Carbon Emissions Reduction** - Replacing fossil fuels with renewable and distributed energy sources
  - **Diversity in Energy Sources** - Diversify the power generation mix; Expand access to the grid for non-utility generators.
  - **Political Leadership** - Courage to innovate; Willing to listen and act on stakeholders needs; Engage constituents on issue.
  - **Resiliency and Reliability** - Quickly recover from disruptions; Keep the lights on and the EVs charged
  - **Sustainability** - Encourage the use of renewable sources of energy; Relying on finite resources is short term vision.
  - **Technical Research** - Investment in technology research to enable new clean energy sources; Energy Storage.

## Vision for Clean Energy Future

North Carolina should quickly transition to a clean and efficient energy system that is affordable and accessible to all. Future energy policy and regulations should properly incentivize utilities, independent power producers, and consumers to make this vision a reality.

## Success of Current System

- **Physical Structure** - Existing grid currently distributes energy throughout state across a wide range of geographies.
- **Regional Leader** - Thanks to historic forward-thinking policies, North Carolina is a regional leader in renewable energy and energy efficiency. But, we face significant challenges for maintaining our leadership position.
- **Reliable** - The system provided energy to most everyone in the state; general public does not think about it much, which is good and bad.

## Challenges of Current System

- **Entrenched & Exclusive System Inhibiting future Growth of Renewable and Distributed Energy** - *NC's historic advances in renewable and distributed energy is now threatened by long interconnection delays and decreasing market access; Monopoly system should merit more accountability, not less.*
- **Lack of Transparency to Consumers** - *Customers do not know how and why they pay what they pay; Do not have choice on power generation. How can a consumer gain access to a renewable and distributed options for home or business?*
- **Energy Planning and Utility Investment Decision Making is Outdated** - *Traditional energy resource planning in NC prioritizes costly centralized generation and does not adequately value or plan for better distributed energy options*

## NC Clean Energy Plan Development Business Working Group

### Participants:

- John Thigpen - JLL
- Ryan Miller – North Carolina Building Performance Association
- Jerry Williams - SAS
- Lori Collins - DEQ
- Tim Gasper - Siemens Industry
- Vicki Lee Parker - NC Business Council
- Rob Morrow - Building Clarity
- Skip Yeakel - Volvo

## NC Clean Energy Plan Development Business Working Group

### What are the group's three priority goals for participating in the Clean Energy Plan process?

- Increase capacity and access to affordable renewable energy
- Increase building efficiency requirements
- Increase number and use of EVs and charging networks
- Improve size of skilled workforce and invest in development of a future skilled labor pipeline

## NC Clean Energy Plan Development Business Working Group

### What are some motivating factors for you, your organization, or the people your organization represents that you would like the rate representatives and/or other stakeholders to understand better?

- Competition for global revenues is intensifying as companies are increasingly requested to acknowledge climate change issues and demonstrate proactive strategies to mitigate impacts. Doing business with good corporate citizens is a risk mitigator for customers and a competitive differentiator for suppliers. Demonstrating environmental responsibility also helps with employee recruitment and retention.
- 3<sup>rd</sup> party sales of electricity allow businesses to spend its limited capital on other business core competencies and growth initiatives, which could lead to additional tax revenue for the state. Through FPRs, they also enable electricity rates to be negotiated and the business can control rates for 15-20 years, leading to budget certainty.
- New entrants to the workforce have an increased desire to work for companies with strong sustainability values. There is also a labor market shortage for the trades. A well crafted clean energy plan can address both of these issues and enable NC businesses to continue to thrive into the future.
- Small and mid-size businesses have not traditionally had a large voice in NC's energy future. We want this plan to include customization to increase participation of those businesses and allow the benefits of clean energy improvements to impact them as well.

## NC Clean Energy Plan Development Business Working Group

### What is your vision of a clean energy future for North Carolina? (please state this in 1-2 sentences)

Proactive bipartisan policies and actions that facilitate equitable access to renewable and efficiency energy options for all NC businesses, municipalities, universities, nonprofits, etc., serves as a catalyst for innovation, new business development and continued economic development in the State of North Carolina, and strengthens our resiliency to natural threats and preserves opportunities for future generations.

## NC Clean Energy Plan Development Business Working Group

### What three features of the existing system do you see as challenges to deployment of clean energy resources that should be addressed going forward?

- Lack of 3<sup>rd</sup> party sales and state incentives to encourage expansion of clean energy generation
- Political Will
- Duke Energy interconnection approval process & rates they are willing to pay for qualified systems as well as general access to utility data.

## NC Clean Energy Plan Development Business Working Group

### What three features of the existing system do you want to ensure are maintained going forward to support deployment of clean energy resources?

- Reliability, Safety, Affordability
- REPS
- Continued investment in smart grid and smart metering technologies

## Higher Education Working Group

April 1 Clean Energy Plan Workshop

## Higher Education Working Group

### Working Group Members

- ▶ Robert Cox, UNC Charlotte
- ▶ Erik Hall, NC State
- ▶ Shanna Harwell, NC State
- ▶ Walter Robinson, NC State
- ▶ Jaimie Russell, App State
- ▶ Jen Weiss, Duke University

### Our Process

- ▶ Include public universities, private colleges and universities, and community colleges.
- ▶ Sent out a "survey" to over 250 higher education facility managers, sustainability directors and faculty.
- ▶ Received 45 total responses

## Higher Education's 3 Top Priority Goals

- ▶ **Facilities management:**
  - ▶ Each higher education institution will develop an internal operation plan to go beyond the Executive Order 80 goal of 40 percent reduction in energy use.
- ▶ **Research:**
  - ▶ Faculty, staff and students will research clean energy opportunities that will support building sustainability leaders throughout the state.
- ▶ **Education:**
  - ▶ Faculty, instructors, and extension agents will educate students, decision-makers and the general public on these clean energy opportunities.

## Motivating Factors

- ▶ We are educating our leaders of the future. We need to insure that they are both informed about and committed to carbon neutrality and global warming.
- ▶ There is an absolute lack of skilled tradespeople needed to build and run current and future energy systems. We HAVE TO make North Carolina a leader in vocational education for energy.
- ▶ Our children's future is my motivating factor.

## Clean Energy Vision 2025: "Tweets from the Future"

- ▶ "A university in which roofs are solar gathering elements and buildings receive their cooling and heating from solar and renewable systems and all street lights use solar-based motion detector LEDs, and wind enhancement elements that tap energy from wind movement."
- ▶ "Students seek out UNC System institutions and employers hire our graduates because we model what innovating for sustainability looks like (and the critical/creative/systems thinking that enables this...)."
- ▶ "Finally -- they let us buy clean, green power! And it will be generated mostly in North Carolina. Hard to believe there were people who said it couldn't be done -- charging up all our electric cars was too big a market to pass up."
- ▶ "We just opened our third NetPositive building today on our campus, using state of the art PV energy storage, and high efficient geothermal systems, & repurposing of all rainwater. Thanks #NCCleanEnergyPlan for all your work these past 5-years!"

## Top 3 Challenges and Opportunities

### Top 3 Challenges

1. State Level
  - a. First cost of Renewables
  - b. DEP Monopoly of Electrical production and distribution
  - c. Reliance on natural gas
2. University Level
  - a. Carbon fuel infrastructure
  - b. No Strategy/Leadership
  - c. Funding dedicated to RE

### Top 3 Opportunities

1. State Level
  - a. Reliable energy transmission/distribution
  - b. Net/Smart metering
  - c. PUC Oversight
2. University Level
  - a. Strategic Planning
  - b. District Energy/Cogen
  - c. Energy Research



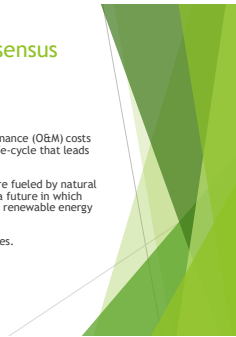
## Ares of Consensus and Non-Consensus

### Consensus

1. The state requires that new building Operating and Maintenance (O&M) costs be calculated only out for 10 years, an excessively short life-cycle that leads to short-sighted design decisions based on lower first cost.
2. Commonly available "flexible" utility options in the state are fueled by natural gas fired Combined Cycle Gas Turbines (CCGT), leading to a future in which the state becomes dependent on natural gas as opposed to renewable energy options.
3. Utilities oversight, regulation, and incentives for renewables.

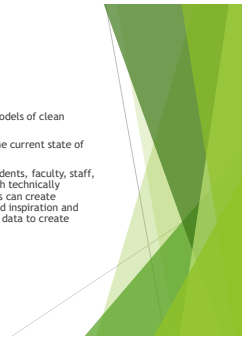
### Non-consensus

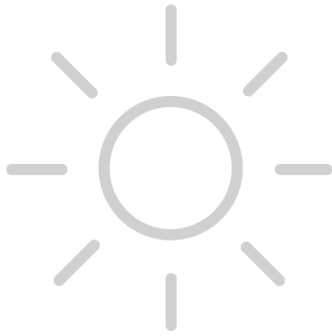
1. Greater consideration of nuclear power



## DASHE - Design Application for Sustainable Higher Education

- ▶ Using a participatory design methodology to create multiple models of clean energy futures for North Carolina's higher education system.
- ▶ Bridging the gap between visions of a sustainable future and the current state of higher education.
- ▶ Create a platform that will allow all stakeholders including students, faculty, staff, and the general public to access campus energy data along with technically feasible clean energy options plus estimated costs. Participants can create numerous variants of clean energy futures. Using crowd sourced inspiration and aspirations of a sustainable future coupled with the real-world data to create realistic solutions.
- ▶ Precedents:
  - ▶ Block by Block - [blockbyblock.org](http://blockbyblock.org)
  - ▶ UT Austin LCOE Calculators - [energy.utexas.edu/calculators](http://energy.utexas.edu/calculators)







## A.3 Workgroup Memos

This section includes the memorandums created by the workgroups for Workshop 5. They are included in the following order:

Group 1: Customer Access to Renewables

Group 2: DER Compensation

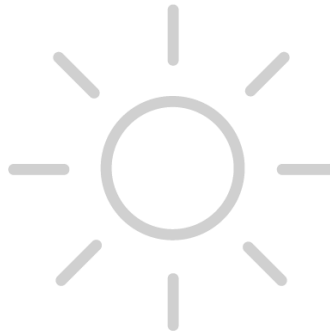
Group 3: Grid Modernization

Group 4: Utility Business Model

Group 5: Utility System Planning

Group 6: Equitable Access and Just Transition

Group 7: Grid Resiliency Enhancements



## **Working Group: Customer Access to Renewables**

**Group Members:** Paul Cameron, City of Durham; Christy Daniel, Duke Energy; Tobin Freid, City of Durham and Durham County; Erik, Hall, North Carolina State University; Foster Johnson, DEQ; Kathy Kaufman, Town of Carrboro; Adam Long, University of North Carolina at Chapel Hill; Greg Sponseller, City of Raleigh

### **Executive Summary**

The Customer Access to Renewables working group was tasked with answering five questions about the existing tensions around customer access to renewable energy and providing potential solutions to ease these tensions in North Carolina. The group was composed of members of city and county governments, universities, and utilities. Below are the group's key findings and the answers to the five questions.

### ***Key Findings***

- While the number of options for North Carolina customers to utilize renewable energy has increased recently, most of these options come with upfront or increased costs which may limit participation
- There are many legislative and policy changes or utility programs that could increase customer access to renewables, but some may come with tradeoffs for either the customers or the utility
- Effective solutions will require customers stating their desires, utilities stating their abilities and limitations, and the utilities commission finding the overlap in what is necessary and possible
- Due to the inherent tension with this topic, initial solutions should focus on small and quick wins that can ease tensions and build momentum towards larger changes

### ***Briefly describe the nature of this policy tension/question – what is happening?***

Utility customers in North Carolina want greater access to cheaper renewable energy. Both customers and utilities recognize that affordability, reliability, and fairness are key components of energy delivery but customer access to cost competitive renewables may be limited by these factors. This has created a tension between the utilities and their customers in North Carolina's regulated utility market.

With recent implementation of additional renewable programs, such as community solar, solar rebates, solar leasing, and the Green Source Advantage program, the tension is less about the availability of renewable energy programs, and more regarding the accessibility and affordability. Customer access to renewables is expanding, however most renewable energy programs in North Carolina require upfront costs or are non-subsidized – meaning these programs can increase costs for customers choosing to participate. In a state with low energy costs, the increase in cost associated with renewable access programs may limit participation. Additionally, some programs may require a significant level of understanding and upfront effort which could also limit participation.

One point of contention within the group was whether subsidizing renewable energy programs is fair to all customers. While subsidizing renewable energy programs would likely increase usership, there is an argument that the burden of those programs should not be borne by customers who are not participating. The counter argument to this is that there are already disproportionate health burdens from fossil fuel facilities and economic burdens from facilities that are no longer lowest cost. By increasing renewable energy capacity, these health and economic burdens may be alleviated. While there was not a consensus on this issue, it was generally agreed upon that there should be ways of addressing customer equity without depressing the growth of renewable energy.

***To what extent does this policy tension exist in NC, if so, why is it relevant to the state?***

Due to the nature of the regulated market, this tension is well established in North Carolina. However, as mentioned above there have been several changes made in the past few years that have increased customer access to renewables in North Carolina. These additional renewable energy options have essentially shifted the tension from availability of renewable programs to the accessibility of these programs. This is relevant to the state because customer adoption of renewable energy is one possible strategy in moving towards meeting Executive Order 80.

***What policy or regulatory action might be required to address the tradeoffs you see?***

There are several policy and regulatory actions that can be taken in order to expand customer access to renewables and ease the existing tension. These actions, however, may come with positive and negative tradeoffs and must be analyzed further. Each action should be evaluated to determine the positive and negative impacts it would have on all stakeholders. Example criteria to be evaluated could include: environmental impacts, economic impacts, and impacts on customer equity. The major potential actions recommended for further analysis, along with the responsible parties, are laid out in Table 1 below.

*Table 1. Potential Regulatory and Policy Solutions to Relieve Tensions with Customer Access to Renewables*

<b>Action</b>	<b>Responsible Party</b>
End the ban on third-party sales of electricity	Legislature
Alter solar rebate program to allow for more participation	Legislature
Develop innovative rebate programs to increase access for diverse groups of customers, especially low-income residents	Legislature
Create rebate programs for municipality and co-op customers	Legislature
Restore 35% renewable energy state tax credit	Legislature
Require or incentivize utilities to offer on-bill financing	Legislature
Remove the cap on net-metering for renewable generation	Legislature
Require state government buildings to install renewable energy systems, where feasible	Legislature and Governor
Enact state-wide commercial PACE program	Legislature and Utilities Commission
Require utilities to invest in specific amount of solar+storage	Legislature and Utilities Commission
Require virtual net metering for community solar customers	Utilities Commission
Require all utilities to offer net metering	Utilities Commission
Revise GSA program to allow for participation of smaller customers	Utilities Commission
Require incorporation of value of solar when considering net metering terms	Utilities Commission
Require utilities to provide easy options to purchase renewable energy through billing	Utilities Commission and Utilities
Empower customers to voice their opinions, desires, and need for best generation options	Utilities, Governor, Local Government
Provide resources to increase NCUC understanding of customers' needs and capability of alternate sources	Utilities Commission and Higher Education

***How are people in other places responding to this tension? What are the most innovative and promising solutions? Do they seem feasible in NC?***

There are several strategies being used by other states to respond to this tension including:

**Renewable Energy Purchasing Programs:** Eight states require utilities to provide an option for customers to purchase renewable energy. Most of these states have regulated electricity markets, indicating that this could work in North Carolina. In Washington, this program allowed customers to purchase over three GWh of renewable electricity in the first ten years. Because these programs are often as simple as checking a box, this option could have a larger usership than programs that require customers to install solar PV, sign a solar lease, or choose a community solar project to enroll in.

**On-Bill Financing:** Two common forms of this include PACE and “Pay As You Save” financing. Currently, 34 states, including North Carolina allow PACE financing, but North Carolina does not have any active PACE programs. Due to the existing rule allowing PACE financing, it is seen as feasible to introduce PACE programs in North Carolina. Roanoke Co-op has an on-bill financing program that could be a model for other co-ops and municipal utilities in North Carolina if they could be required or incentivized to adopt such a program.

Additionally, New York State is currently establishing a “Green Bank” in order to more efficiently finance projects that will reduce emissions and save customers money. While this may not take the form of on-bill financing, a similar program in North Carolina could increase the financing options for renewable projects.

**Rebates:** While North Carolina has several energy efficiency and solar rebates, some states have more extensive and innovative rebates that allow for larger and more diverse groups of customers to take advantage of them. For example, four states (CA, MN, NM, and NY) have rebates specifically for low-income customers. These rebates are often similar to other programs but have larger rebates. Implementing similar rebates for low-income customers in North Carolina is seen as feasible and a way to increase access to renewables for all customers.

***Are there ways you think NC should consider responding to this tension? What entity would need to take the action you’ve identified?***

North Carolina should consider a multi-faceted response through varied leading entities each with specific internally motivated actions that do not deregulate the utility market.

**Utilities.** Utility providers should move to expand their customers’ affordable and highly efficient/renewable choices for power generation and delivery. By leveraging their long-term forecasting abilities and power generation option knowledge, utility providers should look for the cost inflection point - the point where the cost of renewable power (generation/storage/transport) becomes the clear economic winner - and consistently hedge towards the *future low-impact sources* and pivot from the *current low-cost sources*. Although price conscious customers (manufacturing, public, etc.) may choose low-cost options, the market is drifting towards low-impact options and will begin to drive the utility providers if the choices are available - even if not initially the most cost effective.

**Utility Customers.** Customers must consistently voice their opinion/desires and choose the best power generation option available for their specific situation. Asking for (demanding) low-impact and affordable, renewable options - not a one size fits all approach - or the most cost effective, and possibly less-efficient, option is the customer’s right. However, customers should consider their inherent duty to

the community and reasons beyond cost that make renewables/high efficiency power generation options the right choice and make decisions that transcend only financial cost.

**Public Utilities Commission.** As the Utility Commission sits squarely between the utilities and customers, it must consistently search for overlaps, dissociations and opportunities to be managed effectively in advocating for both. To achieve this, the Commission should put sufficient time and energy into understanding the growing need for renewable/high efficiency power generation from both the utility and customer points of view as opposed to relying on historical reference. The UNC system research capabilities and energy technology centers should be heavily relied upon to assist in this understanding. When points of overlap exist that integrate renewable/highly efficient power generation, the Commission should prioritize these over short-term lower efficiency/lower-cost options.

***What are the best ways to interconnect greater amounts of Distributed Energy Resources (DER) and compensate them for the values they provide to the grid without compromising fairness for all customers and reliability?***

***Definition of DERs:***

Distributed Energy Resources (DERs) are distribution system-interconnected<sup>1</sup> generation or Energy Efficiency (EE) sources that provide grid services including energy, ancillary services, and capacity. These resources may be:

- Active (operating to control active power, reactive power, or voltage) or passive (operating without controlling active power, reactive power, or voltage);
- Behind or in-front of meter;
- Generators, load, energy storage, or a combination thereof; and/or
- Utility-, customer-, or third-party-owned.

**Current Framework for DER Compensation in North Carolina:**

- The Competitive Procurement for Renewable Energy (CPRE) program established under HB589 has created a competitive bidding process for projects interconnected to the existing grid infrastructure; generators receive energy payments that are aligned to the avoided cost (average cost of the next marginal unit of energy) of the utility.
- CPRE also enables solar plus storage projects and the first tranche has demonstrated that solar plus storage is a limited<sup>2</sup> but possibly growing cost-effective solution for the NC energy and capacity markets. More reductions in storage prices and fair compensation policies are necessary for this trend to grow and possibly to radically change the NC energy market place. The inclusion of energy storage to a project in the CPRE causes the offer to be placed behind other offers in the interconnection queue.
- CPRE attempts to balance the interest of utility customers and the solar developers by establishing a fair, independently-administered process for procuring clean renewable energy at economically beneficial terms for customers. CPRE Tranche 1 was successful in establishing a 600 MW competitive procurement process that will provide twenty years of renewable energy at pricing below Duke's Avoided Cost.
- The Integrated Resource Planning process relies on least-cost resources and not clean energy goals, placing it into direct conflict with EO 80. The state does not currently have distribution system planning rules.
- The CPRE Independent Administrator estimates that the first tranche of procurement will provide \$375 million in savings for Duke customers in the Carolinas over the term of the contracts (when compared to the 20-year avoided cost). CPRE provides the System Operator with flexibility to help manage the balancing challenges that come with increasing levels of renewable generation.
- As required by the federal Public Utility Regulatory Policies Act, utilities provide a standard offer contract to small qualifying facilities (QFs). Federal statute requires this standard contract to be made available to QFs up to 100 kW, but North Carolina requires that this contract be available to systems up to 1 MW. This size limit will decrease to 100 kW once an aggregate capacity of 100 MW is reached for this program. The contract length is 10 years, and capacity credits are only provided when the utility's integrated resource plan indicates a need for that type of a resource. Negotiated contracts may have a term of up to 5 years. Prior to the enactment of H.B. 589, North Carolina required projects up to 5 MW to be eligible for a 15-year standard contract.
- Net Metering is the current compensation mechanism for behind-the-meter solar in North Carolina, but there are only ~4,000 solar PV systems below a certain capacity operating in North Carolina today. Net metering provides retail rate compensation for behind-the-meter systems up to 1 MW. Net excess generation may be carried forward, but is granted to the utility at the beginning of the summer billing season. H.B. 589 called for a study of the costs and benefits of net metering and for the state's investor-

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<sup>1</sup> Less than 69 kVa (FERC)

<sup>2</sup> Due to current regulations.



owned utilities to file new net metering rates after this study is completed. A Commission proceeding has not yet been opened to implement these changes. Virtual net metering and meter aggregation are currently not allowed in North Carolina.

- H.B. 589 legalized solar leasing in North Carolina, but requires lessors to meet certain requirements and be registered with the Utilities Commission. Although leasing rules were approved by the Commission in early 2018, only two companies have registered to be solar lessors. Third-party power purchase agreements are currently not permitted in North Carolina.
- H.B. 589 established a solar rebate program, providing rebates to 20 MW of capacity each year (5 MW is reserved for residential applications and 2.5 MW is reserved for non-profits). The rebate amounts are as follows: Residential – 60 cents/Watt up to \$6,000; Non-Residential – 50 cents/Watt up to \$50,000; and Non-Profit – 75 cents/Watt up to \$75,000. The rebate program was fully subscribed within days of opening in January 2019. The rebate program expires at the end of 2022.
- H.B. 589 required Duke Energy to establish a community solar pilot program for up to 40 MW of capacity. Each community solar project may be up to 5 MW in size. The statute requires that participating customers be compensated at the avoided cost rate. Duke Energy’s community solar pilot program was approved in April 2019.
- North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard (REPS), established by Senate Bill 3 in August 2007, requires all investor-owned utilities in the state to supply 12.5% of 2020 retail electricity sales (in North Carolina) from eligible energy resources by 2021. Up to 25% of the requirement may be met through energy efficiency technologies; after 2021, up to 40% of the standard may be met through energy efficiency. Municipal utilities and electric cooperatives must meet a target of 10% renewables by 2018 and are permitted to use demand side management or energy efficiency to satisfy the standard without limitation. Commission Rule R8-67(b) requires each electric power supplier to annually file its plan for complying with North Carolina’s Renewable Energy and Energy Efficiency Portfolio Standard (see G.S. 62-133.8). These REPS Compliance Plans are included in each utility’s Integrate Resource Plan filing; there is currently an open docket (Docket No. E-100 Sub 157) to review the utilities most recent filings re: compliance with SB3. All filings by utilities in NC for DSM programs- which primarily take the form of rebates for targeted EE measures in specific sectors (some deemed and some prescriptive) and do include demand response offerings for consumers- as well as the fees charged to rate payers for the same and the resulting programs available to consumers and businesses, relate to compliance with the requirements in SB3. C&I customers can also choose to participate in "curtailable rates" which can have a similar impact to DR programs but are not provided to customers as part of compliance with SB3. Demand Reduction (DR) capability (at the generator) for the 2019 Summer Peaks, based on the 2018 IRP, are:

DEC Summer 2019: 992 MW

DEP Summer 2019: 923 MW

### **Additional Clarifying Questions**

1. Briefly describe the nature of this policy tension/question – what is happening?
  - a. Injecting more DERs onto the grid is in tension with the need to modernize the grid to enable more DERs.
  - b. Increasing penetration of DERs is in tension with (the lack of) both access to the data on where these resources are most valuable and the mechanisms for utilities to purchase these services.
2. To what extent does this policy tension exist in NC, if so, why is it relevant to the state?
  - a. The tension around grid modernization exists because our policy and market frameworks did not contemplate customer-owned or third-party resources at the time of their creation, and general statutes require the incumbent utilities to prioritize lowest cost sources.
  - b. Because NC is part of a regulated monopoly territory, third-party data access has not been required for the incumbent utilities to fulfill obligations to ratepayers.
3. What policy or regulatory action might be required to address the tradeoffs you see?

- a. See the section below on guiding principles and types of solutions, as well as the table of DERs.
4. How are people in other places responding to this tension? What are the most innovative and promising solutions? Do they seem feasible in NC?
  - a. The states that have made the most progress on DER integration have adopted policies that require considerations in system planning other than (only) lowest cost (examples are included in the table of DERs)
5. Are there ways you think NC should consider responding to this tension? What entity would need to take the action you've identified?
  - a. See the section below on guiding principles and types of solutions, as well as the table of DERs.

### Guiding Principles for DER Compensation in North Carolina:

- Interconnecting greater amounts of DERs, specifically renewable fuel-based generation and Demand Side Management (DSM) will increase deployment of clean energy and reduce greenhouse gas emissions.
- The Integrated Resource Planning process relies on least-cost resources and not clean energy goals, placing it into direct conflict with EO 80. The addition of carbon costs into the economic evaluation would improve the likelihood of renewables being dispatched and integrated into utility plans.
- Maximizing DER penetration will require increased investment in the distribution system and expanded Integrated System Planning. Such planning will be the best tool to ensure cost and compensation allocation is fair and that grid upgrades which are necessary to manage greater interconnection of distributed capacity also provide the same or greater reliability than current state.
- A change from the current NC energy regulation and legislation which currently emphasizes least cost over other considerations such as GHG emissions reductions will be necessary to achieve a cleaner, lower carbon grid.
- Compensation for DER services<sup>3</sup> in addition to compensating energy is likely to lead to:
  - Wider and higher participation/interconnection of renewables by enabling investors to stack revenue streams;
  - More targeted locations for these resources; and
  - Increased technological and financial innovation.
- Compensation structures should be a means to develop price signals which encourage DERS to provide valuable grid services through:
  - **Locational Planning and Transparency:** More, public and granular visibility of load, supply, and distribution constraints (e.g. hosting capacity, thermal and voltage limits) on the grid is needed in order for DERs to be able to provide locational value. Visibility into system constraints down to the distribution level are necessary in order to determine where the assets can provide the most benefit for the grid. This information is a critical component to grid planning and enabling more DERs on the grid. Southern California Edison (SCE) is one utility that provides a helpful level of distribution-level information.<sup>4</sup> See comparison of Duke Energy's<sup>5</sup> and SCE's grid maps in Appendix A.
  - **Fair Compensation and Cost Allocation:** For example, studies should address how behind-the-meter customer generators (e.g. net-metered customers) should pay or be compensated for full additional or avoided local costs (i.e., reserve requirements, addition or avoided T&D investment) instead of spreading incurred or avoided costs to non-solar customers. This practice can be part of standard analysis of interconnection costs and benefits.

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<sup>3</sup> e.g. energy, spinning and non-spinning reserves, frequency regulation and response, capacity avoidance/deferral, dispatchability, reactive power support, voltage regulation, avoiding T&D investment, etc.

<sup>4</sup> <https://tmdrpep.sce.com/drpep/#>

<sup>5</sup> <https://www.oasis.oati.com/duk/index.html>

- Upgrades to the electrical grid<sup>6</sup> are necessary to accommodate more DERs and the burden of cost should be studied in order to fairly allocate them.
- **Time-Based Pricing:** Particularly for DSM resources, hourly compensation is a dominant form of compensation in the restructured markets such as PJM, ERCOT, MISO and ISO-NE. Hourly, locational, marginal prices are the most accurate form of short-term variable costs including energy, capacity and ancillary services and are the most effective signals to these resources about when they are most valuable.
- **Long-Term Contracts:** Particularly for generators, long-term “off-take” contracts with a combination of fixed and variable prices (see time-based pricing, above) are necessary for new investments in clean energy generation. Conversely, absence of long-term contracts advantages incumbent technologies and suppliers. Energy sellers and some buyers prefer long-term price stability because it decreases the risks for each and cost of capital for sellers to make these investments.
- Renewable programs targeted specifically for government, non-profit and low-income customers, who might benefit from increased use of solar but for whom financial barriers to ownership are much higher, must be attainable. Though the HB589 leasing provision is a good start at offering a zero up-front solar cost to customers, North Carolinians could do a better job at consumer education around leasing options and there are very few currently eligible lessors.<sup>7</sup>
- Overwhelming demand for the first years of the NC solar rebate program shows the current rebate program needs to be redesigned and rebate reduced to reach more applicants and to align to the lower solar prices in today’s market.

**Types of solutions the Clean Energy Plan (CEP) can and should address are:**

- Tariffs that are not compensation offers for DERs, but price signals to loads, e.g. more robust Time Of Use (TOU) riders and/or Real Time Pricing. These tools let owners or operators of DSM measures maximize their return on investment by targeting the most valuable loads to curtail.
- Compensation tariffs for DERs such as Net Metering or a Value of DERs tariff.
- RFPs should be used where possible and most effective as the effects of competition always benefit rate payers; these procurement actions can be broad (e.g. state-wide calls for services/products, resources, or resource types) or targeted to a specific distribution substation.
- Improved interconnection processes:
  - Fast-tracking of interconnection for systems paired with energy storage.
  - Enforcement of required response time in the Interconnection Standard.
  - Interconnection standards as well as process improvements (e.g. utilities could potentially waive certain interconnection standards that are applied too broadly and use a different protocol for distribution system safety for grid tie inverters that provide ancillary services such as VARs).
  - Utilities providing interconnection capacity by feeder or area so developers can target those feeders or areas.
- Compensation for generators or load that responds to dispatch signals or prices (e.g. storage-paired resources).
- Inclusion of non-wires alternatives (NWAs) in the planning of T&D upgrades (e.g. distribution deferral through energy storage) procured typically through an RFP or a tariff designed to compensate NWA.

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<sup>6</sup> Physical or virtual changes to the distribution system that enable more variable load or greater utilization of DERs such as smart meters, improved communication infrastructure, data transparency and accessibility, voltage regulators or line and substation capacitors

<sup>7</sup> The bill allows customers to lease PV systems, and Duke Energy is also permitted to lease PV systems. Leased systems are limited to 100% of contracted demand, 20 kW for residential systems, and 1 MW for nonresidential systems. Costs associated with marketing, installing, and owning leases may not be recovered from nonparticipating utility customers, and the Commission will not have jurisdiction over the financial terms of leases. Third-party lessors must hold a certificate issued by the Commission. 83

## DER Compensation Memo

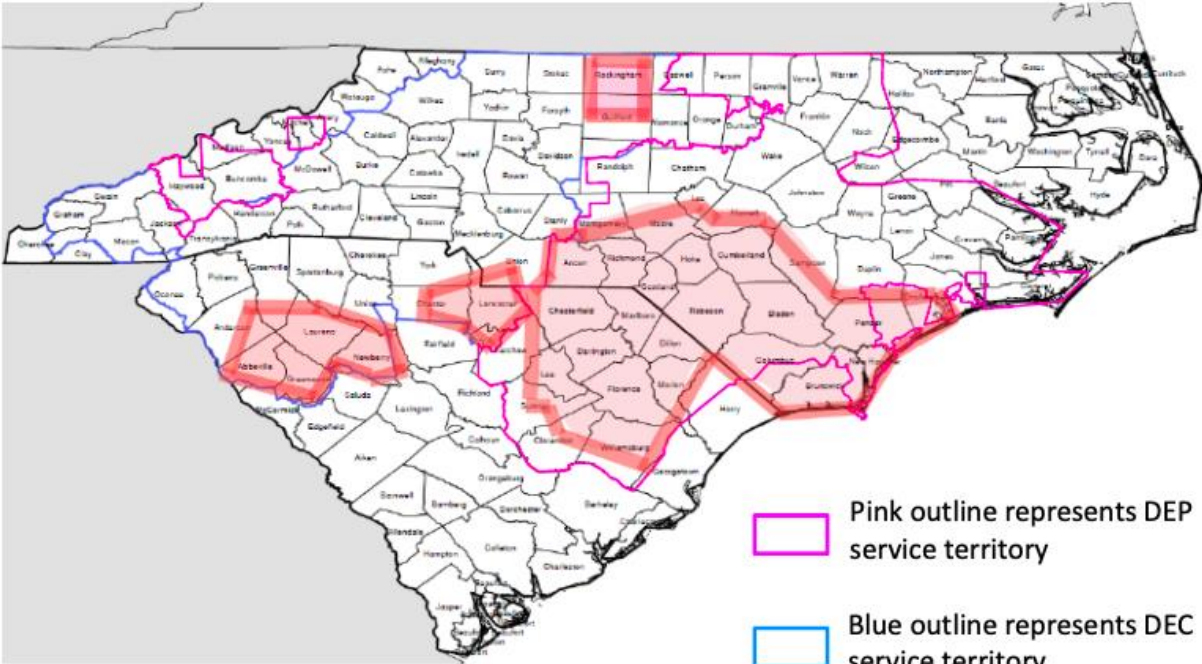
- Distribution planning and Integrated System Planning expansion and improvement: the group recognizes that distribution planning can take many forms and may also carry costs or benefits not yet born or avoided by rate payers.
- Grid upgrades: Physical or virtual changes to the distribution system that enable more variable load or greater utilization of DERs such as smart meters, improved communication infrastructure, data transparency and accessibility, voltage regulators or line and substation capacitors

Appendix A

Duke's Map for developers<sup>8</sup>

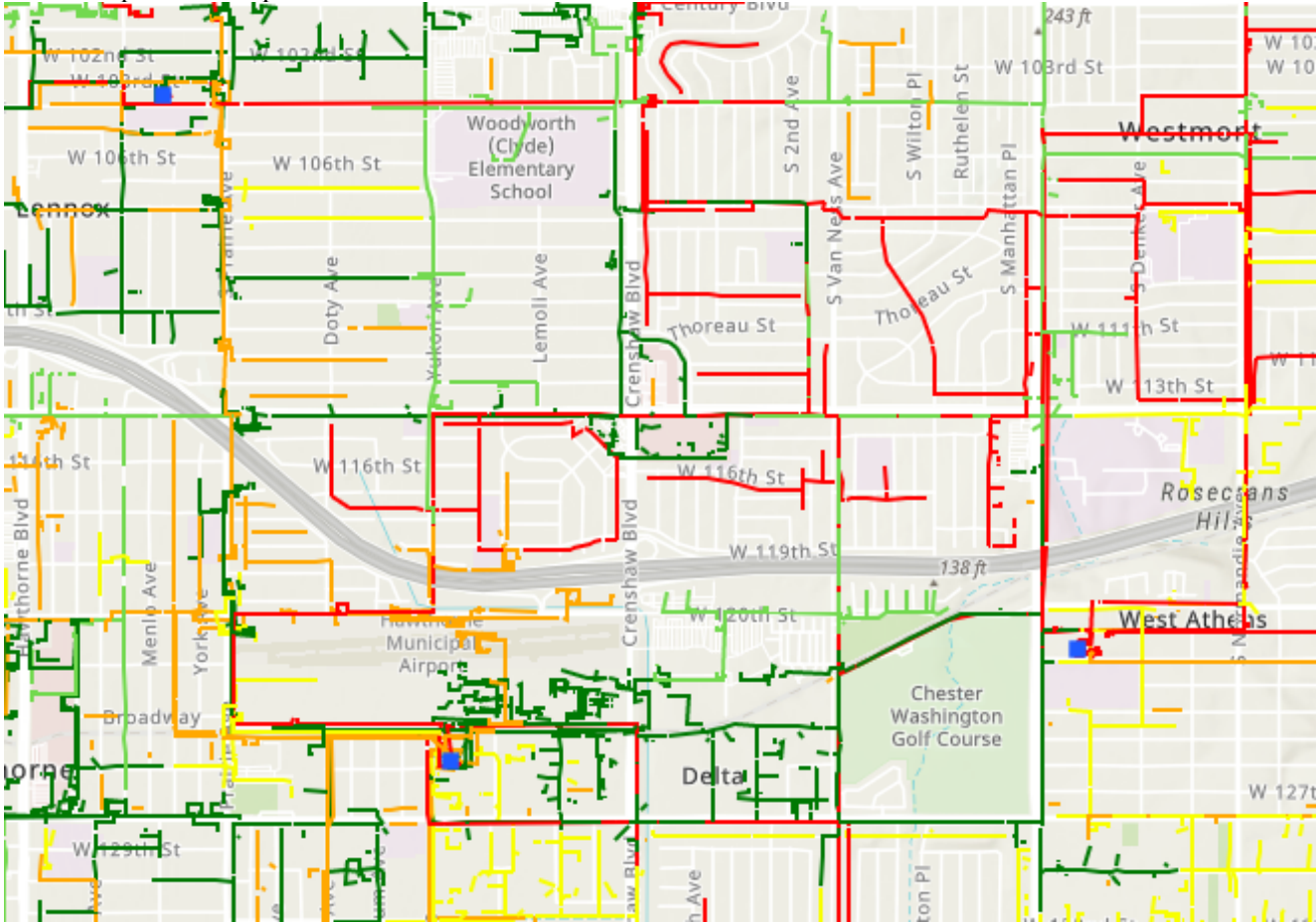
Attachment 1

DEC and DEP Constrained Areas



<sup>8</sup> <https://www.oasis.oati.com/duk/index.html>

SCE's map for developers<sup>9</sup>



<sup>9</sup> <https://ltmdrpep.sce.com/drpep/#>

Grid modernization to support clean energy	<i>What are the key grid upgrades or investments needed to enable greater adoption of clean energy by customers and utilities while maintaining affordability for ratepayers and reliability?</i>
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Summary:

There is potential debate about how to define grid modernization, this group chose to focus on the technologies, upgrades and investments that are required to enable greater adoption of clean energy and did not address the definition of grid modernization. We are suggesting upgrades and investments that will work towards creating a “lean grid,” that maximizes power output, while minimizing resources and CO2 emissions.

The implementation of these key upgrades and investments should be done using a transparent evaluation process that considers the stacked benefits that result. The cost recoupment and the impact of that recoupment on low income individuals and small businesses should also be considered.

Establishing different segment goals (i.e. CO2 reduction, DER integration, pricing targets, reduction of outage time, etc.) and setting reasonable timelines is a good way to provide accountability on the progress made toward grid modernization and inform all stakeholders as to where more resources or attention must be paid.

High level upgrade and investment recommendations include:

- Regionally appropriate DERs that harness the natural energy producing environment to maximize the DER
- Energy storage that provides localized power that offsets demand
- Smart inverters, transformers and power controllers that facilitate the bidirectional flow of power
- Capacity improving investments to aid in faster, more stable redirection of power when needed

More detailed areas for innovation and improvement are outlined in the body of this paper.

**1. Briefly describe the nature of this policy tension/question - What is happening?**

Transformation of the electric power system to a system powered by high levels of clean fuels requires integrated planning of technology adoption so as to occur at high speed and in a way that exploits demand flexibility, high potential for energy efficiency, and the low cost of renewables to offset costs of equipment modernization. Whereas supply and load balancing already are executed as a system level function, traditional power system management structures do not provide

- a mechanism for successful management of a rapid and extensive grid technology transformation
- pricing signals that reflect environmental costs
- incentive structures that could drive participants to choose efficient transformational actions

Optimal engagement of renewables and complementary grid and usage technology will require transparency in planning. Likewise, operational effectiveness under conditions of 2-way power-flow will require a significant increase in availability of transmission and distribution data to enable monitoring, control, and system protection.

Challenges for grid modernization include decisions about the scale (utility or smaller scale) of renewable generation most efficiently supported while meeting goals for resilience and determining who pays and who benefits from necessary investments.

**2. To what extent does this policy tension exist in NC + why is it relevant to the state?**

The challenges outlined in question 1 are relevant to us. However, relative to states with high levels of consumer level renewables, NC has the capacity to move forward with consumer-level assets but is faced with the challenge in short order of adopting a strategy for successfully exploiting significant availability of large, utility scale solar deployment. This scale of deployment is more readily known and amenable to central management than DERS, which in general requires distributed control. However, NC also needs policies that encourage implementation of distributed resource management, so that communities in monopoly territory, as well as large corporate campuses, and communities in coops can benefit from stable implementations of smaller scale DER. Distributed resource management will be facilitated by the establishment of incentives, such as pricing signals that encourage distributed producers to match load profiles.

**3. What policy or regulatory action might be required to address the tradeoffs you see? What entity would need to take the action you've identified?**

- We recommend creation of a working group to evaluate:
  - Feasibility of new incentive structures for suppliers, consumers, and technology providers
  - Framework for transparent analysis and decision making
  - Technical framework for real time asset management and situational awareness
  - Alternate cost recovery and/or incentives for utilities and third parties to invest in grid upgrades and renewable sources
  - Interconnection rules to facilitate higher levels of distributed resources

Ultimately the balance between affordability and ensuring grid reliability in the face of increased clean energy adoption will likely come before the North Carolina Utilities Commission (NCUC) as it considers cost recovery for investments made by utilities or requirements for interconnection that involve new grid upgrades or investments needed to manage grid instability. Many states have created incentive structures for utilities or interconnected resources to deliver solutions to the grid instability problems resulting from incompletely managed intermittent generation, so as to enable high levels of renewable generation. While there are no fully established frameworks for assessing the appropriateness of stability solutions, our utility commission could be charged with requesting proposals for solutions and having them evaluated by independent industry professionals.

**4. How are people in other places responding to this tension? What are the most innovative and promising solutions? Do they seem feasible in NC?**

According to the NC Clean Energy Technology Center's The 50 States of Grid Modernization: Q1 2019 Quarterly Report: "Over half of U.S. states are currently examining these regulatory frameworks or actively working to deploy advanced grid technologies. This activity is expected to continue, as states and utilities conduct studies, try new approaches, and learn from one another about how best to achieve the many benefits of a more modern grid."

In terms of incentives to encourage clean energy developers to invest in storage or other technologies to address clean energy intermittency, California Rule 21 is the ruling from the CA PUC that covers distributed energy resources interconnection requirements for utilities including technical standards and tariffs. Each of the IOU's in CA have their own tariff to cover the implementation of Rule 21 in their



territory. The latest updates have included requiring smart inverters and communication standards to better enable the integration of DER's.

**5. Are there ways you think NC should consider responding to this tension? What entity would need to take the action you've identified?**

Beyond the policy or regulatory actions mentioned above, NC should be aware of all the technologies available today to ensure grid reliability in the face of increased clean energy adoption. While this is not an exhaustive list, some current technologies include battery storage, electric vehicles, demand response, energy efficiency, smart inverters, and system-wide grid investments. System-wide grid investments were noted in NC DEQ's 2018 *Energy Policy Council Biennial Report* as "distribution automation, which is the addition of smart switches that enable fault location, isolation, and restoration; new distribution monitoring and data gathering systems (e.g., Supervisor Control and Data Acquisition) (SCADA)); and two-way communications to intelligent energy devices (IED) on the distribution grid." The Biennial Report also noted, "Each new system generates orders of magnitudes of new data that can be analyzed and interpreted."

Upgrades supporting grid-beneficial distributed renewable generation adoption						
Upgrade	Capability facilitated					
	Monitoring and Visibility	Local intelligence/ Automation	Efficiency	Matching load and supply	Increased capacity of solar per unit energy	Low emission electrification
Advanced metering infrastructure	x	x			x	x
Power electronics	x	x	x	x	x	x
Energy storage				x	x	x
EV charging infrastructure				x	x	x
Demand side management tools				x	x	x
Price signal communications				x	x	x

The chart below highlights areas of opportunity that were identified recently in a study by Duke Energy and were deemed most critical to driving innovation and improvement in the integration of DER to the grid

Utility Side Upgrades						
Program	Capabilities Enabled					
	Monitoring & Visibility	Automation	Distributed Intelligence	Voltage Control	Two-way Power Flows	Increase Hosting Capacity
Advanced Metering Infrastructure	X	X			X	
Integrated Volt/VAR Control (IVVC)	X	X	X	X	X	X
Self-Optimizing Grid (SOG)	X	X	X	X	X	X
Power Electronics for Volt/VAR	X	X	X	X	X	X
Distribution Automation	X	X	X	X		
Energy Storage			X	X	X	X
DER Dispatch Enterprise Tool	X	X	X		X	
Enterprise Communications	X	X	X	X	X	
Cyber Security	X	X	X			

NC also has world-class research institutions, which can be leveraged to push for new technological solutions that are increasingly affordable. Private companies in the Research Triangle Park, Charlotte and elsewhere throughout the state can also be consulted for technical solutions to these challenges.

## Grid Modernization Memo

### APPENDIX: References

"The Future of Solar Energy: An Interdisciplinary MIT Study," Energy Initiative, Massachusetts Institute of Technology, ISBN (978-0-928008-9-8), 2015, 334 pages.

NC DEQ's 2018 *Energy Policy Council Biennial Report*,  
<https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Energy/Policy%20Council/2018%20EPC%20Biennial%20Report%20-%20FINAL.pdf>

Peter Fox-Penner, "Smart Power - Climate change, the smart grid, and the future of electric utilities", 2014, Island Press, ISBN 978 -1- 59726-705-2 or -706-9

**Feedback from Workshop Discussions 5-22-19**

**Ideas in the presentation I did not understand:**

We need real time data: Who is “we”? Distributed Generators? Devices?  
The utility would argue that as the grid operator they are the only ones that need the data  
Are we envisioning that e.g. a behind-the-meter solar inverter could bid ancillary services  
Explanation of grid instability. What does this mean exactly?  
Concept of cost recovery as a problem; Oh I think you meant worry about adequate usage of new generating sources  
What’s the tension between affordability and grid reliability?  
The feasibility of getting the real-time asset management  
Examples of incentive structures from other states  
What categories of data could be shared with consumers/made public  
What distinguishes “grid modernization” between traditional utility investment? What is the core distinction?  
Role of NCUC influence  
Exactly what grid mod includes  
How integrating large scale solar projects is more of an immediate challenge than is DER when it comes to grid mod

**Ideas that were missing from the presentation, but should be included:**

Is this distribution or transmission grid mod  
Addressing the urgency to agree on a policy for grid mod  
Dukes proposal of if and to do maintenance, storm hardening and instability Vs. need for greater grid capacity to handle more renewables in Eastern NC to load center in central/western NC  
Tension - Grid operation is designed to bring supply to demand. With electrification comes implicit scheduling/storage and the need/opportunity to bring demand to supply. That is flexible demand provides for integration of renewables → Electrification?  
Duke does not compete strongly with independent producers in building and operating renewables.  
Does duke lack opportunity to rate base new renewable investments? Does this affect incentives for the company’s technology pathway?  
Definition of data availability and what could be used  
Policy to require smart metering  
Policy to set communication protocols for grid equipment such as smart meters related to the above, making the grid ready for transportation electrification  
What is capacity potential for residential and commercial PV?  
Have you explained smart inverters emphasis EQ7 & EQ8  
What should/could “working group” for grid mod look like?  
Separate docket for Grid Mod at NCUC  
What are the key upgrades/investments needed?  
What truly counts as grid mod vs. business as usual/necessary for reliability  
Better distinction between this group and the interconnection group; What is each group distinctly trying to address between the interconnection issues?  
Burden of cost → who bears the brunt  
GDPR - Data protection  
Community solar  
Opportunities to partner with customers (i.e. private sector) on projects that would be beneficial to the grid as well as to that customer (ex. energy storage)  
How this is taking into account equity issues, als ratepayer impacts generally

**Ideas that emerged from this presentation that may be in tension with my/another group's topic area:**

What happens when there is a tension between the grid the utility wants and the grid customers with DER want?

More transparency needed in all utility silos

Duke wants more investment opportunity- why not grid mod to support more clean energy capacity?

Faster interconnection - can we really achieve this faster?

Our entire group was silent on the topic of environmental justice

Fits with "resilience" at the consumer/distribution level

How does "grid modernization" interact with the traditional resource planning process

Interconnection: Another group handles this. Maybe save space and focus elsewhere here?

Transparency

How does duke energy define grid modernization

Interconnection of new assets

**Ideas that I am excited about and would like to explore more:**

Ideas that I am unexcited about - another working group. There have been many in recent years and duke energy has walked away from what has been

Queue for storage vs solar or creative ways to manage interconnection

Transparency emphasis

Data availability

Increase in residentially produced energy (rooftop solar) clean

What data is available publicly in other states or RTOs that is not available in NC - we should be able to access such data

Working group for grid modernization

New incentive structures (performance based rate?) to encourage grid and 2-tier queue for centralized/decentralized generation

Rhode Island PBR example!

Setting criteria (a rate base?) for evaluating investments in grid mod

Access to data and real time access

Resiliency of grid

Looking at what other states are doing and implementing in where it makes sense (i.e. for data sharing/transparency, interconnection, etc.)

**Question:** How do we better align utility incentives with desired clean-energy outcomes while protecting ratepayers and maintaining the financial health of utilities?

**Nature of the Policy Tension in NC:** Utilities are under a legal mandate to provide adequate, reliable and economical utility service. At the same time, utilities must comply with state clean-energy mandates in the Renewable Energy and Energy Efficiency Portfolio Standard (REPS) and H589 Competitive Energy Solutions for NC. Utilities also must comply with environmental mandates such as the Clean Smokestacks Act. The state also has environmental policy objectives, such as to cut carbon emissions pursuant to EO 80. The October 2018 special report on global warming by the Intergovernmental Panel on Climate Change states that limiting global warming to 1.5 degrees Celsius above pre-industrial levels would substantially reduce its destructive impacts, and that to do so global net human-caused emissions of carbon dioxide (CO<sub>2</sub>) would need to fall by about 45 percent from 2010 levels by 2030, reaching “net zero” around 2050. There is a tension between utilities’ incentives and statutory mandate, protecting ratepayers, and clean-energy objectives.

The following matrix identifies elements of the current utility business model that may inhibit progress toward EO 80 and clean energy goals, as well as corresponding potential tools to foster clean energy. The group agrees that the design of any tool affects how and whether it supports clean energy deployment, utilities’ financial health, and ratepayers. In other words, the “how” matters. The tools identified are not mutually exclusive. The tools will interact and affect one another’s performance, and the efficacy of any single tool can be either strengthened or weakened by other tools implemented, further adding to the importance of how the tools are constructed and implemented. These tools have been used and/or discussed in other jurisdictions and could be explored more in a stakeholder process here. However, due to regional differences, what has worked in another state might not work here; no tool is ready to copy from another jurisdiction and simply “plug and play.” The actor tasked with establishing any given tool could vary, and some tools might require more than one actor. The tools are not listed in ranked order. The UBM Group recognizes that utilities continue to see value in maintaining the regulatory compact, commonly understood as the grant of an exclusive monopoly to a utility in exchange for public oversight and the obligation to serve all customers within the service territory at a reasonable price set by the regulator.

We make two main recommendations. First, the state should set a measureable GHG emissions reduction goal for the electric sector that will become enforceable through established processes. Second, the state should select tools to achieve that goal, and within one year from the date that the final Clean Energy Plan is issued, produce a comprehensive plan that clearly defines targets and aligns utility incentives and mandates in order to meet them. Both should be achieved with broad public and stakeholder input. The group identifies the tools listed below as worthy of further investigation, but the list is not exhaustive, and inclusion of a tool here does not imply endorsement by the individuals or organizations that participated in this working group discussion.<sup>1</sup>

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<sup>1</sup> While the UBM group’s utility participants are unable to endorse all points, recommendations, elements, and tools addressed in this memo, the utility participants recognize that this small group discussion about balancing clean energy outcomes with customer (or member) protections and maintaining the financial health of utilities - including IOU, cooperative and municipal utilities - has been a valuable one and they look forward to continuing this conversation to find areas of alignment among stakeholders. North Carolina’s Electric Cooperatives (NCEC) welcome the opportunity to continue working with all stakeholders to develop energy solutions that benefit our state’s citizens and communities, including the rural communities served by North Carolina’s 26 electric cooperatives. Going forward, NCEC is committed to

Executive Order 80 Clean Energy Plan Workshop  
Utility Business Model Group

Element	Tool
Utilities must maintain their financial health.	Amend Chapter 62 of the N.C. General Statutes to allow NCUC to consider additional objectives such as carbon reduction. Chapter 62 is where the rules governing utilities appear in statutes.
Absence of carbon reduction requirement or price signal outside of EO 80.	Establish a carbon reduction requirement or price signal, e.g., cap and trade or carbon tax or clean energy standard (e.g., zero-emission credits (ZECs)). It should include a clear definition of “clean energy” (e.g., whether to include nuclear, biomass, large hydro, geothermal, renewable natural gas (e.g., from swine facilities, landfills and wastewater treatment plants)).
Better align consumer incentives with clean energy deployment goals	Use innovative rate design to encourage customer behavior that helps achieve clean energy goals, such as “clean peak” generation and storage deployment. E.g., rates that incorporate value of distributed energy resources (VDER), time-varying rates, electric vehicle (EV) rates.
Recovery of most costs (including most fixed costs) through per-kilowatt-hour sales results in incentive to sell more electricity regardless of carbon intensity (the “throughput incentive”).	<p>Performance-Based Ratemaking (PBR) (potentially including but not limited to multi-year rate plans (MYRP), and performance incentive mechanisms (PIMs))</p> <p>Calculator to measure carbon intensity of grid power</p> <p>Beneficial electrification. E.g., more electric-vehicle supply equipment (EVSE), potentially via a Low-Carbon Fuel Standard (LCFS); electric water heaters; heat pumps; etc.</p> <p>Revenue decoupling</p>

balancing affordability, reliability, and the following three values: (1) Creating a low-carbon emissions environment for our state and its citizens through sustainability and continued investment in low- and zero-emissions resources; (2) integrating technology that makes distribution grids more resilient, robust and flexible for an energy future that includes consumers’ participation through demand response programs and new energy resources distributed across the grid; and (3) improving efficiency of the overall energy sector by electrifying processes formerly powered by fossil fuels, with electric vehicles being a primary example of this type of beneficial electrification (BE). NCEC’s commitment to such a balancing approach necessitates the caveat found in this footnote. By way of example, prompted by NCEC’s support for BE and its understanding that BE could result in higher electric sector GHG emissions but reduce statewide GHG emissions, NCEC cannot endorse a recommendation that the State set a GHG emissions reduction goal for the electric sector. NCEC instead believes ongoing discussion among stakeholders is a more appropriate next step.

Executive Order 80 Clean Energy Plan Workshop  
Utility Business Model Group

	Shared savings mechanisms for energy efficiency and demand-side management
IOU ratemaking is backward-looking rather than forward-looking. Traditional cost-of-service, “rate-base, rate-of return” ratemaking results was designed to support large investments in utility-owned infrastructure (the phenomenon of “capital bias”) and results in an incentive to do so.	<p>Alternative cost recovery/ratemaking tools such as PBR (potentially including but not limited to MYRP, PIMs)</p> <p>Revenue decoupling</p> <p>Shared savings mechanisms</p> <p>New procurement models. E.g., green tariffs (already exploring with Green Source Advantage (GSA)), competitive solicitations (already exploring with Competitive Procurement of Renewable Energy (CPRE) program), aggregating DERs to provide services (e.g., bring your own device (e.g., batteries, thermostat)))—there is tension re who aggregates, utilities or 3<sup>rd</sup> parties.</p>
Recovery of large capital investments through general rate cases may result in less timely cost recovery than desired by the utility (“regulatory lag”)	PBR (potentially including but not limited to MYRP, PIMs, formula rates)
Inability to recover costs of accelerated retirement of utility assets that are carbon-intensive and more costly for rate-payers	<p>Securitization</p> <p>Accelerated depreciation</p> <p>Just-transition funds (considering both job loss and tax base)</p> <p>Retirement-linked green bonds (IOUs already have this option)</p>

Members of the UBM Group:

- Sarah Adair, Duke Energy
- Zach Ambrose, Ambrose Strategy (for EDF)
- Daniel Brookshire, NC Sustainable Energy Association
- Dionne Delli-Gatti, EDF
- Molly Diggins, Sierra Club
- Nick Jimenez, SELC
- Miriam Makhyoun, EQ Research
- Ryan Miller, NCBPA
- Paul Mott, NC Electric Cooperatives
- Al Ripley, NC Justice Center
- Sally Robertson, NC WARN



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Utility Business Model Group

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Jennifer Weiss, Duke University's Nicholas Institute  
Michael Youth, NC Electric Cooperatives

Observers:

Layla Cummings, NCUC Public Staff  
David Williamson, NCUC Public Staff

# Clean Energy Plan

## Utility System Planning and Investment Memo

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### Question

How do we achieve a certain and continuous utility planning and investment process while meeting the criteria that it is flexible, economically efficient, and adaptable, all while maintaining reliable, affordable, safe, equitable, and clean energy?

### Summary

Using other states as an example, NC can create a stakeholder engaged electric resource, grid, and system planning process, which is transparent and consistent. Holding a regularly scheduled and regulated process generates trust and certainty for the utility, stakeholders, and State's goals.

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Across the country, states are reforming the utility planning process. A larger number of players are joining traditional utilities as collaborative participants in the resource planning and grid investment process. As states pass legislation with the goal of achieving clean energy targets, keeping costs low, and addressing the challenges of a more decentralized and complex grid, resource planning processes must adapt to incorporate input from a diverse group of stakeholders including traditional utilities, ratepayers and their advocates, clean energy advocates, and energy developers.

North Carolina's current path of gradual improvements to a traditional planning process, is not adequate to meet the challenges of integrating deep renewable and distributed energy penetration, which are, in turn, necessary for the state to achieve Executive Order 80's (EO80) economy-wide GHG reduction targets. Reaching the goals set out by EO80 means considering the interaction of the electric sector with other sectors such as the transportation and vehicle electrification shifts which could impact utility planning extensively. Therefore, it is necessary that North Carolina move to a more holistic, iterative, and transparent planning process that incorporates economically non-traditional market solutions, which could lower energy generation costs, all while maintaining a clean, reliable, affordable, equitable, resilient, and secure electricity system.

In North Carolina, two trends run parallel to those developing nationally. First, the current IRP process does not include explicit clean energy goals, with notable legislative exceptions including HB 589 and Clean Smokestacks, which could inhibit the ability of the energy sector to achieve current or future clean energy and environmental goals. Additionally, the current IRP process has little accountability or transparency in its goal-setting and lacks rules governing stakeholder involvement prior to IRP submission, which would provide a forum for constructive discussions on modeling approaches, price forecasts, and scenario development. Therefore, North Carolina's primary long-term energy planning mechanism is currently primarily dictated by the regulated utility. The second tension surrounds the utility's proposed grid modernization proposal, which was rejected by the North Carolina Utilities Commission (NCUC) in 2018, reflecting the need for a collaborative planning process that is inclusive of stakeholder interests.

The central tension driving differing visions of grid modernization is whether to rely, as the regulated utilities' submitted in their long-term plans, on natural gas to replace retiring coal capacity or to shift more quickly toward clean energy as some environmental and ratepayer advocates suggest. Nationally, the electricity generation sector appears to be reaching the "coal crossover" point at which renewables are cheaper than existing coal units in North Carolina<sup>1</sup>, raising conflicts between utility concerns of stranded assets and ratepayer concerns over least cost generation. Finally, the regulated utilities' proposed legislative changes to the ratemaking process without a prior stakeholder process once again raises concerns over lack of consensus or public input on potential performance-based ratemaking tools as per national best practice as part of any multi-year ratemaking law.<sup>2</sup>

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<sup>1</sup> **The Coal Crossover: Economic Viability of Coal Compared to New Local Solar and Wind Resources**, Vibrant Clean Energy, March 2019.

<sup>2</sup> **State Performance-Based Regulation Using Multiyear Rate Plans for U.S. Electric Utilities**, Grid Modernization Laboratory Consortium, U.S. Department of Energy, July 2017

Addressing the tensions present between multiple parties can be achieved through a better defined and stakeholder-centered utility planning process. An improved planning and investment process could be enabled by the North Carolina General Assembly and overseen by the Utilities Commission. This includes legislation which defines the goals of the planning and investment process, as well as the necessary steps, tools, and costs to develop the process, and what roles the NCUC will play giving explicit authorization where it is currently vague or lacking under existing law. To align North Carolina's process with proven successes in other states, the process should initially include an Integrated Resource Plan (IRP)<sup>3</sup> and Integrated Distribution Plan (IDP)<sup>4</sup>, ultimately moving towards an Integrated System Operations Plan (ISOP) approach, which combines the often-separate processes of generation, transmission, distribution, and distributed energy resource planning.

### **Definitions**

**IRP** - An integrated resource plan is a utility plan for meeting forecasted annual peak and energy demand, plus some established reserve margin, through a combination of supply-side and demand-side resources over a specified future period.

**IDP** - A more comprehensive approach to distribution planning using new tools and techniques to accommodate the increasingly complex and diverse grid that incorporates new components such as DER and two-way electrical flows

**ISOP** - A comprehensive planning process using new tools to integrate generation, load, transmission, and distribution together to more effectively, efficiently, and economically deal with an increasingly diverse set of energy factors.

These regulated planning processes should be transparent, consistent, data-driven, and involve stakeholders' input and feedback throughout the development and goal-setting phases, and where possible in the decision-making phase of the process. The IRP, as it presently exists in NC, does not possess adequate tools or stakeholder input to address the changing landscape around generation, grid modernization, and system planning. In order to address these shortcomings updated and novel IRP, IDP, and ISOP requirements should be developed and defined collaboratively by the utility, stakeholders, and the NCUC to meet North Carolina's goals. This means including stakeholder input in a systematic fashion as the utility thinks about what the process looks like, what tools and data are included, how stakeholders play a role, what the timeline is, and how it will be enforced and enacted.

It is recommended that the processes include regularly scheduled plan submissions (filings) with the NCUC to allow for stakeholder intervention early and throughout the process. These submissions should utilize existing analytical tools as well as newly developed tools which incorporate higher quality data. This includes offering improved data and modeling access for industry and stakeholders, which could come in the form of hosting capacity analysis for example, helping to create market opportunities and investment confidence throughout the process. To achieve the state's clean energy goals, utilities must update planning models and assumptions to allow full quantification of the operational benefits of renewable resources, electric vehicle infrastructure build out, and energy storage. Current modeling techniques fail to account for the suite of operational benefits these resources can bring to bear, undervaluing potential benefits and encouraging utilities to rely on past operational practices instead of exploring innovation in electrical systems operations.

Fortunately, North Carolina can look to states already developing and implementing holistic planning processes, which balance the goals of the state, utilities, and stakeholders. Some prime examples include Minnesota, Nevada, Hawaii, Colorado, Washington, and California.

In 2015 the Minnesota Public Utilities Commission opened an inquiry into distribution planning (docket 15-556), aiming to incorporate distributed energy resources (DER) with the appropriate optimization tools and create a transparent grid leading to an enhanced grid, reduce costs, and a more flexible and DER capable system. Ultimately the multi-year process now requires the regulated utilities (Xcel Energy) to develop DER

<sup>3</sup> **Best Practices in Electric Utility Integrated Resource Planning**, Regulatory Assistance Project & Synapse Energy Economics, June 2013

<sup>4</sup> **Integrated Distribution Planning**, ICF International, August 2016

growth scenarios for 10 years, evaluate non-wire alternatives, detail DER queue status, and file annual updates on their 5 and 10-year distribution investment plans.

Nevada’s legislature passed a bill in 2017 (SB 146) to address distributed resources along with their cost, benefits, financial compensation mechanisms, integration, and barriers to adoption. The Public Utilities Commission began the rulemaking process in 2017 (Docket 17-08022) leading to a Distributed Resource Plan proposal. The proposal includes a system load/DER forecast, locational net benefit analysis, hosting capacity analysis, and grid needs assessment, filed every 3 years with the IRP.

Hawaii and its utility have adopted (HB 623) and started the planning/development process for its Integrated Grid Planning (IGP) process in 2019 (Docket 2018-0165), a program which incorporates both distribution and generation planning, similar to an ISOP. The IGP (Figure 1), which will continue to change and grow with feedback from stakeholders, includes a capacity expansion model, a substation load and capacity analysis, hosting capacity analysis, and improved stakeholder input to the 3-year process, which produces a 5 year action plan and a long term pathway to achieve the legislative goals of 100% renewables. (See Figure 1)

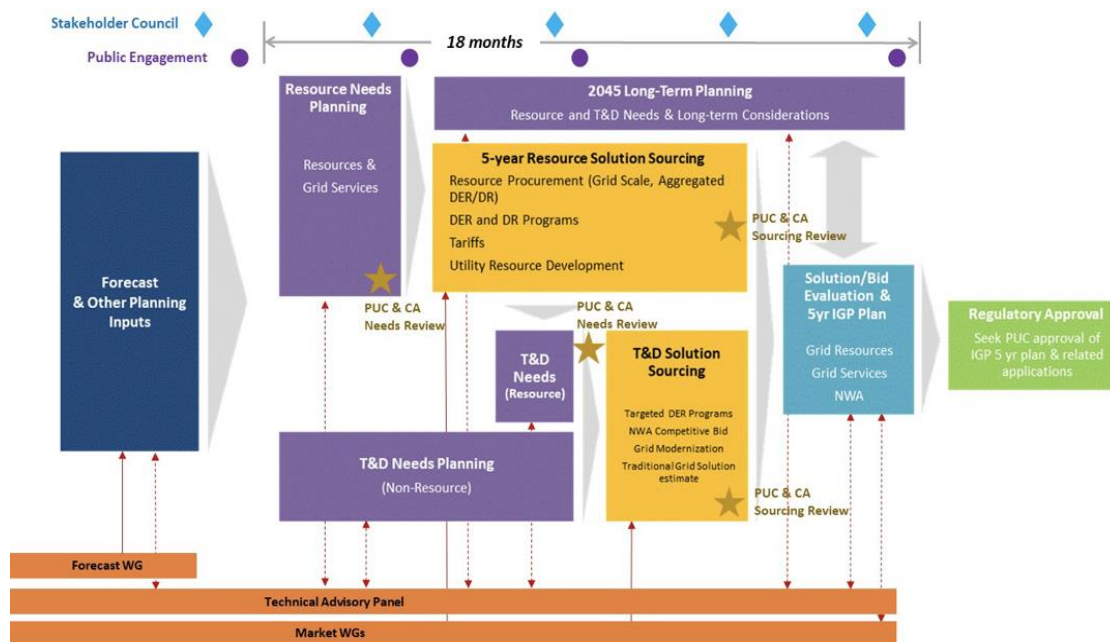


Figure 1 - Hawaii's Integrated Grid Plan (analogous to ISOP) as an example of the complexity, transparency, and stakeholder engagement (*Integrated Grid Planning Report*, Hawaiian Electric, Maui Electric & Hawai'i Electric Light, March 1, 2018)

It would be beneficial to invite input from representatives of the cited states on how, moving forward North Carolina can transition to an electric sector system planning process which includes the same level of stakeholder engagement and transparency achieved elsewhere. Duke Energy, the largest regulated electric utility in the NC, having recognized the need for an update has already begun the development of an ISOP, which will include consideration of non-traditional solutions such as DERs and energy storage in Distribution and Transmission. Duke Energy noted in their May 20, 2019 NCUC filing responding to 2018 IRP reply comments that they support a pre-rulemaking stakeholder process to facilitate a common understanding of IDP and ISOP issues. Duke has been actively working on extending modeling capabilities to better address renewables and energy storage, and plans to share more information on these efforts and the overall ISOP vision during the stakeholder process. (More background on Duke Energy’s approach to an ISOP is provided in the addendum)

A better defined and inclusive resource planning process can ensure that the needs of diverse grid stakeholder group are accounted for and that the electric sector is able to do its part in achieving EO80’s economy-wide targets, while putting North Carolina on the path to a low-carbon future in the long-term. This ~~would~~ require stakeholder engagement in the development of the process, and tools and continual involvement throughout the

actual process. North Carolina, its utilities, and stakeholders should look to other states further along in this process to identify best practices and tools to utilize in order to deploy a more advanced planning process effectively and smoothly.

## **Resources for Further Reading**

### **Integrated System Operation Plan (ISOP)**

- “Planning Hawai’i’s Grid for Future Generations: Integrated Grid Planning Report”, Hawaiian Electric, Maui Electric, Hawai’i Electric Light, March 1, 2018

### **Integrated Distribution Plan (IDP)**

- “Integrated Distribution Planning”, ICF International, Prepared for the Minnesota Public Utilities Commission, August 2016
- “Integrated Distribution Planning Concept Paper: A Proactive Approach for Accommodating High Penetrations of Distributed Generation Resources”, Interstate Renewable Energy Council & Sandia National Laboratories, May 2013
- “Integrated Distribution Planning: A Path Forward”, GridLab, nd.

### **Integrated Resource Plan (IRP)**

- “Best Practices in Electric Utility Integrated Resource Planning: Examples of State Regulations and Recent Utility Plans”, Regulatory Assistance Project & Synapse Energy Economics, June 2013

## **Addendum**

### **Duke Energy’s Ongoing Integrated System Operations Planning (ISOP) Efforts**

*The following addendum was drafted solely by Duke Energy,  
and while approved to be included, is not representative of the group efforts*

Duke Energy agrees that the landscape of utility planning is evolving due to declining costs for renewables and storage, customer preferences and policy goals. Duke Energy has connected 2,900 MW of solar in North Carolina, and with House Bill 589, will achieve 7,000 MW by 2025. Duke Energy’s utilities in the Carolinas have received over 20,000 solar interconnection requests and connected nearly 17,000 projects since 2006. North Carolina has more distribution connected utility scale solar than any other state. Between 2005 and 2018, Duke Energy reduced CO2 emissions in the Carolinas by 37 percent, and currently projects a 53 percent reduction by 2025. More than half of Duke Energy’s generation in the Carolinas now comes from zero-emission sources, including solar, hydro and nuclear.

A more robust approach to distribution planning is necessary, as well as extensive coordination with (generation) resource planning and transmission planning. For this reason, Duke Energy is actively working toward more extensive integration of distribution, generation and transmission planning (ISOP) with a goal of implementation in 2022 IRPs. Duke’s ISOP development team has gathered input from other utilities, national labs, EPRI, consultants, and academic groups to inform our vision and work-scope and has been working on extending modeling capabilities to better address renewables and energy storage for the last few years. Duke also agrees that it is important to get input from customers and other stakeholders as we seek to enhance and further integrate planning processes. We are working toward a stakeholder process for ISOP, as announced at the Grid Modernization stakeholder webinar in April. As we prepare for stakeholder engagement on ISOP, Duke has been reaching out to other utilities with stakeholder engagement processes (HECO, TVA, etc.) to learn from their experience.

The ISOP engagement contemplated so far is focused on gathering input and sharing information about the new ISOP processes, which target integration of MW resource specific aspects of G/T/D planning. Duke has not yet evaluated the implications of transitioning the ongoing planning processes to a full or partial collaborative stakeholder process, and thus is not prepared to take a position in favor or against this recommendation. However, several factors should be considered in any stakeholder process for system planning:

- DEC and DEP Balancing Areas include both NC and SC resources and load obligations, and both states have benefitted from the economies of scale in a combined planning process. Any ISOP-related stakeholder engagement process should include both NC and SC stakeholder representatives to ensure balanced outcomes for customers in both states.
- Utilities hold a unique role as the only stakeholders with a regulatory obligation to serve under NC, SC, and FERC/NERC oversight. These oversight processes ensure a focus on safe, reliable and affordable service and motivate utilities to maintain a balanced perspective to meet changing customer expectations, including environmental considerations. Other stakeholders may focus on a single objective (e.g. environmental or economic). Utilities are inherently technology agnostic, but the “obligation to serve” does drive a high priority on reliability and flexibility of resources. Many other stakeholders do not have this responsibility, and therefore may not place similar value on reliability and flexibility of resources.

# Equitable Access & Just Transition to Clean Energy

## *Achieving climate justice while ensuring equitable access to energy for all North Carolinians*

Globally, climate change and the cost of energy threaten the world’s most vulnerable populations. In the United States (like across the globe), the most historically marginalized people - people of color and people living in poverty - are and have for decades been disproportionately affected. In North Carolina, there are 1.4 million people who are energy cost-burdened<sup>1</sup>, meaning that they live with unaffordable energy bills. Many of these same communities which are burdened with the environmental and health risks associated with the fossil fuel industry also face structural unemployment and underemployment, lacking access to good, quality jobs with benefits and family-sustaining wages.

Though North Carolina’s clean energy industry has had an economic impact of \$28.2 billion and supported 169,127 jobs annually from 2007-2018<sup>2</sup>, many people living in poverty have not seen the benefits of this growth. As consumers of energy, people living in poverty have not benefited financially from clean energy resources, and as workers they have not benefited from access to careers in the renewable energy or energy efficiency industries. For instance, in 2018 fewer than 50% of Solar PV Installers<sup>3</sup> in North Carolina received a “living income standard” for a household with one adult and one child.<sup>4</sup> The health and growth of the renewable energy industry demands a highly skilled and thus well compensated work force.

Equity-focused public policies that improve 1) energy affordability and 2) access to quality jobs in the clean energy economy can help remedy the above problems. Putting vulnerable communities first in North Carolina’s transition to a clean energy economy is vital to eliminating the disparity between those who experience an energy burden and those who benefit from the growing clean energy and energy efficiency industries. Below we recommend specific actions to ensure equitable access to energy and good jobs for all North Carolinians.

### Policy Recommendations to Address Energy Equity in NC

Need	Policy Recommendation	Decision Maker(s)	Action(s) Needed
Reduce the disproportionate burden communities of color and poor communities bear from polluting facilities and other industrial operations that contribute to climate change, harm air/water quality, and extract resources	Expand DEQ’s authority to require the use of Cumulative Impact Mapping & Analysis and an Environmental Justice Impact Analysis in decisions regarding permits and permit renewals.	Legislature  DEQ	Legislative action needed to give DEQ this authority  DEQ may need to make investments in monitoring (\$\$ from state budget)
Reduce the disproportionate burden communities of color and poor communities bear from climate impacts	Carbon pricing policy that dramatically reduces carbon emissions and sets up Polluter Pay Funds, with the majority of revenue going back to frontline and vulnerable communities. <a href="#">Green For All: Effective Carbon Pricing Policy</a>	Legislature	Legislative action needed

<sup>1</sup> People are considered “energy burdened” when 6% or more of their income, a disproportionate amount, goes towards energy bills. NREL Low-Income Energy Affordability data. <https://openei.org/doe-opendata/dataset/celica-data>

<sup>2</sup> RTI International. [Economic Impact Analysis of Clean Energy Development in North Carolina —2019 Update](#)

<sup>3</sup> BLS. Occupational Employment and Wages, May 2018, <https://www.bls.gov/oes/current/oes472231.htm>

<sup>4</sup> NC Justice Center. A Standard Worthy of North Carolina Workers.

<https://www.ncjustice.org/wp-content/uploads/2019/04/Living-Income-Standard-2019.pdf>

	Targeted investment in resilient infrastructure and technical assistance for flood mitigation and climate adaptation/resilience planning in climate-vulnerable and low income communities.	DEQ, Housing Finance Agency, USDA, NCORR	
	Increase funding to the NC Housing Trust Fund.	Legislature	
Make rates/energy costs more equitable and affordable	Implement a Percentage of Income Payment Program combined with a weatherization component - Ohio <a href="#">PIPP</a> / <a href="#">EPP</a> and <a href="#">Maryland</a> examples.	Legislature, NCUC, DEQ, NCCAA	Regulatory change from NCUC based on legislative action
	Include non-energy benefits (NEBs) in cost-effectiveness testing.	NCUC, Legislature	Regulatory change from NCUC; Might require expanding statutory language
	Eliminate or dramatically reduce fixed charges <sup>5</sup>	NCUC	Regulatory change from NCUC
Expand energy efficiency as a tool for resilience and as a way to increase housing quality and economic stability of low income households	Invest additional dollars for low-income home repair, energy efficiency, and weatherization programs (also, see PIPP above), and appliance rental programs, particularly for multifamily housing and mobile homes.	DEQ, Governor, Legislature, NCORR	Additional state funds need to be allocated towards this
	Create project management coordination system for delivery of energy efficiency, urgent repair and weatherization programs.	DEQ	
	Expand tariffed on-bill financing programs for rural cooperatives and municipal utilities by creating, hiring, or facilitating the NC Electric Membership Corp (NCEMC) to be a state-level program administrator.	NCEMC	NCEMC, possible legislative action needed, federal funding (USDA)
Support sustainable economic development in low income and disadvantaged communities	Create a Green Bank & Loan Loss Reserve Fund to make energy efficiency, renewable energy and building repair dollars available to residents, businesses, municipal utilities and institutions such as schools, faith institutions, and local governments. <a href="#">Connecticut &amp; New York examples</a>	DEQ, Dept of Commerce, Third-party administrator	Legislation required, also possibly NCUC authorization
	Encourage Women Minority Owned Business Enterprise (WMBE) contracts and hiring through tax incentives and policy requirements.		
Create long-term jobs with	Prioritize investment and job growth in the	Legislature,	Dept of Commerce

<sup>5</sup> The utility involved in preparing this memo disagreed on eliminating fixed charges as a recommendation, noting concerns about paying for the fixed costs of the system for all customers.



<p>family-sustaining wages and benefits for low income communities</p>	<p>renewable energy industry, such as wind energy, grid infrastructure, and battery storage.</p> <p>Drive up labor standards in the solar industry by prioritizing contractors that provide family-sustaining wages and benefits for utility scale solar contracts, particularly those with any public funding.</p> <p>Expand existing Registered Apprenticeship Programs (RAPs) to create career pathways across the energy sector.</p> <p>Targeted investment in renewables, energy efficiency, home repair, and weatherization training programs through partnerships with schools. Partner with community colleges and K-12 education to create programs about energy efficiency. <a href="#">Successful Strategies from Low Income Solar Policy Guide</a></p>	<p>DEQ</p> <p>DEQ</p> <p>Commerce, Governor, DEQ</p> <p>DEQ, Commerce, Education</p>	<p>can work on pilot projects with DEQ and IOUs</p>
<p>Support communities and displaced fossil fuel workers where closing plants are located</p>	<p>Develop best practices that guarantee protections for displaced fossil fuel workers, such as early retirement, priority transfer and/or training for comparable positions.</p> <p>Technical assistance for local community from state and utility in planning for community transition where plants are retired</p>	<p>NCUC, Commerce, DEQ</p> <p>DEQ, Commerce, NCUC</p>	

**Equitable includes being -**

- **Affordable:** All North Carolinians, including those who are low income, can meet their energy needs without being cost-burdened. Energy is not more than 6% of household expenses.
- **Accessible:** There is greater access to the clean energy economy. Emphasis on removing barriers and targeting investments in frontline communities (communities with a disproportionate pollution burden from traditional energy generation), communities dealing with climate impacts, and disadvantaged communities.
- **Reliable and Resilient:** The electric system is resistant to failure for essential services and quick to recover from breakdowns.
- **Clean<sup>6</sup>:** Emissions-free energy generation that contributes the least to pollution or climate change.

**A note on inclusion:** Many of the policy actions proposed assume (and should require) involvement of affected stakeholders in their planning, development and implementation. Specifically, this process should include communities of color and poor communities, regional, county and municipal governments, non-profit agencies, and affected businesses.

**This memo was prepared by:** Jacquie Ayala (NC Justice Center), Dale Evarts (NC community member), Tiffany Hartung (The Nature Conservancy), Mike Hughes (Duke Energy), Aiden Graham (AFL-CIO), Rory McIlmoil (Appalachian Voices), Daniel Parkhurst (Clean Air Carolina), Walter Robinson (NC State University), Nicole Spivey (Greensboro Sustainability Council), Alvin Warwick (International Electrical Workers Union), Rachel Weber (Dogwood Alliance)

<sup>6</sup> Stakeholders preparing this memo disagreed on whether to include existing nuclear generation as a part of the “clean” definition.

**Group Work for May 22 Workshop**  
**Due June 14**

Grid resiliency enhancements	<i>How can we strengthen the resilience and flexibility of the grid while ensuring affordability for customers?</i>
------------------------------	---

Prepare a memo with the answers to the following questions. The memo should include clear recommendations from the group.

Questions to answer in memo:

1. Briefly describe the nature of this policy tension/question - What is happening?

Our workgroup was tasked with examining how we can strengthen the resilience and flexibility of the grid while ensuring affordability for customers. We understand that the electric grid needs to be resilient in the face of disasters including but not limited to the impact of weather events, cyber and physical attacks, and solar storms. The electric grid also needs to be flexible to address rapid advancements in renewable and DER technology, rapid advancements in grid technology, and changing customer expectations. Because grid flexibility is being dealt with in another workgroup, we focused our efforts on grid resilience.

In discussing grid resilience, it is important to start with a definition of resilience. Generally, the definition of resiliency is the ability to withstand or recover from infrequent yet highly critical major events. There is a difference between reliability and resiliency, with reliability meaning maintenance of energy service in normal day-to-day conditions, but there is a great deal of overlap. In general, both hardening the grid against disasters and providing redundant systems will improve both reliability and resiliency.

Addressing the needs of resiliency calls for investments, which should be determined through cost effectiveness, analysis of data on outages and detailed risk assessments. Just as the insurance industry which has a great deal of experience in valuing the impact of uncertain risks, grid regulators must understand how to assess and prioritize grid investments based on risk assessments and/or CBAs. In addition, there is tension about how investments will be funded.

2. To what extent does this policy tension exist in NC, if so, why is it relevant to the state?

The need to strengthen grid resilience certainly exists in North Carolina, perhaps even more so than in other states across the country. NC has seen significant hurricanes and other major storms for the past several years and utilities currently anticipate an increase in outages because of these major events. The risk of cyber and physical attacks is very real. New grid technology and other investments can improve both reliability and resilience due to these threats. Duke Energy has shared Grid Improvement Plans to strengthen the resilience of the grid, and is exploring the fundamental tension revolving around funding for the investments.

3. What policy or regulatory action might be required to address the tradeoffs you see? What entity would need to take the action you've identified?

Consideration of the appropriately affordable level of grid investment to strengthen the grid will ultimately fall to the NC Utilities Commission (NCUC) or cooperative/municipal utilities. The NCUC could open a proceeding to determine the proper framework for assessing the appropriate level of investment to strengthen the grid, how to measure the investment over time, and appropriate incentives for electric utilities to make those investments in the grid. As part of that framework determination, there needs to be additional work on the meaning of resiliency versus reliability. Until this issue is more fully addressed, utilities nationwide will struggle investing in grid resiliency. There should also be some consideration of co-benefits (such as societal or industry impacts and costs of outages) and not simply a focus on direct cost benefit analyses alone.

4. How are people in other places responding to this tension? What are the most innovative and promising solutions? Do they seem feasible in NC?

Many states have annual reporting and/or cost recovery proceedings to monitor and encourage grid investment to address resilience needs. While this workgroup does not take a position in support or opposition to any specific legislation, it is worth noting the existence of Senate Bill 559, which is currently pending before the NC legislature. This enabling legislation would permit the North Carolina Utility Commission (NCUC) to consider using ratemaking tools for utilities to recover costs that could include grid resiliency investments. Those ratemaking tools are already in use by other utility commissions across the country.

5. Are there ways you think NC should consider responding to this tension? What entity would need to take the action you've identified?

1. Update the State Energy Assurance Plan to reflect current conditions.

- 1.1. As part of this update, review existing reporting requirements (federal/state/local/etc) to see if there can be some synergies and a concomitant reduction of paperwork.
- 1.2. Both cybersecurity and data access are key; data sharing and harmonization of publicly shareable data will help stakeholders make decisions.

2. Develop an active Resilience Planning Resource to assist local governments.

- 2.1. The planning resource should be either:

- 2.1.1. Staffed by a new full-time state employee (e.g., this is their only job function)

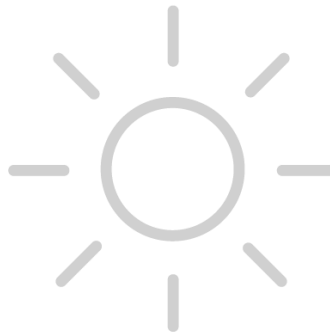
- 2.1.2. Or Technical Assistance efforts managed by an existing state employee
  - 2.2. Provide resources to support grant development and project execution capabilities and data gathering.
  - 2.3. Carry out community-level resilience analyses to determine the impact of a loss of electrical service to critical infrastructure and vulnerable populations.
  - 2.4. Carry out a benchmarking investigation to determine what communities are leaders in resilience implementation--- and then learn from them...
  - 2.5. Look for best practices for incorporating regional feedback that would support a robust Integrated Resource Plan for NC.
3. The North Carolina State Government should encourage DER and community energy solutions that enhance the regions, potentially balancing the costs of grid enhancements. The North Carolina State Government should pilot micro-grids at appropriate state facilities and should encourage the development of micro-grids to serve other non-state critical infrastructure.
  - 3.1. Examples of candidate facilities include universities and local schools. Unique regional features or attributes should be included in the planning.
  - 3.2. Investigate other pilot programs and leverage lessons from other states or countries.
  - 3.3. Implement pilot programs that can serve as a template for communities to use as templates to address various features and attributes. Conduct workshops to support community adoption of proven templates. Drive faster govt approval processes around verified templates.
4. Develop a system that formalizes how to quantify the human costs (lost productivity, etc.) of power outages.
5. Use defense in depth or a layered grid approach to increase reliability and improve resilience.



## A.4 Products from Other Related Efforts

As mentioned in Section 1.4, there were several concurrent stakeholder processes that helped inform the CEP. Work products from these efforts are included in this section. Note that the full report for the Energy Efficiency Roadmap has been completed; for simplicity, only the Executive Summary of this report is included here. The final EE Roadmap is available for download on the Nicholas Institute website.<sup>1</sup> They are presented as follows:

- Energy Efficiency Roadmap
- Cities Initiative
- Southeast Energy Innovation Collaborative



<sup>1</sup>Final EE Roadmap can be accessed at:

[www.nicholasinstitute.duke.edu/publications/north-carolina-energy-efficiency-roadmap](http://www.nicholasinstitute.duke.edu/publications/north-carolina-energy-efficiency-roadmap)

# North Carolina Energy Efficiency Roadmap

Jennifer Weiss



# North Carolina Energy Efficiency Roadmap

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## Executive Summary

Energy efficiency (EE) is widely considered a least cost option for meeting energy demand while reducing energy costs and carbon emissions. While EE has experienced slow and steady growth in North Carolina, much more can be done to maximize the full potential of this least cost resource. As such, leading EE and energy experts—including academic experts, consumer advocates, environmental nonprofits, commercial entities, state agencies, and utilities—participated in a series of meetings to determine where and how to deploy EE at a significantly greater rate. This report makes recommendations for increased and effective EE deployment in North Carolina.

Despite bipartisan support for the economic and environmental benefits of EE and an increasing focus by advocates, utilities, and big energy users, there are still barriers blocking the realization of EE’s potential. With a greater understanding of these barriers, there are multiple opportunities for increased EE in the state. This EE Roadmap report collects the expertise and ideas from over 100 EE stakeholders in the region and maps out the shared objectives and strategies that can help the state implement new solutions, remove barriers, and achieve its EE potential.

## Objectives of Roadmap

To capitalize on the EE opportunities in the state, the Nicholas Institute, in partnership with North Carolina's Department of Environmental Quality (NC DEQ), initiated a process to develop a comprehensive state EE Roadmap. This initiative, launched in August 2018, convened stakeholders from separate EE working group discussions to think collectively about this issue. Recognizing that considerable EE work was already being done within the state, the objective of the Roadmap is to build on the collective priorities and strengths of the state's energy stakeholders to identify and achieve a shared set of EE policy goals and inform the statewide Clean Energy Plan.<sup>1</sup>

The EE Roadmap strives to include diverse voices from across the state and identify a variety of paths forward to help all stakeholders seize the EE opportunities in the state. Some of the discussions generated substantial debate and disagreement among various parties that could be impacted by a new paradigm for EE. These discussions, particularly as they relate to statewide mandates, third-party administrators, utility incentives, and non-energy benefits, did not always garner consensus from all participants and are worthy of additional discussion from a broader group of EE stakeholders. Participation in this effort by any stakeholder should not necessarily be represented as an agreement with the final recommendations.

## The Energy Efficiency Roadmap Framework

In September 2018, the Nicholas Institute formed the EE Steering Committee, a group of EE leaders in the state with diverse organizational perspectives. The steering committee met regularly from September 2018 through July 2019 to provide critical guidance and input to the Nicholas Institute as progress on the EE Roadmap evolved. A final list of recommendations on specific EE-related areas has been provided to NC DEQ and is outlined in this final report.

Through a series of workshops and working groups, over 100 EE stakeholders from state, regional, and national organizations participated in the roadmap process. These included representatives from academia, consumer groups, environmental nonprofits, financial institutions, industrial associations, regulators, state agencies, utilities, and others. Each participant voluntarily selected a role; some led working groups, others provided subject matter expertise or research into solutions, and others observed or participated in an advisory role. Whenever possible, a diverse set of voices was sought to ensure that a balanced and thoughtful approach was taken for all recommendations. The final recommendations outlined in this report represent impactful and largely agreed upon ideas, but not all recommendations had consensus from all parties.

During the first EE stakeholder workshop in October 2018, the group established a set of shared objectives that would be the foundation for the evaluation of all recommendations.

### Shared Energy Efficiency Roadmap Objectives

*Objective 1: Align interests to create an EE-conducive climate*

*Objective 2: Increase access for hard to reach sectors*

*Objective 3: Develop a uniform standard for tracking/benchmarking EE costs and benefits*

Following the establishment of the three shared objectives, the workshop participants discussed approaches, methods, tools, and other ideas that could help to achieve each of the shared objectives. Over 100 different solutions were discussed, which were synthesized and condensed into 11 working group themes, aligned with each of the three objectives:

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<sup>1</sup> The North Carolina Clean Energy Plan stakeholder process was initiated by Governor Roy Cooper as part of Executive Order 80. It includes a broad set of stakeholder engagement focused on policy, regulatory, administrative and program recommendations to achieve EO80's climate goals. Additional information on the plan and the collaborative process can be found on NC DEQ's website: <https://deq.nc.gov/energy-climate/climate-change/nc-climate-change-interagency-council/climate-change-clean-energy-2>.



## Objective 1—Align Interests to Create an EE-Conductive Climate

- Theme 1: EE Education Campaign
- Theme 2: Workforce Training
- Theme 3: Building Code Improvement
- Theme 4: Centralized Administration and Cross-Collaboration
- Theme 5: EE Portfolio Standard or Target

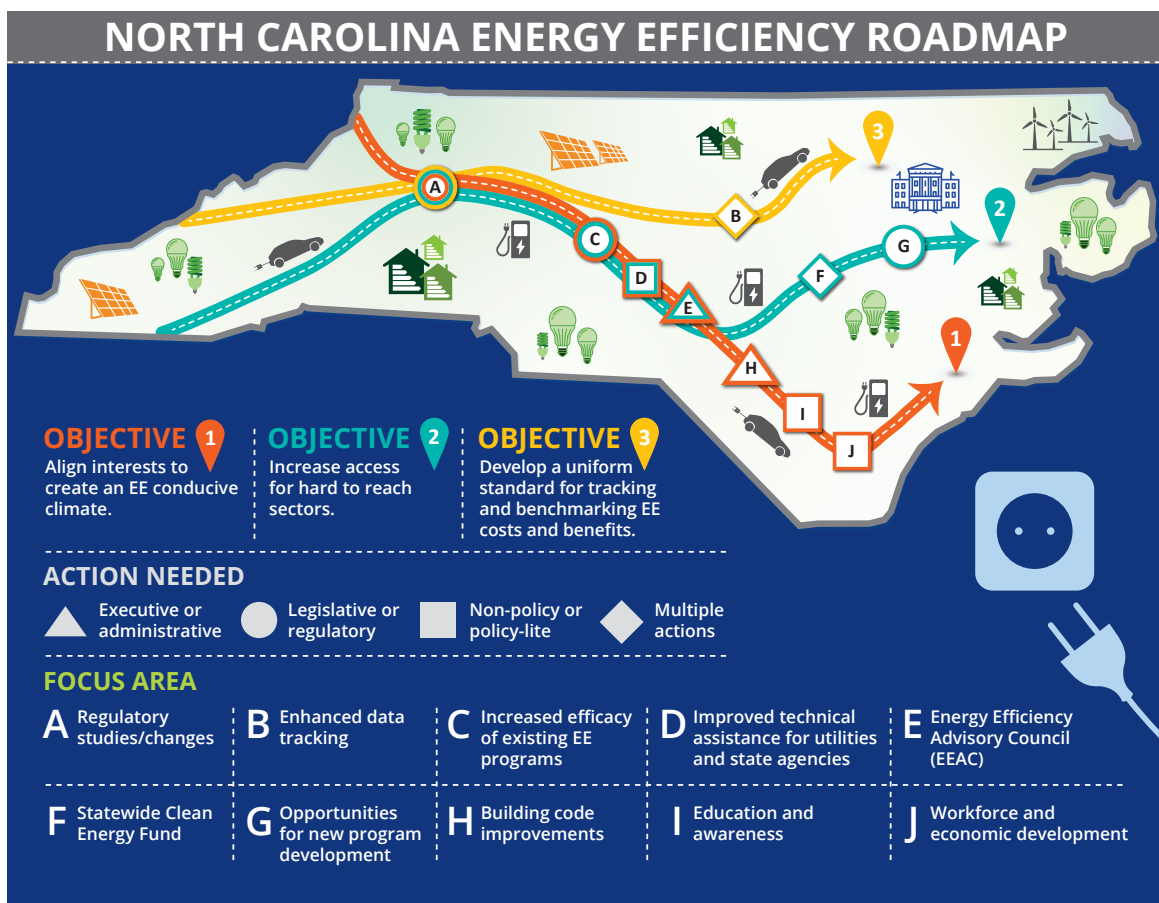
## Objective 2—Increase Access for Hard to Reach Sectors

- Theme 6: Address Energy Poverty
- Theme 7: Equitable EE Programs for All Sectors
- Theme 8: Equitable and Accessible EE Financing Programs

## Objective 3—Develop a Uniform Standard for Tracking/Benchmarking EE Costs and Benefits

- Theme 9: Cost/Benefit Analysis—EE Impacts on Grid and Societal Cost Inclusion
- Theme 10: Data Access and Analysis
- Theme 11: Standardized Tracking of EE

Over the course of ten months, the steering committee and working groups narrowed down a set of recommendations to 32 which were prioritized by their impact and feasibility. The result is a list of 10 EE focus areas for North Carolina. Additional detail on each of the recommendations can be found in Appendix A.



## Summary of Energy Efficiency Recommendations for North Carolina

Focus Area	Short-Term (1–3 years) Recommendation	Who should take the lead?	Longer Term (3+ years) Discussion
Energy Efficiency Advisory Council (EEAC)	Establish an EEAC to oversee the implementation of the EE Roadmap recommendations	Governor	
Enhanced Data Tracking	Collect data from existing sources and apply methodology to state buildings	Universities, NC State Agencies	Develop a data repository and enable voluntary reporting of certain metrics
	Enable “Download My Data” functionality for electric, natural gas, and water utilities	NCUC (IOU), Legislature (Munis/Co-ops)	Evaluate automatic Energy Data Transfer
	Develop a database of utility rates	NCUC (IOU), Legislature (Munis/Co-ops)	
Education and Awareness	Launch Energy Efficiency Everywhere (E3) campaign—educational materials for K–12 and community colleges	Academic Institutions	
	Develop sector-specific EE Toolkit from existing and new online resources	University or Nonprofit	
Workforce and Economic Development	Include EE jobs in the Dept. of Commerce’s workforce development assessment	Dept. of Commerce	
	Collaborate with ApprenticeshipNC to launch an EE Apprenticeship program	Nonprofit	
Building Code Improvements	Increase energy awareness and action on NC Building Code Council	Governor	Establish a defined pathway to net-zero energy-ready homes and buildings
Statewide Clean Energy Fund	Create NC Clean Energy Fund to include utility financing programs	Nonprofit	Add in fuel-neutral EE funding source to Clean Energy Fund
Regulatory (NCUC) Changes/Studies for Evaluating EE Programs	Commence a cost-effectiveness study to include evaluation of non-energy benefits	NCUC	
	Develop new NCUC evaluation criteria for evaluation of all energy programs to include equity and economic development criteria	NCUC	
Improved EE Program Efficacy	Establish minimum EE goals within existing REPS	Legislature	Develop a required/mandatory EERS target
	Allow flexible NC Agency Funding for EE projects (through NC OSBM)	Legislature	
Opportunities for New Program Development	Develop new programs (utility and nonutility) to address needs in underserved markets to include Hot Water Heat Pump (HWHP) rental program	NCUC, Utilities	Utilize DSM savings for low-income programs
	Increase funding for NC Housing Trust Fund to improve energy efficient affordable housing options in the state	Legislature	

Focus Area	Short-Term (1–3 years) Recommendation	Who should take the lead?	Longer Term (3+ years) Discussion
Improved Technical Assistance for Utilities and State Agencies	Develop a third-party “EE Technical Assistance” administrator to assist municipal utilities, co-ops, and state agencies with EE program development and administration	Nonprofits, Utilities	
	Improve project management coordination for weatherization, urgent repair with improved measurement, and verification of programs	Nonprofits, Universities, Utilities	

By continuing to work together on the EE focus areas and recommendations outlined in this roadmap, North Carolinians will be well on the way to meeting the clean energy goals outlined in EO80 as well as increasing grid resiliency and improving the health and economic well-being of all North Carolina energy consumers.

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## **The North Carolina Cities Initiative**

Reducing carbon emissions is becoming increasingly important as North Carolina experiences the tangible impacts of climate change on our economy, our landscape, and our health. Our changing climate is causing more frequent and more intense storms, rising sea levels, higher ambient and soil temperatures, and flooding. There are mitigation efforts we can and should undertake to address the impacts, but Cities across our state are recognizing that we must also tackle the root cause of climate change by taking actions within our control to minimize the human contribution to climate change.

Cities are motivated to reduce their carbon emissions because they see how infrastructure is suffering from being repeatedly battered and flooded during hurricanes. They see how poor air and water quality is triggering health conditions.

Cities also see how transitioning to a clean energy economy can provide a much-needed boost for our state. Clean energy jobs in North Carolina have been growing at nearly twice the state average and employ veterans at nearly twice the economy-wide rate. The manufacturing industry, especially, shows potential as components of wind turbines and solar panels are constructed here. Cities see how electrifying our vehicles creates opportunity by supporting new business ventures for EV charging stations and other infrastructure and improves air quality.

There are many good reasons to be focused on carbon reduction, and the Cities Initiative serves as a platform to facilitate collaboration and innovation among local governments striving toward this worthy target.

With that in mind, the North Carolina Cities Initiative was launched with the following two goals:

- 1) Identify and prioritize statewide barriers that localities face in their efforts to reduce GHG emissions;
- 2) Identify consensus action items that—through collective action—could create opportunities and foster partnerships for localities to achieve faster and deeper GHG reductions.

### **Planning and Design**

The design phase of the initiative, during which a variety of stakeholders and experts were consulted to develop the goals and discuss the implementation approach, was a months-long process.

A range of stakeholders were engaged in the design of the Cities Initiative, which was facilitated by Environmental Defense Fund (EDF). EDF's role was as a convener and facilitator, but all decision making was conducted by local governments, which included mayors and public sustainability staff, associations representing local governments, and other NGOs. The Initiative brought together representatives from the state of North Carolina, including the NC Department of Environmental Quality (NC DEQ) and governor's office, but the work and outcomes during the Cities Initiative were driven by actively engaged representatives from 12 cities and towns, both large and small, across the state.

The extensive planning and design work helped shape an Initiative framework that would meet a real and pressing need for communities in North Carolina. The engagement established from stakeholders and

cities during this pre-work continued as the project kicked off, demonstrating the widespread desire at the state and local level for engagement on the issue of GHG reduction.

### **Participants**

Twelve cities and towns were identified that had defined GHG reduction goals and had demonstrated they were actively working on GHG reduction. These cities and towns were provided as suggestions received from local government associations such as the Metro Mayors Association, for example. Participation, however, was open to any interested city and town.

The invitations to cities who were identified as good candidates went directly to the mayors of the cities, laying out the scope of the project and establishing expectations of engagement.

The following cities participated:

Asheville	Greensboro
Carrboro	Highlands
Cary	Hillsborough
Chapel Hill	Raleigh
Charlotte	Wilmington
Durham	Winston-Salem

### **Laying the foundation**

Before the first in-person meeting, a participant survey was conducted in May 2018 to establish baseline information about the goals, needs and priorities of city leaders. This information was used to design roundtable sessions, the first of which was held in July 2018, and also served as background information on existing efforts and baseline GHG reduction priorities among the cities.

Questions included:

- Do your GHG reduction goals apply to municipal assets or to the entire community?
- Please rank the importance of each sector that is covered by your GHG reduction goals.
- Does your municipality have a dedicated budget for GHG reduction initiatives?
- Do you have existing partnerships to support GHG reduction efforts?
- What are your partnership priorities?
- What steps have you already taken to further your GHG reduction goals?
- What areas of collective action interest you most?

## Framework for collaboration

The program consisted of four half-day roundtable meetings hosted in participating communities. The four roundtables were held as follows:

July 2018 – RTP

September 2018 – Greensboro

October 2018 – Charlotte

November 2018 - Durham

During **the first roundtable**, participants received a preview of the results of the survey. These results served as the foundational information on which the initiative work was based and were the starting point for each city and town to build their individual roadmaps for their own GHG goals. DEQ presented their *2005-2017 NC GHG Inventory Report*, which served as useful baseline information about GHG sources and trends, and factors that were impacting those trends.

The majority of time in the first roundtable was spent in facilitated breakout sessions, which helped participants identify the challenges they were facing in reducing GHG emissions.

In the sessions, participants were asked questions to spark conversation that would help identify sectors of interest:

- 1) What are the things that can help you meet your GHG goals?
- 2) What are the things that are keeping you from meeting your GHG goals?

During these breakout sessions, participants created “impact effort grids,” which were useful tools for filtering through the many ideas identified to determine the opportunities that would provide the largest scale of impact (compared to effort and budget required) with the highest probability of achievement.

The “impact effort grid” exercise led to the prioritization of four overarching focus areas:

- Utility
- Finance
- Transportation
- Energy efficiency

**The second roundtable** allowed participants to concentrate on specific issues that impact their ability to achieve their GHG reduction goals in the focus areas.

Participants spent time in breakout sessions where all four focus areas were discussed. All roundtable participants had the opportunity to participate in breakouts on all four topics. From that, the cities selected the opportunities that were most important for their respective municipalities.

The question was asked, “Which issues that could be addressed by partnership or barrier removal are top priorities for your City’s GHG reduction goal?” During facilitated group discussion and sharing of examples, the following six priority issues emerged:

- Building codes and benchmarking
- Property Assessed Clean Energy (PACE) Program and on-bill financing,
- Data access
- Priority for GHG impact from state-funded programs
- Renewable energy procurement
- Transportation funding allocation

**The third roundtable** facilitated priority solutions for these six issues. Outside experts, including academics, Duke Energy, NGOs and the Public Staff of the North Carolina Utilities Commission (a consumer advocate), supported this discussion, providing objective advice and technical guidance.

Their role was to provide ideas for solutions, answer questions about how things worked, and share insights about what they've seen work in other states. It was clear that all decision making was still done by the individual cities, and the objective and intent of bringing in the outside experts was solely to provide input to help the cities shape their path forward.

Two breakout sessions were conducted during this roundtable, and experts were assigned to respective sessions. The participants of each session brainstormed about potential solutions that could be considered for the identified focus areas. Additional discussion was held to flesh out the solutions suggested, then the cities themselves prioritized the solutions identified within the session. The outcomes of these breakout sessions were the foundation of discussion for the November roundtable.

**The fourth roundtable** in November 2018 brought together mayors and staff to review the priority solutions. During the course of facilitated discussion and debate, the group reached consensus on 12 action items:

- Obtain additional locally-controlled transportation revenue
- Adjust State Transportation Improvement Program (STIP) allocations
- Incorporate GHG scoring for state funded projects
- Develop a voluntary carbon credit tracking system
- Aggregate data access at a safe level to allow for program prioritization
- Create a utility billing platform that helps cities and customers understand energy use
- Allow for new renewable energy procurement options
- Increase speed and transparency of the interconnection process
- Address barriers to Commercial Property Assessed Clean Energy (C-PACE) in NC
- Develop a local government supported green energy bank
- Improve energy impact of building codes
- Change makeup of the NC Building Code Council



## Consensus Action Items

- Obtain additional locally-controlled transportation revenue
  - Revenue sources could include options such as sales tax and tax increment financing
  - Funds could be used for transportation-related projects that reduce GHG emissions
  - Would require legislative action
- Adjust State Transportation Improvement Program (STIP) allocations
  - Remove cap for transit project funding
  - Reduce or eliminate local matches for projects that reduce GHG emissions
  - Increase the percentage STIP funding that goes to non-highway projects
  - Increase the share of regional STIP funds for regions that reduce GHG emissions
  - Would require legislative action
- Incorporate GHG scoring for state funded projects
  - Various state programs that fund projects by grant or loan are selected based on scoring rubrics.
  - Add GHG impact to project scoring formulas for projects such as:
    - State transportation improvement program
    - Congestion mitigation and air quality
    - Trust funds (Clean Water Management, Parks & Rec, etc.)
    - Water project loans
    - Debt funded projects requiring approval by the Local Government Commission
    - Would require legislative or administrative action
- Develop a voluntary carbon credit tracking system
  - Partner with the state to develop a voluntary carbon tracking system, which would help cities monetize GHG emission reductions
  - Would require administrative action or legislative action
- Aggregate data access at a safe level to allow for program prioritization
  - NC utilities do not provide third parties with access to customer usage data aggregated at a fine level.
  - Propose to aggregate data at a safe level to allow for program prioritization, which could be especially helpful in high energy-burden communities.
  - Would require legislative action, utility commission action, or utility partnership.
- Create a utility billing platform that helps cities and customers understand energy use
  - Duke Energy is developing a new billing system called Customer Connect, which will be installed in 2021-22.
  - Designate cities to serve as beta testers and provide input to Duke on the system's final design.
  - Work with Duke to include on-bill financing.
  - Ask Duke to release an SOP for large campus-style customers to better grasp their energy usage.

- Duke has committed to rolling out a new billing system and this would be an interim measure.
    - Would require utility partnership.
  - Allow for new renewable energy procurement options
    - NC only allows customers to purchase electricity from public utilities currently.
    - Allow for new renewable energy procurement options including:
      - Third party sales
      - Reduce the cost and increase the ease of access of the proposed Green Source Advantage program
    - Expand the utility cost benefit methodology at the utilities commission to include societal and environmental benefits
    - Would require legislative and utilities commission action
    - Would require legislative action, utilities commission action or utility partnership
  - Increase speed and transparency of the interconnection process
    - Request a SOP to provide early determinations if interconnection requests are feasible
    - Ask Duke to analyze cities and identify optimal locations for distributed generation based on current grid infrastructure
  - Address barriers to Commercial Property Assessed Clean Energy (C-PACE) in NC
    - Address barriers to C-PACE in NC, including:
      - Inability of local governments to delegate administration of C-PACE programs to a statewide or regional entity
      - Inability of using a statewide or regional entity to levy assessments to take on debt for C-PACE programs
    - Would require legislative action
  - Develop a local government supported green energy bank
    - Develop a local government-supported state clean energy fund, such as a green energy bank
      - Could fund a variety of energy efficiency efforts, including:
        - PACE
        - On-bill financing
      - Could consist of public and private funds.
    - Would require legislative action and/or partnership
  - Improve energy impact of building codes
    - Could include:
      - Get auto-adoption of International Energy Conservation Code (IECC)
      - Allow local jurisdictions to require more than state code
      - Professionalizing energy code inspections
      - Adding option appendices in code that utility could incent
    - Would require legislative or administrative action
  - Change makeup of the NC Building Code Council

- Building Code Council is appointed by the Governor, according to General Statute 143-136
- Council representation is outlined in detail according to licensing and specialization criteria
  - Revisit current membership composition to include members with expertise in sustainability, health and safety, local government, and other relevant expertise.
- Would require legislative action.

## **Impact**

The Cities Initiative achieved its initial goal of bringing together North Carolina municipalities to identify barriers and develop consensus action items to enable faster and deeper GHG reductions. It also created powerful connections and relationships with the utility, regulators and other key stakeholders that have the ability to influence the development, adoption and implementation of potential solutions.

Information about the Initiative and its outcomes were presented at the annual meeting of the North Carolina Metro Mayors Association, UNC Clean Tech Summit, and the Appalachian Energy Summit.

In parallel to this Initiative, Duke Energy’s proposal was selected through the Rocky Mountain Institute as an opportunity to take a deep dive into one of the Cities Initiative consensus action items in an “eLab accelerator.” These intensive sessions have proven to be successful mechanisms by which to explore solutions to core issues. These accelerators assemble “thought leaders and decision makers from across the U.S. electricity sector who focus on collaborative innovation to address critical institutional, regulatory, business, economic, and technical barriers to the economic deployment of distributed resources in the U.S. electricity sector.” The team for the eLab accelerator project met during the week of April 29, 2019, and included Environmental Defense Fund, Duke Energy and a subset of the Cities Initiative participants.

## **Moving Forward**

There was broad support for continued work among the participants.

Based on expressed interest by the 12 cities and towns, the State of North Carolina and other local governments, the work of the Cities Initiative continues in spring 2019. The focus of our next phase of work is to develop implementation goals and strategies.

A series of half-day roundtables will be scheduled over the next two years to include the core group of the 12 original cities and any additional local governments who are interested in joining.



## Working Group Co-chair Recognition

**Working Group 1: Communication, Marketing, Entrepreneurship & Investment**  
**Michael Shore**, Tipping Point Renewable Strategies; and **Thad Culley**, Vote Solar

**Working Group 2: Metrics, Goals, Research, Education & Workforce**  
**David Kaiser**, NC Department of Commerce, Office of Science, Technology & Information; **Lori Collins**, Environmental Programs Consultant, North Carolina department of Environmental Quality; and **Thad Wingo**, BMC Engineering

**Working Group 3: Grid Infrastructure & Industry Impacts**  
**John Hardin**, NC Department of Commerce, Office of Science, Technology & Information; and **Nick Justice**, Power America

**Working Group 4: Policy and Regulation**  
**Dionne DelliGatti**, Environmental Defense Fund; and **Jochen Lauterbach**, University of South Carolina

**Working Group 5: Collaboration, Consumer Awareness and Access**  
**John Camilleri**, Green Energy Corporation; and **Ron Schoff**, Electric Power Research Institute



### Working Group 1: Communication & Marketing

**Issue Definition:** What do we want our state energy “brand” to be and how do we communicate that brand within the state and elsewhere.

**Current State**

- Positive stories we tell ourselves (Solar, S3, RTP, Universities, EPRI)
- Polarized politics nationally and locally
- The Southeast judged as a whole from outside the region
- Lack of well-articulated cohesive stories.

**The Gaps**

- No clear/cohesive vision, strategy, goals, and metrics
- No Leaders buy into/share a cohesive, positive energy vision



### Working Group 1: Entrepreneurship & Investment

**Issue Definition:** What are the Region’s energy entrepreneurship strengths, how do we build on them, what are the limiting factors and how should those be address.

**Current State**

- Energy entrepreneurship active in the region – good stories
- Energy “incubators”/university support exist in the region
- Capital constraints
- Regulated utilities’ rate structures dampen creativity

**The Gaps**

- Need study of region’s energy entrepreneurship constraints
- Region’s energy sectors with competitive advantage not defined
- Need study of how energy pricing can promote innovation



### Working Group 2: Metrics & Goals

**Issue Definition:** Are we all on the same page? Energy Innovation metrics and goals require definition and timeframe

**Current State**

- Data Exists for:
  - Workforce demographics and stats
  - College/university energy relevant grad stats/connection
  - Capital resource data
  - Energy production, conservation, emission data

**The Gaps**

- No comprehensive region/state energy plans or federal direction
- No energy asset inventory
- No unified system of measuring/assessing region’s energy innovation progress



### Working Group 2: Research & Education

**Issue Definition:** The region’s significant cluster of energy research universities and labs lack collaboration and recognition.

**Current State**

- Nation-leading number of energy research entities in region
- Little leverage of energy research prowess across region
- Little research collaboration with region’s many energy companies

**The Gaps**

- Research entities compete for funding
- Researchers not rewarded/recognized for external collaboration
- Tech transfers/IP rights vary with research entity
- Little communication of energy innovation occurring



### Working Group 3: Grid Infrastructure and Impact

**Issue Definition:** The power grid can be an energy innovation enabler or constraint dependent on its flexibility, capacity and resilience to accept/support new technologies, devices, software, power sources and consumption types and transmit data.

#### Current State

- Reasonably safe and reliable, but vulnerable
- Reasonably flexible/resilient, but perhaps not for future uses
- Connects current low carbon generation, but what of future?

#### The Gaps

- Interest/support for evolving grid divided
- Grid data is private/proprietary, making data innovation difficult
- Electric, gas, water & telecom segregated – innovation difficult
- Planning for future difficult, as future uncertain



### Working Group 4: Policy and Regulation

**Issue Definition:** Policy and regulation is made with too short a horizon and does not specifically promote energy innovation or new product service competition/development.

#### Current State

- Southeast regulated utility rates challenge energy innovation
- Policy and technology leaders not aligned
- Southeast energy policy/regulation does not promote innovation
- No greenhouse gas/carbon/resilience rates to promote innovation

#### The Gaps

- No clear regional/state energy goals
- Various state energy policies not aligned
- Energy stakeholder diversity causes policy maker polarity
- Industry siloed/focused near term – not promoting innovation



### Working Group 5: Regional Energy Sector Collaboration

**Issue Definition:** Region's energy sector is vibrant, but disorganized resulting in less than merited investment/technology production

#### Current State

- No broad research/start-up/technology collaboration
- Economic development not connected to innovation
- Stakeholders not aligned behind innovation
- No organized program energy pilot projects/tech transfer

#### The Gaps

- Energy R&D, new venture creation & technology not aligned
- Investment not focused on innovation leadership opportunities
- Multiple technologies not coordinated to produce solutions
- Stakeholders not aligned w/innovation leadership opportunities



### Working Group 5: Consumer Awareness and Access

**Issue Definition:** Policy drivers diffuse/lacking for customer awareness/access to energy efficiency programs, local generation and resiliency solutions

#### Current State

- Low cost/highly reliable power dampens innovation need
- Adoption of new technology/EVs increasing, but unpredictable
- No centralized entity promoting energy innovation
- Customer access to solutions limited by wealth

#### The Gaps

- Region's energy price does not drive consumer demand
- Consumers not well educated in energy solutions
- Consumer demand/desire not well understood
- Urban/Rural divide of demand/ability to pay



## Working Group 1

Communication, Marketing, Entrepreneurship & Investment

## Solutions Report

Michael Shore, Tipping Point Renewable Strategies  
Thad Culley, Vote Solar



## Working Group 1: Solution 1

### Entrepreneurship

#### Solution

- Convene Entrepreneurship Task Force
- Include universities, investors, utilities, large energy companies, incubators, and entrepreneurs
- Survey region's energy entrepreneurship ecosystem
- Survey "best practices" of other regions

#### Outcomes

- Understanding of region's strengths and gaps
- Plan for strengthening regional energy entrepreneurship

#### Next Steps

- Identify a lead (university?) and members – invite
- Determine survey cost and identify funders

**Working Group 1: Solution 2**  
Branding

**E4**

**Solution**

- Leverage the SEIC to identify brand's core components
- Working Group 1 will continue work to develop brand strategy

**Outcomes**

- A unifying brand crafted for the broad target audience
- A brand ready for dialogue and a plan to communicate it

**Next Steps**

- Query SEIC delegates

NORTH CAROLINA  
Department of Commerce  
SOUTHWEST ENERGY INNOVATION COLLABORATIVE

**Working Group 2**  
**Solutions Report**  
Metrics, Goals, Research, Education & Workforce

**David Kaiser**, NC Department of Commerce, Office of Science, Technology & Information  
**Lori Collins**, Environmental Programs Consultant, North Carolina Department of Environmental Quality  
**Zach Ambrose**, Principal, Ambrose Strategy

NORTH CAROLINA  
Department of Commerce  
SOUTHWEST ENERGY INNOVATION COLLABORATIVE

**Working Group 2: Solution 1**  
Metrics: Common Reporting Tools

**E4**

**Solution**

- State-owned buildings follow current practice
- Voluntary reporting encouraged for businesses
- Further study aggregating data of various tools for broad view

**Outcomes**

- Increased awareness of trends and drivers
  - Efficiency/Management application/education opportunities
  - Innovation opportunities

**Next Steps**

- Coordinate with Nicholas Institute EE Roadmap Project
- Evaluate/Explore marketing, incentives and connecting parties

NORTH CAROLINA  
Department of Commerce  
SOUTHWEST ENERGY INNOVATION COLLABORATIVE

**Working Group 2: Solution 2**  
Need for Price Signal Information

**E4**

**Solution**

- Develop price information for new technology commercialization
  - Utility rates reflecting cost of specific grid services
  - Actionable pricing information for evaluating non-wires alternatives, procurement, incentives and regulatory filings

**Outcomes**

- Encourages new technology for region's energy infrastructure
- New energy innovation and maximum customer value

**Next Steps**

- Identify lead agency/organization to promote/manage
- Determine and vet price signals possible/desired
- Lead determines implementation, timeline, budget

NORTH CAROLINA  
Department of Commerce  
SOUTHWEST ENERGY INNOVATION COLLABORATIVE

**Working Group 2: Solution 3**  
JOINT: Energy Industry Inventory/Better Promotion of Assets

**E4**

**Solution**

- Define region's energy sectors and assets
- Develop an inventory of region's sectors and assets
- Provide searchable online inventory access
- Compare/promote the assets nationally/globally

**Outcomes**

- Easy access promotes use/value of assets + attracts
- Create community/foster innovation & partnerships

**Next Steps**

- Determine lead/responsible parties
- Complete definitions
- Create plan, timeline, budget and identify/secure funding

NORTH CAROLINA  
Department of Commerce  
SOUTHWEST ENERGY INNOVATION COLLABORATIVE

**Working Group 2: Solution 4**  
Creating Community College/University Collaboration

**E4**

**Solution**

- Determine region's energy colleges & universities
- Understand Energy Innovation Processes
  - Identify tech transfer processes & technologies of interest
  - Communicate in forums, directories, etc.
- Promote increased coordination and communication

**Outcomes**

- Greater knowledge of research promotes greater use and value
- Knowledge & connections promote greater collaboration/innovation

**Next Steps**

- Determine lead/responsible parties
- Create plan, timeline, budget and identify/secure funding
- Identify/inventory region's energy colleges/universities

NORTH CAROLINA  
Department of Commerce  
SOUTHWEST ENERGY INNOVATION COLLABORATIVE



## Working Group 2: Solution 5

### Assessing Energy Workforce Need/Shortage

#### Solution

- Identify the region's suppliers/supply of energy workforce
- Identify the region's employers/demand for energy workforce
- Calculate the region's shortage/surplus and characteristics

#### Outcomes

- Support policy decisions regarding energy workforce
- Guide colleges/universities in academic/training offerings

#### Next Steps

- Determine lead/responsible parties
- Create plan, timeline, budget and identify/secure funding
- Conduct extensive search of workforce data available



## Working Group 3 Solutions Report Grid Infrastructure & Industry Impacts

**John Hardin**, NC Department of Commerce, Office of  
Science, Technology & Information  
**Nick Justice**, Power America



## Working Group 3: Solution 1

### Integrated System Operations Planning (ISOP)

#### Solution

- Modernize electric grid planning
  - Employ an integrated resources planning algorithm
  - Support process with enabling software

#### Outcomes

- ISOP will better identify grid value and drive innovation
- Policy makers/regulators will know benefits/costs of decisions
- Consumers will realize optimum value at appropriate price

#### Next Steps

- Meet with state policy makers/regulators/utilities/stakeholders
  - Identify lead entity; and
  - secure interest/support/funding



## Working Group 3: Solution 2

### Electric Grid Resiliency and Security

#### Solution

- Build/maintain/upgrade Region's electric grid
  - Resilience/security supports health, safety & economy

#### Outcomes

- A more resilience/secure & quicker to heal electric grid
- Region's technology is increasingly employed/showcased
- Innovation opportunities increased

#### Next Steps

- Promote grid plan with stakeholders
  - Policy makers, regulators, utilities & consumers
- Identify process lead/participants and initiate meetings



## Working Group 5 Solutions Report

Collaboration, Consumer Awareness and Access

**John Camilleri**, Green Energy Corporation  
**Ron Schoff**, Electric Power Research Institute



## Working Group 5: Solution 1

### Collaboration within the Energy Sector

#### Solution

- Define the Region's distinct energy sectors/clusters
- Gather detailed information on cluster members
- Identify/study successful clusters for repeatability

#### Outcomes

- Attract capital through Increased innovation awareness/access
- Communication of common goals to unify clusters
- Increase public/private partnerships
- Innovation impacts energy production, conversation & delivery

#### Next Steps

- Define team members and sponsors
- Validate recommendations and definitions
- Initiate team and work plan



## Working Group 5: Solution 2

### Consumer Awareness and Access

#### Solution

- Develop better understanding of customer needs/want
- Educate customers of energy utilization/greener products
- Develop consumer incentives for greener solutions

#### Outcomes

- Green solution residential consumer guidelines
- Commercial/industrial engagement incentives
- Green solutions for public housing/schools

#### Next Steps

- Assign activities to teams
- Verify/validate actions
- Secure recommendation buy on from teams



## Working Group 4 Solutions Report Policy and Regulation

**Dionne DelliGatti**, Environmental Defense Fund  
**Jochen Lauterbach**, University of South Carolina



## Working Group 4: Solution 1

### Create a Forum for Energy Leadership and Vision

#### Solution

- Expand deployment of Region's energy innovation technologies
- Leverage energy innovation leadership for economic development
- Sustain the Region's energy innovation leadership advantage

#### Outcomes

- An energy innovation leadership vision

#### Next Steps

- Assess policy/regulatory enablers/barriers to leadership
- Identify/compare various leadership plans for common ground
- Promote innovation leadership value to policy/regulation/plans





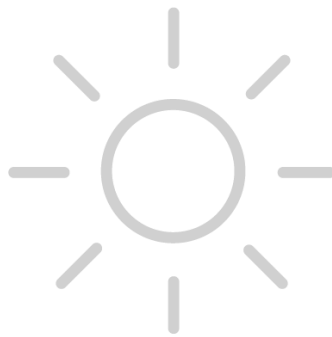


## A.5 Formally Submitted Letters

As mentioned in section 5, the following organizations submitted formal comments during the CEP development process (separate from the public comment period):

- American Federation of Labor and Congress of Industrial Organizations (AFL-CIO)
- Appalachian Voices
- Business Groups (*Ameresco, Appalachian Mountain Brewery, Arjuna Capital, CREE, Ingersoll Rand, Mars Inc., New Belgium Brewing, National Association of Energy Service Companies, Sierra Nevada Brewing Company, Schneider Electric, Unilever*)
- DEQ Environmental Justice Board - Clean and Equitable Transition Subcommittee
- Duke University
- Energy and Environment Innovation Foundation and Rivendell Farms
- Environmental Groups (*Southern Environmental Law Center, Environmental Defense Fund, NRDC, NC Conservation Network, Sierra Club, NC League of Conservation Voters*)
- NC Clean Energy Business Alliance (NCCEBA)
- NC Sustainable Energy Association (NCSEA)
- NC WARN
- Southern Environmental Law Center (SELC)
- UNC School of Law

Their comment letters are presented here.



## NC State AFL-CIO Just Transition Memo 7.18.2019

### I. Background

With the invention of the telegraph, the telephone, and then the first incandescent lamp, the introduction of electricity in the late 1800s transformed life in the United States and around the world. Public demand for electricity grew and powered innovation. To this day, economic development relies on reliable access to electricity.

In the early years, “the rapid expansion of the electric power and light industry kept demand for labor high. However, employers kept wages low by hiring an untrained workforce. Without proper training, the industry was overrun by individuals with inadequate skills and insufficient knowledge to practice the trade with proper regard for safety – making an already dangerous job more risky.”<sup>1</sup>

“Electrical linemen commonly worked 12 hours a day, seven days a week, in all types of climates for about 15 to 20 cents an hour. There was no apprenticeship training, no industry standards and no safety training. In some portions of the country, one out of every two linemen hired would perish. Nationally, the death rate for electrical workers was twice as much as the national average for other industries.”<sup>2</sup>

Workers responded to these deplorable conditions by forming organizations like the International Brotherhood of Electrical Workers, coming together to act collectively to increase pay, training, and safety standards across the industry. While power linemen still have one of the ten most dangerous jobs in the country, now, the IBEW runs one of the best apprenticeship programs available, training a highly skilled workforce to lead the industry into the twenty-first century.

### II. Just Transition history and definitions

“Just Transition,” as it relates to workers and the economy, has multiple definitions depending on the audience and context. In relation to labor and trade unions, the concept has been around since the post WWII era.<sup>3</sup> The first explicit reference to just transition to a carbon-neutral economy is attributed to US trade union leader and former president of the Oil, Chemical, and Atomic Workers Union (since merged with the United Steelworkers), Tony Mazzocchi. Mazzocchi (1993) “pleaded for a ‘Superfund for workers’ to provide financial support and opportunities for higher education for workers displaced by environmental protection policies.”<sup>4</sup>

Many union leaders have been skeptical even that such a transition is possible, citing every prior economic transition in which industry workers have been left to fend for themselves. It is this cynicism, and those past injuries, that have made them reluctant partners in efforts to strategize in the face of the

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<sup>1</sup> IBEW History & Structure. <http://www.ibew.org/Portals/31/documents/Form%20169%20-%20History%20and%20Structure.pdf>

<sup>2</sup> IBEW Local 104 History. <https://ibew104.org/about/history/>

<sup>3</sup> “Just Transition – Just what is it?” [https://www.labor4sustainability.org/files/Just\\_Transition\\_Just\\_What\\_Is\\_It.pdf](https://www.labor4sustainability.org/files/Just_Transition_Just_What_Is_It.pdf)

<sup>4</sup> ILO Just Transition Guidelines. [https://www.ilo.org/wcmsp5/groups/public/---ed\\_dialogue/---actrav/documents/publication/wcms\\_647648.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---actrav/documents/publication/wcms_647648.pdf)

climate crisis. However, following the passage of the 2015 Paris Agreement, the AFL-CIO reached for the Agreement’s language around “just transition” as a new entry point for their participation in the climate conversation. The AFL-CIO noted that “workers in certain sectors will bear the brunt of transitional job and income loss,”<sup>5</sup> and endorsed the Paris agreement’s recognition of “the imperatives of a just transition of the workforce and the creation of decent work and quality jobs.”<sup>6</sup> [The AFL-CIO] called for investment in the affected communities and “creating family-supporting jobs like those that will be lost.”<sup>7</sup>

The International Labour Organization (ILO), a specialized agency of the United Nations, was charged with developing a framework for implementing this principle. In its 2018 Policy Brief on the subject the ILO states that, “[t]he idea of just transition should not be an “add-on” to climate policy; it needs to be an integral part of the sustainable development policy framework. From a functional point of view just transition has two main dimensions: in terms of “outcomes” (the new employment and social landscape in a decarbonized economy) and of “process” (how we get there). The “outcome” should be decent work for all in an inclusive society with the eradication of poverty. The “process”, how we get there, should be based on a managed transition with meaningful social dialogue at all levels to make sure that burden sharing is just and nobody is left behind.”<sup>8</sup>

### III. NC Context

Throughout history as the economy has changed due to varying factors from trade policy to technological innovation workers have often borne the brunt of these changes. The loss of manufacturing in the textile, tobacco, and furniture industries across NC are prime examples. Poverty and devastation in Appalachia, particularly as the global economy has shifted away from coal, is another case in point.

Across NC thousands of workers and their families stand to be impacted by the coming changes. Counties with fossil fuel facilities could lose millions of dollars from their tax base as coal facilities ramp down, particularly crippling rural counties like Person County where the Roxboro Steam Plant is located. And yet, ***North Carolina can manage this transition differently, by putting worker protections and oversight by those most affected into the state’s plans from the beginning.***

To look at it more specifically as it relates to the transition from coal, thirty coal units have been closed across the Carolinas over the last 8 years.<sup>9</sup> Seven coal-fired power plants remain in NC, but according to Duke Energy’s new Integrated Resource Plan (IRP) two additional sites are slated to close or ramp down capacity over the next five years. Duke has announced that it plans to retire all its coal facilities by 2050.

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<sup>5</sup> “Just Transition – Just what is it?” [https://www.labor4sustainability.org/files/Just\\_Transition\\_Just\\_What\\_Is\\_It.pdf](https://www.labor4sustainability.org/files/Just_Transition_Just_What_Is_It.pdf)

<sup>6</sup> UNFCCC “Paris Agreement.” <https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>

<sup>7</sup> “Just Transition – Just what is it?” [https://www.labor4sustainability.org/files/Just\\_Transition\\_Just\\_What\\_Is\\_It.pdf](https://www.labor4sustainability.org/files/Just_Transition_Just_What_Is_It.pdf)

<sup>8</sup> ILO Just Transition Guidelines. [https://www.ilo.org/wcmsp5/groups/public/---ed\\_dialogue/---actrav/documents/publication/wcms\\_647648.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---actrav/documents/publication/wcms_647648.pdf)

<sup>9</sup> Duke Energy website. <https://sustainabilityreport.duke-energy.com/operations/coal-plant-retirements/>

One of Duke’s primary strategies to reduce GHG emissions, while maintaining a steady supply of electricity to its customers, has been to transition coal-fired power plants to natural gas combustion-cycle plants. While that means some jobs remain at the site there is typically a reduction in the workforce because it takes fewer employees to run a natural gas facility.

The Lake Julian Plant in Asheville is slated to close next year and to be replaced with a 650-MW natural gas facility and solar installation, a \$1.1 billion investment by Duke Energy.<sup>10</sup> As of October 2018, the company acknowledged that once the transition is complete there will be approximately a 60% reduction in the workforce – from around 100 workers down to 40. Allen Steam Station, which is slated to power down three of its five coal units in 2024, similarly employs around 120 people.<sup>11</sup> The company says it expects no layoffs due to natural attrition over the next five years.<sup>12</sup>

There is a common misconception that jobs in the fossil fuel industry are directly transferrable to jobs in the newly growing renewable energy industry. Unfortunately, that is not the case. While it’s not a perfect point of comparison because these statistics are not exclusive to coal-fired power plants, according to the NC Department of Commerce there were 1,180 power plant operators in NC in 2018 who made \$79,700 (or \$38.42 per hour) average wages.<sup>13</sup> Power distributors and dispatchers in NC, of which there were 210 in 2018, made \$75,370 (or \$36.24 per hour) average wages.<sup>14</sup> More than half of the 490 solar installers in NC in 2018, on the other hand, made less than \$15 an hour. The average wage was \$33,830 (or \$16.27 per hour),<sup>15</sup> less than half their counterparts, and often in a temporary job with no benefits.

To its credit, to date Duke Energy has done right by its employees with past closures. For example, when the Dan River Plant was closed, workers were offered retirement packages and the opportunity to transfer to comparable jobs across Duke’s system. Other states and utilities stand to gain from the example that Duke is providing. ***DEQ or NC Commerce should help codify these best practices and share them as recommendations in the state’s Clean Energy Plan, Workforce Assessment, and other related documents.***

#### I. Recommendations

Executive Order 80 charges the State of North Carolina to “support the 2015 Paris Agreement goals and honor the state’s commitments to the United States Climate Alliance.”<sup>16</sup>

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<sup>10</sup> <https://www.blueridgeoutdoors.com/go-outside/duke-announces-plans-to-close-asheville-coal-plant/>

<sup>11</sup> Gaston Gazette. <https://www.gastongazette.com/news/20170818/allen-plant-celebrates-60th-anniversary>

<sup>12</sup> <https://www.bizjournals.com/charlotte/blog/energy/2015/09/duke-energy-to-pay-5-5m-close-three-coal-units-in.html>

<sup>13</sup> <https://www.bls.gov/oes/current/oes518013.htm#st>

<sup>14</sup> <https://www.bls.gov/oes/current/oes518012.htm#st>

<sup>15</sup> BLS. Occupational Employment and Wages, May 2018, <https://www.bls.gov/oes/current/oes472231.htm>

<sup>16</sup> Executive Order 80. <https://files.nc.gov/ncdeg/climate-change/EO80--NC-s-Commitment-to-Address-Climate-Change---Transition-to-a-Clean-Energy-Economy.pdf>

- Like the 2015 Paris Agreement’s inclusion of “Just Transition” in its preamble, DEQ should integrate “Just Transition” as a core principle of its Clean Energy Plan, utilizing the ILO’s framework for implementation.
- Codify best practices and include as recommended protections for displaced workers in the fossil fuel industry.
- Create a “Just Transition Task Force” to oversee the implementation of EO 80 Recommendations and to outline best practices for displaced workers and communities impacted by coal plant closures and the transition to a renewable energy economy.
  - Provide guaranteed seats for stakeholders within Labor, workers in impacted industries, and residents of communities that stand to lose significant revenue in the tax base from coal plant closures.
- Create a dedicated funding stream for workforce training, bridge funding for displaced and transitioning workers, and other priorities as identified by the “Just Transition Task Force.”
- Look to other states, particularly those in the United States Climate Alliance for best practices and models for implementation of EO 80 Recommendations:
  - New York State “Just Transition Task Force,” ambitious targets, Solar on Schools and Offshore Wind projects, Project Labor Agreements, and more
  - Washington State’s “Energy Strategy Advisory Committee”<sup>17</sup>
  - The “Energy Future Jobs Act,” a partnership with the major utilities in Illinois to protect 4,200 jobs, create thousands of clean energy jobs, and provide training by adding \$5 million in funding for Registered Apprenticeship Programs to ready the workforce to meet these goals
  - Maine’s<sup>18</sup> “Commission on a Just Transition to a Low-Carbon Economy” with dedicated seats for a worker in an impacted industry and a representative from Labor.

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<sup>17</sup> SB 5116. <http://lawfilesexternal.wa.gov/biennium/2019-20/Pdf/Bills/Session%20Laws/Senate/5116-S2.SL.pdf#page=1> AND <https://wecprotects.org/100-clean-electricity-legislation-passes-washington-state-senate-in-historic-vote/>

<sup>18</sup> An Act to Create a Green New Deal for Maine  
[http://www.mainelegislature.org/legis/bills/bills\\_129th/billtexts/HP092401.asp](http://www.mainelegislature.org/legis/bills/bills_129th/billtexts/HP092401.asp)



# AppalachianVoices

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July 24, 2019

To: Sushma Masemore  
State Energy Director  
NC Department of Environmental Quality

From: Rory McIlmoil  
Senior Energy Analyst  
Appalachian Voices  
[Rory@AppVoices.org](mailto:Rory@AppVoices.org)

## RE: Comments on North Carolina's Clean Energy Plan

I submit these comments on behalf of Appalachian Voices, a non-profit environmental advocacy organization based in Boone. I myself am also a resident of Deep Gap in Watauga County, and a member-owner of Blue Ridge Energy, an electric cooperative ("co-op") serving more than 60,000 residential properties in western North Carolina.

The purpose of these comments is to stress how important it is to include rural areas, and the electric co-ops that serve them, in any and all planning and implementation of the Clean Energy Plan in accordance with Governor Roy Cooper's Executive Order 80, "North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy."

North Carolina's electric co-ops serve the large majority of rural communities across the state. These communities are characterized by a higher percent of poverty, lower median incomes, and a much higher energy cost burden than more urban and sub-urban communities. To illustrate this we are including a couple of maps with these comments that overlay electric cooperative service areas with county poverty and energy burden levels. For instance, households that fall under 50 percent of the federal poverty line spent as much as 40 percent of their gross household income on home energy costs in 2016, not including transportation, and the worst energy cost burdens are seen in counties served by electric co-ops.

This is a serious issue, one that not only has a negative impact on families, but also on local economies as families are spending hundreds to thousands of dollars a year on energy bills, unnecessarily, rather than spending that money in their communities. Fortunately, this problem can be addressed through expanded investments in energy efficiency and distributed solar.



Unfortunately, as much of the state has seen significant growth in distributed solar and energy efficiency investments, most of that growth has occurred in areas served by Duke Energy, not in communities served by co-ops where the impact and benefits could have an even greater economic and social impact. This results directly from the co-ops have being allowed to do the bare minimum when it comes to clean energy investments.

For instance, the Renewable Energy Portfolio Standard, while it required co-ops and municipal utilities to achieve 10% of their retail sales through renewables and efficiency by 2018, allowed these smaller utilities to effectively opt-out of meeting their requirements through local investments because it allowed them to pay either Duke Energy or GreenCo Solutions (whomever was/is their wholesale power provider) to obtain the needed credits on their behalf from investments being made elsewhere. And most of the co-ops chose to take that route rather than invest in their members and communities. Then, House Bill 589 (passed in 2017) effectively exempted co-ops and muni's, at their request, once again leaving rural communities out of the clean energy boom and associated benefits being experienced in much of the rest of the state.

More directly, co-ops across the state have set rate structures that reduce people's ability to control their electric bill, while rendering household investments in energy efficiency and rooftop solar less cost-effective. For instance, the average monthly fixed charge imposed by co-ops across the state is around \$25 per month, with the range being between \$15 and \$35. My own co-op, Blue Ridge Energy, imposes a monthly fixed "basic facilities fee" of just over \$24. This means that before families served by Blue Ridge even turn on the lights, they will pay \$300 a year on their electric bill.

By comparison, after strong opposition from consumer and low-income advocates, Duke Energy's fixed charge was increased to \$14 a month just last year in North Carolina, while in South Carolina regulators recognized the impact that high fixed charges have on low- and fixed-income ratepayers and recently limited the fee increase to less than \$12/month. For low- and fixed-income households, such high fixed charges only enhance the burden of energy costs they experience. And because higher fixed charges are associated with keeping rates lower, such rate structures effectively devalue the cost-saving benefits of investing in home energy efficiency improvements.

At the same time, co-ops are imposing unjust, punitive net metering policies that erode, or completely eliminate the cost-effectiveness of household investments in rooftop solar. Using Blue Ridge Energy as an example, their net metering rate lowers the credit residents get for their own solar generation to six cents per kilowatt-hour, while tacking on an additional \$29/month onto the fixed charge, bringing that charge to a minimum of \$53 per month. Under this rate, unless a home is using vast amounts of energy and installs a large, expensive system, nobody can save money by investing in solar.

The same is true for members of co-ops that purchase their electricity from the North Carolina Electric Membership Corporation (NCEMC), as the rate structure the co-ops pay to NCEMC -- a declining block rate structure -- results in the co-op's "avoided cost" being less than 3 cents per kilowatt-hour, or far less than the retail rate the members pay to purchase electricity from the co-op. This is what many of those co-ops end up setting



as their solar energy credit for net-metered households, which again significantly reduces the value and cost-effectiveness of household investments in rooftop solar.

If Duke Energy were to propose such rate structures there would be a level of public opposition like we've never seen. But co-ops, despite maintaining their monopoly status, have been effectively de-regulated by the state under the false assumption that their policies and practices are being regulated by their members. This allows electric co-ops to set whatever rates they want without any public oversight or accountability.

Further, while making it harder for families to invest in efficiency and solar, electric co-ops have by and large ignored the need for energy efficiency investments in their communities, especially among low-income households. They have done this by leaving billions of dollars in low-cost capital on the table that the US Department of Agriculture has made available to rural utilities since 2014. The available programs include the Energy Efficiency and Conservation Loan Program, which offers billions of dollars a year in treasury-rate loan guarantees that co-ops could use to invest in efficiency, conservation and renewables for their members, and the newer Rural Energy Savings Program, which offers zero-interest financing in the amount of \$100 million this year alone for co-ops to implement on-bill energy efficiency finance programs, solar financing programs and other beneficial clean energy investments. To date, only one co-op out of twenty-six in the state, Roanoke Electric Cooperative, has used either of these programs for facilitating direct investments in home energy efficiency or solar.

The end result of all of this is that energy cost burdens have persisted in NC's rural communities, and those communities have largely been left out of benefitting from the energy savings, jobs, and economic development that the rest of North Carolina has experienced due to expanded investment in renewables and energy efficiency.

We call on Governor Cooper and state government agencies to work hard to ensure that rural areas in North Carolina are at the center of the Clean Energy Plan. If equity is a central focus of the plan, it can't just be a plan for Duke Energy customers, for urban areas, and for the affluent. But to achieve that goal, we need to address the significant barriers to expanding clean energy opportunities for rural and low-income communities.

Any new policies or plans must require compliance by electric co-ops and municipal utilities. It must address inequitable and harmful rate structures being imposed by co-ops. It must address the lack of regulation of, and lack of transparency by co-ops. And it must commit a substantial amount of dedicated resources and administrative support associated with the Plan's implementation to rural communities. Otherwise, it won't be a plan for all North Carolinians.

Thank you for your consideration,

Rory McIlmoil  
Senior Energy Analyst  
Appalachian Voices





April 2, 2019

Governor Roy Cooper  
20301 Mail Service Center  
Raleigh, NC 27699

House Speaker Tim Moore  
16 W. Jones Street, Rm 2304  
Raleigh, NC 27601

Senator Phil Berger  
16 W. Jones Street, Rm 2007  
Raleigh, NC 27601

Dear Governor Cooper, Speaker Moore and Senator Berger:

As major employers and energy consumers across North Carolina, we write to express our strong support for the advancement of bold clean energy and clean transportation policies for our state. We applaud the progress made to date to promote the deployment of clean energy resources in North Carolina, including previous legislation enacted by the N.C. General Assembly and the recent targets outlined in Executive Order #80, and we strongly encourage you to continue this progress. By enacting strong policies and programs to spur investments in clean energy, clean transportation, and emissions reductions, North Carolina has an opportunity to build upon past successes while continuing to grow the economy for many years to come.

We must work together to ensure North Carolina remains at the forefront of the transition to a clean energy economy. Lawmakers should increase the state's commitment to renewable energy, energy efficiency, electric vehicles, energy storage, and other innovative technologies and high-tech manufacturing products involved with a 21<sup>st</sup> Century electric grid, while creating a more competitive market in which these technologies can grow. Thanks to past leadership of legislators, North Carolina was an early leader in the Southeast in embracing clean energy technologies, and the economy has benefitted as a result. In order to maintain the state's regional and national leadership position and competitive advantage in the new energy economy, more must be done to attract clean energy investment. As such, we respectfully provide the following recommendations:

### **Use Energy More Efficiently and Eliminate Waste**

The Tar Heel State is missing out on opportunities to reduce electric energy use and eliminate waste across the state.<sup>1</sup> Energy efficiency programs and investments are the lowest-cost energy resources available, with new technologies delivering greater savings than ever before.<sup>2</sup> However, North Carolina's utility energy efficiency investment and performance remains well below the national average, missing opportunities to save money for business, residents, and state and local government.<sup>3</sup>

As large energy users, we are making major investments in energy efficiency because it helps us cut waste, save money, and quickly gain a return on our investment. In many ways, North Carolina's large energy users are setting an example for utilities, government, and other businesses on the value of energy efficiency investments. North Carolina should consider strengthening and extending its utility energy efficiency investment requirements and consider addressing utility compensation structures so that electric utilities have more incentive to invest in efficiency programs. North Carolina can also more responsibly utilize taxpayer dollars by increasing energy efficiency targets for state-owned buildings to establish a 40% energy savings goal by 2025. This goal, recommended by the N.C. <sup>137</sup>

Energy Policy Council (in 2016 and 2018) and outlined in Executive Order #80, would build on the state's previous 30% energy savings goal by 2015, which delivered \$1 billion in cost savings for taxpayers.<sup>4</sup>

### **Increase Customer Access to Renewable Energy**

Various policy barriers make it difficult for large energy users and residential customers to invest in renewable energy in North Carolina. Renewable energy is one of the lowest-cost energy resources available.<sup>5</sup> Procuring renewable energy allows businesses and educational institutions to save money, lock in long-term prices, and protect against the volatility of fuel prices. This is why more than 162 companies have committed to power 100% of their operations with renewable energy—including 37 companies with operations in North Carolina<sup>6</sup>—and why more than 14,000 megawatts of corporate renewable energy deals have been announced across the United States since 2015.<sup>7</sup>

North Carolina should provide more competitive options for customers to access in-state renewable energy. Increasing competition in the energy marketplace would allow businesses to access low-cost renewable energy options. Offering more choice and competition for renewable energy would help North Carolina attract private investments while helping businesses and other large energy users save money, attract talent, and stay competitive.

### **Accelerate the Deployment of Electric Vehicles**

Electric vehicles (EVs) and other clean energy technologies are rapidly declining in price and are providing important cost savings for businesses, consumers and government entities. Cleaner, more efficient vehicles can help to lower emissions and allow businesses to dramatically reduce fuel and maintenance expenses in our company fleets. North Carolina should promote policies and programs that accelerate the deployment of clean transportation options and EV charging infrastructure. The 80,000 zero-emission vehicles (ZEV) target and the “lead-by-example” ZEV directive included in Executive Order #80 are important steps in the right direction for North Carolina. Additional initiatives such as the Advanced Clean Cars program would set important market signals that encourage the availability and sale of EVs and low-emission vehicles. The national Volkswagen Settlement, and North Carolina's expected \$92 million allocation, also provides a key opportunity to scale up EV charging infrastructure in communities across our state.<sup>8</sup>

### **Promote the Development of Energy Storage**

Along with energy efficiency, demand response and electric vehicles, the deployment of energy storage technologies can help to facilitate the integration of additional renewable energy resources while creating a more resilient, reliable, and responsive electric grid. North Carolina can capture the many benefits for ratepayers—and establish itself as a regional and national leader—by putting into place the right policies, programs and goals that will allow these innovative technologies to thrive. Enabling a competitive environment for energy storage and encouraging collaboration with large customers can be helpful in achieving low-cost solutions while learning how to successfully integrate these key technologies.

In conclusion, we encourage North Carolina lawmakers to implement strong policies that spur adoption of renewable energy, energy efficiency, electric vehicles, and energy storage for customers and ratepayers. Lawmakers should also ensure that utilities' programs, regulations and business models are better aligned with customers' needs. North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard (REPS) and the federal Public Utility Regulatory Policies Act (PURPA) were key drivers for innovation and growth of the state's clean energy economy over the last decade; now lawmakers must provide the next generation of policies that will enable this economic growth to continue.

Additional clean energy and clean transportation policies will attract new investments, encourage innovation, save ratepayers money, appeal to forward-thinking businesses, create local jobs, and help North Carolina stay competitive with neighboring states.<sup>9</sup> We look forward to working with you to grow North Carolina's low-carbon, clean energy economy in 2019.

Thank you for your consideration.

Sincerely,

**Ameresco, Inc.**  
**Appalachian Mountain Brewery**  
**Arjuna Capital**  
**Cree, Inc.**  
**Ingersoll Rand**  
**Mars Incorporated**  
**National Association of Energy Service Companies (NAESCO)**  
**New Belgium Brewing**  
**Schneider Electric**  
**Sierra Nevada Brewing Co.**  
**Unilever**

CC: Secretary Michael S. Regan, N.C. Department of Environmental Quality  
Secretary Anthony M. Copeland, N.C. Department of Commerce  
North Carolina Utilities Commission  
North Carolina Public Staff

*For more information, please contact Brianna Esteves at [esteves@ceres.org](mailto:esteves@ceres.org).*

**More information about the company signatories:**

**Ameresco, Inc.** helps shape the future of energy use in the United States and abroad. A leading independent provider of comprehensive energy efficiency and renewable energy solutions, its capabilities range from upgrades to facility's energy infrastructure to the development, construction and operation of renewable energy plants combined with tailored financial solutions. Ameresco works with customers on both sides of the meter to reduce operating expenses, upgrade and maintain facilities, stabilize energy costs, improve occupancy comfort levels, increase energy reliability and enhance the environment. Founded in 2000, Ameresco has a deep history in public-sector energy projects, with numerous federal and local government, public housing and military contracts. Ameresco has offices in Charlotte, North Carolina.

**Appalachian Mountain Brewery** brews great tasting, award winning beers and ciders at its brewery and tasting room in Boone, North Carolina. AMB's mission is to sustainably brew high quality beer, support local non-profits and help its community prosper. AMB understands how important the ecology and environment are to the people of the High Country and employs cutting-edge and tried-and-true technologies like solar energy to protect our natural environment.

**Arjuna Capital** is a one-stop shop for creating a high-impact investment portfolio across markets and asset classes—from public to private, domestic to foreign, equity to debt. Based in Durham, North Carolina, Arjuna strives to offer the most diverse, sustainable, profitable and high-impact investments available, to build and preserve clients’ wealth, and to influence sustainable change through enlightened engagement in the capital markets.

**Cree, Inc.** is a market-leading innovator of semiconductors, lighting-class LEDs and lighting products. Cree is uniquely positioned to innovate new ways in which lighting will serve as a platform for emerging technologies and capabilities that will enrich lives, improve society and safeguard our planet. Cree’s Wolfspeed segment stands alone as the premier provider of the most field-tested SiC and GaN Power and RF solutions in the world. Cree’s LED product families include LED chips, components, indoor and outdoor commercial lighting, as well as consumer LED bulbs. Founded in North Carolina, Cree has its headquarters, primary research and development operations, and manufacturing facilities in Durham.

**Ingersoll Rand plc** (NYSE:IR) is a diversified industrial manufacturer creating comfortable, sustainable and efficient environments that advance the quality of life across the globe. Its market-leading brands—including Club Car, Ingersoll Rand, Thermo King, Trane—work together to heat, cool and automate homes and buildings; enhance commercial and industrial productivity; keep transported food and perishables safe and fresh; and deliver fun, efficient and reliable transportation solutions. Ingersoll Rand’s North America Headquarters and Corporate Center are located in Davidson, North Carolina.

**Mars, Incorporated** is a private, family-owned company headquartered in McLean, Virginia, USA, with annual net sales of more than \$35 billion. Mars’ portfolio of brands offers quality and value to consumers around the world and includes PEDIGREE®, WHISKAS®, M&M’S®, SNICKERS®, MARS®, EXTRA®, ORBIT®, UNCLE BEN’S® and many more. Mars set a goal to achieve 100% renewable energy for our operations by 2040, and set a science-based target to cut carbon emissions across our value chain 27% by 2025 and 67% by 2050. In North Carolina, Mars operates 62 veterinary clinics throughout the state and a petcare factory in Henderson, employing over 1300 people.

The **National Association of Energy Service Companies (NAESCO)** represents nearly 350 electrical equipment and medical imaging manufacturers that make safe, reliable, and efficient products and systems. NAESCO represents every facet of the energy services industry. Our combined industries account for 360,000 American jobs in more than 7,000 facilities covering every state. Our industry produces \$106 billion shipments of electrical equipment and medical imaging technologies per year with \$36 billion exports.

**New Belgium Brewing**, makers of Fat Tire Amber Ale and a host of Belgian-inspired beers in Asheville, North Carolina and Fort Collins, Colorado, is consistently recognized as a great place to work and a sustainable business. New Belgium’s core value to honor the environment is lived out in part through an internal energy tax to help fund sustainable business practices as well as on site solar and biogas energy generation.

**Schneider Electric** is leading the digital transformation of energy management and automation in homes, buildings, data centers, infrastructure and industries. With a global presence in over 100 countries, Schneider is the undisputable leader in Power Management and Automation Systems. Schneider believes that great people and partners make for a great company and that our commitment to Innovation, Diversity and Sustainability ensures that Life Is On everywhere, for everyone and at every moment.

**Sierra Nevada Brewing Co** is a pioneer in the craft beer industry and also a recognized leader in sustainable operations. The company is home to the largest solar installation in craft beer and continues to invest in clean and renewable energy by using biogas from onsite wastewater treatment to fuel microturbines and purchasing renewable energy via NC GreenPower. With breweries in Chico, CA and Mills River, NC, Sierra Nevada is committed to crafting the highest quality beers in the most responsible way.

**Unilever** employs 315 people at its personal care product manufacturing facility in Raeford, North Carolina. On any given day, Unilever products are used by 2.5 billion people to feel good, look good and get more out of life. Great products from the company’s range of more than 400 brands such as Lipton, Knorr, Dove, Axe, Hellmann’s and Ben and Jerry’s give Unilever a unique place in the lives of people all over the world. Unilever is working to ensure that its products play a part in helping fulfill its purpose as a business – making sustainable living commonplace. Unilever has announced intentions to go carbon positive in its operations by 2030 and supports the production of more zero carbon renewable energy than needed for its own operations. This reflects the company’s ambition to play a leadership role in the transition to a zero carbon economy.

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<sup>1</sup> The American Council for an Energy-Efficient Economy ranked North Carolina 26<sup>th</sup> in their 2018 State Energy Efficiency Scorecard (October 2018) and awarded North Carolina 3 out of 20 possible points for utility energy efficiency programs. See <https://database.aceee.org/state/north-carolina>.

<sup>2</sup> For example, in a recent analysis on the cost of saved energy by state, energy efficiency in North Carolina was reported to have cost ~\$0.021/kWh. In addition, new efficiency technologies that leverage advanced analytics and the internet of things are delivering greater energy and cost savings than ever before. (See: Ian Hoffman, Charles A. Goldman, Sean Murphy, Natalie Mims Frick, Greg Leventis and Lisa Schwartz, Electricity Markets and Policy Group, Lawrence Berkeley National Laboratory, “The Cost of Saving Electricity Through Energy Efficiency Programs Funded by Utility Customers: 2009–2015,” June 2018, <https://emp.lbl.gov/publications/cost-saving-electricity-through>). In comparison, the avoided cost of energy at the distribution level is \$0.0249–\$0.0378/kWh. This value does not include additional avoided capacity costs which would be an additional benefit of energy efficiency investment. See: DEP Exhibit 1 Duke Energy Progress, LLC Proposed Purchased Power Schedule PP, <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=334e040d-f667-4bdf-bb9d-4b88b986755e>.

<sup>3</sup> For example, according to the 2018 State of Efficiency Scorecard issued by the American Council for an Energy-Efficient Economy, North Carolina ranked 34<sup>th</sup> in the country for its utility energy efficiency programs and policies. See: <https://aceee.org/sites/default/files/publications/researchreports/u1808.pdf>.

<sup>4</sup> According to the North Carolina Department of Environmental Quality’s 2015 report, “State buildings in N.C. have reduced energy costs by almost \$1 billion since 2003” (See: <https://deq.nc.gov/press-release/state-buildings-nc-have-reduced-energy-costs-almost-1-billion-2003>). By adopting a 40% by 2025 goal, taxpayers would see another \$2 billion in savings—money that could be reinvested in government services, lower taxes, or additional energy prices (See: N.C. Energy Policy Council. “Energy Policy Council Report.” March 2016. <https://ncdenr.s3.amazonaws.com/s3fs-public/documents/files/Energy%20Policy%20Council%20Report%20March%202016.pdf>.)

<sup>5</sup> According to Lazard’s 2018 Levelized Cost of Energy Analysis–Version 12.0, unsubsidized wind and utility-scale solar became cost-competitive with conventional energy generation several years ago, and alternative energy technologies continue to decline in cost. See <https://www.lazard.com/media/450773/lazards-levelized-cost-of-energy-version-120-vfinal.pdf>.

<sup>6</sup> Businesses with operations in North Carolina that have committed to 100% renewable energy include: ABInBev, AkzoNobel, Amazon, Apple, AXA, Bank of America, Biogen, Facebook, Fifth Third Bank, Google, H&M, Hewlett Packard Enterprise, IKEA, Infosys, Iron Mountain, Mars Incorporated, Merck, Microsoft, Morgan Stanley, Nestlé, Nike, Pearson, Procter & Gamble, PVH Corp., Royal DSM, Ricoh, Schneider Electric, SGS, Starbucks, TD Bank, T-Mobile, UBS, Unilever, VF Corporation, Walmart, Wells Fargo, and Workday.

<sup>7</sup> According to the Rocky Mountain Institute’s Business Renewables Center, more than 14.31 gigawatts of corporate renewable energy deals have been announced since the start of 2015. This includes more than 6.53 gigawatts of corporate renewable energy deals announced in 2018 alone. See <http://businessrenewables.org/corporate-transactions>.

<sup>8</sup> Terms of the VW Settlement allows states to utilize up to 15% of their settlement funding for EV charging infrastructure. For more information, see: <https://deq.nc.gov/about/divisions/air-quality/motor-vehicles-and-air-quality/volkswagen-settlement>.

<sup>9</sup> Neighboring states such as Virginia are moving forward at full speed on clean energy technologies. For example, the 2018 Virginia Energy Plan, released in October 2018, outlines a vision to build out offshore wind resources, increase the deployment of onshore renewables, and develop a comprehensive transportation electrification action plan. See <https://www.governor.virginia.gov/media/governorviriniagov/secretary-of-commerce-and-trade/2018-Virginia-Energy-Plan.pdf>.

### Comment from DEQ Environmental Justice - Clean and Equitable Transition Subcommittee

Creating greater opportunities for historically under-utilized businesses to grow and prosper through enhanced local government contracting and procurement is necessary to generate greater equity and shared prosperity (Brichi, 2004; Edelman and Azemati, 2017; Robinson, 2017).

Regarding necessary equity considerations, the DEQ Clean Energy Plan, especially in the Customer Choice and Economic Development bucket, must not only include recommendations for workforce development but also business development. For business development, the plan should stipulate that the State will develop strategies to ensure that the clean energy supply chain is inclusive and equitable, that is, creates contracting and procurement opportunities for historically underutilized businesses (i.e., MBEs, DBEs, WBEs, and veteran- and LGBTQ-owned enterprises). Research shows that these types of businesses are far more likely to employ minority workers than majority-owned businesses.

In both the public and private sectors, supplier diversity is increasingly becoming a necessity for success based on market-driven factors rather than simple contracting and procurement government-mandates. (Shah & Ram, 2006; ConnXus, 2017; Lazarus, 2017; Johnson, 2018). While continuing to acknowledge and striving to comply with anti-discrimination laws enacted roughly four decades ago (AAAEEO, 2019), public and private sector entities are increasingly recognizing how disruptive demographic trends are dramatically transforming the world of contracting and procurement and, in the process, making supplier development a strategic imperative rather than just a compliance issue (D&B Supply Management Solutions, 2009; LePage, 2014; Lohrentz, 2016; Rutherford, 2016; Suarez, 2016a; Rimmer, 2017; Zerp, 2018; LISC Los Angeles, 2018; Hussain, 2019; Vazquez & Frankel, 2017; Weissman, 2017; Fairchild and Rose, 2018; Fulkerson, 2018). More specifically, organizations that embrace supplier development as a strategic imperative recognize that the innovative capacity of small diverse suppliers, who typically are more flexible, agile, and driven to succeed than large firms, can boost their performance, reduce the cost of goods and services, and drive continued business growth in an increasingly diverse marketplace (GEP, 2019). Many of these small firms are owned by people of color, women, and/or members of the LGBT community (Vazquez & Frankel, 2017; Suarez, 2019a; Rimmer, 2017; Suarez, 2019a).

The fact that there is overlap between those communities which have historically been under-utilized for supply-side investment and those which are disproportionately impacted by climate change, mean that the intentional inclusion of these communities (communities of color, low income communities) must be a part of any plan to promote increased utilization of clean energy in an inclusive way.

Dear Sushma:

Many thanks to your staff for meeting with us last week during this very busy time in your work on the Clean Energy Plan. We appreciate the difficult task for DEQ and its partner agencies to translate EO80 into plans and actions that can be implemented. Here are our comments for the Clean Energy Plan pertaining to natural gas and methane, which your colleagues asked us to put it into writing when we met.

The world's scientists, in the form of the Intergovernmental Panel on Climate Change (IPCC), tell us that we need to achieve net zero carbon dioxide emissions by 2050 in order to have a substantial chance of keeping warming to a safe level. I was a Coordinating Lead Author on the panel's Special Report that reached that conclusion. [1,2]

However, this reduction will be much more difficult for developing nations, so advanced countries like the U.S., that have more economic and technological capacity and are responsible for a much greater contribution to historic and current emissions, need to take the lead and get to net zero earlier, around 2040.

Unless carbon capture and sequestration technology quickly becomes very cheap (and James Hansen estimates the cost at \$2-4 trillion/year) [3] and associated hurdles such as storage and pipeline siting are surmounted, there is no way new natural gas is compatible with the IPCC target.

As the state's chief supplier of electric power, Duke Energy, however, plans to build the equivalent of 20 new gas-burning power plants in North Carolina, the useful life of which would extend beyond 2050.

Unless the Clean Energy Plan can envision a future without new gas, it will not be a plan that protects North Carolina from the serious impacts of climate change as the governor intends.

This is true, obviously, even if we consider only the CO<sub>2</sub> emissions from burning natural gas, since "net zero before 2050" does not allow for the addition of new CO<sub>2</sub> sources now.

And yet the effect of natural gas is even worse than that. It is composed mostly of methane, a greenhouse gas with a much stronger climate impact than carbon dioxide. Gas (methane) leaks and is intentionally vented unburned during natural gas operations (drilling, storage, transport and distribution). Unfortunately, it is not possible to use natural gas without emitting methane. And if enough methane is released (as little as 1-2 per cent in fracking, processing and transporting it), natural gas is worse (potentially much worse) for the climate than coal.

Given that CO<sub>2</sub> emissions from natural gas alone make it incompatible with the IPCC target, we should not need to quantify methane leakage, yet knowing the leak rate allows us to give a much more complete analysis of the real societal footprint of gas usage. My research in this area leads to the following conclusions:

- Methane is often compared to CO<sub>2</sub> in terms of “global warming potential” (GWP). This means a multiplier is used to determine the relative climate impact of the two gases. There is no single multiplier that can fully compare these gases over all timescales. Because methane remains in the atmosphere for a much shorter period than CO<sub>2</sub>, the GWP for fossil methane is 86 times that of CO<sub>2</sub> over a 20-year period but “only” 34 times the GWP of CO<sub>2</sub> when measured over a 100-year period. [4] Robert Howarth at Cornell estimates that 4.1% of gas is emitted as unburned methane and (using a GWP of 86 and no other social cost) calculates that gas has a worse climate impact than coal if more than 2.7% is emitted unburned. [5]
- Because of the debate over which GWP to use, I instead compare methane to CO<sub>2</sub> based on their relative overall effect on society at large. Methane is a precursor to ozone, so causes air quality issues and the associated health impacts. When you take these costs into account (using a 3% discount rate), methane does \$3,700/ton in damages compared to CO<sub>2</sub>'s ~\$70/ton, giving methane 50 times the societal impact of CO<sub>2</sub>. These numbers are in the process of being refined and are certain to go up as additional evidence comes in about the damaging health effects of ozone exposure. Our most recent analyses indicate that every million tons of methane emitted is associated with 500 deaths, which includes 30 in the US and about 1 in North Carolina. With about 330 Mt of methane emitted due to human activities every year (worldwide), methane emissions thus lead to ~10,000 premature deaths annually in the US and several hundred in NC. [6]
- I calculate that the societal damages due to climate change and air pollution raise the true cost of electricity generated using gas from the market cost of 4.5 cents per kWh (according to the US Dept. of Energy for 2018) to 12.2 cents per kWh. [6] That makes it more than double the cost of solar or onshore wind, based again on US DoE statistics.
- Methane has been the largest contributor to the worldwide failure to keep on an emissions trajectory consistent with a 2C global warming target, causing 90% of the departure from such a trajectory that we have seen since 2000. [7]

If we understand correctly, the recommendations in the Clean Energy Plan will be based on modeling that includes only emissions from combustion, in other words from the power plant itself. But the bulk of methane emissions from natural gas occur upstream of the power plant.

A plan that does not account for this is not a plan compatible with meeting the IPCC target and paints a dismal picture of our future. DEQ will have missed an opportunity to halt Duke's gas buildout, North Carolina will show a reduction that meets the governor's EO80 target (though not the IPCC target), and total emissions will rise because North Carolina has created a market for the gas being fracked in West Virginia and Pennsylvania. Methane will be emitted from those wells, from the Atlantic Coast Pipeline, and from storage tanks and compressor stations along the way, without our state taking any responsibility for it.



This is a global problem and our state has a role to play in its solution; but in expanding the use of fracked natural gas in the state, North Carolinians will be basking in a false sense of accomplishment and security that hides our contributions to irreversible warming.

Economic trends alone may be enough to reverse Duke's plans for new gas in North Carolina. With the levelized cost of natural gas now running around 4-4.5 cents/kWh, [8] the City of Los Angeles is about to sign a solar PPA at 1.997 cents/kWh for a facility that will also include battery storage (with electricity from the batteries priced at only 1.3 cents/kWh) and is expected to supply ~7% of the city's needs. [9]

If Duke Energy does succeed in building new gas plants, these plants are very likely to end up as stranded assets, exacerbating the already thorny problem of unrecovered debt that is preventing the utility from closing coal plants ahead of schedule. We have compiled a short sample of recent publications illustrating the extreme financial and climate risks associated with new natural gas. [10]

However, with the climate urgency we are facing, we feel that NC needs a Clean Energy Plan that does more than simply trust that market forces will provide the outcome that we really need.

If you do not have time to model the above factors in the Clean Energy Plan, you should find a way to at least acknowledge them, laying down a marker for caution and further study. For example, you could include a section on "Necessary Targets Beyond EO80" that acknowledges:

- that, in order to meet the IPCC's 2030 and 2050 targets, ongoing economic trends and research on the impacts of methane strongly suggest that new gas plants may present an unnecessary risk to the climate and to the health of North Carolinians
- the need for future regulatory impact assessments (RIAs) of policies adopted from these recommendations, which will have to account for methane impacts, including its social costs, and the rapid changes in levelized cost of energy from different sources that increasingly favor renewables with storage and are likely to continue to shift in that direction
- that the fracked gas fueling NC gas plants releases enough greenhouse gases in its extraction and transport to make it as bad or worse for the climate than coal.

Duke Energy's plan is not only inconsistent with meeting IPCC targets. It is inconsistent with a target of reducing greenhouse gas emissions at all. What appears to be a complete failure of the Clean Energy Plan to account for methane emissions goes counter to the "carbon reduction" goal that stakeholders have identified as being by far their top value for the Plan. [11]

Instead, we feel strongly that the Clean Energy Plan should recommend:

- a permanent moratorium on new gas infrastructure in the state
- a requirement that the investor-owned utilities account for the social cost of emissions, including in-state and upstream methane, in their Integrated Resource Plans so that decision makers have a more accurate picture of the costs and impacts of natural gas

Thank you again for the hard work you and your team are doing. Please let us know how we can be of assistance to you in completing this important task and giving North Carolina a Clean Energy Plan that truly rises to the challenges of the crisis in which we find ourselves.

Sincerely,



Drew Shindell, Nicholas Professor of Earth Sciences, Duke University

In collaboration with

Dale Evarts, former Director, Climate, International and Multimedia Group, US EPA

Kathy Kaufman, former Regulatory Analyst, Air Economics Group, US EPA

Jim Warren, Executive Director, NC WARN

Sally Robertson, Solar Projects Coordinator, NC WARN

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**Customer access to renewables; customer access to renewable natural gas: *How can we give customers choices with respect to their [natural gas energy] source while maintaining affordability, reliability, and fairness for all customers?***

**What is happening and what is the policy tension?**

First, North Carolina has the potential to produce an incredible amount of biogas (also referred to as biomethane) thanks in large part to leading the nation in pork and poultry production,<sup>1</sup> the waste from which can replace enough natural gas to achieve an estimated 2M MTCO<sub>2</sub>e reductions annually, which is based on an estimated 39.9M MMBtu/year of biomethane produced.<sup>2</sup> What may be more extraordinary about biogas is that it can be used to generate electricity – either on site or by directing its use to highly efficient natural gas-fired combined cycle plants; it can be used as an alternative to fossil-derived natural gas in all of the ways residential, commercial and industrial customers use natural gas and it can be used in the form of compressed natural gas as a transportation fuel or used to create electricity to run electric vehicles.<sup>3</sup> And, as a fuel source that is available around-the-clock, it avoids issues of intermittency that sometimes thwart the proliferation of more traditional renewables. Finally, when biogas is captured and used to produce renewable energy, it not only replaces the use of a conventional fuel, as do other renewables, but it also cancels emissions that would occur from the decomposition of the organic waste from which biogas is produced.<sup>4</sup>

Despite these benefits, biogas remains vastly underutilized in NC. One big reason is that the glut of cheap natural gas – thanks to the fracking boom – keeps the price of natural gas artificially low, making it difficult for renewable natural gas to compete. Use of RNG thus far has occurred in North Carolina thanks to incentives created by the Renewable Energy and Energy Efficiency Portfolio Standard's swine (and to a lesser extent) poultry set-asides, which require North Carolina's electric utilities to generate 0.20% of their electricity from swine waste<sup>5</sup> and 900,000 MWh from poultry waste,<sup>6</sup> and payments for

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<sup>1</sup> RNG is derived from biomethane produced through the breakdown of organic waste. Major sources of organic waste in North Carolina include swine and poultry waste, dairy waste, waste water treatment plants, landfills and crop residues.

<sup>2</sup> NC ranks second in pork production and in the top five with respect to poultry production.

<sup>3</sup> In addition to using RNG to produce electricity, RNG can be used in every way that conventional natural gas is used: as a renewable transportation fuel in the form of compressed natural gas, to produce steam for heating and cooling systems, to run hot water heaters.

<sup>4</sup> Biomethane is created when organic waste is broken down in anaerobic environments and can be used in a variety of forms to replace fossil-derived fuels, such as renewable natural gas, compressed natural gas and liquefied natural gas. Raw forms of biogas can operate electric generators with very little processing of the gas (i.e., dehumidification and pressurization), providing a source of fuel for natural gas-powered generators, which could prove particularly crucial in rural areas and on farms in the case of power outages associated with extreme weather events.

<sup>5</sup> Biogas captured by anaerobically digesting swine waste is purified into RNG, injected into the natural gas pipeline, and nominated by the electric utility to one of its natural gas power plants. Alternatively, biogas can produce electricity on-farm and be interconnected to the power grid. In these ways, RNG serves as a renewable source of electricity.

<sup>6</sup> Because North Carolina is one of the biggest producers of both pork and poultry, the NCGA included set asides for the production of electricity from their waste streams in the 2007 Renewable Energy and Energy Efficiency

carbon offsets from the avoidance of the GHGs that would have been emitted if the waste were left to decompose. The economics of project development are changing somewhat because of federal and state mandates that have created new markets – and justifiable returns for biogas producers –for renewable and low carbon fuels, with some of the highest prices being paid for biogas derived from livestock. However, state policy and practices are not designed nor are they adapting to the biogas opportunity in ways that allow producers to get their gas to these markets, which will ultimately make RNG accessible to North Carolina customers. They could, however and if properly implemented, help RNG achieve economic parity with fossil-derived natural gas, just as efforts to spur solar in NC led to solar's dramatic price reduction and NC's standing as one of the top solar producers in the nation.

Omitting RNG from the renewables discussion while also limiting RNG to electricity production misses significant and uniquely North Carolinian opportunities to achieve its climate goals. Biogas is one of the unique renewables that can displace a fossil fuel while canceling out unmitigated emissions by producing it, run 24-7, be used as a transportation fuel, while serving an additional utility sector (i.e., natural gas). Biogas' contribution to NC's climate goals is also significant considering that natural gas accounts for 27.2 MMTCO<sub>2</sub>e or almost 23% of NC's GHG emissions.<sup>7</sup> Natural gas-fired generation accounts for 30% of the state's electricity.<sup>89</sup> Finally, federal and state mandates for renewable transportation fuels is making it possible for producers of biogas to receive lucrative returns on their gas.

The tension therefore is in finding ways to accelerate the capture and use of biogas so that customers can receive a greater percentage of their electricity from RNG, meet a greater percentage of their natural gas needs from RNG, and/or use biogas as an alternative vehicle fuel. Incentives to produce biogas do exist through state and federal mandates plus the REPS and carbon payments, but the hurdles often outweigh those incentives.

To do this the state must take steps to appreciate biogas' significance and help biogas reach customers, primarily by creating regulatory and physical pathways for its collection and distribution to end users. In addition, there must be a way to address concerns related to biogas development that affect ongoing issues related to social and environmental justice, particularly with respect to swine and poultry operations. There is an opportunity for biogas to anchor overall improved waste management,

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Portfolio Standard (REPS). North Carolina is the only state to include animal waste in its REPS. A summary of the NC REPS can be found here: <https://programs.dsireusa.org/system/program/detail/2660>.

<sup>7</sup> See Table 2-3: CO<sub>2</sub>Emissions by Fossil Fuel Type for North Carolina and U.S., 2005-2016, North Carolina Greenhouse Gas Inventory (1990 – 2030), North Carolina Department of Environmental Quality Division of Air Quality January 2019, available at <https://files.nc.gov/ncdeq/climate-change/ghg-inventory/GHG-Inventory-Report-FINAL.pdf>.

<sup>8</sup> <https://files.nc.gov/ncdeq/climate-change/ghg-inventory/GHG-Inventory-Report-FINAL.pdf>

<sup>9</sup> Since 2005, emissions from coal combustion have dropped by 55% while emissions from natural gas have almost doubled during this same period. <https://files.nc.gov/ncdeq/climate-change/ghg-inventory/GHG-Inventory-Report-FINAL.pdf>.

producing a host of environmental, societal and economic co-benefits especially in areas directly surrounding such operations.<sup>10</sup>

**What policy or regulatory action might be required to address the tradeoffs you see? What entity would need to take the action you've identified? This answer also responds to "Are there ways you think NC should consider responding to this tension? What entity would need to take the action you've identified?"**

Currently, federal and state mandates for RNG in the form of transportation fuel are creating extremely lucrative incentives for biomethane, but it is difficult for developers to get this gas to these markets. Moreover, the NC REPS has created a de facto incentive for swine and poultry biogas through the swine and poultry set asides, which requires NC utilities to generate a subpercentage of their renewable portfolio from swine and poultry waste, but compliance with the mandate remains elusive for utilities, while compliance with through other means, particularly solar, has soared, which has resulted in reduced solar prices and greater customer access.

High-level recommendations for increasing biogas' use – and enjoying the GHG benefits of doing so - include:

1. Determine the extent and location of available biogas/biomethane resources in the state across all organic waste resources to determine the percentage of NC's GHG reductions can be met with biomethane.

Note: RTI International is leading an analysis between itself, Duke University and East Carolina University to measure available biomethane and the probabilities, based on technical and economic factors, for its development. The analysis will include determining the climate, environmental, societal, and economic effects of the use of biogas and will recommend policy measures to accelerate biomethane development, and the best uses for the gas (ie, transportation fuel, RNG/pipeline, on-site energy generation).

The analysis was recommended by the NC Energy Policy Council in its 2018 report and has been funded by Duke Energy via the REPS annual provisions for renewable research funding. The analysis is expected to be completed by June 2020.

2. Facilitate RNG transport to end users and buyers to accelerate development / accelerate GHG reductions from in-state biomethane sources.

The primary way to achieve #2 is through cooperation from local distribution companies (LDCs) and the NC Utilities Commission, which have been hesitant to give RNG access to pipelines because of concerns that RNG doesn't meet the same standards as conventional natural gas. (Analysis conducted by Duke

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<sup>10</sup> Arguably, biogas development relates to the category of "Equitable access and just transition to clean energy". Regarding the question "How can we ensure energy affordability and environmental justice while maintaining just and reasonable rates for all customers?", biogas development, if properly carried out, could spur long sought-after improvements to overall animal waste management. If biogas developers could better access lucrative markets, then proceeds from the sale of gas could be used to help producers pay for additional control technologies and/or practices. In addition, through coordination with programs such as agricultural cost share (e.g., Environmental Quality Incentives Program; State Agricultural Cost Share) while payments for nutrient management could be established specifically so as to be paired with biogas development projects, which would make it possible for equipment and processes to be added to a basic digester project while adding little capital costs, thereby protecting consumers from a higher price for biogas and thus ensuring affordability and reasonable rates while enhancing environmental protections and community concerns.

University and presented to the NCUC of biogas currently being produced by an in-state swine waste anaerobic digester showed that the biomethane was equal or superior in quality as to all constituents while concerns related to thermal value can be easily remedied with cooperation from the LDC). They are also concerned that accepting RNG that will ultimately move to buyers outside the state will subject them to FERC jurisdiction, even though such arrangements can be permitted without opening the LDCs up to federal oversight). Bias regarding RNG's quality plus unfounded concerns regarding risk of FERC's oversight encroaching into state activities of LDCs has impeded the rate at which projects can be developed because developers have a great deal of difficulty securing a place to inject RNG so that their gas can be delivered to buyers. This is occurring despite the existence of technology, financing and resources to carry out projects and despite NC being sought after for biomethane, particularly biomethane derived from agricultural sources.

3. Create technical support services for biomethane development, particularly for suppliers who own the waste but are not engaged in biomethane production for their primary income.

Currently there is no centralized entity that can answer questions or provide guidance and expertise to those interested in pursuing biomethane development. At the very least, there should be staff dedicated to biomethane development within an appropriate existing executive agency and ways to collaborate with the NC Department of Agriculture and municipal leaders should be prioritized.

At best, a stakeholder group or commission empowered to oversee biogas development and related issues, such as access to pipelines, RNG standards and testing, social equity and environmental justice issues particularly related to animal waste management (which affects acceleration of biogas production), additional waste management measures to reduce nutrients and pollutants such as ammonia associated with waste generated particularly from large feeding operations (which are significant drivers of the state's economy, particularly in rural areas), and addressing regulatory, legal and economic barriers while setting reasonable standards for development and maintenance and operation.

Such an entity would need to be comprised of experts in biomethane development and related issues and be dedicated to creating a strategy for biogas development and strategy implementation, at the collective and individual project levels. All of these steps combined would work to ease project development, reduce costs, and ultimately increase access to RNG for end users. More than anything, a cohesive strategy - and a way to efficiently and effectively oversee its implementation - must be put into place.

**How are people in other places responding to this tension? What are the most innovative and promising solutions? Do they seem feasible in NC?**

Biogas producers need outlets for their gas that pay them enough to make projects economically viable and they need ways to easily move the gas to those outlets. Mandates that create a price signal for RNG, such as the EPA-managed renewable fuel standard and California's Low Carbon Fuel Standard, entice project development (create the outlet or market) while cooperative regulatory structures and company policies that facilitate rather than make RNG injection harder versus conventional natural gas injection and transport must be put in place, which occurs by changing regulators' attitudes toward RNG and requiring companies to accept and transport the gas, which may require legislation or something akin to a renewable gas standard or renewable fuel standard. At bottom, RNG must be considered at least equal to natural gas and preferably superior to conventional natural gas and distribution companies must be helped to understand how they can accept RNG while improving their service to customers. Now, it appears that RNG is considered to be a detriment, therefore barriers and hurdles are raised.



ENERGY & ENVIRONMENT  
INNOVATION FOUNDATION, LLC



June 24, 2019

TO: Lori Collins, NC DEQ

FROM: Chris Hardin, P.E.

SUBJECT: Technical Resources and a Few Key Points for  
Solar Energy on North Carolina Farms

As discussed, Rivendell Farms of the Carolinas (RFC), a 501 c (3) local food and farm support organization, and the Energy & Environment Innovation Foundation, LLC (EEIF) have compiled a list of technical resources and a few key points that we think should be added to the items that are being considered for the North Carolina Clean Energy Plan. In offering these technical resources and key points, we think it is important to identify any potential bias, preferences and a few items that may influence our ideas and opinions. These include the following:

1. **Responsible Farmland and Forest Management:** As we have researched numerous technical articles and spent time listening to farmers and citizens located in rural areas of the United States we have come to appreciate that our agriculture and food production systems are under stress. At the same time a high percentage of the solar energy production facilities (i.e. typically greater than 70 percent) are being located on farmland. There is a corresponding disconnect and/or potential problem where land development and new neighborhoods in suburban or transition urban areas have little regard for established forests that absorb a high percentage of carbon emissions near cities and urban areas.
2. **Unplanned Farmland Management and Food Production Needs:** It has been interesting to observe that frequently farmers and those who produce our food are almost never consulted when it comes to the use of farmland for solar energy production facilities. Individual landowners have exclusive rights to the use of their land, but frequently the impact to the remaining farm areas is not considered. People located in urban areas tend to be more concerned about climate change, then farmers and food production specialist who regularly influenced with variations in rainfall, drought and other environmental impacts. See article by Scientific America on Farmers and Climate Change.
3. **Low Values of Farmland Leases for Solar Energy, and Unclear Liability for Decommissioning:** Frequently the return on investment (ROI) to the farmers offering their land for solar energy facilities is less than 15 percent of the profit that is earned each year from the sale of the electricity produced. The going rate of \$600 to \$800 per acre per year is very low relative to the income provided to the solar developer. This relatively low ROI is a concern: especially when responsibility for decommissioning -- if the solar facility fails or is damaged, or if the solar developer goes bankrupt -- is frequently handled by the farmer or landowner.
4. **All Things in Moderation:** As a farmer that has utilized and appreciated the value of producing solar power on our farm, it seems that the best and most sustainable solar power facilities that preserve the farmland and provide good value to the farmer are: a) spaced out sufficiently to allow dual use of the farmland, and to preserve the farming tax credit, b) often owned and/or co-owned by the farmer or land owner, so that the value and usefulness of the farmland is maintained, and c) provided to a farmer and/or landowner that has read and understood the financial and legal implications of having small to medium-sized solar energy production on their property.



5. **Avoiding Reliance on Energy Models and Competing Estimate is Important** Since the Clean Energy Plan Workshop No. 5 was held on May 22, 2019 we had a opportunity to review the findings and conclusions of several of the models that were presented. Several of these models questioned or corrected the information in the IRP developed by Duke Energy. To be honest many of these models seemed to be based on “best case” scenarios and/or confused peak versus average production from renewable energy. We noticed that several of the models relied heavily on energy imports from neighboring states that would effectively transfer our carbon producing problems to other states. At the same time there were several good ideas and key points identified in the models, but as mentioned by Sushma Masemore at the Workshop No. 5 it is important to recognize that all analytical models have “errors” and bias that must be taken into consideration.

It seems important to note that several respected agriculture and solar energy experts have expressed the same key points in various articles and technical resources included on NC State University’s web page of technical resources on solar energy and land use. **Our concern as energy and environmental professionals that also work in farming is that the farmers and rural electric cooperatives seem to have limited input and influence on North Carolinas Clean Energy Plan.** It would be great to see the North Carolina Agriculture Department and NC State professionals a little more directly involved in the Clean Energy Plan development process.

#### **Technical Resources and Precedent Setting Projects:**

We found that some of the best and most useful technical resources for promoting a balanced and/or common sense use of solar power were available from NC State University.

<https://craven.ces.ncsu.edu/considerations-for-transferring-agricultural-land-to-solar-panel-energy-production/>

Some of the best ways to increase renewable, solar energy at the source, and/or to decrease the need for more electric power are provided in the following link.

<https://energy.ces.ncsu.edu/incentives-rebates-and-programs/>

Listening to what most farmers think about climate change is important. Suggestion: Change the debate about “climate change” to consider the best and most efficient way to use land and protect the environment.

<https://www.scientificamerican.com/article/what-do-farmers-think-about-climate-change/>

<https://www.agweb.com/article/study-farmers-and-scientists-divided-over-climate-change-university-news-release/>

<https://journals.ametsoc.org/doi/full/10.1175/WCAS-D-16-0110.1>

<https://www.nytimes.com/2017/01/28/business/energy-environment/navigating-climate-change-in-americas-heartland.html>

Practical ways to increase the implementation and use of solar energy on farms. Suggestion: North Carolina really needs more farmers to install solar energy production facilities to meet its clean energy goals. How about a land use and solar energy benefits education and incentive program?

<https://content.ces.ncsu.edu/threshold-issues-for-landowner-solar-leasing>

It may be good to get input from Dr. Herbert Eckerlin of NC State and Gus Simmons about farm-based power. N.C. State University professor Herbert Eckerlin says the sunny stories of solar energy’s economic benefits are wildly exaggerated, while the higher costs and technological challenges are deliberately downplayed.

“Due to solar power, the cost of electricity is going to increase for industry and residential” customers, hindering job creation, said Eckerlin, who described himself to the council as “a strong proponent of solar and renewable energy.”

Eckerlin, a former official with Dominion Power in Virginia, designed and built the NCSU Solar House on the N.C. State campus, founded the North Carolina Solar Center, and is a member and former treasurer of the North Carolina Sustainable Energy Association, the statewide marketing arm of the renewable industry.

<https://www.carolinajournal.com/news-article/n-c-state-prof-casts-shadows-on-solar-meeting/>

Property taxes for solar production facilities on farms are something that needs to be addressed. Farmers can and will lose their agriculture tax credit if a high density solar energy production facility is installed on their land.

<https://nccleantech.ncsu.edu/wp-content/uploads/2018/10/Balancing-Ag-and-Solar-final-version-update.pdf>

<https://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2015/06/Property-Taxes-and-Solar-PV-Systems-Policies-Practices-and-Issues.pdf>

Several excellent, middle ground and win-win projects: Parking lots and agriculture solar production projects.

<https://energynews.us/2017/08/28/southeast/farmers-experts-solar-and-agriculture-complementary-not-competing-in-north-carolina/>

<https://www.sunraisedfarms.com/home>

<https://news.energysage.com/solar-canopy-installations-bring-shade-clean-energy-parking-lot/>

Community based solar with NC Electric Cooperatives – We need to do a LOT more of these solar projects.

<https://www.ncelectriccooperatives.com/innovation/community-solar/>

<https://www.ncelectriccooperatives.com/energy-innovation/solar-storage/>

### Summary and Conclusions:

EEIF and Rivendell Farms of the Carolinas recommend a few key items going forward:

- **Conduct a combined farmland use and solar/renewable energy storage GIS mapping study** to optimize the use and sustainability of farms, forests and solar production in North Carolina. EEIF and Rivendell Farms can work with the NC DEQ, NC State and possibly UNC Charlotte on this project.
- **Get key stakeholders in the NC Department of Agriculture and key agricultural counties involved** in the Clean Energy Plan development process. Consider changing the conversation to best valuable and a sustainable approach to land use and environmental protection.
- **Promote and provide financial incentives for the work of the North Carolina Electric Cooperatives** to build several large community-based solar projects. They know how to negotiate with Duke Energy and can develop polices that keep the grid resilient, keep corporate profits in check, and reduce carbon emissions.
- **Expand and increase the meetings of the North Carolina Energy Policy Council** so that it acts more like the South Carolina Energy Office. Include more agricultural and rural counties on the NC Energy Office of Policy Council. North Carolinas Energy Office and upgraded Energy Policy Council could address a lot of problems and streamline the Clean Energy Plan process. **BTW – I can assist with these key topics.**
- **Find better and lower cost ways to pay for coal ash cleanups.** It may be reasonable to include some of the issues with the coal ash cleanup conflict between Duke Energy and the NC DEQ under a new and upgraded NC Energy Office. Less conflicts means expending more effort on working together, and discovering more cost effective energy decisions for the citizens of North Carolina. Right now we are headed for very expensive coal ash cleanups that will limit investment in solar power and renewable energy.



July 31, 2019

Dear Secretary Regan,

Thank you for your leadership on climate action. Executive Order 80's Clean Energy Plan is an important step in accelerating North Carolina's progress toward a clean, just energy system. In support of your efforts, the undersigned submit the following policy options for your consideration to ensure that the recommendations of the Clean Energy Plan are immediately actionable and put North Carolina on a path for a just transition to deep decarbonization.

As the 2018 Special Report on Global Warming by the Intergovernmental Panel on Climate Change showed last fall, the world will need to achieve decarbonization on the order of halving carbon emissions from 2017 levels by 2030 and achieving carbon neutrality by 2050 in order to even attempt to keep warming below 1.5 degrees Celsius.<sup>1</sup> We emphasize our support for the following tools which, having arisen out of the Clean Energy Plan process under EO80, offer the best hope of achieving those goals:

1. Recommend **additional carbon emission reduction goals from the electrical use sector** of 67% from 2005 levels by 2030, 85% by 2040, and carbon neutrality by 2050.<sup>2</sup>
2. Establish a **declining carbon emissions cap** to incentivize flexible and cost-effective reduction opportunities, starting no later than 2021. Such a cap should achieve reduction consistent with meeting the statewide 2025 goals, and be protective enough to put the state on track for complete

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<sup>1</sup> [IPCC](https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/). "Summary for Policymakers of IPCC Special Report on Global Warming of 1.5 °C Approved by Governments." <https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/>

<sup>2</sup> The 2018 IPCC report recommendation that emissions must be reduced 49% from 2017 levels, or 25.774 MMT CO<sub>2</sub>e, equal to 32.47% of North Carolina's 2005 electricity use emissions.

decarbonization by mid-century. North Carolina should design the policy to allow for emission allowance trading and explore participation in the Regional Greenhouse Gas Initiative.

3. Recommend the adoption of **Performance Based Ratemaking** using metrics that incentivize regulated utilities to reduce greenhouse gas emissions.
4. Recommend the establishment of a stand-alone **energy efficiency resource standard** that ramps up to 2.0% of retail sales in new energy efficiency savings annually by 2030.

We look forward to working with other stakeholders and the Administration on the finalization and implementation of the Clean Energy Plan in the months to come.


Sincerely,



**Derb Carter, Southern Environmental Law Center**



**Hawley Truax, Environmental Defense Fund**



**Luis Martinez, Natural Resources Defense Council**



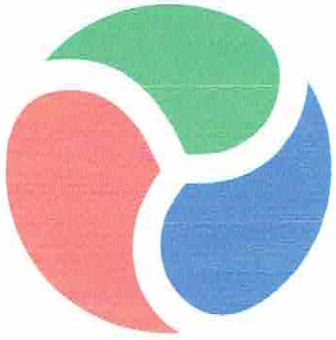
**Brian Buzby, North Carolina Conservation Network**



**Molly Diggins, Sierra Club North Carolina**



**Carrie Clark, NC League of Conservation Voters**



# NCCEBA

REPRESENTING CLEAN  
ENERGY BUSINESSES

July 26, 2019

Secretary Michael Regan  
North Carolina Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

RE: Utility and Regulatory Reform Needed to Transition to a Clean  
Energy Economy

Dear Secretary Regan:

The North Carolina Clean Energy Business Alliance (NCCEBA) believes it is in the best interest of North Carolina's ratepayers and the climate to create a new energy policy that empowers market forces to drive innovation, clean energy, and lower costs. North Carolina has a unique position in the nascent energy transition because renewables are now the lowest cost source for electricity and we are a national leader. In addition, Duke Energy is the number one CO2 emitter of green house gases and operates both the most coal generation and the least economic coal power in the United States. Our collective efforts can clean up our energy and make our state more economically competitive and ultimately carbon neutral.

As you know, independent power producers and buyers now represented by NCCEBA have worked in good faith worked with Duke Energy over the last 10 years to advance the transition to clean energy. Our initial success has brought \$12 billion in investment and

\$10 million annually in new property taxes to rural NC and 6% of the electricity sold in NC is now solar generated. With that success has come increasing push back from North Carolina's incumbent utilities.

Over the past five years, NCCEBA has been involved in long and difficult negotiations with Duke Energy that have at times have resulted in agreements to work together. However, each time we think we have made progress, Duke has walked away from the agreements and instead pressed harder against renewables in all forums: Through the General Assembly, Utilities Commission, and advertising, to maintain control, fight changes and mislead the public. Duke Energy's track record demonstrates that significant utility reform is essential to making the transition to clean energy in NC.

Vertically integrated electric utility monopolies served North Carolina well in the mid-20th century, but this model is now a liability to customers, taxpayers, and to our state's long term economic and environmental health. Current utility incentives (rate making and approved return on capital) were appropriate for building centralized generation and the electric grid. In the current, rapidly changing market these dated incentives lead to expensive and oversized generation, cumbersome regulations, and shifting costs as well as risks to customers by rewarding monopolies for spending as much capital as possible.

### **NCCEBA's Proposed Guiding Principles for Utility Reform**

1. Create a competitive market for generation.
2. Reducing carbon must be added to lowest cost standards for the NC Public Staff and NC Utilities Commission in approving generation additions and retirements
3. Respond to Customer demand for clean energy.
4. All forms of compensation and transparent electric system data should give price signals that foster open markets and innovation

## **NCCEBA's Proposed Short Term Policy Priorities for Utility Reform (1-2 years)**

(Significant implementation by the NCUC with direction from the Governor)

1. Wholesale Competition  
Move to competition in the wholesale energy markets in steps beginning with a study and establishing best practices for managed wholesale energy competition.
2. Planning & Price Signals
  - a. Rates - The NCUC should study and encourage dynamic pricing (time of use, real time or peak pricing) to create more efficient markets, spur energy efficiency and encourage energy storage.
  - b. Integrated Resource Planning – Make the planning process transparent and open to all parties. Give the NCUC its own resources to model and evaluate proposals. Evaluate and reward performance and recognize the difficulty of making long lived, 30 plus year decisions in this era of rapidly changing technology and pricing.
  - c. Contract Standards – NCUC should approve standard, long term, financeable contracts to encourage private investment.
  - d. Grid Modernization – The grid should support and not limit the addition of clean resources especially in eastern NC and increase reliability.
3. Encourage Decentralized, Clean Energy Options for EV Charging and Energy Storage and Prohibit Control by Incumbent Utilities
  - a. Electric vehicles fueled by coal energy will hurt rather than help meet North Carolina's carbon reduction goals. Existing solar sites are well distributed throughout NC and can provide EV charging. Currently, Interconnection red tape imposed by monopoly utilities make this very difficult.
  - b. Many private companies want to provide EV charging at no cost or risk to rate payers.

4. Performance Based Rate Making - Change rate making criteria from "revenue model/return on capital" to rates set for efficient operations and accomplishing energy policy goals such as the following:
  - a. Add many more distributed energy resources (DERs). Offer Duke Energy increased return for utilization of existing infrastructure (substations, lines, transformers, voltage regulation systems etc.). This could mitigate the pass through/no profit disincentive that is presently causing Duke to limit privately owned generation and investment. This incentive could also take the form of additional grid investments that resulted in more DER interconnections and an improved "Grid Forward" plan.
  - b. Add storage to new and existing DER power plants. This would provide energy when the grid needs it using private investment and less risk and offset the need for spinning reserves and future capital investment. Storage additions require reasonable compensation and interconnection rules.
  - c. Improve grid management to make the grid bi-directional and able to integrate many more DERs instead of new charges such as the proposed 'solar integration charge'.
  - d. Increase interconnection of DERs and reducing the time. Timely and cost-effective review of interconnection and completion of interconnection when facility is complete.
  - e. Focus distribution and transmission upgrades to integrate more DERs and facilitate energy movement from clean energy resource rich eastern NC and offshore to the load centers of piedmont and western NC.
  - f. Add compensation for new grid services such as peak shaving, voltage regulation, VAR supply, demand side management.
  
5. Code of Conduct & Independent Resources for Utilities and Regulators



As private investment in the grid/generation increases there needs to be a set of principles regulating how all parties compete and address conflict of interest issues to ensure a fair and open market. Currently, this is not in NCUC purview and so much is done on good faith. Duke Energy is often not a good faith partner.

For utilities, this code should include:

- a. Much more access to information (less use of confidentiality by utilities) and transparency
- b. Good faith effort to work with customers (including buyers and producers)
- c. Non-discriminatory approach to all customers.
- d. Non-disclosure of proprietary info of customers.
- e. Arms length relationship with affiliates, no preferential treatment

For regulators, this code should include:

- a. Revolving door regulations prohibiting members and staff of the NC Utilities Commission and the NC Public Staff from going to work for a utility or any businesses they have been regulating for at least two years.
- b. Gift Laws: The same rules on accepting gifts as the NC General Assembly.

### **Long Term Reforms (3-5 years)**

(Implementation by the General Assembly and the Governor)

1. Market Competition for Generation - Open the NC wholesale generation market to competition to spur private investments, reliability, innovation and lower prices. This change would leave grid ownership, investments and operations and maintenance with a monopoly and could create a new NC competitive generation company of Duke Energy's current generation assets.
2. Transmission Open Access aka a Regional Transmission Organization (RTO) - Provide unbiased, impartially regulated access to the transmission system preferably multi state.

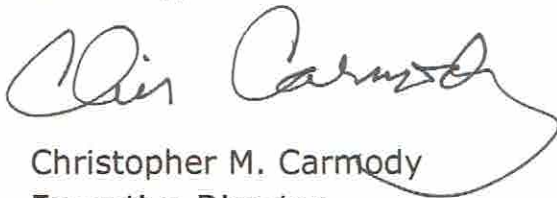
3. Consumer Choice - Consider giving electric and natural gas customers consumer choice of their electric and/or gas providers.

NCCEBA recognizes that changing energy policy and utility reform is a complex process that will only take place from actions and laws made by the Governor and the General Assembly. We fully support your administration's work on reforming energy policy Executive Order 80 and have participated in the stakeholder meetings and at multiple venues at the General Assembly and the North Carolina Utilities Commission.

While the conversation on utility reform is just beginning, we believe 2019-2020 needs to immediately work on providing a bridge to a greatly reformed electric energy market. Our state cannot stand still, and must make some short term decisions about investment and energy policy now.

Our members are grateful for the Governor's leadership and stand ready to support a transition to a clean, economically competitive energy economy.

Sincerely,



Christopher M. Carmody  
Executive Director

Cc: Sushma Masemore, Deputy Assistant Secretary for Env. & State Energy Director  
Ken Eudy, Senior Advisor  
Jeremy Tarr, Policy Advisor for Environment, Energy, and Transportation



August 6, 2019

Sushma Masemore  
Deputy Assistant Secretary for Environment & State Energy Director  
N.C. Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

Dear Deputy Secretary Masemore,

The North Carolina Sustainable Energy Association (NCSEA) appreciates the Department of Environmental Quality's good work on the development of the North Carolina Clean Energy Plan (CEP). Executive Order 80 (EO 80) provides an avenue for North Carolina to take a necessary step forward to implement modern and sustainable policies in the best interest of this state.

The evidence shows that affordable energy bills for North Carolinians will require a cleaner and more universally accessible energy system. Unfortunately, there are long-held barriers to this transition intrinsic to North Carolina's energy policy. NCSEA believes that the best chance to implement clean energy is through comprehensive regulatory reform, which will realign value propositions for the utilities, the state's administrative offices, stakeholders, and North Carolinians. This sort of regulatory reform requires both immediate and long-term changes in order to be successful.

The regulated utility business model serving North Carolinians is falling further behind the state's potential for delivering clean, affordable, and accessible electricity. In fact, this business model no longer delivers least cost electricity. NCSEA believes the following options will align the interests of regulated utilities serving North Carolina, their diverse ratepayers, and businesses offering affordable options and services to both utilities and consumers.

These reforms reach beyond just a cleaner energy portfolio in the future. Without meaningful reforms to utility incentives, regulations, and business models, we fear that North Carolina may squander its opportunity to maintain nationally competitive electricity rates and more affordable bills for all consumers. The stakes in meeting this challenge are high. RTI International recently conducted an independent analysis that found clean energy investments in North Carolina had a total economic impact of \$28.2 billion from 2007 to 2018. These clean energy investments have made significant contributions to those local economies and tax base. NCSEA recently examined tax records in 50 counties across the state and found that the properties with solar facilities paid almost \$10.6 million in property taxes in the year after development compared to \$513 thousand in the year prior; a nearly 2,000 percent increase. In fact, NCSEA is happy provide many more data points which outline how clean energy has already and will continue to enable North Carolina to avoid paying billions of dollars in costs associated with traditional generation sources. The economic case is coming clear.

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Last year, NCSEA convened a cross section of stakeholders to identify emerging issues, challenges, and opportunities across the energy landscape in North Carolina. That group aligned on the following principles to inform a shared energy vision for North Carolina:

1. Urgently establish an energy system that enables a healthy and sustainable environment and quality of life for current and future generations.
2. North Carolina's energy system should be sufficiently flexible to accommodate evolving energy trends, technologies and practices.
3. Ensure that energy system planning is transparent, comprehensive, and integrated.
4. Citizens and stakeholders have a voice and influence over energy decisions.
5. Ensure clean energy is accessible and affordable for all North Carolinians.
6. Ensure North Carolina's energy economy promotes economic prosperity for all.

In short, the barriers are systemic. The solutions need to be systemic and encompass the energy vision for North Carolina. To that end, NCSEA offers the following recommendations for the North Carolina CEP.

NCSEA has concluded that the CEP should prioritize at least two fundamental recommendations: (1) reforming the North Carolina energy business model and (2) reforming the North Carolina energy planning process.

### 1. **Reform North Carolina's Energy Business Model**

NCSEA believes that the utility business model must be reformed to allow for the utilities' respective business models to align with the clean energy interests in the state. This can be achieved starting with two initial steps.

#### a. *Electric Decoupling*

Decoupling is a regulatory mechanism that can work to make a utility indifferent financially whether sales of electricity are rising or falling. Simply put – decoupling takes the financial incentive of selling more electricity out of the electric utility's business model. NCSEA believes it is in North Carolina's interest to decouple the regulated electric utilities in this state, which North Carolina has already done with its natural gas utility. Nationally, as of 2018, 32 states utilize decoupling for their utilities, including 17 states which specifically decouple electric utility sales. NCSEA believes the initial step toward meaningful reform is removing the financial incentives in the electric utility business model which are counterintuitive to increased clean, resilient, affordable energy and reducing carbon costs statewide.



b. *Performance-Based Regulation*

If the first step towards a clean energy future is untangling energy sales from the utility business model, then the second step is incenting clean energy measures. The Synapse Study, provided as part of an alternative scenario to Duke's integrated resource plan (IRP) process in the most recent IRP docket and outlined more fully below, proves that clean energy is the least cost option. What are the roadblocks to that least-cost clean energy pathway? The long-held barriers intrinsic to the utility business model which reward outdated investments tied to coal or natural gas generation.

NCSEA believes that a utility that provides least-cost, resilient, clean energy should be rewarded accordingly. Therefore, we propose that the CEP specifically allow for a new performance-based regulation subplan wherein the stakeholders in this state will come together to determine performance goals for the state's utilities, including (but not limited to) clean energy performance goals. To be clear - NCSEA is not requesting for the abolishment of cost-of-service based ratemaking, but rather a simple enhancement to the structure to reflect current needs and goals. NCSEA believes the utilities should seek to implement clean energy pathways wherever possible and adding the financial incentive will increase the likelihood of those pathways being created.

2. **Reform North Carolina's Energy Planning**

The existing energy planning paradigm is no longer meeting the needs of North Carolinians as shown in the utilities' recent IRPs. Unfortunately, these IRPs reflect the intentions of utilities that seem to still be planning for the electricity system of the past. North Carolina needs comprehensive reform for this process.

As an example of how clean energy can be utilized for the least cost option while also modernizing the utility planning process to incorporate clean and resilient energy - in contrast to the Duke Energy IRPs, NCSEA worked with Synapse Energy Economics to create a 15-year "Clean Energy Scenario" for the Duke Energy utilities in North Carolina that is almost 30% less costly to operate, produces roughly 30% less greenhouse gas (GHG) emissions while being more than twice as clean through renewables, storage, and efficiency than the energy portfolio outlined in the Duke Energy IRPs. While the Synapse Study provided a better alternative scenario to consider, the IRP process as currently implemented does not reward the utilities for progressive clean energy plans or for integrated distribution planning nor does it hold the utilities accountable for failing to hit benchmarks.

The current IRP rules and processes in North Carolina have resulted in IRPs that undervalue the clean energy and cost saving opportunities of distributed energy resources (DERs). NCSEA believes that integrated distribution planning (IDP) is a critical, and currently missing component of North Carolina's traditional IRP process and should be integrated into the CEP.



3. **“Low Hanging Fruit”**

NCSEA’s prescriptive changes are systemic and will take time and considerable effort to enact, though we believe that such comprehensive reform is necessary to kickstart North Carolina’s clean energy landscape. NCSEA, however, also believes a number of the current proposals in the EO 80 stakeholder group are worthwhile short-term goals to enhance current programs and, if implemented correctly, could also be incorporated into the regulatory reform outlined above:

- NCSEA supports the expansion of the solar rebate program and believes that rebates could be expanded to solar+storage projects which provide further benefits to the grid.
- NCSEA supports the proposal to start a “Green Bank” or revolving fund to allow for non-profits and government entities to utilize clean energy assets and technologies which are not feasible in the current market structure.
- NCSEA supports Distributed Energy Resources and accountability with regard to grid modernization to incorporate new clean energy assets on the grid.

Additionally, NCSEA is supportive of a large amount of the other proposals that have come through the EO 80 stakeholder process. At this point, however, we think it is in North Carolina’s best interests to begin the process of comprehensive reform as outlined above. This will materially change the North Carolina energy structure to reflect not only customer needs and requirements through aligning the interests of the utilities, the customers, and the state as a whole.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ivan Urlaub", is written over a horizontal line.

Ivan Urlaub  
Executive Director  
North Carolina Sustainable Energy Association

CC: Michael Regan, Secretary  
North Carolina Department of Environmental Quality

July 31, 2019

Sushma Masemore, P.E.  
Deputy Assistant Secretary for Environment  
State Energy Director  
N.C. Department of Environmental Quality  
sushma.masemore@ncdenr.gov

Dear Sushma:

Thank you for the extensive opportunities to contribute to the state's Clean Energy Plan (CEP). In particular, we appreciate that you are open to receiving input outside of the stakeholder process, and we would like to take the opportunity to provide some.

The undersigned participants in the stakeholder process are all involved with NC WARN's Clean Path 2025 work which, as you know, asserts that fossil fuels can be swiftly replaced in the NC electricity sector with local solar, energy storage, and ramped-up energy efficiency and demand response programs.

We are disappointed that the stakeholder process did not directly address this analysis that we provided to you,<sup>1</sup> and we hope that the conclusions drawn therein will at least lend support to your efforts to make ambitious recommendations in the CEP.

Here are some basic principles that we hold and hope that the CEP will advance:

- 1) The climate situation is an emergency, and any plan to address an emergency should do what is needed, not merely what has been deemed possible in non-emergency times.
- 2) Climate scientists should define what is needed.
- 3) When you are stuck in a hole, the first thing to do is stop digging.

### **Policy implications of the above principles**

#### The emissions reduction target must be based in science

Stakeholder processes should be open to all, but the final word on policy needs to come from those who have the expertise required and do not have a financial interest in the outcome.

The world's scientists, in the form of the Intergovernmental Panel on Climate Change, have already told us that we must reduce emissions 45% by 2030 and 100% by 2050 to stay below a safe level of 1.5 degrees C of warming.<sup>2</sup> The emissions that must be reduced include emissions of methane, including emissions from production and compressors used along pipelines. Anything less does not address the problem. No stakeholder process can change that.

Crucially, the final selection of means for achieving any target must be determined by experts with detailed knowledge of utility operations but no financial stake in the outcome. The input of the utilities

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<sup>1</sup> Powers, B. *North Carolina Clean Path 2025: Achieving an Economical Clean Energy Future*, NC WARN, August 2017, <https://www.ncwarn.org/wp-content/uploads/NC-CLEAN-PATH-2025-FINAL-8-9-17.pdf>.

<sup>2</sup> IPCC, *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, October 2018, <https://www.ipcc.ch/sr15/>.

should not be weighed more heavily than that of other stakeholders. In the process of implementation by the NC Utilities Commission (NCUC), the utilities will have an opportunity to intervene and make suggestions on the details of each program.

#### New natural gas infrastructure is incompatible with climate goals

Although E080 only specifies a 2025 emissions reduction goal (40% below 2005 levels), if the CEP wants to meaningfully address climate risk, it must look forward to 2050, and must provide a pathway for NC to get to zero net emissions by 2050. We cannot get there if we build gas plants in the 2020s that have a useful life of 30 years or more. For this reason, and additional reasons detailed below, the CEP should recommend placing a permanent moratorium on new gas-fired power plants, strengthening our state's renewable energy portfolio standard (REPS), and ratcheting the REPS up over time.

#### New gas would exacerbate the problem of uneconomic stranded assets

There is too much economic risk associated with a commitment to new gas infrastructure. A recent op-ed in *Forbes* warns that "falling renewables and storage costs may render [natural gas assets] uneconomic within a few years" and concludes: "New natural gas is extremely risky in this context, and regulators would be wise to question its prudence."<sup>3</sup>

Instead, we must figure out a plan to decommission existing fossil fuel plants and make a big shift to renewables, storage and demand reduction, since existing plants already put us over safe climate limits, as reported in a forthcoming paper in *Nature*.<sup>4</sup>

#### Utility planning should account for the changing economics of natural gas vs. renewable energy

Chapter 62 of the North Carolina Public Utilities Act mandates that the NCUC require utility service that is "least-cost" for all customers, and that rates should include long-term management of energy resources to avoid "wasteful, uneconomic and inefficient uses of energy." Specifically, it says the policy of the state should be:

(3) To promote adequate, reliable and economical utility service to all of the citizens and residents of the State;

(3a) ...to require energy planning and fixing of rates in a manner to result in the least cost mix of generation and demand-reduction measures which is achievable, including consideration of appropriate rewards to utilities for efficiency and conservation which decrease utility bills;

(4) To provide just and reasonable rates and charges for public utility services... consistent with long-term management and conservation of energy resources by avoiding wasteful, uneconomic and inefficient uses of energy;

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<sup>3</sup> O'Boyle, M. "Cheap Clean Energy Makes New Natural Gas A Risky Bet Utility Regulators Should Avoid," *Forbes*, July 10, 2019, <https://www.forbes.com/sites/energyinnovation/2019/07/10/utility-regulators-should-avoid-risky-bets-on-new-natural-gas/>.

<sup>4</sup> Leahy, S. "We have too many fossil-fuel power plants to meet climate goals," *National Geographic*, July 1, 2019, <https://www.nationalgeographic.com/environment/2019/07/we-have-too-many-fossil-fuel-power-plants-to-meet-climate-goals/> (with link to pre-publication PDF of Tong, D. et al., "Committed emissions from existing energy infrastructure jeopardize 1.5 °C climate target," *Nature*, forthcoming).



(4a) To assure that facilities necessary to meet future growth can be financed by the utilities operating in this State on terms which are reasonable and fair to both the customers and existing investors of such utilities...

The CEP must explicitly address these requirements in light of disruption in the energy landscape. Already two different in-depth independent analyses have separately concluded that plans including significant renewable energy – NOT new natural gas construction – would provide least-cost energy to NC customers statewide.<sup>5</sup> Duke Energy acknowledges that modeling for its Integrated Resource Plan (IRP) currently does not fully incorporate the value of renewable and distributed energy and energy storage.<sup>6</sup> This is unacceptable. The only way to meet the mandate that utility service be “least-cost” for all customers is for the NCUC to require Duke’s IRP to fully consider renewable and distributed energy and energy storage resources.

Requiring Duke Energy to move more quickly toward the energy of the 21<sup>st</sup> century also will decrease the likelihood that its natural gas plants will become uneconomic stranded assets, which is likely to happen sooner than Duke Energy may claim. As Rocky Mountain Institute (RMI) notes: “the *new-build* costs of clean energy portfolios are falling quickly, and likely to beat just the *operating* costs of efficient gas-fired power plants within the next two decades.”<sup>7</sup>

In addition, with regard to natural gas peaker plants, Bloomberg New Energy Finance projects that solar combined with storage will be less expensive than gas peakers throughout the US by 2023, as illustrated by the graph below.<sup>8</sup>

Other states are showing that moving more rapidly toward renewable generation is not only a necessity for retaining a livable climate, but is also an economic and employment boon. States around the country -- including Virginia -- are questioning the need for new natural gas infrastructure and finding that renewable energy and storage are more economic in the long term.<sup>9</sup>

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<sup>5</sup> Powers, *Op. cit.*, and Attachment 1 to NCSEA’s Initial Comments on Duke Energy Carolinas, LLC and Duke Energy Progress, LLC’s Integrated Resource Plans, Docket E-100 Sub 157, March 7, 2019, <https://starw1.ncuc.net/NCUC/ViewFile.aspx?id=891ac0cc-7aa9-4835-aed2-b15e9b5713e6>, Attachment 1.

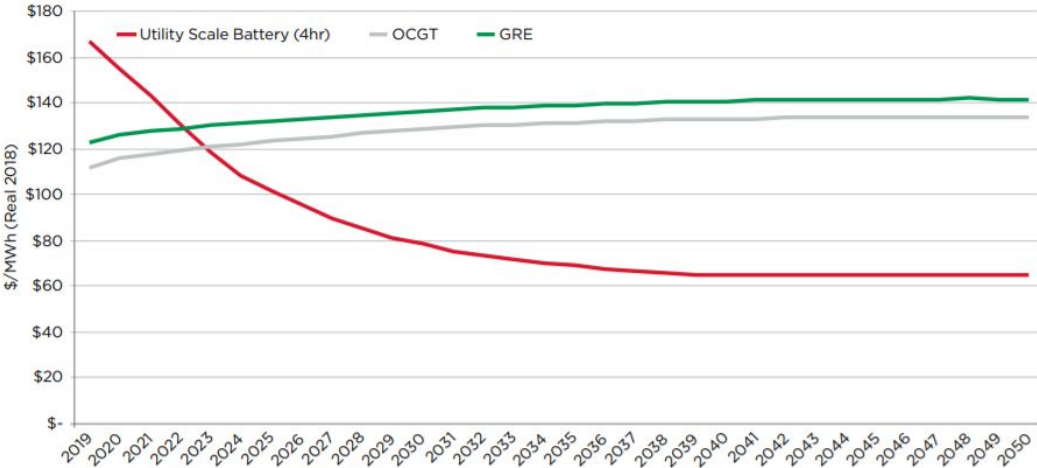
<sup>6</sup> NCSEA’s Initial Comments on Duke Energy Carolinas, LLC and Duke Energy Progress, LLC’s Integrated Resource Plans, Docket E-100 Sub 157, March 7, 2019, p. 7, <https://starw1.ncuc.net/NCUC/ViewFile.aspx?id=891ac0cc-7aa9-4835-aed2-b15e9b5713e6>.

<sup>7</sup> Dyson, M., et al. *The Economics of Clean Energy Portfolios*, Rocky Mountain Institute, 2018, <https://rmi.org/insight/the-economics-of-clean-energy-portfolios/> and Roberts, D., “Clean energy is catching up to natural gas,” *Vox*, Oct. 26, 2018, <https://www.vox.com/energy-and-environment/2018/7/13/17551878/natural-gas-markets-renewable-energy>.

<sup>8</sup> Stockman, L., et al. Burning the Gas “Bridge Fuel” Myth: Why Gas is Not Clean, Cheap, or Necessary,” Oil Change International, May 2019, [http://priceofoil.org/content/uploads/2019/05/gasBridgeMyth\\_web-FINAL.pdf](http://priceofoil.org/content/uploads/2019/05/gasBridgeMyth_web-FINAL.pdf) (original behind paywall here: <https://about.bnef.com/new-energy-outlook/>).

<sup>9</sup> Saha, D. “Natural Gas Beat Coal in the US. Will Renewables and Storage Soon Beat Natural Gas?,” World Resources Institute, July 8, 2019, <https://www.wri.org/blog/2019/07/natural-gas-beat-coal-us-will-renewables-and-storage-soon-beat-natural-gas>.

Figure 8: Projected LCOE of Battery Storage and Gas Peakers - United States



Source: Bloomberg New Energy Finance, 1H-2019 LCOE Update

Significant effort has been devoted to assessing the clean energy pathways for NC. Both the North Carolina Clean Path 2025<sup>10</sup> and Synapse<sup>11</sup> plans reveal substantial cost advantages to transitioning from fossil fuel-based generation to solar with storage. And, whereas utilities are insistent that integration of renewable power on the grid will require extensive investment in the grid and in backup fossil fuel generation, the Clean Path 2025 plan concludes that far higher levels of renewables, when accompanied by affordable amounts of storage and (now, almost standard) smart inverters, can be incorporated reliably with modest upgrades in electronics.<sup>12</sup>

Energy efficiency and demand response programs, if properly implemented, are low-hanging fruit for rapid reduction of both electricity consumption and peak demand

The CEP should include some easily and quickly achievable goals that can generate emissions reductions and bolster stakeholder confidence that their work was not in vain. Apart from new renewable generation and storage, the obvious candidates are energy efficiency (EE) and demand response (DR).

The stakeholder process has yielded a chorus of voices in favor of implementing substantial EE programs. The Energy Efficiency Roadmap<sup>13</sup> includes a suggested target of 10% by 2030 for regions serviced by investor owned utilities ( IOUs), which represents a substantial EE commitment, and is paired with a comparably sized demand response recommendation. However, increasing the EE savings rate from 0.62% per year to 2% per year could reduce our electricity consumption by 20% in ten years through replacement of high-emission equipment, as required by our climate situation.<sup>14</sup> A number of other states

<sup>10</sup> Powers, B. *Op cit.*, pp. 64-75.

<sup>11</sup> Wilson, R, et al, *North Carolina’s Clean Energy Future: An Alternative to Duke’s Integrated Resource Plan*, Synapse Energy Economics for NC Sustainable Energy Association, March 2019. <https://starw1.ncuc.net/NCUC/ViewFile.aspx?id=891ac0cc-7aa9-4835-aed2-b15e9b5713e6>

<sup>12</sup> Powers, B. *Op cit.*, pp. 64-75.

<sup>13</sup> Clean Energy Plan, Supporting Basis Part IV

<sup>14</sup> Powers, B. *Op. cit.*, p. 76.

including Massachusetts<sup>15</sup> and Rhode Island<sup>16</sup> have committed already to annual consumption reductions from EE measures of 2% or more.

Both building and equipment EE upgrades not only are effective at reducing consumption, but also are well understood to pay for themselves. The primary barriers to implementing EE with high participation are capital access, lack of consumer knowledge, and lack of motivation. The stakeholder process has identified numerous approaches to facilitating capital access and the EE Roadmap has honed in on mechanisms for supplying capital that build on existing infrastructure or have been implemented already elsewhere.<sup>17</sup> A key component is the implementation of on-bill financing, which allows customers to cover costs out of energy savings and facilitates equitable access to building and equipment upgrades. Utilities are well equipped to facilitate EE by providing knowledgeable, case-specific, solution selection and implementation.<sup>18</sup> Programs that pass significant savings back to consumers are key to improving consumer motivation.

Energy efficiency-driven consumption reductions have the potential not only to reduce overall electricity consumption by 20% in 10 years, but also to reduce both summer and winter peak demand by 30-35%.<sup>19</sup> These large reduction potentials follow from the dominance of cooling and heating in seasonal loads. If indeed North Carolina is now a winter peak state, as stated by the dominant electric utility,<sup>20</sup> then an appropriate place to begin the EE campaign is with replacement of inefficient electric heating systems.<sup>21</sup>

To accomplish a substantial EE savings rate, however, the CEP must establish a path for addressing the broadly identified issue of utility motivation. The EE Roadmap calls for an energy efficiency resource standard (EERS), which, like a renewable energy portfolio standard (REPS) with a mandatory EE component, would address utility reluctance to reduce consumption by establishing a mandate. However, the CEP needs to call for an aggressive EE savings rate, such as the above-mentioned 2% annual increment. Pending legislative action enabling implementation of an EERS, the CEP needs to direct the NCUC to implement a savings-funded EE payment mechanism and to promote all possible mechanisms for rapidly enabling access to capital.

Importantly, to stem the drive toward more fossil fuel infrastructure, we must pay attention not only to overall consumption, but also to mechanisms specifically addressing demand peaks. Demand response has been identified by the Federal Energy Regulatory Commission as having a particularly high potential to reduce peak load in the Southeast.<sup>22</sup> In North Carolina, where both air conditioning and electric heating contribute substantially to seasonal peak load and current levels of demand response are low, inexpensive HVAC control is identified as offering a 15 to 20% reduction in both summer and winter peak

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<sup>15</sup> Massachusetts 2019-2021 Energy Efficiency Plan Term Sheet, <http://ma-eeac.org/wordpress/wp-content/uploads/Term-Sheet-10-19-18-Final.pdf>.

<sup>16</sup> ACEEE 2016 Scorecard, Rhode Island, <http://database.aceee.org/state/rhode-island>.

<sup>17</sup> Clean Energy Plan, Supporting Basis Part IV

<sup>18</sup> Fox-Penner, P. *Smart Power: Climate Change, The Smart Grid, and the Future of Electric Utilities*, Island Press, 2014, pp. 152-153.

<sup>19</sup> Powers, B. *Op cit.*, p. 77.

<sup>20</sup> Duke Energy Carolinas, 2018 Integrated Resource Plan, p.8, accessed July 29, 2019, <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=aa9862b5-5e31-4b3f-bb26-c8a12c85c658>.

<sup>21</sup> Powers, B. *Op cit.*, p.76.

<sup>22</sup> FERC, *A National Assessment of Demand Response Potential*, June 2009, <https://ferc.gov/legal/staff-reports/06-09-demand-response.pdf>.

loads if implemented to achieve a high participation rate.<sup>23</sup> High participation is achievable through opt-out programs that provide *compensation at a level reflective of the costs of peak generation*.<sup>24</sup>

The Clean Path 2025 report shows that compensation reflective of new peak generation savings are an order of magnitude larger than credits currently provided by the utilities.<sup>25</sup> Proper compensation enables high participation without requiring critical peak or dynamic pricing. Given that solar with storage has less potential to reduce winter net peak loads than summer net peak loads, the Clean Path plan identifies emergency heat strip control as the most appropriate high-impact initial DR program. Given that Duke Energy has not yet implemented an emergency heat strip program in Duke Energy Carolinas (DEC) territory at all, despite the existence of an ongoing program in Duke Energy Progress territory, a properly compensated heat strip program in DEC territory would be an appropriate requirement for the NCUC to impose immediately.

Overall, these plans provide achievable, clean energy solutions that can be rapidly deployed.

#### Barriers to demand- and supply-side solutions must be removed

What are the barriers to implementing these solutions now? Currently, the barriers derive from practices and institutions designed to meet historic rather than contemporary goals. Specifically, existing practices and institutions were designed for a power system that assigned large benefits to generating power in very large power plants and as such, required a mechanism to ensure that significant capital could be raised at low rates. In the prior context, good planning did not require consideration of a broad and evolving set of options. In the new environment, where widely-distributed, appropriately integrated, renewable sources offer economical solutions, existing practices and institutions will not naturally produce plans that lead to either clean or least-cost solutions.

As others in our process and problem-solvers in other states have pointed out, a utility that generates profits largely from return on capital investment and from throughput cannot produce a least-cost solution when the least-cost solution is to increase efficiency and use fuel-free sources whose infrastructure has rapid payback and many ways of being funded. Hence the route to low-cost, clean solutions requires a new utility structure or aggressive mandates and new incentives that reward performance in lieu of spending. Prior incarnations of performance incentives have not been sufficiently comprehensive to overcome utility disinterest in foregoing rate-base and throughput growth.

While the process of reworking utility incentives may seem daunting, any choice to postpone it must be weighed against the price. Given the dominant utility's proclivity to double down on fossil fuels, both the environmental and economic costs of postponing redesign of the incentive system necessarily will be high. Furthermore, effort saved by not developing appropriate incentives will be spent many times over in needless games of cat and mouse over plans and utility-inspired legislative proposals designed to meet priorities that are not in the interests of North Carolina citizens.

#### One of the biggest barriers is access to electric grid performance data

Overall, the properties of low-cost clean solutions are understood. However, their efficient implementation requires tailoring at the local level. Proper placement of solar sources, storage and other equipment will be accomplished through extensive use of usage data and of capacity and performance data for the

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<sup>23</sup> Ibid., p.150.

<sup>24</sup> Powers, B. *Op cit.*, p.87.

<sup>25</sup> Ibid.

electric grid at several scales. If our utilities were incentivized to produce the most efficient, clean solutions, these solutions could be rapidly deployed.

If we leave our utilities with their current incentives, detailed solutions will need to be identified and implemented by others. A barrier to this latter approach is the perception by utilities that they not only own the grid, but also all associated data. Data sharing primarily is allowed in conjunction with special projects (such as collaborations funded by the American Recovery & Reinvestment Act<sup>26</sup>), under non-disclosure agreements (between utilities and large users evaluating programs), and where required by federal<sup>27</sup> or regional authorities, unless it isn't.<sup>28</sup> Thus, until the power providers' incentives are fully aligned with the interests of North Carolina citizens, we will need not only aggressive renewable energy portfolio standards and a functional interconnection process, but also extensive data transparency mandates.

#### North Carolina potential and economic, environmental, and justice benefits

Meanwhile, renewable energy and energy efficiency already are providing -- and, with the right policy drivers, can continue to provide in the future -- far more employment and economic benefits to our state than continued reliance on fossil fuel energy.<sup>29</sup> North Carolina even has among the best offshore wind potential on the East Coast,<sup>30</sup> development of which has the potential to create, according to one analysis, 56,000 new jobs.<sup>31</sup>

In addition, it does not make sense for the economic analysis of electricity generation to completely ignore the calculation of health benefits from the reduced burden of nitrogen oxides (NOx) emissions on NC citizens living and working near fossil fuel infrastructure. NOx emissions are precursors to atmospheric formation of ozone (and sometimes also to particulate matter), which exacerbates asthma and contributes to pulmonary and heart disease.<sup>32</sup> The NCUC should require Duke Energy to account for these health effects in its IRP analyses.

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<sup>26</sup> *Technology Performance Report: Duke Energy Notrees Wind Storage Demonstration Project, 2015 Final Report*, p. 1-5 for reference to DOE-Duke Energy negotiated terms and conditions; Appendix B for Inventory of Data Sources

<sup>27</sup> For example, Environmental Protection Agency, North American Electric Reliability Council, Federal Energy Regulatory Commission.

<sup>28</sup> Sorg, Lisa, *We tried to get Duke Energy's secret flood maps. We were stonewalled*. NC Policy Watch, 2017, <http://www.ncpolicywatch.com/2017/09/21/tried-get-duke-energys-secret-flood-maps-stonewalled/>, identifies unavailable coal basin flood zone maps required by EPA Coal Combustion Residuals Disposal Rule.

<sup>29</sup> Jones, J. "2019 Economic Impact Analysis of Clean Energy Development in North Carolina," news release, NCSEA, May 24, 2019, <https://energync.org/2019-economic-impact-analysis-of-clean-energy-development-in-north-carolina/> and NCSEA, *Clean Energy by the Numbers*, <https://energync.org/clean-energy-numbers/>.

<sup>30</sup> Musial, W., et al. 2016 *Offshore Wind Energy Resource Assessment for the United States*, National Renewable Energy Laboratory, September 2016, see especially pp.34-35, <https://www.nrel.gov/docs/fy16osti/66599.pdf>.

<sup>31</sup> Robertson, N., "Offshore drilling would bring jobs to NC," *News & Observer*, March 1, 2019, <https://www.newsobserver.com/opinion/article226992819.html>.

<sup>32</sup> *Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone*, Environmental Protection Agency, September 2015, chapter 6, <https://www.epa.gov/naaqs/regulatory-impact-analysis-final-revisions-national-ambient-air-quality-standards-ground-level>.

Although it is more difficult to quantify in dollars, it is important to consider the disproportionate impact of fossil fuel infrastructure, which is usually sited closest to low-income communities, including communities of color. Therefore the health burden of living in proximity to coal plants and coal ash ponds is borne by the most economically vulnerable citizens of our state.<sup>33</sup>

Finally, in its IRP as well as its forthcoming net metering study, the NCUC also should require Duke Energy to account for the economic benefit that net metering can provide both to the utility and to ratepayers.<sup>34</sup>

## Conclusion

What shall be the process for making these changes?

We think the CEP should contain a timeline for implementing the different recommendations. In addition, for each recommendation, next steps should be listed, as well as which parties can take the next steps. By this, we mean not only which state entity has the authority to implement the action. We mean that the state should identify other stakeholders who can help to push for the recommended actions and/or help provide research and analysis to facilitate the actions.

We are all in this together and we hope we and other stakeholders have demonstrated that we are willing to be more than passive participants in solving this problem. If a subset of stakeholders is identified to advance each recommendation in the CEP, our progress will be quicker.

A requirement for inclusion in this implementers' team, however, should be a show of good faith. If a potential stakeholder is identified as creating obstacles, that stakeholder should commit to removing them before being allowed to participate. In many, many ways, Duke Energy has stood in the way of clean energy progress in NC. Duke's outsized influence on state policy must end. The corporation should not be allowed to participate in state policymaking until it has committed to removing obstacles for which it alone is responsible: lack of data access, lethargic interconnection process, opposition to third-party PPAs, unusable design of Green Source Advantage and community solar programs, limits on leasing and rebates, refusal to offer on-bill financing, and more.

Thank you for your attention. We look forward to seeing the draft and thank you for all your hard work in completing it.

Best regards,  
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<sup>33</sup> It is worth noting that analogous arguments have been made against renewable energy incentive programs that claim that the economic "burden" of those programs should not be borne by customers who are not participating. Counter to that point is the argument that the health burden of living in proximity to coal plants and coal ash ponds is also borne by some customers but not others.

<sup>34</sup> Muro, M. and D. Saha. *Rooftop solar: net metering is a net benefit*, Brookings Institution, May 23, 2016, <https://www.brookings.edu/research/rooftop-solar-net-metering-is-a-net-benefit/>.

# SOUTHERN ENVIRONMENTAL LAW CENTER

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**Re: Role of Forest-Derived Biomass in North Carolina’s Clean Energy Plan – Stakeholder Input**

Dear Ms. Masemore,

On behalf of the undersigned environmental, health, and justice NGOs, as well as ecologists and climate scientists, and itself, the Southern Environmental Law Center respectfully submits this letter concerning the role of forest-derived biomass in the North Carolina Department of Environmental Quality’s forthcoming draft Clean Energy Plan. In particular, the undersigned urge the Department to exclude the use of forest-derived biomass from the Clean Energy Plan.<sup>1</sup>

According to the Clean Energy Plan Workshop 5, the Department has decided to incorporate a definition of “clean energy” that is consistent with Executive Order 80:

Per EO80, ‘clean’ energy resources include solar, energy efficiency, battery storage, wind, efficient electrification, and other zero emitting technology options capable of quickly decarbonizing the power sector and modernizing the electric power sector.<sup>2</sup>

As clarified by the Department, biomass does not fall within this definition of “clean energy,” as

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<sup>1</sup> Although the Department has grouped together biomass and biogas, this letter is focused solely on the role of forest-derived biomass in the Clean Energy Plan.

<sup>2</sup> N.C. Dep’t of Env’tl. Quality, *Clean Energy Plan Workshop #5*, at slide 9 (June 26, 2019), <https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/CEP-Combined-Workshop-5-powerpoint.pdf>.

it is not a “zero emitting technolog[y].”<sup>3</sup> Instead, it appears the Department intends to treat biomass as a “lower-carbon alternative[.]” to traditional fuels when the biomass is sourced using “environmentally sustainable management practices.”<sup>4</sup> According to the Department, “those [sourcing] practices that minimize environmental harm . . . [and are] lower carbon . . . [will be] considered an alternative for the short term.”<sup>5</sup> While we appreciate the Department’s acknowledgment that biomass is not a form of clean energy, the reference to the use of biomass, in particular forest-derived biomass, as a lower-carbon alternative is deeply concerning. Moreover, the Department’s discussion of the role of biomass, especially as it relates to sourcing and “sustainable” management practices, appears to be based on several fundamental misunderstandings about the climate and environmental impacts of forest-derived biomass.

As discussed in more detail below, the use of forest-derived biomass will not reduce carbon emissions during the timeframes relevant for avoiding the worst consequences of climate change, regardless of the sourcing and management practices; degrades North Carolina’s forests and runs counter to Executive Order 80’s goals towards resiliency; harms the health and wellbeing of local communities; and is prohibitively expensive. Accordingly, the undersigned urge the Department to exclude forest-derived biomass from use under the Clean Energy Plan by (1) retaining the above definition of “clean energy” that only includes zero-emitting technologies, and (2) removing any provisions, implications, or ambiguities that would allow forest-derived biomass to be used as some “alternative” or “low carbon” energy source.

#### **I. Regardless of sourcing practices, forest-derived biomass is inconsistent with North Carolina’s climate goals.**

As leading scientists have made clear, a Clean Energy Plan that paves the way for any expansion of domestic, forest-derived biomass power generation or fuel production would be deeply flawed and pose a serious threat to the state’s climate goals.<sup>6</sup> Burning wood (or forest biomass of any type) immediately adds CO<sub>2</sub> to the atmosphere, even if the wood displaces coal, the most carbon intensive fuel. Forest regrowth may eventually remove that CO<sub>2</sub> from the atmosphere, but regrowth takes time; regrowth is not certain; and even if regrowth eventually occurs, it does not reverse the additional heat trapped by the extra atmospheric CO<sub>2</sub> concentrations that result from burning forest-derived biomass.

The forests and communities of North Carolina have already born and continue to bear the consequences that unsound bioenergy policies have on forests. Since 2010, the wood pellet

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<sup>3</sup> N.C. Dep’t of Env’tl. Quality, *Video of Facilitated Workshop 5*, at 3:57 (June 26, 2019), available at <https://deq.nc.gov/energy-climate/climate-change/nc-climate-change-interagency-council/climate-change-clean-energy-12>.

<sup>4</sup> *Id.* at 3:57-4:13.

<sup>5</sup> *Id.* at 7:25-8:55.

<sup>6</sup> See Letter from 800 Scientists, to the European Parliament re: Forest Biomass (updated Jan. 14, 2018), [http://www.pfpi.net/wp-content/uploads/2018/04/UPDATE-800-signatures\\_Scientist-Letter-on-EU-Forest-Biomass.pdf](http://www.pfpi.net/wp-content/uploads/2018/04/UPDATE-800-signatures_Scientist-Letter-on-EU-Forest-Biomass.pdf) (Attachment 1); Letter from Scientists, to EPA Acting Administrator Wheeler (Oct. 31, 2018) (Attachment 2); Letter from Scientists, to North Carolina Governor Roy Cooper (Nov. 15, 2017) (Attachment 3); Norman L. Christensen & William H. Schlesinger, *N.C. Forests are Under Assault; Gov. Cooper Should Help*, *Charlotte Observer* (Nov. 14, 2017), <https://www.charlotteobserver.com/opinion/op-ed/article184561713.html> (Attachment 4).



biomass industry has expanded dramatically, fueled by misguided subsidies in the European Union—In just 8 years, U.S. wood pellet exports increased tenfold and in 2018, the Southern U.S. exported over 6 million tons of wood pellets.<sup>7</sup> Favorable political environments, compounded by long histories of industrial logging operations, have allowed companies like Enviva, the world’s largest wood pellet producer, to rapidly expand despite community opposition, lawsuits, air quality permit violations, and years of on-the-ground investigations that counter their claims of sustainability.<sup>8</sup>

North Carolina’s climate leaders have a significant opportunity to set the record straight, and it is critical that the Department does not make the same policy mistakes that European governments have made about biomass energy. If new policies in the U.S.—such as North Carolina’s Clean Energy Plan—support biomass as a low carbon energy source, it would encourage the growth of a damaging domestic industry and divert critical support for truly clean energy sources.

**a. Forest biomass cannot reduce emissions compared with fossil fuels within timeframes relevant for avoiding the worst consequences of climate change, regardless of the biomass sourcing and feedstock.**

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<sup>7</sup> See Forisk, *Wood Bioenergy Update and North American Wood Pellet Exports: Q2 2019* (May 14, 2019), <https://forisk.com/blog/2019/05/14/wood-bioenergy-update-and-north-american-wood-pellet-exports-q2-2019/> (U.S. exported over 6 million tons in 2018); Wood Res. Int’l LLC, *Wood Pellet Exports from the U.S. and Canada to Europe Reached 1.6 Million Tons in 2010, A Doubling of Shipments in Just Two Years* (May 16, 2011), <https://news.cision.com/wood-resources-international-llc-company/r/wood-pellet-exports-from-the-us-and-canada-to-europe-reached-1-6-million-tons-in-2010--a-doubling-of-shipments-in-just-two-years.c9122985> (U.S. exported at 600,000 tons in 2010).

<sup>8</sup> See, e.g., Chris Berendt, *Enviva Grievances Aired*, *The Sampson Independent* (July 17, 2019), <https://www.clintonnc.com/news/41023/enviva-grievances-aired> (opposition to Enviva Sampson wood pellet facility) (Attachment 5); Dogwood Alliance, Natural Resources Defense Council, & Southern Environmental Law Center, *Global Markets for Biomass Energy are Devastating U.S. Forests* (2019), [https://www.southernenvironment.org/uploads/publications/9965\\_NRDC\\_2019\\_Booklet\\_05\\_EM\\_-\\_WEB\\_VERSION.PDF](https://www.southernenvironment.org/uploads/publications/9965_NRDC_2019_Booklet_05_EM_-_WEB_VERSION.PDF) (eight years of on-the-ground investigations into destructive wood pellet sourcing practices); Southern Environmental Law Center, *Clean Air Carolina Challenges Air Permit for Enviva Hamlet Expansion in Richmond County* (Feb. 13, 2019), <https://www.southernenvironment.org/news-and-press/press-releases/clean-air-carolina-challenges-air-permit-for-enviva-hamlet-expansion-in-richmond-county> (legal challenge to Enviva Hamlet air quality permit modification); Charlie McGee, *As Manufacturers Build in Low-Income Communities, NC Residents Struggle to Fight Back*, *The Daily Tar Heel* (Apr. 17, 2018), <https://www.dailytarheel.com/article/2018/04/enviva-plant> (opposition to Enviva Hamlet wood pellet facility) (Attachment 6); Environmental Integrity Project, *Dirty Deception: How the Wood Biomass Industry Skirts the Clean Air Act* (Apr. 26, 2018), <https://www.environmentalintegrity.org/wp-content/uploads/2017/02/Biomass-Report.pdf> (analyzing Clean Air Act violations for all wood pellet manufacturing facilities in the U.S.); Gavin Stone, *Enviva Opposition Continues as Work Begins on Plant*, *Richmond County Daily Journal* (Sept. 11, 2017), <https://www.yourdailyjournal.com/news/75692/enviva-opposition-continues-as-work-begins-on-plant> (opposition to Enviva Hamlet wood pellet facility) (Attachment 7); Southern Environmental Law Center, *Citizens Group Challenges State Air Permit for Major Polluter Issued Without Public Notice or Community Input* (May 8, 2017), <https://www.southernenvironment.org/news-and-press/press-releases/citizens-group-challenges-state-air-permit-for-major-polluter-issued-withou> (legal challenge to Enviva Hamlet’s original air quality permit); *Groups to Gov: Permit for Wood Pellet Plant Doesn’t Pass Smell Test*, *Public News Service* (July 20, 2017), <https://www.publicnewsservice.org/2017-07-20/environmental-justice/groups-to-gov-permit-for-wood-pellet-plant-doesnt-pass-smell-test/a58598-1> (petition opposing Enviva Hamlet wood pellet facility with over 10,000 signatures and over 50 organizations) (Attachment 8); Wayne Faulkner, *Opposition to Wood Pellet Facility Gathers Steam*, *Star News Online* (June 30, 2014), <https://www.starnewsonline.com/article/NC/20140630/News/605043312/WM/> (opposition to wood pellet storage dome in Port of Wilmington) (Attachment 9).

When forest biomass is burned for electricity, it immediately emits CO<sub>2</sub> to the atmosphere at levels higher than coal or natural gas per unit of energy.<sup>9</sup> It is well established in the scientific literature that the net emissions from this combustion (the emissions after factoring regrowth and/or avoided decay) persist in the atmosphere for time periods ranging from many years to centuries.<sup>10</sup> The length of this carbon impact depends on the feedstock used and the fossil fuel displaced, among other factors. In the case of whole trees and other large diameter materials, it can take anywhere from 40 years to several centuries for forest regrowth and the associated

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<sup>9</sup> According to the US EPA, “[B]iomass firing in and of itself does not reduce emissions of CO<sub>2</sub> emitted from that source. Specifically, when measuring stack emissions, combustion of biomass emits more mass of emissions per Btu than that from combustion of fossil fuels, thereby increasing CO<sub>2</sub> emissions at the source.” U.S. Environmental Protection Agency, *Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations*, 84 Fed. Reg. 32,520 (July 8, 2019) (“Affordable Clean Energy Rule”), <https://www.govinfo.gov/content/pkg/FR-2019-07-08/pdf/2019-13507.pdf>.

<sup>10</sup> See, e.g., John D. Sterman et al., *Does Replacing Coal with Wood Lower CO<sub>2</sub> Emissions? Dynamic Lifecycle Analysis of Wood Bioenergy*, 13 *Env’tl Res. Letters* (2018), <http://iopscience.iop.org/article/10.1088/1748-9326/aaa512/meta>; Mary S. Booth, *Not Carbon Neutral: Assessing the Net Emissions Impact of Residues Burned for Bioenergy* (Feb. 2018), <http://iopscience.iop.org/article/10.1088/1748-9326/aaac88/meta>; Duncan Brack, Chatham House, *Woody Biomass for Power and Heat: Impacts on the Global Climate* (2017), <https://www.chathamhouse.org/publication/woody-biomass-power-and-heat-impacts-global-climate>; European Academies Science Advisory Council, *Multi-Functionality and Sustainability in the European Union’s Forests* (2017), [https://easac.eu/fileadmin/PDF\\_s/reports\\_statements/Forests/EASAC\\_Forests\\_web\\_complete.pdf](https://easac.eu/fileadmin/PDF_s/reports_statements/Forests/EASAC_Forests_web_complete.pdf); UK Department of Energy & Climate Change, *Life Cycle Impacts of Biomass Electricity in 2020* (July 2014), [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/349024/BEAC\\_Report\\_290814.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/349024/BEAC_Report_290814.pdf); see also, e.g., Pierre Bernier et al., *Using Ecosystem CO<sub>2</sub> Measurements to Estimate the Timing and Magnitude of Greenhouse Gas Mitigation Potential of Forest Bioenergy*, *GCB Bioenergy* (Jan. 2013), <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1757-1707.2012.01197.x>; Bjart Holtmark, *Harvesting in Boreal Forests and the Biofuel Carbon Debt*, *Climate Change* (May, 2012), <https://link.springer.com/article/10.1007/s10584-011-0222-6>; Jerome Laganière et al., *Range and Uncertainties in Estimating Delays in Greenhouse Gas Mitigation Potential of Forest Bioenergy Sourced from Canadian Forests*, *GCB Bioenergy* (Feb. 2017), <https://onlinelibrary.wiley.com/doi/abs/10.1111/gcbb.12327>; Jon McKechnie et al., *Forest Bioenergy or Forest Carbon? Assessing Trade-Offs in Greenhouse Gas Mitigation with Wood-Based Fuels*, *Environ. Sci. Tech.* (Jan. 2011), <http://www.pfpi.net/wp-content/uploads/2011/05/McKechnie-et-al-EST-2010.pdf>; K. Pingoud et al., *Global Warming Potential Factors and Warming Payback Time as Climate Indicators of Forest Biomass Use*, *Mitigation & Adaptation Strategies for Global Change* (Apr. 2012), <https://link.springer.com/article/10.1007%2Fs11027-011-9331-9>; Michael Ter-Mikaelian et al., *Carbon Debt Repayment or Carbon Sequestration Parity? Lessons from a Forest Bioenergy Case Study in Ontario, Canada*, *GCB Bioenergy* (July 2015), <https://onlinelibrary.wiley.com/doi/abs/10.1111/gcbb.12198>; Giuliana Zanchi et al., *Is Woody Bioenergy Carbon Neutral? A Comparative Assessment of Emissions from Consumption of Woody Bioenergy and Fossil Fuel*, *GCB Bioenergy*, (Nov. 2012), <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1757-1707.2011.01149.x>.

Moreover, even under optimistic assumptions, converting natural forests to fast-growing managed plantations still leads to carbon-debt repayment times of many decades. See John D. Sterman et al., *Reply to Comment on ‘Does Replacing Coal with Wood Lower CO<sub>2</sub> Emissions? Dynamic Lifecycle Analysis of Wood Bioenergy*, 13 *Env’tl. Res. Letters* (Dec. 18, 2018), <https://iopscience.iop.org/article/10.1088/1748-9326/aaf354/pdf>; see also Spatial Informatics Group, LLC, *The Carbon Impacts of UK Electricity Produced by Burning Wood Pellets from Drax’s Three U.S. Mills* (May 27, 2019), [https://www.southernenvironment.org/uploads/publications/2019-05-27\\_Drax\\_emissions\\_-\\_SIG\\_report\\_Phase\\_II.PDF](https://www.southernenvironment.org/uploads/publications/2019-05-27_Drax_emissions_-_SIG_report_Phase_II.PDF) (concluding that burning wood pellets from Drax’s three U.S. mills, sourced predominately from pine plantation thinnings, increases carbon pollution in the atmosphere for well over 40 years).

carbon sequestration just to reach net emissions parity<sup>11</sup> with fossil fuels (the actual timing depends in large part on whether biomass combustion is compared to the coal combustion or natural gas combustion).<sup>12</sup> In a power-generating scenario that uses forestry residues that would otherwise decay and release their carbon, the payback period can be shorter because it is tied to the decomposition rate of that material and its size, but still is typically on the order of decades.<sup>13</sup>

The United Nations Intergovernmental Panel on Climate Change (IPCC) report on limiting global temperature rise to 1.5°C presses governments around the world to take “rapid, far-reaching and unprecedented changes in all aspects of society” to dramatically and rapidly cut greenhouse gas emissions.<sup>14</sup> This means quickly transitioning to truly clean, carbon-free energy and massively scaling up forest protection. Forest-derived biomass will increase atmospheric CO<sub>2</sub> and thus worsen warming in the most critical period for climate action.

While forest-derived biomass energy may be “renewable” over the long-term—and the industry has long benefitted from its “renewable” title—it is not a low-carbon source of energy like solar panels. Using the same amount of land area, solar panels produce up to 80 times as much electricity as wood burning with no emissions at all.<sup>15</sup> Furthermore, fossil fuel emissions associated with producing wood pellets (harvesting, chipping, drying, pelletizing and transporting) are equivalent to 20-25% of direct emissions.<sup>16</sup>

#### **b. Forest-derived biomass degrades North Carolina forests and runs counter to Executive Order 80’s resiliency goals.**

Biomass demand from European countries has already put intense pressure on North Carolina’s forests, and green lighting domestic biomass power through favorable or ambiguous treatment in the Clean Energy Plan would further add to the burden on our state’s forests. Currently, Enviva owns and operates four wood pellet facilities in the state, as well as a Virginia facility near the

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<sup>11</sup> Net emissions parity is achieved when the sum of carbon in the regenerating stand and the GHG benefits of displacing fossil fuel reaches the amount of carbon in the forest stand if it had remained unharvested. See Ter-Mikaelian, *supra* note 10.

<sup>12</sup> Biomass Energy Resource Center, Forest Guild, & Spatial Informatics Group, LLC, *Biomass Supply and Carbon Accounting for Southeastern Forests* (Feb. 2012), [www.biomasscenter.org/images/stories/SE\\_Carbon\\_Study\\_FINAL\\_2-6-12.pdf](http://www.biomasscenter.org/images/stories/SE_Carbon_Study_FINAL_2-6-12.pdf); John Hagan, The Manomet Center for Conservation Sciences, *Biomass Energy Recalibrated* (Jan. 2012), <http://www.inference.org.uk/sustainable/images/Manomet%20Biomass%20Article%202012%5B1%5D.pdf>; Stephen R. Mitchell et al., *Carbon Debt and Carbon Sequestration Parity in Forest Bioenergy Production*, 4 GCB Bioenergy 818-827 (2012), <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1757-1707.2012.01173.x>.

<sup>13</sup> Booth, *supra* note 10; Anna Repo et al., *Sustainability of Forest Bioenergy in Europe: Land-Use-Related Carbon Dioxide Emissions of Forest Harvest Residues*, 7 GCB Bioenergy 877-887 (2015), <https://onlinelibrary.wiley.com/doi/epdf/10.1111/gcbb.12179>; Anna Repo et al., *Can We Produce Carbon and Climate Neutral Forest Bioenergy?*, 7 GCB Bioenergy 253-262 (2015), <https://onlinelibrary.wiley.com/doi/epdf/10.1111/gcbb.12134>; UK Department of Energy & Climate Change, *supra* note 10.

<sup>14</sup> UN Environment, *Rapid and Unprecedented Action Required to Stay Within 1.5°C Says UN’s Intergovernmental Panel on Climate Change* (Oct 8, 2018), <https://www.unenvironment.org/news-and-stories/press-release/rapid-and-unprecedented-action-required-stay-within-15oc-says-uns>.

<sup>15</sup> Letter from Scientists, to U.S. Senate re: Carbon Neutrality of Forest Biomass (Feb. 26, 2016), <https://www.caryinstitute.org/newsroom/letter-senate-carbon-neutrality-forest-biomass> (Attachment 10).

<sup>16</sup> *Id.*

North Carolina border. Combined, the five existing facilities have an annual production capacity of approximately 2.42 million metric tons of wood pellets. Meeting this production capacity requires logging, conservatively, approximately 160 acres of forest each day.<sup>17</sup> Recent reports backed up by industry data, have documented that Enviva sources whole trees from native and natural hardwood forests, in the Mid-Atlantic Coastal Ecoregion, which are ecologically important and sensitive ecosystems.<sup>18</sup>

Forest-derived biomass increases the degradation of our forests, emitting forest carbon into the atmosphere and contributing to climate change instead of keeping it in living, productive forests that provide multiple benefits of water and wetland protection, flood control, soil protection, wildlife habitat, improved air quality, and recreational benefits for hunters and all who enjoy being in the great outdoors.

**c. Forest-derived biomass sourced using “sustainable management practices” is not a lower-carbon alternative as suggested in the Department’s public statements.**

North Carolina must reject “sustainable forestry” as a proxy for carbon benefits of forest-derived feedstocks, whether residues, slash, low-grade wood, or whole trees. “Sustainability,” however defined, is not a measure of carbon impacts. The concept or designation says very little, if anything, about the amount of CO<sub>2</sub> emitted by a given biomass source or the net effect of those emissions on atmospheric CO<sub>2</sub> concentrations over time. Further, harvesting wood for energy worsens climate change immediately, and the harms it causes persist for centuries, even if the wood is harvested “sustainably.”

Below we assess two commonly cited instances in which sustainability is erroneously equated with carbon benefits. The Department must reject these and all such assertions that attempt to equate sustainable practices with carbon benefits.

***i. Best management practices (BMPs), forest certifications, and other “sustainable forestry” regimes***

Sustainable forestry is based on ecological and management considerations, not carbon accounting. Even if considerations of forest growth and removals were included, sustainability criteria will fail to fully account for changes in carbon emissions and cannot be justified scientifically as a proxy for carbon accounting.

According to a recent summary in the *Journal of Forestry*:

*An assumption that bioenergy harvesting in forests managed on a sustained yield (also called sustainable yield) basis does not create a carbon deficit is one of the*

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<sup>17</sup> Dogwood Alliance, *Destroying Southern Forests for International Export* (2017), <https://www.dogwoodalliance.org/wp-content/uploads/2017/08/Acres-of-Pellets-Fact-Sheet.pdf>.

<sup>18</sup> Justin Scheck & Ianthe Jeanne Dugan, *Europe’s Green Fuel Search Turns to America’s Forests*, *The Wall Street Journal* (May 27, 2013), <https://www.wsj.com/articles/SB10001424127887324082604578485491298208114> (Attachment 11); Dogwood Alliance, Natural Resources Defense Council, & Southern Environmental Law Center, *Global Markets for Biomass Energy are Devastating U.S. Forests*, *supra* note 8.

*most common errors in forest bioenergy accounting . . . Stating that sustained yield management is carbon neutral is incorrect.*<sup>19</sup>

As such, an established “sustainable forestry” certification regime or best management practice, while plausibly beneficial for ecosystems and wildlife protection, cannot be treated as providing evidence that biomass harvested for energy production is carbon beneficial.

## ***ii. Reference point accounting***

Reference point accounting monitors carbon stocks over time across some pre-defined region, independent of the specific activities (logging, burning, emissions, etc.) that take place within that region. Under this approach, biomass harvested in regions where overall forest stocks are increasing is deemed carbon beneficial.

Such logic is erroneous. The climate damage from burning wood is not mitigated simply because the bioenergy harvest or power plant is located in a region where forest stocks are increasing—namely where growth exceeds removals. Changes in regional carbon stocks alone simply cannot detect or quantify the carbon emissions from sourcing an individual biomass-burning facility.

The simplest way to understand this logical flaw is to imagine a biomass-burning electric-generating unit (EGU) sited in a region where overall forest stocks are increasing, then that same EGU using the same feedstocks sited in a region where overall stocks are decreasing. Under the reference point accounting approach, the EGU in the first scenario would be considered to have zero stack emissions, but not in the latter. Such an accounting method fails a basic test of logical consistency. It also decouples carbon emissions outcomes from the single most impactful factor: the EGUs’ choice of what biomass feedstocks to burn for bioenergy production.

Reference point accounting was roundly rejected by the U.S. EPA’s own Scientific Advisory Board in its first assessment of the agency’s Framework for Biogenic CO<sub>2</sub> Emissions, and its position has not changed since then:

*The choice of a fixed reference . . . implies that forest biomass emissions could be granted an exemption simply because the location of a stationary facility is in an area where forest stocks are increasing. The reference point estimate of net emissions or net sequestration does not indicate, or estimate, the difference in greenhouse gas emissions (the actual carbon gains and losses) over time that stem from biomass use. As a result, [it] fails to capture the causal connection between forest biomass growth and harvesting and atmospheric impacts and thus may incorrectly assess net CO<sub>2</sub> emissions of a facility’s use of a biogenic feedstock.*<sup>20</sup>

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<sup>19</sup> Ter-Mikaelian et al., *The Burning Question: Does Forest Bioenergy Reduce Carbon Emissions? A Review of Common Misconceptions About Forest Accounting*, 113 J. Forestry 57-68 (Nov. 27, 2014), <https://academic.oup.com/jof/article/113/1/57/4599732>.

<sup>20</sup> U.S. Environmental Protection Agency, Scientific Advisory Board, Biogenic Carbon Emissions Panel, *Review of EPA’s Accounting Framework for Biogenic CO<sub>2</sub> Emissions from Stationary Sources* (Sept. 2011) (Attachment 12).

A recent report by the Chatham House, a distinguished UK think tank with a history of independent and rigorous research, reached the same conclusion:

*It is often argued that biomass emissions should be considered to be zero at the point of combustion because carbon has been absorbed during the growth of the trees, either because the timber is harvested from a sustainably managed forest, or because forest area as a whole is increasing (at least in Europe and North America).*

*These arguments are not credible. They ignore what happens to the wood after it is harvested (emissions will be different if the wood is burnt or made into products) and the carbon sequestration forgone from harvesting the trees that if left unharvested would have continued to grow and absorb carbon.<sup>21</sup>*

In order to determine the actual carbon impacts of biomass harvest and use, regional forest stocks under the scenario *with* bioenergy harvests should be compared to the baseline of ongoing forest management *without* biomass use. This method—which is entirely different from merely claiming that growth exceeds removals (and falsely attributing carbon benefits)—is the only way to determine carbon impacts or benefits.

## **II. Forest-derived biomass is not “clean” and poses a threat to North Carolina’s communities.**

Expansion of domestic biomass power will necessitate significant increases in the production of forest-derived biomass, from which communities in North Carolina already suffer health and quality of life impacts solely from demand abroad. Communities in North Carolina that live near wood pellet facilities directly suffer three-fold from wood pellet production. First, as wood pellet plants source within a 50-100 mile radius, the communities experience higher rates of tree loss leading to lower air and water quality and increased risk of flooding. Second, wood pellet production plants until recently have skirted Clean Air Act requirements, freely emitting dangerous pollutants into the communities. Third, and finally, these communities sit in the coastal plain of Southern states and are under direct threat from climate change to which wood pellet production and consumption contribute.

Wood pellet manufacturing emits harmful particulate matter, volatile organic compounds (VOCs) that create smog, and other hazardous pollutants. A shocking pattern of air quality violations have been documented in the wood pellet industry throughout the South, particularly at Enviva’s North Carolina facilities.<sup>22</sup> In 2018, Enviva’s North Carolina plants were the largest emitters of VOCs and hazardous air pollutants in the industry, emitting five to six times the level of hazardous air pollutants as comparable facilities.<sup>23</sup> These emissions disproportionately harm

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<sup>21</sup> Brack, *supra* note 10.

<sup>22</sup> Environmental Integrity Project, *Dirty Deception*, *supra* note 8.

<sup>23</sup> *Id.*

communities of color and low-income communities, such as the communities of Dobbins Heights and Hamlet, who are already burdened by other polluting industries.<sup>24</sup>

The company's wood pellet mills are located in areas that already endure some of the highest logging rates in the world, with surrounding communities suffering high poverty rates and facing the threat of flooding from climate change. Despite promises, Enviva has yet to jumpstart the local economies in North Carolina where they have facilities, where county-level poverty rates have increased or remained stagnant since Enviva began operating.<sup>25</sup>

Finally, biomass combustion would further harm the health of communities who would live near biomass power stations. In the UK, where the utility Drax Power Station has converted coal stations to burn biomass, these conversions increase levels of dangerous small particles by over 135%, the equivalent of 3 million new diesel cars on the road.<sup>26</sup> In a 2016 letter, organizations such as the American Lung Association, Physicians for Social Responsibility, and the American Academy of Pediatrics detailed their opposition to the use of biomass for electricity production on the basis that biomass power results in dangerous emissions of particulate matter, nitrous oxides, carbon monoxide, and carcinogens such as benzene and formaldehyde. They write that “burning biomass creates air pollution that causes a sweeping array of health harms, from asthma attacks to cancer to heart attacks, resulting in emergency room visits, hospitalizations, and premature deaths.”<sup>27</sup> Simply put, biomass power is not a “clean” energy source.

### **III. Forest-derived biomass is an uneconomic energy source.**

One of the Department's guiding principles for the development of the Clean Energy Plan is that North Carolina's clean energy future must be affordable. Biomass power is prohibitively expensive and a poor investment for North Carolina. In the UK, the largest user of biomass for energy, bioenergy relies on expensive subsidies (over £800m in 2016 rising to over £1bn per year by 2020)—scarce taxpayer resources that could support cheaper, truly clean energy technologies and demand reduction. These subsidies support inefficient facilities that are likely to become stranded assets, while truly low-carbon solar and wind resources are already cheaper and have a significant scope for further cost reduction.<sup>28</sup>

Closer to home, our neighbors in the U.S. South have found biomass power to be a costly burden on ratepayers and taxpayers. For example, in Virginia, electricity from power plants that burn

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<sup>24</sup> Stefan Koester & Sam Davis, *Siting of Wood Pellet Production Facilities in Environmental Justice Communities in the Southeastern United States*, 11 *Envtl. Justice* 64–70 (2018), <https://www.liebertpub.com/doi/10.1089/env.2017.0025>.

<sup>25</sup> Lisa Sorg, *Half-Truths and Sometimes No Truth At All: Public Debates Pollution Limits at Enviva's Wood Pellet Plant in Hamlet*, N.C. Policy Watch (Nov. 9, 2018), <http://www.ncpolicywatch.com/2018/11/09/half-truths-and-sometimes-no-truth-at-all-public-debates-pollution-limits-at-envivas-wood-pellet-plant-in-hamlet/> (Attachment 13).

<sup>26</sup> Biofuel Watch UK, *Briefing: Drax's Coal-to-Biomass Conversion Increases Emissions of Dangerous Small Particles* (Aug. 11, 2017), <https://www.biofuelwatch.org.uk/2017/briefing-draxs-coal-to-biomass-conversion-increases-levels-of-dangerous-small-particles/>.

<sup>27</sup> Letter from Health Organizations, to Senators/Representatives re: Biomass Power (2016), <https://www.lung.org/assets/documents/advocacy-archive/health-organizations-letter-biomass.pdf> (Attachment 14).

<sup>28</sup> Natural Resources Defense Council, *Issue Brief: Money to Burn II - Solar and Wind Can Reliably Supply the United Kingdom's New Electricity Needs More Cost-Effectively than Biomass* (Sept. 2017), <https://www.nrdc.org/sites/default/files/money-to-burn-ii-uk-biomass-ib.pdf>.

biomass is significantly more expensive than clean energy alternatives like wind, solar, and energy efficiency.<sup>29</sup> Other biomass plants in the U.S.—such as in Gainesville, Florida and Austin, Texas—are sitting idle or have been purchased back by the government to get out of long-term contracts because of high costs.<sup>30</sup>

#### IV. Conclusion

To meet the goals set out by Executive Order 80—and to meet our planetary needs to avoid a climate crisis—the North Carolina Clean Energy Plan must be truly clean. Forest-derived biomass power does not belong in North Carolina’s clean energy future, and now the Department has the opportunity to guide clear policies and decision-making on this issue. Now more than ever, we need standing, diverse, healthy forests to store carbon, protect us from flooding and storms, and provide us with clean air and water. Forests draw enormous amounts of carbon out of the atmosphere and store it in trees and soil. Any expansion of biomass combustion and the wood pellet industry in North Carolina will increase greenhouse gas emissions, drive increases in logging and conversion of natural forests to tree plantations, impede our state’s resilience to flooding and storms, and harm communities’ health—all which undermines North Carolina’s commitment and responsibility to act on climate change. Accordingly, the undersigned organizations and scientists urge the Department to exclude the use of forest-derived biomass from the Department’s Clean Energy Plan.

CC:

Governor Roy Cooper  
Secretary Michael Regan, Department of Environmental Quality  
Michael Abraczinskas, Division of Air Quality  
Jeremy Tarr, Office of the Governor  
Jennifer Mundt, Department of Environmental Quality

Respectfully submitted,



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Heather M. Hillaker  
Associate Attorney  
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<sup>29</sup> Natural Resources Defense Council, *Issue Brief: Up in Smoke – How Dominion’s Investments in Biomass Electricity Lost Big* (May 2018), <https://www.nrdc.org/sites/default/files/dominion-investments-biomass-electricity-ib.pdf>.

<sup>30</sup> Andrew Caplan, *City Owns GREC After \$754M Deal*, The Gainesville Sun (Nov. 7, 2017), <https://www.gainesville.com/news/20171107/city-owns-grec-after-754m-deal> (Attachment 15); Elizabeth Pagano, *Austin Energy Buys Biomass Plant for \$460M*, Austin Monitor (Apr. 19, 2019), <https://www.austinmonitor.com/stories/2019/04/austin-energy-buys-biomass-plant-for-460m/> (Attachment 16).



**On behalf of the following organizations and scientists:**

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Catawba Riverkeeper Foundation  
Brandon Jones, Catawba Riverkeeper

Center for Biological Diversity  
Jovita Lee, NC State Campaigner

Clean Air Carolina  
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Coastal Carolina Riverwatch  
Larry Baldwin, Executive Director

Crystal Coast Waterkeeper  
Larry Baldwin, Waterkeeper

Dogwood Alliance  
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Environment North Carolina  
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***Via email***

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**Re: Comments Regarding the Inclusion of Swine Waste-to-Energy in the State Clean Energy Plan**

Dear Ms. Masemore,

The undersigned organizations offer these comments to the N.C. Department of Environmental Quality (“DEQ” or “agency”) opposing the inclusion of biogas<sup>1</sup> that is the product of swine waste-to-energy projects that fail to meet environmental performance criteria<sup>2</sup> necessary to address longstanding environmental, public health, and racial equity concerns about swine waste management in the N.C. Clean Energy Plan (“CEP” or “the Plan”). Thank you for the opportunity to offer these public comments.

DEQ has articulated a vision for an energy system that is “clean, equitable, modern, resilient, and efficient; in addition to being safe, affordable, and reliable.”<sup>3</sup> In describing specific components of the CEP, DEQ suggested that renewable biogas—which inaccurately describes,

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<sup>1</sup> Biomethane is also under consideration for inclusion in the CEP. For the purposes of this letter, “biogas” refers to both biogas and biomethane and is specific to swine waste-to-energy.

<sup>2</sup> State law currently prohibits the construction of new industrial swine operations or the modification of existing industrial swine operations unless the new or modified operations meet environmental performance standards. *See* N.C. Gen. Stat. § 143-215.10I(b). These standards require operations to eliminate the following: discharges of waste to surface water through direct discharges or through groundwater, atmospheric emission of ammonia, emissions of odors, the release of disease causing vectors and pathogens, and nutrient and heavy metal contamination of soil and groundwater. *Id.* Anaerobic digesters on their own do not meet these environmental performance standards. *See, e.g.*, Dr. C.M. Williams, Presentation: Technology Options for Capturing Greenhouse Gases and Destroying Pathogens in the AFO/CAFO Waste Stream (Oct. 27-28, 2016) <https://ehs.duke.edu/2016/wp-content/uploads/sites/3/2016/09/Williams.pdf> (describing several technologies that meet the environmental performance standards and noting that anaerobic digestion, on its own, does not meet the performance standards).

<sup>3</sup> N.C. Dep’t of Env’t Quality, North Carolina Clean Energy Plan Workshop 5 Presentation at 9 (June 26, 2019) <https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/CEP-Combined-Workshop-5-powerpoint.pdf> (listing the vision, pathway, and definition of clean energy).

but may be interpreted to include swine waste-to-energy—may be part of the CEP if it is a “lower carbon alternative” that is recovered with “environmentally sustainable management practices.”<sup>4</sup> Biogas does not fit within the State’s articulated vision for the CEP because it is neither clean nor equitable nor resilient. Moreover, biogas is not a “lower carbon alternative” that is recovered with “environmentally sustainable management practices.” To the contrary, the most widely-used biogas technology relies on the primitive lagoon and sprayfield waste management system at industrial hog operations, which has a devastating impact on the environment and public health for communities living nearby and downstream from industrial hog operations. In this letter, we highlight ways in which biogas production is inconsistent with DEQ’s vision for the CEP and detail the ways in which it intensifies environmental harms.

Indeed, while we appreciate Governor Cooper’s efforts to respond to the challenges presented by climate change, we urge the State to address these challenges by encouraging investment in clean energy technology that addresses—rather than exacerbates—environmental and public health harms. Growth in biogas production has the potential to further entrench the use of the outdated lagoon and sprayfield system as a mainstay of North Carolina agriculture—a system that exacerbates environmental, civil rights and public health harms. For all of the reasons discussed below, the State should exclude biogas from the CEP where inadequate environmental protections are in place to address the myriad problems identified with the lagoon and sprayfield system.

## **I. The Lagoon and Sprayfield System Harms Communities and the Environment**

The lagoon and sprayfield waste management system is a system whereby hog feces and urine are stored in often unlined pits and the liquid waste is subsequently sprayed onto nearby cropland. This waste management system pollutes our streams, waterways, and the ecosystems that rely on them; harms the public health of communities that live nearby or downstream of industrial hog operations; and creates noxious odors that impact the livelihoods of people living near these operations, with a disproportionate racial impact on Native Americans, Latinx, and African Americans.<sup>5</sup> The primary means of producing biogas at industrial hog operations is the installation of anaerobic digesters over hog waste lagoons.<sup>6</sup>

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<sup>4</sup> N.C. Dep’t of Env’tl Quality, Clean Energy Plan Stakeholder Workshop 5 Overview of Clean Energy Plan Vision and Guiding Structure video, <https://deq.nc.gov/energy-climate/climate-change/nc-climate-change-interagency-council/climate-change-clean-energy-12> (last visited July 25, 2019) [hereinafter CEP Workshop 5 video].

<sup>5</sup> Letter from Lilian Dorka, Director of External Civil Rights Compliance with U.S. Env’tl Protection Agency, to William Ross, Acting Secretary of N.C. DEQ (Jan. 12, 2017), [https://www.epa.gov/sites/production/files/2018-05/documents/letter\\_of\\_concern\\_to\\_william\\_g\\_ross\\_nc\\_deq\\_re\\_admin\\_complaint\\_11r-14-r4\\_.pdf](https://www.epa.gov/sites/production/files/2018-05/documents/letter_of_concern_to_william_g_ross_nc_deq_re_admin_complaint_11r-14-r4_.pdf) (expressing “deep concern about the possibility that African Americans, Latinos, and Native Americans

The lagoon and sprayfield waste management system fails to meet statutory environmental performance standards required for all new or modified industrial hog operations in the State; these performance standards require facilities to eliminate air and water pollution, noxious odors, and other harmful impacts of this waste management system.<sup>7</sup> Liquid swine waste can intrude into groundwater via cracks in lined lagoons, or by seeping directly through unlined lagoons.<sup>8</sup> When lagoon wastewater is sprayed on agricultural fields, over-application or improper techniques can result in nutrient-laden swine waste discharging directly into nearby streams and rivers.<sup>9</sup> Once hog waste infiltrates surface or groundwater, the large amounts of nitrogen and phosphorus contained in the waste can wreak ecological havoc and cause harmful algal blooms; fish kills; acidification of soils and aquatic ecosystems; heavy metal accumulation in sediments, aquatic life, and plant and animal tissue; excessive salt buildup; eutrophication of rivers and estuaries; and consequent species and ecological community changes.<sup>10</sup>

The human impacts of the lagoon and sprayfield waste management system are similarly devastating. A 2018 study published in the North Carolina Medical Journal found that residents who live near industrial hog operations that use the lagoon and sprayfield system have higher death rates from causes such as anemia, kidney disease, tuberculosis and low birth weight than residents who live further away from such operations.<sup>11</sup> The study also found higher rates of low birth weight and infant hospitalization among residents who live near industrial hog operations.<sup>12</sup> Duke researchers noted that these impacts are not the cause of multiple demographic, behavioral, or socioeconomic factors present, but rather are “due to the additional impact of multiple industrial hog facilities located in this area.”<sup>13</sup> Other research found that the same heavy metal and salt accumulation that affects wildlife can cause cancer, hair loss, liver dysfunction, and anemia.<sup>14</sup> Ammonia emissions from lagoons cause eye irritation and are partially responsible for

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have been subjected to discrimination as a result of the NC DEQ’s” permitting system for industrial hog operations).

<sup>6</sup> See, e.g., *AgSTAR: Livestock Anaerobic Digester Database*, EPA (Jan. 2019), <https://www.epa.gov/agstar/livestock-anaerobic-digester-database> (noting that of the 10 voluntarily reported biogas projects in North Carolina, six use covered lagoon technology).

<sup>7</sup> See N.C. Gen. Stat. § 143-215.10I(b).

<sup>8</sup> See Robbin Marks, *Cesspools of Shame: How Factory Farm Lagoons and Sprayfields Threaten Environmental and Public Health*, NAT. RESOURCE DEF. COUNCIL 33 (2001), <https://www.nrdc.org/sites/default/files/cesspools.pdf>; see also Steve Wing, *Environmental Injustice in North Carolina’s Hog Industry*, 108 ENV’T HEALTH PERSP. 225, 225 (2000). (noting that this is a particular problem in eastern North Carolina, where a high water table allows for easy groundwater intrusion).

<sup>9</sup> Marks, *supra* note 8, at 29.

<sup>10</sup> *Id.*

<sup>11</sup> Julia Kravchenko et al., *Mortality and Health Outcomes in North Carolina Communities Located in Close Proximity to Hog Concentrated Animal Feeding Operations*, 79 N.C. MED. J. 278 (2018).

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> Marks, *supra* note 8, at 32–33.



noxious smell.<sup>15</sup> Gaseous hydrogen sulfide also causes eye irritation, in addition to irritation of the nose and throat, as well as loss of consciousness, seizures, and even death.<sup>16</sup> Airborne particulate matter and swine waste effluent are associated with respiratory ailments.<sup>17</sup> Near constant exposure to pollution and odors are linked to mental health impacts, such as greater levels of self-reported depression and anxiety among residents living near these facilities.<sup>18</sup> As this dizzying (and uncomprehensive) list of ecological and human impacts indicates, swine waste lagoons and sprayfield techniques are inherently unsustainable.

## II. Biogas Does Not Fit DEQ’s Vision for a Clean Energy Future

DEQ’s comments at the fifth CEP Stakeholder Workshop indicated that biogas will be considered a “lower carbon alternative” to traditional generation resources “when recovered via environmentally sustainable management practices,” which are practices that “minimize environmental harm and creates (sic) a lower carbon [alternative].”<sup>19</sup> However, biogas production should not be conflated with sustainable environmental management practices. To the contrary, biogas production is *counter* to such practices. While biogas production may reduce methane emissions from industrial hog operations, this alone does not render the technology sustainable or clean.

Research has yielded several pertinent insights about swine waste biogas that render it ineligible for inclusion in the CEP. Biogas production does not reduce the volume or management of manure or waste that is created and stored,<sup>20</sup> and thereby, cannot remedy many of the harms associated with lagoon and sprayfield practices discussed above. Biogas production has also been found to increase ammonia emissions by 46 percent compared to conventional farms without biogas production technologies.<sup>21</sup>

The climate benefits from capping hog waste lagoons are far from certain. While it is true that biogas systems do capture methane – a greenhouse gas that has *86 times* the global

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<sup>15</sup> *Id.* at 18.

<sup>16</sup> *Id.*

<sup>17</sup> See, e.g., Peter S. Thorne, *Environmental Health Impacts of Concentrated Animal Feeding Operations: Anticipating Hazards--Searching for Solutions*, 115(2) ENV’T HEALTH PERSP. 296, 296–97 (2007).

<sup>18</sup> Susan S. Schiffman et al., *The Effect of Environmental Odors Emanating from Commercial Swine Operations on the Mood of Nearby Residents*, 37(4) BRAIN RES. BULL. 369 (1995).

<sup>19</sup> CEP Workshop 5 video, *supra* note 4. We assume that the designation of “lower carbon alternative” is inclusive of alternatives that lower other potent greenhouse gas emissions, such as methane and nitrous oxide.

<sup>20</sup> See *Anaerobic Digestion: Biogas Production and Odor Reduction*, PENN. ST. EXTENSION, <https://extension.psu.edu/anaerobic-digestion-biogas-production-and-odor-reduction> (last visited July 29, 2018) (“Anaerobic digestion does not reduce the volume or nutrient value of manure. If dilution water is added to the system, the volume of material to handle is increased.”).

<sup>21</sup> L.A. Harper et al., *The Effect of Biofuel Production on Swine Farm Methane and Ammonia Emissions*, 39(6) J. ENV’T QUALITY 1984, 1984 (2010).

warming potential of carbon dioxide on a 20 year timescale—methane leakage involved the transport, storage, and distribution of biogas using existing infrastructure may diminish climate benefits from capping hog waste lagoons.<sup>22</sup> Scientists also disagree about whether biogas technology can reduce the nitrous oxide emissions (N<sub>2</sub>O) associated with swine waste storage and application to soil. Even more potent than methane, N<sub>2</sub>O has approximately 300 times the global warming potential of CO<sub>2</sub>,<sup>23</sup> and is produced naturally by bacteria found in animal manure. Some studies have indicated that the anaerobic digestion process reduces N<sub>2</sub>O emissions compared to pre-digested waste when applied as a soil amendment,<sup>24</sup> while others showed increases in N<sub>2</sub>O releases when applied to crops.<sup>25</sup> Whether N<sub>2</sub>O emissions are reduced or increased may depend on the ability of crops to uptake nitrogen, and many models that predict N<sub>2</sub>O emissions will be reduced by digestion presume that waste is applied at agronomic rates.<sup>26</sup> This is a discouraging prospect given that nitrogen overloading on agricultural lands is a well-recognized and growing ecological problem.<sup>27</sup>

Further, biogas production will exacerbate an already dire water pollution problem in rivers and streams in eastern North Carolina, which are overloaded with pollution from industrial

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<sup>22</sup> Experts studying natural gas and coal have pointed out that natural gas infrastructure is at risk for significant leakage; directed biogas may rely on the same infrastructure for transport, storage, and distribution. See, e.g., William H. Schlesinger, *Natural Gas or Coal: It's All About the Leak Rate*, NATURE.ORG (June 24, 2016) <https://blog.nature.org/science/2016/06/24/natural-gas-coal-leak-rate-energy-climate/> (noting that “any leakage rate above 1 percent of gross production negates the advantages of natural gas with respect to mitigating climate change” primarily due to the high global warming potential of methane); see also Thomas K. Flesch, Raymond L. Desjardins, & Devon Worth, *Fugitive Methane Emissions from an Agricultural Biodigester*, 35 BIOMASS & BIOENERGY 3927, 3927 (2011).

<sup>23</sup> *Greenhouse Gas Emissions: Overview of Greenhouse Gases*, EPA, <https://www.epa.gov/ghgemissions/overview-greenhouse-gases> (last visited July 29, 2019).

<sup>24</sup> See A. Vallejo et al., *Nitrogen Oxides Emission from Soils Bearing a Potato Crop as Influenced by Fertilization with Treated Pig Slurries and Composts*, 38 SOIL BIOLOGY AND BIOCHEMISTRY 2782, 2782 (2006); see also H. P. COLLINS ET AL., APPLICATION OF AD DAIRY MANURE EFFLUENTS TO FIELDS AND ASSOCIATED IMPACTS (CSANR Res. Rep. 2010 – 001) (noting a 50 percent N<sub>2</sub>O reduction in digested material after one year that tapered off dramatically the following year).

<sup>25</sup> See S. Wulf, M. Maeting & J. Clemens, *Application Technique and Slurry Co-Fermentation Effects on Ammonia, Nitrous Oxide, and Methane Emissions after Spreading: II. Greenhouse Gas Emissions*, 31 J. ENV'T QUALITY 1795, 1795 (2002) (measuring higher nitrous emissions in digested material on grasslands, while observing the opposite on arable land); see also B. Amon, V. Kryvoruchko, et al., *Methane, Nitrous Oxide and Ammonia Emissions During Storage and After Application of Dairy Cattle Slurry and Influence of Slurry Treatment*, 112 AGRIC., ECOSYSTEMS & ENV'T 153, 153 (2006) (finding higher nitrous emissions from digested dairy manure compared to undigested manure).

<sup>26</sup> A. LEIP ET AL., EVALUATION OF THE LIVESTOCK SECTOR'S CONTRIBUTION TO THE EU GREENHOUSE GAS EMISSIONS (GGELS)—FINAL REPORT 100-01 (Eur. Commission, Joint Res. Ctr. 2010).

<sup>27</sup> See, e.g., Laura Lynch, *Farms, Factories, and a Dangerous Nitrogen Overload*, PRI.ORG, Jan. 26, 2012, <https://www.pri.org/stories/2012-01-26/farms-factories-and-dangerous-nitrogen-overload>.

hog operations. Anaerobic digestion makes nutrients more readily available for plants,<sup>28</sup> meaning that less liquid waste is needed to adequately fertilize crops. Thus, the risk of over-application and runoff of nutrient-laden wastewater is substantial.<sup>29</sup>

The installation of anaerobic digesters over hog waste lagoons does not address the significant risk of pollution from industrial hog operations during major rain events, which are becoming more frequent and intense because of climate change. The lagoon and sprayfield system is extremely vulnerable to flooding during major rain events, which was evident during Hurricane Matthew in 2016 and Hurricane Florence in 2018, during which dozens of hog waste lagoons were inundated, overflowed, or breached.<sup>30</sup> Covered lagoons are just as vulnerable to inundation as uncovered lagoons, and sprayfields remain equally susceptible to flooding during major storm events. DEQ has committed to promoting resiliency as it charts a clean energy future for the State, and including biogas technology as part of the CEP is inconsistent with this stated goal.<sup>31</sup>

### III. Conclusion

For almost three decades, swine lagoons and sprayfields have been a tremendous threat to the health and wellbeing of our environment and North Carolina's most vulnerable communities. Over 20 years ago, a Blue Ribbon Commission declared that the reliance on this system threatens North Carolina's waterways and should be discontinued.<sup>32</sup> Unless combined with a move away from lagoons and sprayfields, expanded biogas production offers at best very few remedies or mitigating effects, and at worst, the potential to exacerbate the harms described above. Biogas production is ill-suited to minimizing environmental damages without any accompanying

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<sup>28</sup> Joe H. Harrison et al., *Transformation and Agronomic Use of Nutrients from Digester Effluent*, EXTENSION.ORG (May 17, 2013), <http://articles.extension.org/pages/67900/transformation-and-agronomic-use-of-nutrients-from-digester-effluent>.

<sup>29</sup> Over-application of nutrients may go unnoticed for years, as soil samples are only required once every three years and groundwater sampling is only required under limited circumstances. See N.C. Gen. Stat. 143.215.10C(3)(6); see also Swine Waste Management System General Permit (2019), <https://files.nc.gov/ncdeq/Water%20Resources/General-Permit---Swine-2019.pdf>.

<sup>30</sup> See e.g., Kendra Pierre-Louis, *Lagoons of Pig Waste Are Overflowing After Florence. Yes, That's as Nasty as It Sounds*, NY TIMES (Sept. 19, 2018) <https://www.nytimes.com/2018/09/19/climate/florence-hog-farms.html> (noting that at the time of writing, 110 hog waste lagoons had released or were imminently going to release hog waste into rivers and streams in eastern North Carolina).

<sup>31</sup> In an effort to mitigate the impacts of systems vulnerable to the effects of climate change, the State has invested in a buyout program to remove lagoons from the 100-year floodplain. DEQ should not contradict the policy objective of that program by inviting additional investment in facilities that pose an elevated risk to water quality.

<sup>32</sup> Blue Ribbon Study Commission on Agricultural Waste, *Report to the 1995 General Assembly of N.C. 1996 Regular Session 29* (May 16, 1996), <https://ncleg.net/Library/studies/1996/st10736.pdf> (emphasis added).

Ms. Sushma Masemore

July 30, 2019

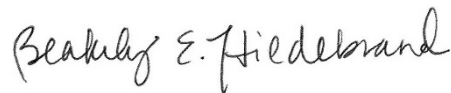
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requirements for the use of environmentally superior technologies. Yet, nothing in the current regulatory framework for biogas production requires such a transition.

For these reasons, swine waste biogas should not be counted among North Carolina's clean energy options or among the low greenhouse gas alternatives. The undersigned respectfully request that DEQ exclude biogas that is the product of swine waste-to-energy projects that fail to meet environmental performance criteria from the CEP. We are particularly concerned that biogas projects will compound the burden already disproportionately borne by people of color, who are statistically more likely to reside near permitted swine operations.

Thank you for consideration of these comments. We look forward to reviewing the draft Clean Energy Plan in the coming weeks and submitting additional comments at that time. Should you have any questions or wish to discuss these comments further, please do not hesitate to contact me at 919-967-1450 or [bhildebrand@selcnc.org](mailto:bhildebrand@selcnc.org).

Sincerely,



Blakely E. Hildebrand  
Staff Attorney  
Southern Environmental Law Center

North Carolina Environmental Justice Network  
Rural Empowerment Association for Community Help (REACH)  
Waterkeeper Alliance  
Winyah Rivers Foundation  
Cape Fear River Watch  
Sound Rivers, Inc.  
Coastal Carolina Riverwatch  
Crystal Coast Waterkeeper  
White Oak Riverkeeper Alliance  
Center for Biological Diversity  
North Carolina Conservation Network  
Yadkin Riverkeeper, Inc.  
Lawyers Committee for Civil Rights Under Law - Regional Office  
Natural Resources Defense Council

CC:

Michael Regan, Secretary, N.C. Department of Environmental Quality

## Comments submitted to the N.C. Department of Environmental Quality regarding the Clean Energy Plan

Jonas Monast and Ethan Blumenthal  
Center for Climate, Energy, Environment, and Economics (CE<sup>3</sup>) at the  
University of North Carolina School of Law

July 25, 2019

We commend the North Carolina Department of Environmental Quality for developing a Clean Energy Plan for the state and for the multiple efforts to engage stakeholders during the process. The process is taking place at a time when energy regulators and electric utilities face risks of over-investment, stranded assets, and/or path dependencies that could prevent utilities from offering customers the lowest cost, highest value services. An effective Clean Energy Plan could result in emission reductions while also delivering additional benefits for North Carolina. In particular, the Plan can help guide long-term planning for the electricity sector at a time of economic, technological, and policy uncertainty. With a coordinated approach to energy and environmental policy, our state can reduce greenhouse gas emissions from the power sector, ensure continued access to affordable and reliable electricity, and address other electricity sector risks.

This comment letter provides a brief overview of the changes underway in the electricity sector. It then discusses the role of the North Carolina Utilities Commission (NCUC) and the opportunity to use the NCUC's existing statutory authority to implement clean energy goals while also ensuring that the state's electricity provides deliver affordable and reliable power. The letter concludes by discussing how a price on carbon—via a carbon market or a carbon tax—could provide much needed guidance to help manage the evolution of the state's electricity sector.

### 1. The Transitioning Electricity Sector

Low natural gas prices, decreasing renewables costs, aging infrastructure, and technological advances are driving a transformation across the U.S. electricity sector. A growing number of coal-fired power plants are struggling to remain competitive.<sup>1</sup> Nuclear power plants in some parts of the country are facing similar pressures.<sup>2</sup> In April 2019, the U.S. generated more electricity from renewable sources than from coal for the first time—an outcome based in part on the regular maintenance of coal-fired power plants during the Spring season but nonetheless a

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<sup>1</sup> U.S. EIA, *Power Sector Coal Demand Has Fallen in Nearly Every State Since 2007* (Apr. 28, 2016), <http://www.eia.gov/todayinenergy/detail.php?id=26012>.

<sup>2</sup> *More Than Half of the Nation's Nuclear Power Plants Are at Risk of Closing* (NPR radio broadcast June 12, 2018 5:10 AM), available at <https://www.npr.org/2018/06/12/618812542/more-than-half-of-the-nation-s-nuclear-power-plants-are-at-risk-of-closing>.

noteworthy data point indicative of the expanding role of renewable energy resources.<sup>3</sup> The U.S. Energy Information Administration (“USEIA”) projects substantial growth in both natural gas and renewable energy (nonhydroelectric) sectors, with natural gas growing the most on an absolute basis and renewables growing the most by percentage.<sup>4</sup> Battery storage technologies continue to improve and costs continue to fall. A recent report by the National Renewable Energy Laboratory, for example, found that there are opportunities to implement existing battery storage technology for peaking capacity throughout the U.S. and that potential increases sharply with increased renewable energy generation penetration.<sup>5</sup>

These factors are having direct impacts in North Carolina. In 2009, coal-fired generation accounted for approximately 55 percent of in-state electricity generation, followed by nuclear power at 34 percent.<sup>6</sup> Natural gas-fired generation accounted for only 4 percent of in-state generation at the time.<sup>7</sup> By 2018, natural gas accounted for approximately 33 percent of in-state electricity generation, with nuclear power and coal-fired power accounting for approximately 31 percent and 24 percent, respectively.<sup>8</sup> These changes contributed to a 25 percent reduction in the state’s electricity sector carbon dioxide emissions and a 70 percent reduction in electricity sector sulfur dioxide emissions from 2007-2017.<sup>9</sup> The energy transition is not only impacting electricity generation, but also which companies are providing power in the state—-independent power producers generated 8.74 percent of electricity generated in North Carolina in 2017, rising from only 1.13 percent in 2009.<sup>10</sup>

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<sup>3</sup> *Renewables outstrip coal in US electricity generation*, ENGINEERING & TECH. (June 28, 2019), <https://eandt.theiet.org/content/articles/2019/06/renewables-outstrip-coal-in-us-electricity-generation/>.

<sup>4</sup> ANN. ENERGY OUTLOOK 2018, *supra* note , at 13-14.

<sup>5</sup> See NREL, THE POTENTIAL FOR BATTERY ENERGY STORAGE TO PROVIDE PEAKING CAPACITY IN THE UNITED STATES (2019), <https://www.nrel.gov/docs/fy19osti/74184.pdf>.

<sup>6</sup> “Net generation for all sectors (thousand megawatthours),” U.S. Electricity Information Administration (last visited July 22, 2019). Accessed at

<https://www.eia.gov/electricity/data/browser/#/topic/0?agg=2,0,1&fuel=vtvv&geo=00000004&sec=g&linechart=ELEC.GEN.COW-NC-99.A~ELEC.GEN.NG-NC-99.A~ELEC.GEN.NUC-NC-99.A&columnchart=ELEC.GEN.ALL-NC-99.A&map=ELEC.GEN.ALL-NC-99.A&freq=A&start=2009&end=2018&chartindexed=1&ctype=linechart&ltype=pin&rtype=s&pin=&rse=0&maptype=0>.

<sup>7</sup> *Id.*

<sup>8</sup> *Id.*

<sup>9</sup> North Carolina Electricity Profile 2017,” U.S. Energy Information Administration (released January 2019). Accessed at <https://www.eia.gov/electricity/state/northcarolina/>. *State Electricity Profiles 2009 at 202*, U.S. Energy Information Administration (April 2011). Accessed at <https://www.eia.gov/electricity/state/archive/sep2009.pdf>.

<sup>10</sup> NORTH CAROLINA ELECTRICITY PROFILE 2017: FULL DATA TABLES, TABLE 10: SOURCE-DISPOSITION, U.S. ENERGY INFO. ADMIN. (2019), *available at* <https://www.eia.gov/electricity/state/NorthCarolina/>.

## 2. Expanding the Interpretation of “Least Cost” in Electricity System Planning<sup>11</sup>

The NCUC plays a key role in determining how electric utilities respond to the changing circumstances outlined above, the outcome of which will affect electricity rates, investor returns, public health, local and state economic development, and the state’s contribution to the global challenge of climate change. This period of transition provides an opportunity for reexamining the role of least cost planning for the electricity system and the relationship between environmental impacts and consumer prices.

State utilities commissions typically employ a ‘least cost’ framework for assessing whether a utility’s investment is prudent. Under the least cost framework, the optimal choice is the least cost investment after accounting for other factors such as reliability, state renewable energy or energy efficiency mandates, other legal obligations, and a range of risk factors. Least cost is not a rigid standard, however. The approach allows utility commissioners to exercise considerable discretion to choose among sources of information, desirable outcomes, and risk assessments. New information, changing market conditions, more stringent regulations, and emerging technologies can all alter the calculus. In some circumstances, it may be less costly to society to avoid potentially large rate increases in the future by investing upfront in higher cost generation options.

Decisions regarding the makeup of the electricity sector have wide-ranging economic and environmental impacts. While direct regulation of public health and environmental impacts generally fall outside the jurisdiction of the PUC, commissioners may consider the costs and impacts associated with emissions from power plants due to the financial impact of future environmental regulations. The PUC, therefore, need not take on the role of an environmental regulatory agency in order to consider, and potentially mitigate, the environmental impacts of utility sector investments.

Legislation explicitly expanding the range of factors PUCs consider may foster consideration of a broader suite of public policy goals affected by electric utility decisions. However, in the absence of legislation specifically expanding the factors they may consider, PUCs can generally take steps within their existing statutory authority to pursue a range of societal objectives affected by the electricity sector. For example, although direct regulation of public health impacts may fall outside the regulatory purview of the utility commissioner, it does not follow that commissioners must ignore the health impacts of their decisions. PUC decisions affect electricity generation investments and thus the amount and types of emissions. They also affect the economic impact of changing course due to the costs locked in when constructing a new power plant. Ignoring the prospect of higher costs over the lifetime of a facility may subject consumers to higher prices while also robbing them of the benefits of early action. Therefore, viewing environmental issues through the lens of potential increases in operating costs over the

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<sup>11</sup> This section draws upon Monast’s recent scholarship on electricity sector decision-making, including the following: Jonas J. Monast, *Electricity Competition and the Public Good: Rethinking Markets and Monopolies*, 90 U. OF COLO. L. REV. 667 (2019); Jonas J. Monast, *Maximizing Utility in Electric Utility Regulation*, 43 FLA. ST. U. L. REV. 135 (2016); Jonas J. Monast & David Hoppock, *Designing CO2 Performance Standards for a Transitioning Electricity Sector: A Multi-Benefits Framework*, 44 ENVTL. L. REP. 11068 (2014).

lifetime of a power plant should allow commissioners to consider impacts on public health and the environment under existing least cost framework unless explicitly prohibited by state law from doing so.

Identifying least cost investment options over the next one to two decades is particularly complex due to the increased level of uncertainty regarding technology, markets, and regulation. Projections may fail to consider the potential cost impacts of changing circumstances and may undervalue non-cost factors. As a result, the traditional application of the least cost framework may undermine the goal of minimizing cost in the long term, as policy shifts to force electric utilities to internalize environmental externalities or as consumers bear costs in other ways such as medical bills.

A Clean Energy Plan for the state could provide important guidance to help the state's utilities and NCUC commissioners apply the least cost framework to reduce the state's greenhouse gas emissions, deliver additional public health benefits, and maintain an affordable and reliable electricity sector. Changes in state laws or DEQ regulations that require electric generators to reduce emissions would directly influence NCUC decisions. Absent such changes, the Clean Energy Plan could include the following recommendations for NCUC decision-making that would not require changes to existing law:

1. Ensure that the NCUC's approach to least cost planning includes variables such as temporal considerations (e.g., short-term versus long-term "least cost" approaches);
2. Consider the potential for near-term technological advances to alter electricity demand projections;
3. Ensure that current investments do not foreclose the potential for new technologies and energy services to deliver consumer and environmental benefits; and
4. Identify investments that could lead to multiple benefits for the electricity sector, such as minimizing risks facing the sector (e.g., the risk of stranded assets due to new technologies, shifting economics, or changing customer expectations), reducing emissions, and ensuring reliability.<sup>12</sup>

### **3. The Benefits of Carbon Pricing**

In addition to recommending an expanded approach to least cost planning, we also encourage DEQ to also explore carbon pricing strategies as part of the state's Clean Energy Plan. Predictable market signals could guide electricity investments, providing certainty to electricity generators, utility commissioners, and environmental regulators. Similar to the discussion in the previous section, a carbon price could also deliver additional benefits to the state. For example, the policy could combine climate change mitigation and adaptation goals, with the carbon price limiting emissions while also generating revenue to fund adaptation projects.

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<sup>12</sup> For example, utilities may be able to forestall major capital investments in some situations, effectively delaying largescale expenditures that could potentially limit options to react to new information regarding market demand, fuel prices, and regulatory requirements. End-use energy efficiency—gaining the same service with less overall electricity consumption—may also be a cost-effective option to reduce greenhouse gas emissions, provide energy savings for consumers, and help utilities hedge against price volatility and uncertain demand growth.



North Carolina has history of forward-thinking energy laws that deliver economic, public health, and environmental benefits. The Clean Smokestacks Act, for example, required its investor-owned utilities to reduce sulfur dioxide and nitrogen oxide emissions from in-state power plants by more than seventy percent over an eleven-year period.<sup>13</sup> A Duke University study estimates that the law created between six and sixteen billion dollars in health benefits for North Carolina citizens.<sup>14</sup> In addition, North Carolina's utilities were well-positioned to comply with new federal regulations governing hazardous air pollutants from coal-fired power plants and sulfur dioxide and nitrogen oxide emissions that affect air quality in downwind states.<sup>15</sup> The Renewable Energy and Energy Efficiency Portfolio Standard similarly is a major factor for North Carolina's ranking as the state with the second highest amount of installed solar capacity, contributing to economic development in some rural counties and attracting new investments in the state.<sup>16</sup>

Policymakers could consider numerous options for implementing a carbon price. For example, Mid-Atlantic and Northeastern states already participate in a regional carbon market, known as the Regional Greenhouse Gas Initiative or RGGI. The participating states establish limits on greenhouse gas emissions from their respective power plants and the power plant operators must purchase an emissions allowance for each ton of carbon dioxide that they emit. To date, RGGI allowance auctions have generated over \$3 billion, producing net economic benefits to participating states through investments in energy efficiency, renewable energy, and bill assistance for low-income consumers.

North Carolina policymakers could consider joining the RGGI market. Based on current RGGI allowance prices, North Carolina could generate approximately \$200 million annually to provide bill assistance for low income ratepayers, fund economic development projects in areas negatively affected by the energy transition, fund energy efficiency projects to reduce emissions and electricity bills, and/or invest in resiliency emission reductions.

Alternatively, North Carolina could explore other options, such as establishing a broader market that extends beyond the electric power sector, implementing a carbon tax with revenues similarly dedicated to resiliency and mitigation efforts, or implementing a revenue-neutral carbon tax that returns revenues to N.C. residents. Each approach presents tradeoffs (for example, a revenue neutral carbon tax may mitigate costs for North Carolina citizens, but it would fail to generate revenue that could fund resiliency efforts and storm recovery). This comment does not endorse one approach over another.

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<sup>13</sup> Clean Smokestacks Act, 2002 N.C. Sess. Laws 4 (codified as amended at N.C. GEN. STAT. § 62-143 (2011) and N.C. GEN. STAT. §§ 143-215.105-.114C (2011)).

<sup>14</sup> David Hoppock *et al.*, *Benefits Of Early State Action In Environmental Regulation Of Electric Utilities: North Carolina's Clean Smokestacks Act 3*, Nicholas Inst. For Env'tl. Pol'y Solutions, NI WP 12-05 (2012), available at <http://nicholasinstitute.duke.edu/climate/policydesign/benefits-of-early-state-action-in-environmental-regulation-of-electric-utilities>.

<sup>15</sup> *Id.*

<sup>16</sup> *North Carolina*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/state/?sid=NC> (last visited July 18, 2019).

## **Conclusion**

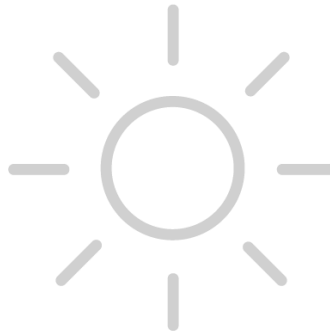
Thank you for the opportunity to submit comments regarding the development of North Carolina's Clean Energy Plan. Please contact the Center for Climate, Energy, Environment, and Economics at the UNC School of Law if we may be of assistance during the development or implementation of the Plan.



## **A.6 Public Comments and Comment Letters on the Draft CEP**

As detailed in Section 6, DEQ received a total of 660 comments (including 625 online form submissions and 35 comment letters) during the public comment period. This appendix includes the letters in full that were submitted to DEQ for consideration, and a table containing the individual public comments as they were received via the online form. Duplicate comments from the same individual/organization were removed from this comments list. Duplicative comments received from the same organization through the online comment portal and by letter/email are represented only once in the section deemed most appropriate.

Comment letters are included beginning on page 204, and public comments begin on page 482.





To: North Carolina Department of Environmental Quality  
DEQ Administration - State Energy Office  
1601 Mail Service Center  
Raleigh, NC 27699-1601

September 9, 2019

From: Jerome Wagner  
110 Summerlake Dr SW  
Concord, NC 28025

Subject: Comments Regarding Draft Energy Plan

Reference: DEQ's Draft "Clean Energy Plan," Issued August 16, 2019

Dear Sirs and Madams:

We conclude that there are a number of serious defects in the draft plan which demand remedy if the plan is to deliver a robust energy future for North Carolinians and position the State as a true climate crisis mitigation champion. Absent improvements to the plan – and EO80 – which will be outlined below, the plan will only worsen our climate predicament.

The news continues to be full of climate-related reporting. On August 26, the New York Times reported "Heat Deaths Jump in Southwest United States," adding "The long-term health effects of rising temperatures and heat waves are expected to be one of the most dangerous consequences of climate change, ... potentially making parts of North Africa and the Middle East 'uninhabitable.'"<sup>1</sup> On September 5, Iowa Public Radio reported, "Climate Change Impacts Clearer in Iowa than Much of US," adding "Historic flooding battered both ends of the state this year, as floodwaters swamped western Iowa communities along the Missouri River and eastern Iowa communities along the Mississippi. A new report for the Iowa Policy Project finds the increased risk of these kinds of damaging natural disasters is in line with the anticipated impacts of climate change."<sup>2</sup>

The climate emergency is real and humans are the main cause.<sup>3</sup> While EO80 and the draft "Clean Energy Plan" take steps in the right direction – the direction of addressing climate change and mitigating its impacts – they do not move either far enough or fast enough.

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<sup>1</sup> <https://www.nytimes.com/2019/08/26/climate/heat-deaths-southwest.html> ; accessed September 9, 2019.

<sup>2</sup> <https://www.climatesignals.org/headlines/report-climate-change-impacts-clearer-iowa-much-us> ; accessed September 9, 2019.

<sup>3</sup> <https://climate.nasa.gov/evidence/>; accessed February 3, 2019.

Our principal concerns:

Executive Order 80 – which authorized production of the “Clean Energy Plan” (the “plan”, hereafter) – is itself insufficient for the current need. It aims for 40% reduction in statewide GHG emission reduction by 2025 when a goal of 100% renewable energy by 2030 is urgently needed. In that sense, any and all plans and efforts made under the existing order are insufficient. Our “moonshot” will be doomed to failure.

The current draft is more of a “report” – as it is in fact titled on page 1 – than a “plan.” While the content is informative, it does not provide the Governor, Legislature, and Utilities Commission with actionable steps laid out in optimal sequences tied to definite timelines and completion dates – it does not provide a coherent plan. A true plan is still urgently needed.

Clear and complete definitions are not stated for “renewable energy,” “clean energy,” and “zero-emitting energy.” It is suspected that “clean energy” may in fact include biomass, natural gas, and continued operation of the aging nuclear fleet. Clarity here is essential to the proper awareness of and interpretation by the public of the plan and of the envisioned end point. Beyond that, we assert that: i) biomass is not clean energy; ii) natural gas is not clean energy (rather, it’s use constitutes a “highway to hell”); and iii) running the existing nuclear fleet up to 80 years defers active investment in and reliance on true renewable energy sources, undermines the integrity of the energy system that we will leave to our children and grandchildren, and is an “intergeneration injustice” as regards safe decommissioning of those plants. Further, we assert that it is imperative to remove legislative roadblocks to the aggressive deployment of wind turbines, both offshore and onshore.

Any serious plan to mitigate climate change must include a prompt – i.e., immediate – moratorium on all in-progress and planned fossil fuel infrastructure. The Mountain Valley Pipeline, Atlantic Coast Pipeline, and Maxton LNG plant – and any other such projects – must be halted immediately since they undermine any and all progress that might be aimed at in other aspects of the plan.

This plan must, ultimately, both “push and pull” the State’s IOU’s to a track of climate-conscious planning. Duke Energy’s proposal to install additional natural gas fired power plants and to continue large-scale coal use through the 2033 horizon (per their submitted but still unapproved IRP’s) are just plain wrong from a climate perspective. The State’s energy plan must set a new course for the IOU’s and must actively enforce compliance with the plan and its requirements.



The plan points out that NC's REPS rates have fallen far behind rates. See "U.S. Renewable Portfolio Standards 2018 Annual Status Report."<sup>4</sup> It stops short, however, of suggesting new, appropriate thresholds, carve-outs, and exclusions for renewable energy and energy efficiency. Surely, the DEQ is well positioned to make such recommendations to the Legislature and to make those specific recommendations public now.

The report fails to consider other independent plans – such as The Solutions Project<sup>5</sup> and Clean Path 2025<sup>6</sup>. Consequently, its vision is nearsighted and overly narrow in scope.

Now is the time to redefine the place of NC's IOU's in the overall power delivery system. In our view, such redefinition would prompt them – most notably Duke Energy – to move from being renewable energy laggards to being renewable energy leaders.

Please see, also, additional questions and comments which we submit concurrently, in the attachment entitled "350 Charlotte NCDEQ CEP Submitted Comments Table."

Respectfully,

  
Jerome Wagner for 350 Charlotte

350.org is a global network of organizers uniquely focused on the climate crisis. By activating the grassroots, we work to terminate the use of fossil fuels and to accelerate the transition to renewable energy resources, while promoting social equity. We embrace the motto "Keep the Fossil Fuels in the Ground." 350 Charlotte is an independent, volunteer-run member of the 350.org network organizing in the region of Charlotte, NC. We stand for the climate.

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<sup>4</sup> "U.S. Renewable Portfolio Standards 2018 Annual Status Report", Lawrence Berkeley National Laboratory; [http://eta-publications.lbl.gov/sites/default/files/2018\\_annual\\_rps\\_summary\\_report.pdf](http://eta-publications.lbl.gov/sites/default/files/2018_annual_rps_summary_report.pdf) ; accessed September 9, 2019.

<sup>5</sup> <http://thesolutionsproject.org/infographic/#nc> ; accessed September 6, 2019.

<sup>6</sup> <https://www.ncwarn.org/our-work/clean-path-2025/> ; accessed September 6, 2019.

**350 Charlotte NCDEQ CEP Submitted Comments Table**

Plan Segment	Item
comprehensive planning	State energy policy must “pull” and “push” IOU’s to accelerate decarbonization and deployment of RENEWABLES.
comprehensive planning	A “State Leads” model for implementations and target dates should be considered – with private and public targets following goals assigned to the State for its buildings, energy use, transportation fleets, etc. This approach is evident in Charlotte’s SEAP.
comprehensive planning	The draft plan is silent on end-of-life of nuclear plants (SLR, ELR, ...; decommissioning). This is a substantial information gap. The continued dependency on conventional (installed and aging) nuclear plants must be openly described, as this involves significant possible public impacts.
comprehensive planning	As global and local temperatures continue to rise, thermal-based generation utilities will be required to turn-down (reduce) actual outputs in order to compensate to reductions in cooling capacity of both air and water. How will those impacts be managed? Note that PV and wind don’t have the same cooling dependencies and limitations.
customer access to clean energy	The State’s CEP must guide IOU’s towards more aggressive IRP’s. Relevant examples: DEC’s unapproved IRP of Sept 2018, Figure 12F - Carbon Constrained Base Case - shows 8% of generation supply coming from RENEWABLES, an addition of 2% over the 2019 forecast. This vision is inadequate.
customer access to clean energy	A firm policy on RENEWABLES expansion must be explicitly stated. Historical and currently effective laws and regulations are inadequate to the crisis.
customer access to clean energy	REPS: No review of other States’ targets is given; no proposed thresholds are stated. Currently, increasing REPS thresholds and targets is shown as a medium- to long-term goal (Item D5). No – This is an immediate, short-term priority.

### 350 Charlotte NCDEQ CEP Submitted Comments Table

customer access to clean energy	Several authoritative energy plans focused on North Carolina are part of the public record: for example, The Solutions Project, NC Warn's Clean Path 2025, the Sierra Club's "A Path to a Cleaner Future for North Carolina." These are neither identified in the draft nor taken advantage of. In that sense, the draft is not adequately informed.
customer access to clean energy	The plan must set a policy of reserving and prioritizing in-state RENEWABLES generation for in-State use (e.g., wind for NC, not for VA).
customer access to clean energy	Wind (action items F-1, F-2, ...): Void all legislative and regulatory prohibitions on development and deployment of wind resources, immediately. Incentivize resource development by third parties. Forget the suggested assessments and promptly issue RFP's. Allow for and promote both onshore and offshore development.
DER Interconnections and compensation	Require and promote DER's at all government-owned and -occupied buildings and campuses, as an early adoption step.
DER Interconnections and compensation	Provide fair, market-based value to DER owners for electrical energy provided to the grid system from their interconnected resources.
EE and demand management	Establish immediate, tangible goals for State-owned and -occupied buildings (as in Charlotte's SEAP and its 2030 goal) - e.g., "All state-owned and -occupied buildings and fleets will be Zero Carbon by 2030."



350 Charlotte NCDEQ CEP Submitted Comments Table

EE and demand management	<p>It is a travesty that all the building construction currently going on is being done to archaic, obsolete building code standards. All such construction should be halted until new building standards which include increased efficiency requirements are in place and effective.</p>
GHG Emissions and Climate	<p>The executive "driver" for all this activity – EO80 – is out of step – that is, it is insufficient – for the challenge ahead. The goals are weak, do not lead in the proper direction, and are not urgent enough to deal with the current, acknowledged climate emergency.</p>
GHG Emissions and Climate	<p>The definitions of "clean energy" and "renewable energy," in the context of this report, are not explicitly given. This is a major shortcoming – and, perhaps, a major deception. Running current, aged nuclear facilities to 2050+ is not a robust energy path – especially from the perspective of our children and grandchildren; rather, this would be an intergenerational injustice. Delaying investments in domestic – in-state – renewable energy sources is not a robust energy path. Instead, investment in and construction of true renewable energy sources must be required.</p>
GHG Emissions and Climate	<p>A moratorium on all in-progress, planned, and future fossil-fuel related infrastructure projects must be declared immediately. This must include the ACP, MVP, Maxton LNG plant, Duke Energy natural gas implementations, Allen Steam Plant conversion, etc.</p>
GHG Emissions and Climate	<p>CLT SEAP attainment: The draft CEP does little to advance Charlotte's sustainability goal of less than 2 tons CO2e per year-resident - in fact, it may subvert that goal. The current plan might leave IOU's in their customary "drivers' seats." DEC's current IRP (still unapproved) shows up to 40% generation by fossil fuels in 2033 (Figure 12-F) with only 8% sourced from renewables. This level of fossil fuel use appears to be opposed to the direction NC's largest city is resolved to move in. Further, the current lack of a detailed energy plan brings into question whether the benefits of the CEP will come soon enough to benefit the State's municipalities, including Charlotte.</p>
GHG Emissions and Climate	<p>The crisis nature of climate change is not addressed; otherwise, the only prospect is to call for immediate and deep changes economy-wide, including scrapping all in-progress and planned fossil fuel infrastructure projects.</p>

### 350 Charlotte NCDEQ CEP Submitted Comments Table

GHG Emissions and Climate	Regulate CO2 and GHG's, independently and in the aggregate, towards minimizing climate-impacting emissions.
GHG Emissions and Climate	The State must drive to 100% renewable electricity by 2030.
GHG Emissions and Climate	Include emissions of methane from incidental handling in the evaluation of benefits and impacts.
grid resiliency and flexibility	The plan must include conversion and storage options and transportation options such as electrolytic H2 generation, storage, and distribution and fuel-cell deployment for transportation.
grid resiliency and flexibility	Devise effective, efficient storage means for excess power produced throughout the state. Install these as public-private partnerships. Examples: pumped hydro; hydrogen generation and storage; compressed air storage; electric batteries.
grid resiliency and flexibility	What are the risks to electric supply from: cosmic disturbances; cyber- or physical-attack; other known and unknown factors? How are these threats managed and minimized while additional demands are placed on electricity supplies? (The current paradigm of fossil-fueled mobile transport, heating, etc. builds some redundancy-resiliency into the energy supply. How is that emulated in a more fully electrified society?)
Other/General	"Plan" denotes numerical-quantitative goals, time schedules, sequencing of discrete tasks, milestones and metrics, etc. None of these are present in the current draft. In this sense, the "plan" is incomplete and useless and the time put into creating it and waiting for it colossal wastes of valuable time and energy. Critical path charts, schedules with actual dates, illustrations of envisioned systems, ... all should have been provided.

**350 Charlotte NCDEQ CEP Submitted Comments Table**

Other/General	The stated goals of the CEP include a 60 to 70% reduction (p 22). This is distinct from the E080 goal of 40% by 2025; this is favorable to the goal of GHG reduction. However, the goal of full decarbonization is reported as the top priority of stakeholders (p 108) but is neither echoed nor developed and set elsewhere in the report. More aggressive – i.e., increased - targets and timeline – i.e., shortened – are required.
Other/General	Why was not more substantial detailed planning done in this exercise? Were not enough resources dedicated to the work? What is the outlook in order to assure true plan development and goal attainment?
Other/General	Durability is required in all plan aspects, acknowledging that consistent attention and activity over several decades will be required to address anthropogenic impacts on climate. That is, these programs and initiatives must continue despite administrative changes, funding disputes, cropping up of other priority issues, etc.
Other/General	Language for the goals is inconsistent: p22, "Goals" - 60-70% reduction in GHG; p112 - a CO2 reduction target is stated. Precise language is vital, technically. Each term needs to be defined. The nuances between terms need to be clearly stated, in order to assure universal understanding of what is required.
Other/General	CEP fails to directly "regulate" the end-of-life fossil fuel consumption and GWG emissions from Transportation, home heating, etc. In that regard, it is overly narrow in its scope, purview, and policies.
Other/General	Staffing, funding, etc. are not addressed at all.
Utility Tools and Incentives	Favor new in-state installations of RENEWABLES over provision of REC's from other regions.
Utility Tools and Incentives	The key concept ought to be - not "decarbonization" (which posits continued operation of current, aging nuclear fleet) - investment in new, additional domestic renewable energy and energy storage systems.

TO: North Carolina State Energy Office

FROM: AARP North Carolina

September 6, 2019

Re: Comments of AARP on the draft Clean Energy Plan

On behalf of AARP and our 1.1 million members and their families in the state, we are pleased to submit comments on the draft Clean Energy Plan. AARP advocates for fair and affordable utility rates as well as cost-effective sustainable energy policies in North Carolina and across the country. Many of our members are on fixed or are low income and they sometimes struggle to make ends meet. It is our position that consumers should not be forced to support the optional retirement of power plants to support other energy sources.

Accordingly, AARP urges the report to be modified to reflect a concern about limiting the utility rate increases of the proposed energy policies. AARP believes a cap would be appropriate to limit the annual rate increase. For example, the Illinois Future Energy Jobs Act in 2016 capped ratepayer exposure at 25 cents per month for residential customers and a 1.3% rate increase for non-residential customers. Our specific comments on the plan are as follows:

- AARP is not convinced that massive changes to the regulatory system are needed at this time. Ideas like performance-based ratemaking have been around since the 1980s with limited application. Indeed, the report is incorrect that 35 states have moved to alternative regulatory schemes. Only Illinois, Alabama, Maine, and Arkansas have gone to formula rates, for example, and the results have been mixed at best. In Illinois, formula rates caused distribution electric rates to jump 37% for ComEd customers (see <https://www.chicagobusiness.com/utilities/comed-asks-springfield-force-you-make-13-year-bet-interest-rates>).
- As the report notes, North Carolina now enjoys among the lowest electric rates in the nation. We should not lose sight of this important fact.
- AARP also opposes so called revenue decoupling, an automatic rate increase mechanism which penalizes customers for conserving by raising their per kwh and per therm rate. There is no evidence that utilities are not pursuing conservation without this unnecessary subsidy or could not be ordered to aggressively push conservation without such a mechanism.
- Regarding having the state turn over control to federally regulated regional transmission grid operator (RTO), such as PJM or a new Carolina RTO, AARP urges North Carolina to proceed with caution. States within voluntary RTOs are realizing they have given up much control of their energy future to these loosely regulated entities. Illinois is thinking of exiting the PJM capacity market, for example. Further, while RTOs do bring benefits in terms of the regional dispatch of generation, there are many offsetting costs including:
  - having to pay for your neighboring state to upgrade their grid
  - over incentivizing transmission development due to overly generous returns and bonus offered by FERC
  - hidden fees and socialized costs like the \$300 million in losses Greenhat caused in PJM
  - The lack of clarity over who and how to get needed new generation built once in an RTO.

- Further, unless the state joined PJM, the Carolinas alone would likely not be big enough to warrant RTO status and its unknown if Southern Company or FPL would want to join a southeast RTO.
- As we go local, with local generation with storage, the need for an RTO to support long distance import of wind energy, for example, is less clear than it was when RTOs were formed 20 years.
- Finally, the 800 or so stakeholder meetings and the lack of consumer retail rate focus makes it very unclear that the state should consider joining an RTO at this time. There is a reason North Carolina is not in an RTO and the negatives have only grown over the years.

A few additional comments on the report:

- The report's idea that community solar should be paid net metering (the full retail rate) should be reexamined. AARP believes all grid users should pay their fair share of costs. Net metering is an over payment for excess solar generation and unfairly compensates solar customers at the expense of other consumers.
- AARP supports voluntary rate options including time of use rates as long as they are voluntary.
- Before the power plants are retired prematurely, AARP urges a study be done on the rate impact of such. While the fuel source of new plants like solar and wind may be cheaper, there are also costs associated with construction of the facilities including the need for new long distance transmission lines.
- The goal to retire all coal plants (prematurely) by 2030 is problematical if it will cause rates to spike. AARP urges a study on the rate impact of such a proposal. While wind and solar may be cheaper than the fuel costs of other power plants once built, there are construction costs plus the cost of new long distance transmission to also consider.
- AARP also opposes the proposal to put a new 30-year surcharge on the bill (aka securitization) to incent coal plants to retire early and pay worker retraining and community economic redevelopment costs with new bond funds. A new 30-year bond surcharge is not a money saver. Further, taxpayers (not utility ratepayers) should pay such costs. A new 30 year non-by-passable, non-changeable surcharge on utility bills is hardly a money saver.
- AARP also questions the rate impact of so called "beneficial" electrification. Stranded natural gas assets to install new heat pump water heaters or furnaces will drive up gas rates for remaining customers as well as cause the need for new electric generation to support all this new electric load. With natural gas at record low prices (below \$3 MMBtu compared with \$12 per MMBtu in 2012), this domestically produced fuel should not be abandoned based on a questionable claim that it will be cheaper to use electric power.
- Finally, using the so-called total resource cost test to justify massive new conservation spending should be viewed skeptically since it ignores the short term rate increase impact of such spending. Instead it focuses on long term, hard to quantify speculative externality benefits to justify such spending increases.

In summary, the state should proceed with caution on claims that massive overhaul (and massive spending increases) are needed. Customers that want 100% renewable energy could be served with a

green tariff offered by the utility without forcing all customers to pay for more expensive power due to the costs which are not clearly disclosed in the draft report.

We appreciate the opportunity to comment.

Sincerely yours,

Michael Olender

State Director, AARP North Carolina

919.508.0298 (office)

[molender@aarp.org](mailto:molender@aarp.org)



To: North Carolina Department of Environmental Quality

From: Greg Montgomery, Managing Director, CleanSource Capital

Date: September 6, 2019

Re: Inclusion of Biogas in the North Carolina Clean Energy Plan as a Renewable Energy Resource for Power Generation and an Alternative Transportation Fuel

Conspicuously absent from the otherwise comprehensive draft of the North Carolina Clean Energy Plan (the "CEP") are recommendations for the use of North Carolina's significant biogas<sup>1</sup> resources as a source for renewable energy and emissions reduction under the CEP. North Carolina has been ranked third in the country in terms of biogas potential<sup>2</sup>, a resource derived from the breakdown of organic sources such as landfill waste, animal manure, and wastewater. Proven technologies and techniques exist for using biogas as an energy source. In its raw form, biogas can serve as a fuel source for power generation through combustion in combined heat and power ("CHP") engines or large steam cycle generation facilities for production of electricity and thermal power. Biogas can also be upgraded to biomethane or "renewable natural gas" ("RNG") and transported in the existing natural gas pipeline system to combust in combined-cycle natural gas plants to centrally generate electricity or to substitute for gasoline or diesel as a renewable fuel source. North Carolina has the singular opportunity to distinguish itself amongst the states striving to low carbon economies by incorporating its considerable biogas resources into achieving the stated goals of the CEP.

Regarding North Carolina's biogas potential, the state ranks second in the nation for swine production<sup>3</sup> and third for poultry production<sup>4</sup>, with these two industries producing an estimated 41.4 million MMBtu's of biogas annually<sup>5</sup>. If used to displace natural gas as a fuel for power generation, this biogas could result in a reduction of greenhouse gas ("GHG") emissions equating to 2.3 million metric tons of CO<sub>2</sub> emissions ("MTCO<sub>2</sub>e") annually<sup>6</sup>, and if used to displace diesel in transportation could result in a similar reduction in GHG emissions of 2.3 million MTCO<sub>2</sub>e annually<sup>7</sup>. Indeed, North Carolina has recognized the potential of these biogas resources by incorporating specific carve-outs for retail electricity generated from swine and poultry waste in its Renewable Energy Portfolio Standard ("REPS"). It only furthers this established policy to recognize biogas from these sources in the CEP.

Governor Cooper's Executive Order 80<sup>8</sup> ("EO 80") instructed the North Carolina Department of Environmental Quality ("DEQ") to prepare the CEP for submittal to his desk by October 1, 2019. The stated objectives of both EO 80 and the CEP support the inclusion of biogas as a renewable energy resource. Specifically, the EO calls for North Carolina to support the 2015 Paris Climate Accord and to honor its commitment to the United States Climate Alliance, with a reduction in statewide GHG emissions to 40% below 2005 levels. And the draft CEP states that the "vision for North Carolina's energy future is a clean, affordable, modern, resilient, and efficient energy system through the increased deployment of both grid scale and distributed energy resources."<sup>9</sup> The draft CEP recognizes that the stakeholders who participated in the development of the CEP, in prioritizing the values to support the vision, "overwhelmingly selected environmental and carbon reduction as the most important value to uphold."<sup>10</sup> Moreover, the draft CEP recognizes several key drivers in the transformation of the North Carolina power grid to a clean energy grid, including decentralization,

decarbonization, and economic development, and sets forth recommended policies around these drivers. The use of biogas as a renewable energy resource is an established part of each of these drivers and supports the associated policies in the CEP.

First, with regard to decentralization, the draft CEP recognizes the increasing role of distributed generation in the supply of power either on the customer side of the meter or near the point of use rather than central generation. In recognition of these trends, the draft CEP recommends policies designed to facilitate customer access to clean energy and the interconnection of distributed energy resources (“DERs”). Biogas is a baseload energy resource. The combustion of biogas in CHP engines and steam or combined cycle turbines to generate electricity either for use behind the meter or for interconnection and sale to the grid is a well-established industry practice nationwide<sup>11</sup> with multiple biogas projects either existing or under development in North Carolina.<sup>12</sup>

Second, with regard to decarbonization, the draft CEP recognizes that this trend is being driven by customer desires, both at the local government level where environmental goals are based on citizen’s demands<sup>13</sup>, and at the corporate level where plans are being set for powering with 100% renewable energy.<sup>14</sup> The draft CEP recognizes that the electric power sector is the leading emitter of GHGs in North Carolina at 35% of statewide emissions in 2017. To address these trends, the draft CEP recommends policies designed to decarbonize the electric power sector, including: increasing the use of energy resources cleaner than fossil fuels; carbon policy approaches with targets for emission reductions and associated revenues; increasing the REPS while maintaining existing technology carve outs; and requiring utilities to develop projects focused on DERs, community solutions, and microgrids.

As recognized by the existing REPS carveout for electricity generated from swine and poultry waste, the use of animal-derived biogas as a renewable energy source strongly supports decarbonization, both in distributed and central generation as a cleaner alternative to fossil natural gas. In addition, the use of biomethane or RNG in the transportation sector affords a cleaner fuel than gasoline and diesel, which other states have recognized by establishing carbon-based pricing programs for regulating emissions in their transportation fleets with RNG serving as a significant alternative fuel source.<sup>15</sup> Overlooked in the CEP is the opportunity to incorporate reductions from the agricultural sector in achieving North Carolina’s GDG emission reduction goals. The agriculture sector accounts for 7% of the GHG emissions in North Carolina<sup>16</sup>. The majority of such emissions are methane, which in the first two decades after release is 84 times more potent a GHG than CO<sub>2</sub><sup>17</sup> and 25 times more potent over a 100 year period.<sup>18</sup> Thus, development of biogas projects not only provides a renewable energy resource but also significantly reduces the methane emissions from the waste being used, both of which are in furtherance of the decarbonization policies under the CEP. In fact, biogas is a “below zero” emissions energy source when it is derived from the capture of methane emitting waste streams, making it even more compelling renewable energy fuel.<sup>19</sup>

Third, with regard to economic development, the draft CEP acknowledges how significant the clean energy sector has been to the economy of North Carolina both in job creation and investment. These remain crucially important in rural communities, as well as to the overall state through exports of clean energy to other states and nations. This has been particularly true with the solar industry<sup>20</sup> which



has grown tremendously within the state from 2005 into the present, thanks in large part to concerted policy and public and private efforts to develop this sector. The draft CEP recommends similar policies be designed to foster clean energy economic development opportunities, but only speaks to the offshore wind industry, ignoring the potential with biogas.

The biogas industry, which has experienced an average growth rate of 30%,<sup>20</sup> affords a unique opportunity to develop renewable energy projects on farms in rural areas of North Carolina, creating well-paying jobs and providing diversified revenues to financially support vital farming industries and the communities where they are located. As noted in the American Jobs Project report, up to 34,000 jobs could be created through the build out of the biogas industry in North Carolina.<sup>21</sup> And as the alternative fuel markets in other states continue to develop, the RNG produced in North Carolina can be sold into these states generating significant revenues for the benefit of the projects in North Carolina.<sup>22</sup> Nationally, 32% of the natural gas consumed by compressed natural gas vehicles in the United States in 2018 came from RNG.<sup>23</sup> The RNG industry is at its early stages of development and has been compared to where the solar industry was in its early days<sup>24</sup>, which presents North Carolina, with its significant biogas resources, the opportunity to grow another clean industry sector to the benefit of its citizens and businesses.

In summary, given the policy goals set forth in the draft CEP and the significant biogas resources within the state, North Carolina should include the use of biogas as a renewable energy resource in the design of the CEP. Biogas as a distributed and cleaner energy resource supports decentralization and decarbonization, and as an emergent industry, the development of biogas projects will foster the growth of another clean energy industry sector within the state, bringing jobs and revenues to the benefit of its citizens, particularly in its rural communities and agricultural industry. I therefore urge the DEQ to consider incorporation of this important resource and opportunity in the final CEP presented to the Governor.

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<sup>1</sup> Biogas is the raw gas emitted from the decomposition of organic materials in the absence of oxygen (anaerobic), which principally contains molecules of methane (CH<sub>4</sub>), between 60-65% in concentration, with the balance of molecules being comprised mainly of water (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), nitrogen (N), and hydrogen sulfide (H<sub>2</sub>S) depending on the organic material source and the length of the decomposition. Biomethane is produced when the biogas is conditioned via a mechanical scrubbing process to remove the non-methane molecules to increase the concentration of methane molecules to between 94-98% of the gas stream, thus allowing acceptance of the biomethane as a substitute for fossil fuel natural gas of similar methane concentration. Biomethane conditioned to this standard is also called “renewable natural gas”. Biogas to Biomethane Brochure, United Nations Industrial Development Organization, Facherband Biogas e.V., September 2017.

<sup>2</sup> Energy Analysis: Biogas Potential in the United States, National Renewable Energy Laboratory, October 2013

<sup>3</sup> <https://ncfarmfamilies.com/get-the-facts/#targetText=North%20Carolina%20is%20one%20of,inventory%20of%20the%20entire%20country>.

<sup>4</sup> <https://www.ncpoultry.org/facts/facts.cfm>

<sup>5</sup> [https://www.nass.usda.gov/Quick\\_Stats/Ag\\_Overview/stateOverview.php?state=NORTH%20CAROLINA](https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=NORTH%20CAROLINA); Safley Jr., L.M., Vetter, R.L., and Smith, L.D., “Management and Operation of a Full-Scale Poultry Waste Digester,” Poultry Science, 66:941-945, 1987; Spellman, F. R., & Whiting, N. E. (2013). Handbook of mathematics and statistics for the environment. Boca, Raton, FL.

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<sup>6</sup> <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

<sup>7</sup> <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

<sup>8</sup> State of North Carolina, Governor Roy Cooper, Executive Order 80, October 29, 2018

<https://governor.nc.gov/documents/executive-order-no-80-north-carolinas-commitment-address-climate-change-and-transition>

<sup>9</sup> Page 55, North Carolina Clean Energy Plan: Transitioning to a 21<sup>st</sup> Century Electricity System (Draft Report) August 2019

<https://deq.nc.gov/energy-climate/climate-change/nc-climate-change-interagency-council/climate-change-clean-energy-16>

<sup>10</sup> Ibid

<sup>11</sup> See the AgSTAR Program co-sponsored by the Environmental Protection Agency and the United States Department of Agriculture <https://www.epa.gov/agstar> and the various publications and webinars posted promoting the recovery and use of biogas from various industries. See the listing of hundreds of completed biogas projects in the United States listed on the American Biogas Council website <https://americanbiogascouncil.org/resources/biogas-research-directory/>

<sup>12</sup> Examples of completed biogas projects within North Carolina include the Optima KV project in Duplin County (swine gas to RNG for electricity production), the Optima TH project in Bladen County (swine processing and farm waste gas to RNG for electricity production), the Lloyd Ray Farms project in Yadkin County (swine gas to electricity). Examples of biogas projects under construction or development include the Blue Sphere project in Mecklenburg County (poultry and food waste gas to electricity), Catawba Biogas in Anson County (poultry gas to RNG for electricity).

<sup>13</sup> Page 49, North Carolina Clean Energy Plan (Draft Report). In 2018, Asheville, NC passed a resolution transitioning to 100% renewable energy and Charlotte, NC passed a low carbon resolution. In 2019, Raleigh, NC adopted a community-wide goal to reduce GHG emissions 80% by 2050. Over 30 municipalities in the state have made public commitments to GHG reduction goals and/or clean energy targets.

<sup>14</sup> Page 51, North Carolina Clean Energy Plan (Draft Report). Of the state's 30 largest private employers, 17 have set renewable energy or energy conservation targets and 17 companies doing business in North Carolina have set a goal to be powered by 100% renewable energy.

<sup>15</sup> California, Oregon and Washington are the first states in the nation to establish Low Carbon Fuel Standards ("LCFS") programs designed to reduce GHG emissions from transportation fuels without prescribing the fuel type. See the Center for Climate and Energy Solutions description of the LCFS programs at <https://www.c2es.org/document/low-carbon-fuel-standard/>. Compressed natural gas ("CNG") is a significant alternative fuel source for these programs, with in the case of California, 80% of the CNG used as an alternative fuel source coming from RNG derived from biogas projects.

<sup>16</sup> North Carolina Greenhouse Gas Inventory (1990-2030), North Carolina Department of Environmental Quality, January 2019.

<sup>17</sup> Environmental Defense Fund <https://www.edf.org/climate/methane-other-important-greenhouse-gas>

<sup>18</sup> Environmental Protection Agency <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>

<sup>19</sup> RNG: Moving Beyond Zero Emissions <https://www.cleanenergyfuels.com/blog/rng-moving-beyond-zero-emissions>

<sup>20</sup> Renewable Natural Gas: The Climate Change Solution with Limited Awareness of its Potential, Utility Dive, August 28, 2019 <https://www.utilitydive.com/news/renewable-natural-gas-the-climate-change-solution-with-limited-awareness-o/561786/>

<sup>21</sup> Page 52, North Carolina Jobs Project: A Guide to Creating Advanced Energy Jobs, The American Jobs Project, March 2016.

<sup>22</sup> As an example, RNG derived from swine biogas, because of its significantly lower carbon intensity, can receive in the current market payment for LCFS credits generated from the RNG of \$65/MMBtu or higher, which is over 20x the commodity price for equivalent natural gas at \$3/MMBtu. These LCFS credits are in addition to the value placed on the RNG for the Renewable Fuel Standard D3 RINS (currently in the \$5-6/MMBtu range) and the commodity value of the gas (currently around \$3/MMBtu), for a total value in excess of \$70/MMBtu or higher.

<sup>23</sup> See "RNG: Moving Beyond Zero Emissions" cited above.

<sup>24</sup> Jonathan Mingle, "Could Renewable Natural Gas Be the Next Big Thing in Green Energy" Yale Environment 360 <https://e360.yale.edu/features/could-renewable-natural-gas-be-the-next-big-thing-in-green-energy>



120 Tredegar Street  
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September 9, 2019

**Michael S. Regan**, Secretary  
North Carolina Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

Re: Comments of Align Renewable Natural Gas on Draft North Carolina Clean Energy Plan

Dear Secretary Regan:

Align RNG, LLC (“Align” or “the Company”) is submitting the following comments on the North Carolina Department of Environmental Quality’s (“DEQ”) draft Clean Energy Plan (“CEP”). The Company appreciates the hard work and time that went into producing the report that resulted from Governor Roy Cooper’s Executive Order Number 80 (North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy). DEQ seeks input on a range of topics, including ways to reduce carbon emissions, the role of existing and new resources in transitioning the state to a clean energy economy, ways clean energy can spur economic expansion, and ways that all North Carolinians have access to clean energy. As set forth below, Align has a strong interest in North Carolina’s clean energy future, and its projects, which are currently underway in the State, will play a pivotal role in all of these areas. Oddly absent from the CEP draft is information about the development of clean renewable natural gas (“RNG”). The CEP should not miss an opportunity to embrace this nascent industry, which with proper policy support, will help North Carolina become a national leader in RNG.

### **Transformational Clean Energy Partnership**

Align is a joint venture between Dominion Energy with Smithfield Foods to transform the future of sustainable energy and agriculture by capturing methane emissions from hog farms and converting them into clean RNG for residential home heating and power for business. As global leaders in the energy and agriculture industries, Dominion Energy and Smithfield Foods have the resources, expertise and market access to expand this proven technology on a wide scale across the region. The companies are jointly investing at least \$250 million in this initiative over the next decade with initial application on the vast majority of Smithfield’s finishing spaces in North Carolina and elsewhere.

### **RNG Synergies with the Plan**



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RNG produced through the Align partnership is crucial to achieving a clean energy future for North Carolina. First, RNG will play an important role in supporting the Governor's stated initiative to significantly lower greenhouse gas emissions in North Carolina. Because methane is at least 25 times more potent than CO<sub>2</sub> as a greenhouse gas, reducing methane can have a more dramatic impact on the environment than other carbon reduction initiatives.

RNG production will also support new and existing resources in the State and will spur economic expansion in rural North Carolina. Align principals have spent decades studying and perfecting the commercial viability of 'manure-to-energy' projects and are leveraging relationships with hundreds of farmers in North Carolina. Using anaerobic digestion technology, the projects will capture and process methane from large clusters of company and family-owned hog farms, which will then be transported to central conditioning facilities where it will be converted to RNG. This will provide economic opportunity for hundreds of family farmers in North Carolina, who will have a new revenue stream from RNG. In fact, the initiative will turn one of the largest costs to farmers into a new revenue source. Farmers who participate in the program will be paid for the RNG their farms produce through long-term contracts.

RNG facilities will help protect hog farm lagoons from storm-related damage. In addition to converting 'manure-to-energy,' the covered lagoon digesters mitigate potential issues associated with severe rain events such as hurricanes. Digesters will be covered to prevent rain from entering them during severe weather events. In addition, the construction of the digester will provide more storage for treated manure, which will provide enhanced environmental protection.

In August, 2019, the Company broke ground on North Carolina's largest RNG project. Located in Duplin and Sampson counties, this project will generate enough clean energy to power more than 3,500 homes annually. Once completed, this first project will be the largest hog-manure sourced RNG generation facility in the country. This project, combined with the Optima KV project located near Kenansville, which generates RNG from 5 hog farms, and other projects underway by Align will place North Carolina at the forefront of RNG production in the United States.

Align is also committed to reducing emissions from consumer end-use sectors in North Carolina and RNG production will help ensure that North Carolinians have access to clean energy. We agree with the draft CEP's conclusion that there are opportunities to "reduce energy burden and GHG emissions in consumer end-use sectors in NC, such as in homes, buildings, transportation and agricultural operations" but we do not believe those opportunities are limited to electrification. RNG produced in North Carolina will produce pipeline quality gas. RNG is a carbon-negative fuel because it captures significantly more greenhouse gas emissions from biomass than are released from its end use in power plants, homes and businesses.



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In sum, Align is already hard at work supporting North Carolina's clean energy future, and its projects, which are currently underway in the State, will foster growth of the clean energy industry in the State. The CEP should embrace this industry, which with proper policy support, will help North Carolina become a national leader in RNG.

We believe the goals of the Company and its growth plan are very much in line with the overall vision put forward by the draft CEP: "a system that is clean, equitable, modern, resilient, and efficient, in addition to being safe, affordable, and reliable." We look forward to working with stakeholders as implementation of the CEP begins.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary Courts", written in a cursive style.

Gary Courts  
Chairman, Vice President & Co-Chief Operating Officer  
Align RNG, LLC



# AppalachianVoices

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September 9<sup>th</sup>, 2019

To: Sushma Masemore  
State Energy Director  
NC Department of Environmental Quality

From: Rory McIlmoil  
Senior Energy Analyst  
Appalachian Voices  
[Rory@AppVoices.org](mailto:Rory@AppVoices.org)

## RE: Comments on North Carolina's Clean Energy Plan

I submit these comments on behalf of Appalachian Voices, a non-profit environmental advocacy organization based in Boone. I myself am also a resident of Deep Gap in Watauga County, and a member-owner of Blue Ridge Energy, an electric cooperative ("co-op") serving more than 60,000 residential properties in western North Carolina.

Appalachian Voices applauds the NC Department of Environmental Quality on drafting a strong Clean Energy Plan, in accordance with Governor Roy Cooper's Executive Order 80, "North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy," that aims to put the state on a path to achieving 60-70 percent reductions in greenhouse gas emissions below 2005 levels from the state's electricity sector by 2030.

There are a lot of excellent and strong recommendations in the draft Plan, including many pertaining to the state's 26 rural electric cooperatives that would expand access to energy efficiency and renewable energy for their members while alleviating the energy burden crisis for low-income residents. Specifically, we strongly support the recommendation for the state to implement an Energy Efficiency Resource Standard that would set strong but reasonable requirements for both co-ops and municipal electric utilities, the recommendation for all utilities to adopt and implement Pay-As-You-Save™ tariffed on-bill finance programs, and the recommendation for the state to explore a ratepayer-funded Percentage of Income Payment Program modeled on the program in place in Ohio.

However, beyond these recommendations, the draft Plan falls far short of achieving its equity goals by failing to address some of the more fundamental problems which underpin the lack of equity, access, and energy efficiency and renewable energy investments by most co-ops and muni's serving the state. Our comments contained herein detail these issues and provide some additional policy recommendations that we request be added to the final Plan.



We call on Governor Cooper and state government agencies to do more to ensure that rural areas in North Carolina are set more squarely at the center of the final Plan. If equity is a central focus of the Plan, it can't just be a plan for Duke Energy customers, for urban areas, and for the affluent. But to achieve that goal, we need to address the significant barriers to expanding clean energy opportunities for rural and low-income communities.

Any new policies or actions in the final Plan must require compliance by electric co-ops and municipal utilities. They must address inequitable and harmful rate structures being imposed by co-ops. They must address the lack of regulation of, and lack of transparency by co-ops. And they must commit a substantial amount of dedicated resources and administrative support associated with the Plan's implementation to rural communities. Otherwise, the final Clean Energy Plan won't be a plan for all North Carolinians.

Thank you for your consideration,

Rory McIlmoil  
Senior Energy Analyst  
Appalachian Voices



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## Executive Summary

The draft Clean Energy Plan aims to put the state on a path to achieving 60-70 percent reductions in greenhouse gas emissions below 2005 levels from the state's electricity sector by 2030. There are many strong recommendations in the draft Plan pertaining to the state's twenty-six rural electric cooperatives that would expand access to energy efficiency and renewable energy for their members while alleviating the energy burden crisis for rural low-income residents. These include, among others, an Energy Efficiency Resource Standard that would set strong but reasonable requirements for both electric cooperatives and municipal electric utilities, the adoption and implementation of Pay-As-You-Save™ tariffed on-bill finance programs by all utilities, and the exploration/implementation of a ratepayer-funded Percentage of Income Payment Program modeled on the program in place in Ohio.

Beyond these recommendations, the draft Plan falls far short of achieving its equity goals by failing to address some of the more fundamental problems which underpin the lack of equity, access, and energy efficiency and renewable energy investments by most electric cooperatives and municipal electric utilities serving the state. This is problematic given that electric cooperatives alone account for fourteen percent of all electricity sold in the state (and associated pollution and environmental impacts). This is substantial, and yet, despite this, state utility regulation and energy policy have largely ignored electric cooperatives, and this has had a negative impact on the households and communities they serve.

As detailed in this document, the fundamental problems that have resulted in rural communities across North Carolina largely being left out of the benefits of the clean energy growth in North Carolina over the past decade include, but are not limited to, the following:

1. While electric cooperatives enjoy monopoly control over the sale of electricity in their respective service areas, the state has effectively deregulated these utilities (which were only partially regulated to begin with), leaving the regulation and oversight of the cooperative's governance, rates and rate structures, renewable energy policies, and investments up to the cooperative boards of directors.
2. The deregulation of electric cooperatives was based on the false notion that, because members of electric cooperatives elect their boards of directors, which in turn hire management and set policies for the cooperative, members effectively regulate their cooperatives. However, in practice, North Carolina's electric cooperatives actively suppress member participation in decision-making through various means (see the section on electric cooperative governance), withhold information to members that would be necessary for members to play an active and informed role in key decision-making, and experience less than ten percent of members participating in board elections, which in many cases involve one or more sitting directors running unopposed. As a result, and given that electric cooperative members have no path for redress of violations or grievances through the state, harmful policies and practices employed by electric cooperatives continue unabated.
3. Key renewable energy policies enacted in the state have either allowed electric cooperatives to do the bare minimum to comply – such as with the Renewable Energy and Energy Efficiency Portfolio Standard, or have exempted cooperatives from having to comply altogether – such as with the Competitive Energy Solutions for North Carolina Act of 2017. As a result, rural communities have largely been left out of the benefits of public energy policy that could have stabilized and lowered energy costs, created jobs, generated new local tax revenues and improved the quality of life for rural communities.



4. Nearly 35 percent of all households (more than 1.3 million households) in the state, each falling under 200 percent of the federal poverty level (FPL) – experienced an energy cost burden equal to or greater than 6 percent in 2016 (the level at which energy costs become unaffordable).<sup>1</sup> The most impoverished households (less than 100 percent of FPL) had an average energy burden of 17 percent. Energy burdens are most concentrated, for the most part, in communities served by the state’s electric cooperatives. Yet, despite their purported “commitment” to operating in accordance with the Seven Cooperative Principles, most notably the “Concern for Community” principle, North Carolina’s electric cooperatives have shown no commitment to addressing the deep and persistent problem of home energy cost burdens that exist in the communities they serve, and in fact, through their high fixed charges and harmful net metering/billing policies, the cooperatives have made it harder for member households to reduce that burden on their own.
5. The state’s electric cooperatives impose monthly fixed fees (“facilities charges”) that range between \$12 and \$35 per month, with an average of more than \$25 per month. That average is more than five times what is considered reasonable by national experts, nearly double the fixed charges approved for the two Duke Energy companies operating in the state, and nearly triple the national average. For instance, following strong opposition from consumer and low-income advocates, Duke Energy’s fixed charge was increased to \$14 a month just last year in North Carolina. In South Carolina, recognizing the impact that high fixed charges have on low- and fixed-income ratepayers, as well as on the cost-effectiveness of renewable energy investments, regulators recently rejected Duke Energy’s request to increase their fixed charge to \$28 a month, instead approving a fee of just under \$12.
6. In addition to imposing high monthly fixed charges, most of North Carolina’s electric cooperatives actively, and intentionally, discourage household and business investment in distributed generation by implementing harmful and even punitive net metering and net billing rates. Nearly every single such policy implemented by cooperatives throughout the state render the large majority of those investments non-cost effective. As a result, as of 2018 there were less than 17 cumulative megawatts of distributed solar capacity installed in the service areas of electric cooperatives. This represented less than one-tenth of the capacity installed in the service areas of the two Duke Energy companies, despite the fact that cooperatives serve over one-third of the meters that the Duke companies do.
7. The electric cooperatives are also not – for various reasons, including restrictive contract limitations imposed by their electricity provider (e.g. Duke Energy) – investing in utility-scale solar, with little more than 30 megawatts installed in 2018. This compares to the more than 2,900 megawatts installed by the two Duke Energy companies. This trend is not projected to change in the next several years.

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<sup>1</sup> Ma, Ookie, Krystal Laymon, Megan Day, Ricardo Oliveira, Jon Weers, and Aaron Vimont. 2019. Low-Income Energy Affordability Data (LEAD) Tool Methodology. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-74249. <https://www.nrel.gov/docs/fy19osti/74249.pdf>.



8. Despite now having two low-cost federal loan guarantee programs available to capitalize energy efficiency and renewable energy programs, the availability of third-party program operator options, and the example and experience from which to adopt and build upon of other cooperatives that are implementing strong energy efficiency programs, the large majority of North Carolina's cooperatives are doing little to nothing to invest in energy efficiency or help their members do the same. As a result, as of 2017, the state's cooperatives had only reduced energy use by 0.21 percent of their retail sales. Eleven of the state's 26 co-ops were at 0 percent, and another six at less than 0.1 percent.

To address these problems and trends, the final Clean Energy Plan must reflect a greater focus on removing barriers and expanding access to energy efficiency and renewable energy for rural communities served by the state's electric cooperatives. Any new policies or actions in the final Plan must include compliance by electric cooperatives, address inequitable and harmful rate structures imposed by the cooperatives, address the lack of regulation of, and lack of transparency by cooperatives, and commit a substantial amount of resources and administrative support associated with the Plan's implementation to rural communities. Otherwise, the final Clean Energy Plan won't be a plan for all North Carolinians.

To achieve this, we offer the following recommendations for the final Clean Energy Plan:

1. Enact an executive policy, and/or propose/advance legislation which prohibits generator utilities, such as Duke Energy and the NC Electric Membership Corporation, from limiting the amount of solar or demand-side management their customer distributor utilities (co-ops and muni's) can develop or implement.
2. Enact an executive policy, and/or propose/advance legislation requiring co-ops and muni's to develop Integrated Distribution Plans that align with the final Clean Energy Plan and its associated social, economic and environmental goals.
3. Enact an executive policy, and/or propose/advance legislation requiring co-ops and muni's to offer direct net metering, and/or net metering that values the cost-savings of solar for the grid (demand savings) and utility (wholesale power and admin/grid maintenance).
4. Develop a state loss reserve fund, workforce development program, program operator network and finance agency to facilitate the adoption and implementation of co-op and muni energy efficiency programs, specifically Pay-As-You-Save™ tariffed on-bill finance (PAYS TOB) programs.
5. Develop a statewide network of co-ops, muni's, and local weatherization, housing and economic development agencies to combine resources and enhance outreach and uptake for energy efficiency programming benefitting rural and/or low-income residents.
6. Enact an executive policy, and/or propose/advance legislation placing co-ops and muni rates, rate structures (including net metering/net billing and other rates for distributed generation, battery storage, etc) and investments under the purview of the NC Utilities Commission, and requiring the Commission to set a clear policy as to how co-ops, and indeed all of the state's electric utilities, may calculate "fixed" versus "variable" costs in a manner that reflects the "Basic Customer Method" of accounting.

Additional reforms are required that may not be appropriate for the final Clean Energy Plan, but which should be addressed in order to fix more fundamental problems related to electric co-op and muni governance and transparency.



## Electric Cooperatives by the Numbers

North Carolina's electric cooperatives (co-ops) served nearly 1.1 million residential, commercial and industrial meters in 2017 (and 2.5 million total energy users), representing more than 20 percent of all properties served by electric utilities across the state.<sup>2</sup> The large majority of the meters served by co-ops (91 percent) are residential, and co-ops serve all or part of 93 of the state's 100 counties.

In terms of electricity sales, co-ops accounted for approximately 18.2 million megawatt-hours of electricity sold to end-users, with 71 percent of those being to residential households. This amounted to 14 percent of all electricity sold by electric utilities in North Carolina in 2017. By comparison, municipal utilities (muni's) and other publicly-owned utilities accounted for another 12 percent of sales, and investor-owned utilities – primarily Duke Energy Progress and Duke Energy Carolina – accounted for the remaining 74 percent.

In other words, electric co-ops and their members account for one out of every seven units of electricity sold in the state (and all associated pollution and environmental impacts associated with energy demand). ***This is substantial, and yet, despite this, state utility regulation and energy policy have largely ignored electric co-ops, and this has had a negative impact on the households and communities they serve.***

## The “De-Regulation” of Electric Cooperatives in North Carolina

There are generally two types of state utility markets in the US: regulated monopoly markets and deregulated, or “restructured” markets. In deregulated markets, the sale of electricity is competitive, meaning multiple retail electricity providers compete in an open market to sell electricity to end users. The structure of these markets varies, but using Texas as a model example, monopolies on the generation and sale of electricity are banned, but monopoly control over the transmission and distribution infrastructure (the “wires and poles”) are still allowed. This results in competition and, ideally, price controls in the generation and retail sales markets, while ensuring efficiency of operation for the wires aspect of the business.

In “regulated monopoly” states, utilities are allowed monopoly control over the sale of electricity in their designated service areas ***in exchange for having their investments, and the rates they charge in order to recoup those investments, subject to public scrutiny and oversight (“regulation”)***. Vertically integrated monopolies such as Duke Energy, which own and control the generation, transmission, distribution and sale of electricity in their service areas, are also allowed. The role of state utility regulators is to make sure that utility investments are not excessive and are limited to infrastructure that is “used and useful” in the provision of electric service, and that the rates and rate structures are fair and justified in order to ensure the recovery of approved costs/investments plus a return on equity for investor-owned utilities.

North Carolina is a regulated monopoly state, so all investor-owned, municipal and rural electric cooperative utilities maintain monopoly control over the sale of electricity in their respective and designated service areas. ***However, the associated oversight and regulation by the North Carolina Utilities Commission (NCUC) only applies to the investor-owned electric utilities.***

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<sup>2</sup> US Department of Energy, Energy Information Administration. Form 861 (2017). <https://www.eia.gov/electricity/data/eia861/>



In the case of muni's, the state has conferred the powers of regulation and oversight onto local elected officials. For electric co-ops, those powers have been conferred to the board directors "elected" by the co-op member-owners. In other words, the investments, rates, rate structures and other policies approved and implemented by the boards and management of electric co-ops are decided upon by the co-op itself, and, by extension, legitimized by the fact that the co-op member-owners elect the Board of Directors (see following section).

This transfer of co-op oversight away from the NCUC and to the member-owners and boards has occurred over time since the formation of co-ops was authorized and encoded in state law in 1935 via the "Electric Membership Corporation Act."<sup>3</sup> That law, among other things: (a) formed the NC Rural Electrification Authority (NCREA); (b) authorized the formation of electric co-ops; (c) established the powers of the Board of Directors; (d) established the right of membership and member voting for directors; and, (e) prohibited discrimination by co-ops in the setting of rates or provision of services.

On the issue of discrimination, the Act states that "No electric membership corporation shall, as to rates or services, make or grant any unreasonable preference or advantage to any member or subject any member to any unreasonable prejudice or disadvantage," and that "No electric membership corporation may...mislead or deceive its members in any manner as to rates charged for the services of such electric membership corporation."<sup>4</sup>

These two points will be referenced again in later sections on high fixed charges and punitive solar net metering/net billing rates and fees. But it is important to note here that these two provisions of state law directly apply to those charges, rates and fees, but are not being enforced due to the lack of state regulation and oversight of co-op rates and rate structures.

Per NC Statutes Chapter 62 ("Public Utilities"), electric co-ops (and muni's) were never considered "public utilities" for the purposes of full regulation by the state, but were instead considered as public utilities in the same chapter, and regulated as such by the NCUC, for the purposes of requiring, among other things, adequate, sufficient **and non-discriminatory service**.<sup>5</sup>

In other words, the NCUC, at one point, **had** the authority to receive, investigate and act on complaints submitted by members of electric co-ops, whether in relation to rates, rate structures, investments, or other services. The same chapter also required co-ops to submit an Integrated Resource Plan, which may not have been necessary in the past, but may require reconsideration in a future where, for instance, Integrated Distribution Planning may be necessary to "modernize" the distribution grid.

Even that slight but important state oversight of electric co-ops was removed in 2013 with the passage of House Bill 223, tellingly named "*An Act Exempting Electric Membership Corporations From Integrated Resource Planning and Service Regulations Requirements Established By The Utilities Commission, Returning Oversight Of The Corporations To Their Member Board of Directors, And Clarifying The Authority Of The North Carolina Rural Electrification Authority To Receive And Investigate Complaints From Members Of Electric Membership Corporations.*" (bold emphasis added)

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<sup>3</sup> NC Statute, Chapter 117, Article 2 (1935). [https://www.ncleg.gov/EnactedLegislation/Statutes/HTML/ByChapter/Chapter\\_117.html](https://www.ncleg.gov/EnactedLegislation/Statutes/HTML/ByChapter/Chapter_117.html)

<sup>4</sup> NC § 117-16.1.

<sup>5</sup> NC § 62-42(a) and (b)



As indicated in the title, the 2013 law did the following:

1. Removed the requirement for electric co-ops to develop and submit Integrated Resource Plans, which describe how electric utilities will meet projected electricity demand over the planning period -- using what resources (coal, nuclear, natural gas, renewables, etc) and at what estimated cost.
2. Transferred all oversight and responsibility for reviewing and assessing the impact of, receiving public comment on, and approving or rejecting electric co-op rate changes, rate structures, net metering policies and related proposals to the co-op boards of directors, under the assumption that the boards, as elected by the member-owners, serve as the most direct and appropriate regulator for the state's electric co-ops.
3. Added a new responsibility and authority for the NC Rural Electrification Authority to accept and review complaints from co-op member-owners – ***without giving the NCREA the power to enforce any penalties or changes in rates, etc.***<sup>6</sup>

On the last point, Appalachian Voices contacted NCREA to get clarification on the process by which the agency performs the function of “receiving and investigating complaints” from co-op members. NCREA stated that they are a last resource for co-op members, and encourage all complaints to be resolved directly through the processes set forth by the electric co-op (addressed in the following section).<sup>7</sup> NCREA further stated that the agency can only offer “suggestions” for complaint resolution and policy changes to the co-op, ***but they cannot compel co-ops to make any changes.***

## How Electric Cooperatives Are Actually “Governed”

The US Department of Agriculture clearly states that cooperatives, of all kinds, shall be governed by the “User-Control Principle,” meaning that the people who use the cooperative are those who control it, and that members can/should exercise that control by (1) voting at annual and membership meetings, (2) electing the Board of Directors, **and (3) making decisions on major cooperative issues.**

This principle of User-Control is how North Carolina should view whether the state's 26 electric co-ops are being governed by their member-owners. Unfortunately, there are some general and disturbing trends, as well as practices employed by most co-ops, that belie the state's current assumption, as well as claims made by co-ops themselves, that the member-owners of the co-ops are provided sufficient opportunity to democratically participate in the governance and operation of their co-op. These include, but are not limited to, the following:

- 1. Member participation in board elections is less than 10 percent in most cases.** Research has shown that 72 percent of electric co-ops in the United States had less than 10 percent of their members voting in their board elections from 2006-2011.<sup>8</sup> Blue Ridge Energy, serving 70,000+ members in western North Carolina, has had less than 10 percent turnout in the last four years (at least), despite the co-op's relatively good marketing and outreach efforts to increase voting participation. The low level of participation in voting is a clear indication that the member-owners by and large are not actively involved in the governance of their co-op.

<sup>6</sup> NC Session Law 2013-187. HB 223. <https://www.ncleg.net/EnactedLegislation/SessionLaws/HTML/2013-2014/SL2013-187.html>

<sup>7</sup> Personal communication with NCREA representatives. October 2018.

<sup>8</sup> Institute for Local Self-Reliance. Just How Democratic are Rural Electric Cooperatives? January 2016. <https://ilsr.org/just-how-democratic-are-rural-electric-cooperatives/>



2. **Nomination processes and requirements for Director elections are cumbersome and controlled by the existing board.** In many cases, including in Blue Ridge Energy's case, the co-op exerts strong control over the nominating process, including by putting forth preferred nominees selected by the co-op, and requiring independent nominees to go through a strict vetting process before being approved, or not approved, by the Nominating Committee. Such a process discourages many members from seeking election to the board. As a result, in most elections, at least one, if not more sitting directors run for re-election unopposed.
3. **Monthly board meetings are closed to attendance by members, and meeting agendas and minutes are not made public.** A survey of co-op transparency practices conducted for the purposes of these comments showed that most of the state's co-ops do not allow their members to attend monthly board meetings, do not post meeting agendas and key decisions to be made in advance, and do not post or provide meeting minutes. Some co-ops do allow members to attend the monthly meetings after submitting a request to do so, but such policies are not clearly stated online, and approval of those requests is still up to the discretion of the co-op. *Because it directly prevents members from "making decisions on major cooperative issues," this may be the single most important way in which the co-ops are actively suppressing member participation in the democratic governance of their co-op.*
4. **Co-ops intentionally insulate Directors from the membership.** A scan of the websites of electric co-ops shows that even basic contact information, such as an email address, is not provided to members to directly contact the Director representing their district if they have a question or issue they would like resolved. In some cases, a map of the Director districts is not provided either, meaning that members might not even know who is representing them. Some co-ops take that insulation further by minimizing opportunities for direct contact between members and their directors. For instance, Blue Ridge has done away with their public Annual Meeting picnic-style event, which for other co-ops provided members an opportunity to talk and mingle directly with co-op management and the board, and instead holds a "business meeting" at their headquarters (located outside of the co-op's service area), on a Thursday (rather than a Saturday when people aren't working), during working hours (when people aren't able to attend even if they wanted to).

These represent just some of the more significant issues, each of which demonstrate that the state's co-ops aren't merely not governed/regulated by their members, but in fact are actively discouraging or preventing their member-owners from participating in governance and decision-making. Others include the egregious use of proxy voting to ensure that the co-op's preferred director nominees are elected, the lack of clear guidelines and pathways for member-owners to introduce and have bylaw amendments voted on, and behind-closed-doors changing of the nomination requirements in order to suppress the ability of members to be eligible for election as a director.

Such practices are a direct violation of the User-Control principle and demonstrate that some co-ops are intentionally gaming the system and/or excluding members from exercising their rights and responsibilities as co-op member-owners, much less from being informed about key decisions being made by the co-op regarding governance, rates, rate structures, and energy efficiency and renewable energy policies and rates.

***As a result, and given that co-op member-owners have no path for redress of violations or grievances through the NCUC or the NCREA, harmful policies and practices employed by electric co-ops are continuing unabated.***



What has resulted from this state-sanctioned self-governance by electric co-ops (which continue to enjoy monopoly control over electricity sales in their service areas, despite being effectively deregulated by the state) are: (1) the exemption of co-ops from any meaningful participation in or obligation to adhere to state clean energy policies; (2) high and persistent energy cost burdens; (3) high monthly fixed charges; and, (4) paltry to non-existent investments by co-ops in energy efficiency and renewable energy sources for and on behalf of their members.

## The Exemption of Electric Cooperatives from Clean Energy Policy

Prior to the 2013 law, the other main law affecting electric co-ops was Senate Bill 3 in 2007, known generally as the Renewable Energy and Energy Efficiency Portfolio Standard (REPS). That law, while it did not “exempt” co-ops from being affected by the law (as suggested in the title of this section), did implement much more lax requirements for co-ops and muni’s and exempted those utilities from having to make those investments themselves, in their own service territory. While the law requires larger investor-owned utilities to achieve 12.5 percent of their retail sales from renewable energy resources by 2021 – as well as up to 25 percent of those requirements from energy efficiency investments, should those utilities choose to use that allocation – it only required co-ops and muni’s to achieve a 10 percent target by 2018, from any mix of renewables and efficiency they chose.<sup>9</sup>

Perhaps more importantly, the law allowed those utilities to pay a third party to obtain the Renewable Energy Credits on their behalf, **which resulted in most of the small utility targets being achieved with little to no direct impact for their members/ratepayers or the communities they serve**. In effect, as explained in following sections, by making it so easy for co-ops and muni’s to comply with the law, the REPS law did nothing to ensure the equitable distribution of economic, social and environmental benefits of the clean energy growth that has resulted since the law’s passage.

The second main law that could have generated those benefits for small and rural communities across the state was House Bill 589 in 2017, the “Competitive Energy Solutions for North Carolina” Act. While the implementation of that law has received much criticism, its intent was to, among other things, ensure and facilitate the growth of renewable energy resources such as utility and distributed solar by requiring electric utilities **to which the law applied** to (a) create a competitive procurement process for independently owned renewable energy systems, (b) create a program for large energy users to directly procure renewable energy, (c) offer rebates for up to 20 megawatts of distributed clean energy, and (d) develop a community/shared solar program to offer to ratepayers.<sup>10</sup> While the law **should** have created greater opportunities for the growth of solar and other renewable energy resources across the state, the law effectively exempted – **at their request** – co-ops and muni’s from having to comply. Once again, rural and small municipal communities were left out of the benefits of public policy that could have stabilized and lowered energy costs, created jobs, generated new local tax revenues and improved the quality of life for those communities.

<sup>9</sup> NC Session Law 2007-397. SB 3. <https://www.ncleg.net/Sessions/2007/Bills/Senate/HTML/S3v6.html>

<sup>10</sup> NC Session Law 2017-192. HB 589. <https://www.ncleg.gov/Sessions/2017/Bills/House/PDF/H589v6.pdf>





## Home Energy Burdens in Electric Cooperative Service Areas

The fact that the state provides electric co-ops (and muni’s) the same monopoly control over the sale of electricity in their service territories, but does not consider these utilities to be “public utilities” when it comes to regulation, oversight and clean energy policy has direct and profound negative impacts on the communities they serve. One such impact, which can and should be considered an economic and social crisis for the state, is that home energy cost burdens experienced by rural, low-income, minority and other disadvantaged households across the state are not being addressed, either by local and state governments or by the electric utilities that serve those sectors of the population.

“Home energy cost burden” is defined as the percent of *gross* (pre-tax) household income spent on energy costs (not including transportation). This includes both electric and non-electric costs. Researchers have concluded that the break point for what is considered an affordable energy burden is 6 percent of gross household income.<sup>11</sup>

As shown in the following table, nearly 35 percent of all households (more than 1.3 million households), each falling under 200 percent of the federal poverty level (FPL) – experienced an energy cost burden equal to or greater than 6 percent in 2016.<sup>12</sup> The most impoverished households (less than 100 percent of FPL) had an average energy burden of 17 percent.

It is important to note that these are annual averages, and depending on the geographic location, energy cost burdens are much higher in the summer months in warmer regions of the state, and much higher in the winter months in cooler regions. For instance, a survey of more than 40 members of Blue Ridge Energy showed that winter home energy costs for many residents exceeded 40 percent and even 50 percent of household income.

### *Energy Cost Burdens for Low-Income Households in North Carolina (2016)*

% Federal Poverty Level	# Households	Min	Max	State Avg.
< 100%	553,239	12%	28%	17%
100-150%	397,964	6%	12%	8%
150-200%	377,396	4%	8%	6%
<b>Total &gt; 6% energy burden</b>	<b>1,328,598</b>	<b>4%</b>	<b>28%</b>	<b>9%</b>
<b>Total NC households</b>	<b>3,815,392</b>			
<b>Percent energy burdened</b>	<b>35%</b>			

While energy burdens affect all areas of the state, the burden for households below 100 percent FPL is most pronounced in many counties served by rural electric co-ops. This is in part due to higher rates of poverty and lower median incomes, but is perhaps more directly attributable to the older and more inefficient housing that exists. As such, rural families, served by co-ops, that are experiencing persistently high energy burdens could significantly benefit from more equitable rate structures as well as energy efficiency and renewable energy programs and investments that are accessible to low-income residents.

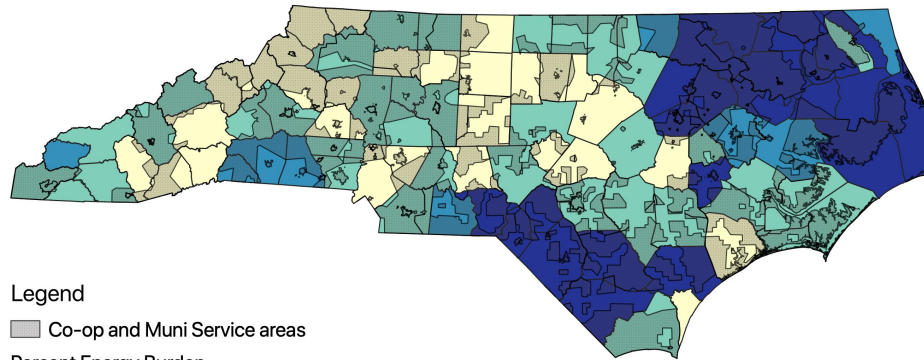
<sup>11</sup> Fisher, Sheehan and Colton. Home Energy Affordability Gap. [http://www.homeenergyaffordabilitygap.com/01\\_whatIsHEAG2.html](http://www.homeenergyaffordabilitygap.com/01_whatIsHEAG2.html)

<sup>12</sup> Ma, Ookie, Krystal Laymon, Megan Day, Ricardo Oliveira, Jon Weers, and Aaron Vimont. 2019. Low-Income Energy Affordability Data (LEAD) Tool Methodology. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-74249. <https://www.nrel.gov/docs/fy19osti/74249.pdf>.



## North Carolina Home Energy Cost Burdens, by County

For Households Below 100% of the Federal Poverty Level



### Legend

Co-op and Muni Service areas

### Percent Energy Burden

12 - 16%

16 - 18%

18 - 19%

19 - 28%

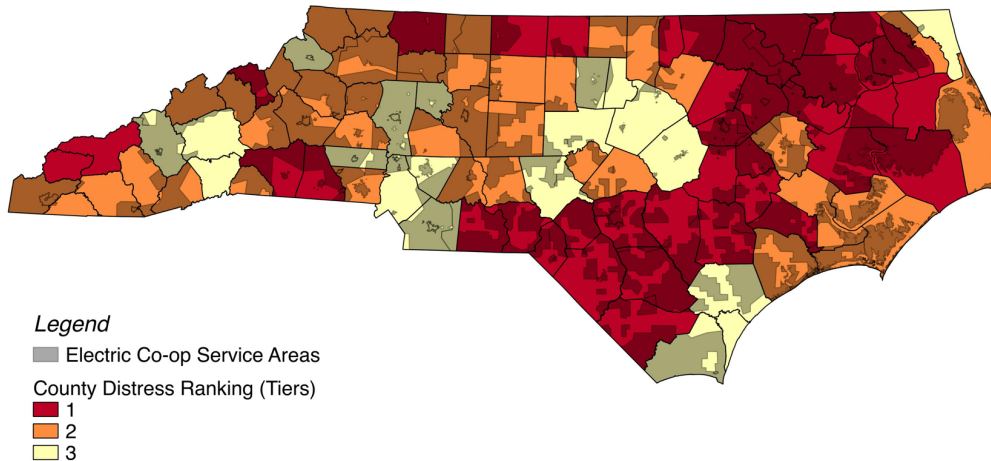
Source: National Renewable Energy Laboratory. Low-Income Energy Affordability Data Tool. 2016.

The following map provides an additional perspective on the connection between electric co-ops and the economic health of the communities they serve. As shown in the map, co-ops serve many of the most economically distressed (Tier 1 and 2) areas of the state, as defined by the NC Department of Commerce.

Given that the Tier designations are based on unemployment rates, median household income, population growth and per-capita property tax revenues, it is clear that because of the jobs and increased property tax revenues generated by clean energy investments, expanding such investments in rural communities served by electric co-ops would not only help households but indeed the economic and social health of the counties as a whole.



## Economically Distressed Counties and Electric Co-op Service Areas



Source: NC Department of Commerce. County Distress Rankings (Tiers). <https://www.nccommerce.com/grants-incentives/county-distress-rankings-tiers>

Unfortunately, as explained in the following sections, North Carolina’s electric co-ops have done little to address the economic crisis of energy cost burdens in the communities they serve, have made paltry investments at best in energy efficiency and renewable energy resources, and have in fact made it **harder** for their member-owners – especially low-income households – to control their own energy costs and invest in solar and energy efficiency.

### High Fixed Charges Imposed by Electric Cooperatives

Electric utilities generally recover their costs for providing electric service to residents (and, for regulated investor-owned utilities, their allowed profits) through a combination of two different kinds of charges on the electric bill:

1. a **monthly fixed charge** that is the same for all ratepayers regardless of the amount of energy used (this is commonly termed a “customer charge” or “facilities charge”). This is a basic monthly service fee that you must pay even if you use no electricity at all. It is like a cover charge that you must pay at a bar regardless of whether you like the band or order any drinks at the club.
2. a **volumetric or energy charge** that is based on a customer’s actual energy usage and the “rate” (in cents per kilowatt-hour) charged for electricity by the utility. These rates vary for different kinds of customers, and usually are larger for residential customers than for industrial customers. Volumetric charges are like the price per drink at the club.



Historically, because energy demand was growing and utilities' revenues were also growing, most cost-recovery was achieved through the volumetric rate, resulting in a relatively low fixed charge (or no charge at all). However, in recent years that demand has flattened or declined, and electric utilities – especially electric co-ops – are responding by changing how they charge customers for power with the goal of guaranteeing that they generate a minimum level of revenue per customer. To do so, they are rolling a greater portion of their cost-recovery into the monthly fixed charge, leading to substantial increases in the fixed charge component of the bill.

## The Argument For and Against High Fixed Fees

The main utility argument **for** imposing high fixed charges is that electric utilities want to ensure that enough revenue is generated to recover their costs. They argue that a lot of those costs are “fixed” and so should be recovered through a fixed fee rather than the volumetric rate. According to how utilities calculate their costs, such “fixed” costs include salaries, taxes, administration, customer service, transmission and distribution infrastructure, maintenance, etc. To some extent this is true and justified, but in the end, almost all utility investments are driven by how much electricity their customers actually use. This is the root of the debate between utilities arguing for high fixed fees, and regulators and public advocates who view high utility fixed fees as excessive, unjustified and having a negative impact on low-income customers.

The main argument **against** increasing fixed charges, and the way that utilities perceive what is a “fixed” cost and what is a “variable” cost, is that electric utilities are a business, and as such, the “fixed” costs related to infrastructure, operations, maintenance, taxes and other expenses are related to the **amount of energy used**, and not the number of customers served. Costs that increase with usage should not be recovered through a fixed fee.

The infrastructure and expenses associated with running the business in order to provide a product (electricity) should be recovered through the price of the product, and not through what is essentially an “entry fee” for accessing the product. Imagine if Starbucks were to start charging an entry fee -- a cover charge -- just to enter the store. Even if they offered a discount on each cup of coffee, most people (assuming they have a choice) would find another place to buy their morning coffee. This is just not how utility rate structures and fixed charges are supposed to work. If the current model does not work for utilities because they are spending a lot on infrastructure or otherwise, the answer is not high monthly fixed charges, but to find innovative ways to reduce costs and empower customers. If an electric utility can't survive otherwise, then it should not be in the business of selling electricity.

Regulators and public advocates tend to agree with utilities that there are indeed some fixed, customer-related costs that can justifiably be recovered through a monthly fixed fee. These include the cost of maintaining the line that runs from the distribution network to the home, and some of the cost of operating and maintaining the electric meter, billing, and direct customer service. These are the costs to connect the customer to the grid and provide direct customer service. Everything else -- the grid, fleet, staff, salaries, taxes, etc -- are the costs of doing business. Many of these costs are directly related to the volume of electricity sold -- meaning they're variable rather than fixed -- and so should only be recovered through a variable/volumetric charge based on actual energy use.



## The Impacts of a High Fixed Charge

High fixed charges and artificially low electricity rates mean:

1. **Unfair bill increases for low energy users.** By increasing the portion of the electric bill that is not related to actual energy consumption, high fixed charges artificially increase electricity bills for low energy users. Many of these customers are low- and/or fixed-income residents living in apartments or shared housing, residents who conserve or have invested in energy efficiency, or those who have installed solar panels on their homes to offset a portion of their electricity costs. In essence, rather than rewarding customers for saving the utility money by placing less strain on the grid and administrative resources, utilities imposing high fixed charges effectively penalize those who use less of the utility's product. High fixed charges also make it more difficult for families experiencing a financial shock to manage their finances by reducing energy use.
2. **With high fixed costs and low energy costs, why bother using energy more efficiently?** People invest in home energy efficiency improvements to (1) enhance the comfort and safety of the home, and (2) lower their energy bills. For the latter, the value of the savings gained from efficiency improvements depends on the electricity rate (cents per kilowatt-hour). The higher the rate, the greater the savings, and the shorter the payback period for the investment. While payback period is not the only factor driving efficiency investment decisions, it is certainly a strong consideration.

As utilities shift their cost recovery more into monthly fixed charges and (presumably) lower their electricity rate as a result, they effectively lower the value of the savings achieved through efficiency improvements, and therefore lengthen the payback period of those improvements. Should the payback period extend beyond the useful life of the improvement, then investing in such improvements will no longer be cost-effective. The same impact holds true for customer investments in on-site solar energy systems.

## What's Wrong With High Fixed Charges, and What They Should Be

The Regulatory Assistance Project (RAP), a leading national research and consulting firm with expertise in electric utility markets and regulation, utility business models, rate structures, energy policy and other areas, asserts that the monthly fixed charge for any electric utility should only reflect the Basic Customer Method of cost allocation.

The Basic Customer Method assumes that only those direct customer-related costs described earlier (feeder line, metering, billing, customer service) are "customer-related" costs, with all else being business-related costs. This method results in the lowest monthly fixed charge and a higher electricity rate, and serves as the basis for RAP's proposed "Smart Rate Design."

The other two methods in use by electric utilities today for calculating customer-related costs are the Minimum Systems Method (used by Duke Energy) and the Straight Fixed/Variable Method, which is used by the majority of North Carolina's electric co-ops and serves as the least accepted method by regulators and public advocates in the field today. The Straight Fixed/Variable Method assumes that all of the utility's non-power costs are customer-related, meaning that the utility believes that everything from distribution system operation and maintenance, to taxes, depreciation, salaries, bonuses and incentives are necessary costs to serve each individual customer.



To calculate a monthly fixed cost using the Straight Fixed/Variable Method, the utility adds up all of those business-related, non-power costs, apportions those costs to each customer class (residential, commercial, industrial), divides the cost by the number of members served for each sector, and divides that by 12 months. The end result is what the utility perceives as being its minimum necessary revenue requirement, per customer and per month.

Using Blue Ridge Energy as an example, this value for residents – as shared and confirmed with Appalachian Voices by Blue Ridge Energy executives and staff on multiple occasions – is \$53 per month (this value also underpins the co-op’s net metering rate structure -- see the Solar and Net Metering section). Using this value, Blue Ridge then determines how much of that \$53 “revenue requirement” they can reasonably expect to recover through the “distribution charge” portion of their volumetric electricity rate, and they charge the remainder as the monthly, fixed “Basic Facilities Charge (BFC),” which is currently \$24.17.

That is an extremely high monthly fixed charge and not at all justified on principle. For example, RAP asserts that using the more appropriate and justifiable Basic Customer Method of cost allocation, an electric utility’s monthly fixed charge should be no more than \$5 to \$10 a month. By this measure, Blue Ridge’s BFC is as much as five times higher than it should be based on the RAP guidance and recommendations.

### Electric Cooperative Fixed Charges in North Carolina

***The average residential monthly fixed charge imposed by electric co-ops in North Carolina (as of the submission of these comments) is more than \$25/month – or \$300/year, with such charges ranging from \$12/month (Jones-Onslow EMC) to \$35/month (Piedmont EMC). Sixteen of the state’s 26 co-ops charge \$25/month or more, and six charge \$30/month or more.***<sup>13,14</sup>

To put these values in more direct context, a survey conducted by the national utility rate structure research and advocacy group “Nix the Fix” shows that the median monthly fixed charge for 140 electric utilities nationwide was \$8.94 in 2017. Additionally, until Duke Energy Carolina’s 2018 rate case, which raised Duke’s monthly fixed charge to \$14, its fixed charge was \$11 per month -- or less than half the average fixed charge for co-ops.

**In other words, the average co-op in North Carolina collects a monthly fixed charge that is more than 2.5 times greater than the median fixed charge for 140 electric utilities nationwide, and is \$11 a month higher than that charged by Duke Energy.**

The high fixed charges imposed by the state’s electric co-ops are the direct result of the fact that co-ops in the state are no longer regulated by the NC Utilities Commission, and other than the co-op boards of directors there is no direct, independent oversight of co-op rates or rate structures in the state. The effect is that the co-ops can impose whatever fixed fees they’d like without having to submit those rate structures for public or regulatory scrutiny and approval. And indeed they have done just that.

As previously noted, high fixed charges exacerbate high energy burdens – especially for low-income households, erode people’s control over their energy bills, and reduce the impact and cost-effectiveness of household investments in energy efficiency and distributed solar.

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<sup>13</sup> Data taken from current residential rate schedules posted on electric co-op websites.

<sup>14</sup> A handful of co-ops surveyed had both the fixed (or “customer”) charge and a “minimum monthly bill” listed in their rate structures. In these cases, the latter value was used given that it reflects the average monthly cost per meter the co-op has calculated that it needs to recover in order to achieve its revenue requirement.



## High Monthly Fixed Charges Are Discriminatory

Referring back to the discrimination provision in the 1935 “Electric Membership Corporation Act,” that provision states that: “*No electric membership corporation shall, as to rates or services, make or grant any unreasonable preference or advantage to any member or subject any member to any unreasonable prejudice or disadvantage.*” Because all residents pay the same monthly fixed charge, and those charges are calculated based in large part on the average “costs” associated with serving each household – including demand-related costs such as demand charges the co-op pays and grid costs for supporting that demand – fixed charges are inherently discriminatory. This results from the fact that not all properties and residents impose the same demand/costs on the system.

For instance, a 3,000 foot house with a 2.5-ton heating and cooling system will place greater demand on the grid in the middle of the summer than an 800 foot apartment with a window air conditioning unit. While in this example the larger home imposes a greater cost for the co-op for demand charges and grid maintenance, the smaller apartment pays the same monthly fixed charge as the larger home. In other words, assuming (correctly) that the cost to serve the larger home exceeds the monthly fixed charge, and that the cost to serve the apartment falls below that fixed charge, the apartment is in effect subsidizing the cost that the larger home places on the system and the co-op. ***In effect, the fixed charge is unreasonably advantaging the larger home and disadvantaging the tenant of the apartment, thereby violating the discrimination provision.***

Secondly, the law also states that: “No electric membership corporation may...mislead or deceive its members in any manner as to rates charged for the services of such electric membership corporation.” A survey of sample co-op electric bills in the state suggests that many, if not most co-ops do not list the fixed charge as a separate line item on the electric bill. Instead, they roll that value into the total charge for energy, without explaining or disclosing that they did so, or why. While this may not be a clear violation of the discrimination provision of the law, as any co-op could argue that the separate charges are detailed in the rate schedules, it does border on being deceitful, especially at a time when members should be more informed about the structure of their rates and electric bills, not less. If members are not aware that the fixed charge exists, or even more, what it means and how it is calculated, they cannot make an informed case against the current and future fixed charges, and uninformed co-op members cannot then “regulate” their co-op in regards to rate structures and fixed charges.

## Electric Cooperatives Discourage Member Investment in Solar

North Carolina’s electric co-ops actively, and intentionally, discourage household and business investment in distributed generation such as rooftop solar in two main ways: (1) by imposing high monthly fixed charges (and in many cases, subsequently keeping rates lower than they otherwise should be); and, (2) implementing harmful and even punitive net metering and net billing rate structures.

Regarding the former, which is discussed in great detail in the previous section, high fixed charges and associated rate suppression devalue the economic benefits of distributed solar. As a result, if a member’s motivation for investing in their own solar system is to save money, either immediately or over the life of the system, then the high fixed charges imposed by the large majority of the state’s co-ops render those investments less cost-effective for members.



Regarding the latter, almost no single co-op in the state implements net metering or net billing (also known as “buy all, sell all”) policies that encourage member investment in distributed generation. On the contrary, nearly every single such policy renders the large majority of those investments non-cost effective. For instance, there are 20 co-ops in North Carolina that purchase their electricity from NCEMC through a declining block rate, with the last block costing the co-op 2.87 cents-per-kilowatt-hour (kWh). Rather than setting their credit value for members who invest in on-site solar generation at either the retail rate charged to their members, or even at a wholesale-plus-“value of solar” rate that recognizes the *average* wholesale cost savings as well as the demand-savings and system benefits of having that distributed generation on the grid, many of those co-ops set their credit at their “avoided cost” of 2.87 cents/kWh (some co-ops do offer direct net metering at the retail rate).

Using an example where a co-op member pays 10 cents/kWh for electricity, consumes 2,000 kWh/month on average, and installs a 4 kW rooftop solar system for \$12,000, and assuming that the system would offset 25 percent of their usage, under a direct net metering option that resident would pay off their investment in 20 years. Meaning they would at least break even, if not realize \$600 in annual savings for the following 5-10 years. Under an “avoided cost” rate of 2.87 cents/kWh, the simple payback for the same system would extend to 70 years. This is a theoretical example but it illustrates the impact of a co-op reducing the credit they offer members down to such a low avoided cost rate.

There are also six electric co-ops that purchase their electricity from Duke Energy before selling it to end-users. The net metering/billing options offered by those co-ops varies, but there is one co-op’s policy worth highlighting. Blue Ridge Energy offers a “net billing” rate where they credit members 5 cents/kWh for electricity sold to the grid and tack on a supplemental \$2.91/month fixed charge to go on top of their \$24.17 Basic Facilities charge imposed on all residential members.<sup>15</sup> That rate has a similar, yet less dramatic impact on the cost-effectiveness of member investments in solar as the example provided above.

However, Blue Ridge also “offers” a net metering rate that stands as one of the most punitive net metering policies in the state. Under this policy, a member wanting to interconnect a distributed generation/solar system would see their monthly fixed charge increased to \$36/month, as well as be required to pay a new distribution energy charge of 2.73 cents/kWh, which is applied to the net energy use. And while the member is credited at the co-op’s wholesale rate of approximately 6 cents/kWh (not bad, but not good), the co-op has structured their policy so that the minimum bill that the net-metered member would pay, even if they zeroed out their energy use with their solar system, is \$53/month, no matter what.<sup>16</sup>

This policy was (per the co-op itself) admittedly structured so that the co-op would recover what it has calculated (without any regulatory or member knowledge or oversight) to be its per-residential-member monthly revenue requirement. The effect of the policy on the cost-effectiveness of member investments is such that virtually no member can save money over the life of their investment by installing and interconnecting an on-site solar system, and in fact will likely lose money on that investment. The **only** members who could save money under this policy are those that consume a large amount of energy and install a large solar system. In other words, the only members that can potentially benefit from such investments are affluent households with a large energy appetite.

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<sup>15</sup> Blue Ridge Energy. Rider NB. Accessed 9/6/19. <https://www.blueridgeenergy.com/residential/help-faqs/electric/understanding-my-bill/rate-schedules>

<sup>16</sup> Blue Ridge Energy. Schedule R-NM. Accessed 9/6/19. [https://brenergy.s3.amazonaws.com/files/1/residential/2018/rate-sch-rev/1.1.1\\_NMNetMetering%20Updated%2008%2023%2018.pdf](https://brenergy.s3.amazonaws.com/files/1/residential/2018/rate-sch-rev/1.1.1_NMNetMetering%20Updated%2008%2023%2018.pdf)





Blue Ridge’s argument, ironically, is that their net metering policy is justified in order to prevent non-solar members from subsidizing the “fixed” costs for those that go solar. This is ironic because their Basic Facilities Charge, imposed equally among all households, already results in low energy users subsidizing high energy users. However, in regards to members installing solar, Blue Ridge is failing to recognize, at least publicly, that (a) their purported fixed costs and associated revenue requirement do not represent actual customer- or energy-related costs, (b) that their policy assumes that all members who go solar will zero out their energy use, and (c) that the addition of those distributed resources, specifically solar resources, actually save the co-op and therefore the rest of the membership money on demand costs the co-op pays to Duke Energy, as well as on grid investments and maintenance. To date, despite requests by Appalachian Voices and some of the co-op’s members to improve their net metering policy for these reasons, the co-op refuses to do so.

As illustrated in the following table, the result of the net metering/billing policies implemented by co-ops in North Carolina are discouraging member investments in on-site, distributed solar relative to the state’s two largest utilities, Duke Energy Progress and Duke Energy Carolinas. While ratepayers served by the two Duke companies had installed a total of 180 megawatts (MW) of solar as of 2018, co-op members statewide had only installed 17 MW. **To put that discrepancy in perspective, despite serving only three times more total customers than electric co-ops, the customers of the two Duke companies have installed more than ten times more solar (in terms of capacity) than have members of co-ops.** Those ratios are expected to improve only slightly by 2022.<sup>17</sup>

#### *Current and Projected Distributed Solar Capacity, By Utility Group (2018)*

Utility	2018 (MW)	2022 (MW)
Duke Energy Progress	75	140
Duke Energy Carolinas	105	198
Electric Cooperatives	17	33
Municipal Utilities	1.7	4.3

By discouraging member investments in on-site solar and other distributed generation, the state’s co-ops are harming the broader co-op membership (by preventing cost reductions for the co-op), and harming local economies by suppressing the economic development potential that distributed generation offers. Further, for the same reasoning as applied to high monthly fixed charges, and in light of the Blue Ridge Energy net metering example, some of those policies may also be considered to be in violation of the discrimination provision of the 1935 Electric Membership Corporation Act. And in addition to suppressing member investments, co-ops themselves have historically underperformed in terms of making those investments on the utility-scale, in large part due to the weak application of REPS to co-ops and the exemption of co-ops from being obligated to the provisions of HB 589.

<sup>17</sup> Southern Alliance for Clean Energy. Solar in the Southeast, 2018 Annual Report. 2019. <https://cleanenergy.org/wp-content/uploads/2018-SE-Solar-Report-FINAL.pdf>



## The Lack of Solar Investment By Electric Cooperatives

For all of the reasons noted throughout this document, but also due to the fact that co-ops have not taken advantage of federal loan guarantee programs available through the US Department of Agriculture's (USDA's) Rural Utilities Service (RUS), electric co-ops in North Carolina are grossly underperforming in terms of developing even utility-scale solar. As shown in the following table, the amount of utility-scale solar developed by co-ops is only twice that as developed by their members (see previous table), with that ratio expected to be cut in half by 2022. Even worse, while serving one-third of the customers as the Duke Energy companies serve, the co-ops are being out-performed 100-to-1 by Duke's companies in terms of installed solar capacity. That ratio is only projected to worsen by 2022.<sup>18</sup>

*Current and Projected Utility-Owned Solar Capacity, by Utility Group (2018)*

Utility	2018 (MW)	2022 (MW)
Duke Energy Progress	2,072	3,304
Duke Energy Carolinas	884	1,572
Electric Cooperatives	31	43
Municipal Utilities	63	63

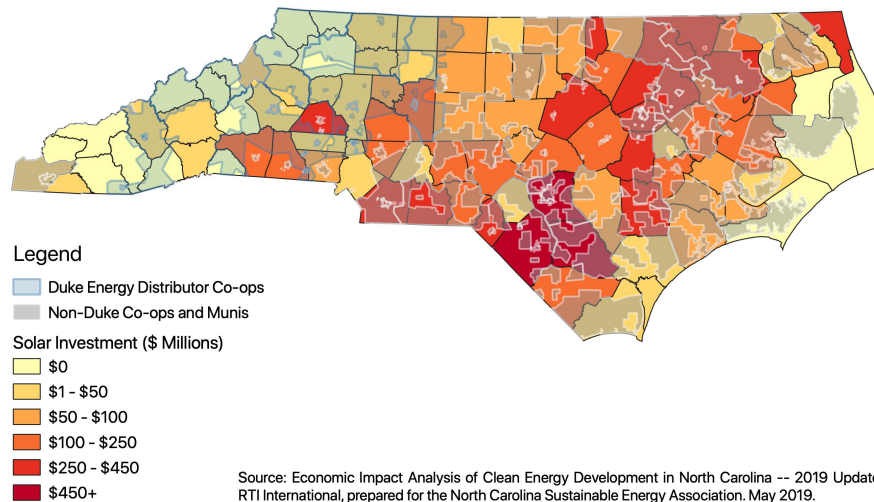
While many co-ops may be starting to develop, or explore the development of utility-scale solar projects – including Blue Ridge Energy – one major barrier to some co-ops, particularly those who have exclusive “all requirements” purchasing contracts with Duke Energy, is that those contracts specifically limit the amount of “demand side management,” including solar, that the co-ops can develop. This, combined with the solar policies implemented by these co-ops, has resulted in a large number of western counties losing out on the local investment in, and associated economic benefits of large solar investments that numerous other counties, particularly in the eastern part of the state, have benefitted from since the REPS law came into effect. The following map illustrates this large discrepancy in county-level solar investments across the state.

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<sup>18</sup> Ibid.



Distribution of Solar Energy Projects Valued at \$1 Million or Greater Across North Carolina Counties, 2007-2018



The impacts of the resistance to utility-owned solar by the state's co-ops are the same as described in the previous section. That resistance extends to energy efficiency as well, as the level of investment by co-ops in energy efficiency remain as miniscule as for distributed generation, again despite available low-cost funding, resources, and the experience of other co-ops in North Carolina and other Southeast states.

## The Lack of Energy Efficiency Investments by Electric Cooperatives

While the cost of solar energy may have been a significant barrier to both co-ops and their members in the past, the value and cost of energy efficiency improvements have always been pretty much the same. However, other barriers have existed for co-ops, including the availability of low-cost capital, the lack of third-party program operator support (required for co-ops lacking internal administrative capacity), a dearth of "best practices" to adopt and build upon (aside from rebates and other incentives), a clear business case for adopting comprehensive energy efficiency programs, and in some cases a lack of qualified local workforce.

Most of these barriers no longer exist for co-ops, and haven't for several years. For instance, the USDA has offered two low-cost loan guarantee programs in recent years specifically to support energy efficiency, conservation and renewable energy programs and investments. The Energy Efficiency and Conservation Loan Program (EECLP), in place since 2013, offers all rural utilities Treasury-rate (around 3% interest) loan guarantees as part of their multi-billion dollar loan pool. Unfortunately, only a single co-op in North Carolina – Roanoke Electric – has taken advantage of the program, while the other twenty-five co-ops have left that money on the table rather than using it to the benefit of their members and communities.



The second program available to co-ops has been the Rural Energy Savings Program (RESP). Authorized through the 2015 Farm Bill, RESP has provided \$50-100 million a year in zero-percent financing to rural utilities specifically for the development and implementation of “re-lending” programs for energy efficiency. That program has now been expanded to include financing for renewable energy, as well as for programs that finance the replacement of old, inefficient manufactured housing. While RESP has been used by a handful of co-ops in the state, those loan packages have been small, and in our understanding, only one has been approved for an energy efficiency loan program.

There are also now proven financing models that North Carolina’s co-ops can adopt that exist in the state and throughout the Southeast. Specifically, the “tariffed on-bill (TOB)” financing model based on the Pay-As-You-Save™ (PAYS) system is being implemented by numerous co-ops in South Carolina, eastern Kentucky, Arkansas, North Carolina (Roanoke Electric Co-op), and now Tennessee (Appalachian Electric Co-op). These programs have resulted in the successful retrofit of more than 2,000 homes (5,000+ if Kansas is included), have achieved 20-30% energy savings for participating homes, and have seen less than a 1 percent default rate on the investments. Four of these programs have been financed through either EECLP or RESP. *[Note: we applaud the draft Clean Energy Plan for recommending PAYS as a key solution for all of the state’s electric utilities to expand access to energy efficiency and distributed generation.]*

Additionally, there is now an experienced third-party program operator, EEtility, willing to expand their business to any co-op. EEtility is currently operating Ouachita Electric Co-op’s HELP PAYS (AR), Roanoke’s Upgrade to \$ave program (NC), and Appalachian’s U-SAVE Advantage program (TN). The company offers everything from contractor training and coordination, to staff training, modeling and verification, and marketing.

Given all of this, there is no reason why any co-op is not already offering inclusive TOB financing to their residential and business members, for energy efficiency *and* distributed generation (or even electric vehicles). The only argument co-ops are now making is that (a) they do not have the legal authority in North Carolina to transfer the tariff for cost-recovery among successive customers at a particular house, apartment or business (yet Roanoke Electric has been doing this for five years now); (b) that they don’t want to be in the lending businesses (they already are, essentially, by paying for and then recovering the costs of meters, poles, lines, etc); or (c) that they can’t afford to lose revenue.

On this latter point, we understand this concern. However, it is up to the utilities to revise their business model in order to achieve the goals of the draft Plan, and thus far they are resistant to even recognizing the financial benefits that energy efficiency can generate for the utilities and their members/customers. The “co-op of the future” could offer a variety of revenue-generating services (e.g., broadband), and, if regulated, can be incentivized through performance-based ratemaking to achieve the state’s clean energy goals.

The following table illustrates how little co-ops have achieved in helping their members reduce their energy use and associated energy costs. As the table shows, electric co-ops have achieved far less in energy savings (as a percent of retail sales) than the state’s regulated investor-owned utilities – which themselves are underperforming in this regard compared to the cost-effective energy efficiency potential that exists in the state. As of 2017, co-ops had only reduced energy use by 0.21 percent of their retail sales. Eleven of the state’s 26 co-ops were at 0 percent, and another six at less than 0.1 percent.<sup>19</sup>

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<sup>19</sup> Southern Alliance for Clean Energy. Energy Efficiency in the Southeast, 2018 Annual Report. 2018. <https://cleanenergy.org/wp-content/uploads/2018-Energy-Efficiency-in-the-Southeast-SACE-2.pdf>



### *Energy Saved by North Carolina's Electric Utilities, by Utility Group (2017)*

Utility	EE as percent of energy sales
Duke Energy Carolinas	1.10%
Duke Energy Progress	0.80%
Electric Co-ops	0.21%
Municipal electric utilities	< 0.1%
State Average	0.75%
Southeast Regional Average	0.30%

The state's electric co-ops must do more to reduce energy use for their members, alleviate rural energy cost burdens and enhance quality of life, and capitalize on the economic potential of energy efficiency investment opportunities for the rural communities they serve. Thus far they have achieved very little in this regard despite the experience, capital and resources available to them. If necessary, the state should enact stronger policies requiring all electric utilities, including both co-ops and muni's, that obligate the utilities to achieve strong energy efficiency requirements over the next decade. However, as member-owned electric utilities purportedly committed to operating on the seven cooperative principles, the co-ops should already be doing this themselves.

## Recommendations for the Final Clean Energy Plan

Appalachian Voices applauds the Governor and the NC Department of Environmental Quality on drafting a strong Clean Energy Plan that aims to put the state on a path to achieving 60-70 percent reductions in greenhouse gas emissions below 2005 levels from the state's electricity sector by 2030. There are a lot of excellent recommendations in the draft Plan, including many pertaining to the state's 26 rural electric cooperatives that would expand access to energy efficiency and renewable energy for their members while alleviating the energy burden crisis for low-income residents. Specifically, we strongly support the recommendation for the state to implement an Energy Efficiency Resource Standard that would set strong but reasonable requirements for both co-ops and municipal electric utilities, the recommendation for all utilities to adopt and implement Pay-As-You-Save™ tariffed on-bill finance programs, and the recommendation for the state to explore a ratepayer-funded Percentage of Income Payment Program modeled on the program in place in Ohio.

However, despite these recommendations, the draft Plan falls far short of achieving its purported equity goals. Specifically, the draft Plan does not address: (a) the effective deregulation of co-op and muni governance, rates and investments by the state; (b) the allowance in the state REPS for co-ops and muni's to outsource the attainment of Renewable Energy Credits in order to meet their REPS requirement; or, (c) the exemption of co-ops (and muni's) from HB 589 (2017) and associated solar energy policies and program requirements. The deregulation of and policy exemptions/exceptions for co-ops and muni's have led in most cases to extremely high monthly fixed charges, punitive and/or ineffective net metering/billing policies and rates, miniscule energy efficiency and renewable energy investments, and the persistence of high energy cost burdens for rural households.



The draft Plan does little to address these problems and barriers. As such, we recommend the following be added to the final Clean Energy Plan:

7. Enact an executive policy, and/or propose/advance legislation which prohibits generator utilities, such as Duke Energy and the NC Electric Membership Corporation, from limiting the amount of solar or demand-side management their customer distributor utilities (co-ops and muni's) can develop or implement.
8. Enact an executive policy, and/or propose/advance legislation requiring co-ops and muni's to develop Integrated Distribution Plans that align with the final Clean Energy Plan and its associated social, economic and environmental goals.
9. Enact an executive policy, and/or propose/advance legislation requiring co-ops and muni's to offer direct net metering, and/or net metering that values the cost-savings of solar for the grid (demand savings) and utility (wholesale power and admin/grid maintenance).
10. Develop a state loss reserve fund, workforce development program, program operator network and finance agency to facilitate the adoption and implementation of co-op and muni energy efficiency programs, specifically Pay-As-You-Save™ tariffed on-bill finance (PAYS TOB) programs.
11. Develop a statewide network of co-ops, muni's, and local weatherization, housing and economic development agencies to combine resources and enhance outreach and uptake for energy efficiency programming benefitting rural and/or low-income residents.
12. Enact an executive policy, and/or propose/advance legislation placing co-ops and muni rates, rate structures (including net metering/net billing and other rates for distributed generation, battery storage, etc) and investments under the purview of the NC Utilities Commission, and requiring the Commission to set a clear policy as to how co-ops, and indeed all of the state's electric utilities, may calculate "fixed" versus "variable" costs in a manner that reflects the "Basic Customer Method" of accounting.

Additional reforms are required that may not be appropriate for the final Clean Energy Plan, but which should be addressed in order to fix more fundamental problems related to electric co-op and muni governance and transparency. To that end, we also call on the Governor to:

1. Propose/advance legislation similar to Colorado's 2010 Act "Concerning Increased Transparency in the Governance of Cooperative Electric Associations," which, among other things, requires meetings of Boards of Directors to be open to member attendance, the timely posting of meeting agendas prior to each meeting as well as the meeting minutes following each board meeting, and the establishment and publication of clear nomination and election policies and procedures.<sup>20</sup>
2. Enact an executive policy, and/or advance/propose legislation providing co-op and muni members/ratepayers a direct pathway for the review and resolution of grievances related to governance, board elections, executive compensation, bylaws and bylaw amendments, rates, investments, policies, or otherwise proposed or implemented by their electric cooperative and/or municipal utility.

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<sup>20</sup> Colorado House Bill 1098 (2010). "An Act Concerning Increased Transparency in the Governance of Cooperative Electric Associations." <http://www.leg.state.co.us/clics/clics2010a/csl.nsf/fsbillcont2/6650D96F9A335967872576A8002A2C7E?Open>



- (cont'd from previous page)** This could be either through the North Carolina Rural Electrification Authority or the NC Utilities Commission, but whichever agency it is, that agency must be given clear authority to hold co-ops and muni's accountable, require the issue to be addressed and enact penalties for any failure in that regard.
3. Enact an executive policy, and/or advance/propose legislation requiring electric co-ops to provide their Cost of Service studies and related documentation used to calculate electricity rates and fixed charges to members and member-appointed representatives upon request.

Thank you for your consideration of our comments, and for all you are doing to move North Carolina toward a cleaner, more sustainable, and more equitable energy future.

September 9, 2019

**TO: Sushma Masemore, P.E.**  
Deputy Assistant Secretary for Environment  
State Energy Director  
N.C. Department of Environmental Quality

**FROM:** Sharon C. Miller, Executive Director  
Carolina Utility Customers Association

Dear Sushma:

Please find attached the Carolina Utility Customers Association's (CUCA) comments on the draft NC Clean Energy Plan.

Thank you.

/scm

Attachment



**CAROLINA UTILITY CUSTOMERS ASSOCIATION**  
**COMMENTS ON THE DRAFT NC CLEAN ENERGY PLAN**

(September 9, 2019)

The Carolina Utility Customers Association (CUCA) commends the Herculean effort it took to produce the NC Clean Energy Plan draft. Given the magnitude and complexity of energy topics and related recommendations, it is impossible under the time constraints to fully digest and comment on every aspect of the plan. We are compelled to selectively comment on components of the plan with the understanding that failure to provide comments on all aspects should not be interpreted as agreement with all other aspects of the plan. It is our view there should be continued stakeholder dialogue and opportunity for participation in addressing the myriad of issues that demand further consideration and study before moving forward to implement significant policy changes.

Here is a bullet point list of CUCA's comments:

Agrees that the most fundamental value is keeping electricity affordable for all businesses and citizens throughout North Carolina. North Carolina ratemaking should continue to function under the least cost paradigm. The resource portfolio chosen for the Integrated Resource Plan (IRP) and Distribution System Plans should result in a least cost system. We agree with the goal to foster long-term energy affordability and price stability for North Carolina's residents and businesses;

Ensure NC maintains an adequate, reliable supply of utility services that are provided at fair, equitable, cost-based rates;

Affordability and reliability are high priorities;

Agrees with the need for a comprehensive study to evaluate the ideal timeline, policy design and target levels for new policy actions and continued stakeholder involvement throughout the process;

Agrees that the forward looking aspect that must be included and examined in relation to a CO<sub>2</sub> reduction goal is how to utilize new technology to reduce emissions such as distributed energy resources, energy storage, microgrids, etc.;

Opposes a mandatory EE goal within and/or outside of REPS. We see the importance of giving the utilities flexibility to meet their REPS requirements as was envisioned in SB-3 (REPS legislation enacted in 2007). Further, we are opposed to increasing energy costs due to the expansion of the REPS requirement and/or creating Clean Energy Standards;

Have concern about stranded fossil fuel assets and the related cost implications for ratepayers.

Takes significant issue with the premise that industrial and large commercial customer opt-outs are a barrier to EE investments. Industrials were early adopters for taking steps to reduce energy consumption and continue to seek ways to economically reduce energy usage. It is stated in the CEP that today, 17 of the State's 30 largest private employers have set targets to procure more RE or reduce their energy consumption, and 37 companies doing business in NC have set a goal to be powered 100% RE.

If a utility-developed EE measure is proven to be the most cost-effective means of achieving energy reductions, then it makes sense for business to invest in such measures. However, it has been repeatedly proven that in the vast majority of cases industrials/businesses can pursue EE options through self-implemented/self-funded measures that are less expensive than subscribing to mandated utility programs;

It is irrational and fiscally imprudent to require businesses to spend more money to fund uneconomical EE programs. Companies that already take measures to conserve energy and thereby reduce their production costs can provide them with a competitive edge. Eliminating the opt-out could penalize early and on-going adopters and ultimately require them to subsidize their competitors. Requiring industrials/large commercials to opt-in would result in double-digit rate increases, thus making NC manufacturers less competitive with businesses in other states. This would be a detriment to existing industrials, as well as an impediment to recruiting new business;

We are adamantly opposed to any effort to erode or eliminate the industrial opt-out of utility EE/DSM programs. Many businesses operate on razor thin margins and this additional cost burden could be the straw that causes a business to not hire more employees, eliminate jobs, lower wages or benefits, or move operations to a lower cost facility;

Have concern/opposition to the added cost and complexity of joining RGGI especially since doing so may not achieve significant emissions reduction;

Support the comprehensive study of the sequence, needed functionality, and costs and benefits of grid modernization investments, and ultimately requiring accountability, transparency, targets, timelines, and metrics of progress made toward grid modernization goals. When evaluating proposed grid modernization investments, the benefits from a particular investment must outweigh its costs;

Support a comprehensive study/stakeholder process to review all regulatory mechanisms/tools to inform future policymaking and to ensure that all policy changes balance the regulatory equation that benefits both customers and utility shareholders alike;

Support a consultant-led study on the potential costs and benefits of different options to increase competition in electricity generation, including joining an existing wholesale market and allowing retail energy choice, to determine which could provide greater benefits to NC customers than the status quo. An example cited in the CEP is that Georgia and Oregon both have retail electricity choice for industrial customers and large commercial customers and we see this as a viable option – viable first step for North Carolina to take;

We concur that increased competition in the supply of energy could potentially benefit North Carolina's utilities and customers by driving down electricity prices and generating innovation through increased competition among power generators;

Support stakeholders working with the utilities to develop innovative rate design proposals;

Manufacturers' economic destinies – and for some their ultimate survival – are linked to energy prices and energy policies. The price tag for higher energy costs can be measured in job losses, wage reductions, or plant closures – all of which are detrimental to the economy of North Carolina. Again, we urge further study and consideration before any significant energy policy changes are implemented.



September 9, 2019

Via Submission to <https://deq.nc.gov/cleanenergyplan> and Registered Mail

Michael S. Regan, Secretary  
North Carolina Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

**Re: 2019 North Carolina Clean Energy Plan**

Dear Mr. Regan:

We are writing on behalf of the Center for Biological Diversity (“Center”) to comment on the recently issued Draft North Carolina Clean Energy Plan (“Draft” or “Draft Plan”). The Center applauds Governor Cooper for his landmark Executive Order 80 (“EO 80”), and the Administration’s commitment to the state’s transition to a clean energy economy. The Clean Energy Plan is vital to fulfilling the EO’s specific objective of achieving a 40% reduction in statewide greenhouse gas (“GHG”) emissions by 2025, and the agency’s Draft is an important step toward that goal.

At the same time, as we discuss below, there are a number of improvements that will be necessary to ensure that the Final Plan puts North Carolina on track to meet the Governor’s clean energy goals and maximizes benefits for all North Carolinians. The Center looks forward to seeing these improvements made in the Final Plan, and the Center’s more than 35,000 North Carolina members and online activists will be watching closely to ensure that the Administration, through the Final Plan and other actions Governor Cooper has mandated, fulfills the Executive Order 80’s objectives during the remainder of the Governor’s first term.

**Background**

In October, 2018, Governor Cooper issued EO 80, which directs a rapid reduction in statewide greenhouse gas emissions. In issuing the Order, the Governor explicitly noted the need for urgent action to address the climate crisis, which, he explained, is causing both “more frequent and intense hurricanes, flooding, extreme temperatures, [and] droughts,” while also posing “significant health risks to North Carolinians, including waterborne disease outbreaks, compromised drinking water, increases in disease-spreading organisms, and exposure to air pollution.” EO 80 at 1. The Draft Plan itself appropriately recognizes this urgency, noting that “13 federal agencies recently concluded that”:

1. The most recent decade was the nation’s warmest on record;
2. Human activities, especially emissions of GHGs, are the dominant cause of the observed warming since the mid-20th century;
3. Human-induced climate change is projected to continue and it will accelerate significantly if global GHG emissions continue to increase; and

4. The widespread and potentially irreversible impacts of a changing climate require an urgent effort to both reduce emissions and build resilient communities.

Draft Plan at 46. Governor Cooper also recognized that North Carolina, with its robust technology and research sectors, is well-positioned to be a national leader in the clean energy transition. *Id.*

As regards DEQ in particular, the EO directs that DEQ shall develop a North Carolina Clean Energy Plan ('Clean Energy Plan') that both:

- “fosters and encourages the utilization of clean energy resources, including energy efficiency, solar, wind, energy storage, and other innovative technologies in the public and private sectors, and the integration of those resources to facilitate the development of a modern and resilient electric grid;” and
- “collaborate[s] with businesses, industries, power providers, technology developers, North Carolina residents, local governments, and other interested stakeholders to increase the utilization of clean energy technologies, energy efficiency measures, and clean transportation solutions.”

In August 2019, DEQ issued its Draft Clean Energy Plan (“Draft Plan”). Recognizing the “unprecedented demand for rooftop solar, the beginnings of electrified transportation, smart thermostats, emergence of microgrids, to a broad mix of energy efficiency (EE) and demand response technologies, and smarter grids,” (p. 10), the Draft Plan sets out a vision of a NC energy future that is “clean, equitable, modern, resilient, and efficient, in addition to being safe, affordable, and reliable.” (p. 19). The Draft Plan also sets a goal of reducing “electric power sector greenhouse gas emissions between 60% and 70% below 2005 levels by 2030 and work towards zero emissions by 2050.” (p. 22).

The Draft Plan outlines five strategies to achieve these goals:

1. Reforming utility incentives and utility system planning to drive the clean energy transition;
2. Increasing consumer access to customer-controlled energy, including rooftop solar, energy efficiency and other resources;
3. Insuring a just transition that addresses both: (a) retraining workers to successfully move from the old energy economy to the clean energy field, as well as (b) the energy burdens on low-income communities;
4. Insuring grid resilience and reliability while reducing carbon emissions; and
5. Promoting both efficiency measures to reduce electricity demand, and beneficial electrification to allow all North Carolina energy – for transportation, heating, cooking, etc. – to come from clean electric sources, rather than dirty fossil fuels such as coal.

(p. 56). The Draft Plan considers a 10-year timeframe, with actions considered as “short-term (less than 12 months), mid-term (1-3 years), and longer-term actions (3-5 years).” (p. 20).

### **Discussion**

Before turning to the concrete improvements that we recommend in the Plan, we want to stress one over-arching concern: the extent to which the Draft Plan relies on the passage of further legislation to achieve EO 80’s ambitious goals. The reality is that given the current composition of the legislature in Raleigh, it may not be feasible to pass the necessary legislation to fulfill the EO, and especially on the requisite timetable for action. Thus, we recommend that, wherever possible, the Final Clean Energy Plan (“Final Plan”) include actions that will be taken *directly by agencies*, under their existing, broad statutory mandates, rather than making ambitious progress contingent on further legislative action. In our comments below we provide specific examples where further action can be taken by the Administration and agencies without new legislation.

We next provide our specific comments, which recommend that the Clean Energy Plan be improved to: (a) phase-out carbon-based energy in North Carolina as rapidly as feasible; (b) speed the phase-in of renewable energy resources, and especially distributed energy resources, in furtherance of that carbon-based energy phase-out; and (c) transform the management of the electricity sector in particular, also in furtherance of this same overarching objective.

#### **I. The Clean Energy Plan Must More Robustly Address the Phase-Out of Carbon-based Energy in North Carolina.**

##### **a. The Plan Must Include Specific and Ambitious Targets to Update North Carolina’s REPS Policy.**

The Draft Plan outlines a goal to “Increase the existing Renewable Energy and Energy Efficiency Portfolio Standard” (REPS) or create a new policy with zero-emitting resource targets...” This goal is pivotal to the success or failure of EO 80’s goal of reducing “electric power sector greenhouse gas emissions between 60% and 70% below 2005 levels by 2030 and work towards zero emissions by 2050.” Draft Plan at 22. However, we stress that the EO 80 goal for electric power sector emissions reductions should be considered *a baseline*; electricity sector emissions reductions are low-hanging fruit compared to those of other sectors and can be more easily achieved. By aiming for renewable energy investment targets *greater than the baseline* EO 80 goal, DEQ has an opportunity to further reduce emissions in this sector, in line with the fundamental objective of EO 80.

To that end, the Final Plan must further detail a strengthened or replaced REPS policy, including:

- 1) A clear and ambitious target and timeline, ideally at 100 percent renewable energy with dirty sources explicitly excluded by 2030;
- 2) Carve-outs or other incentives for distributed solar generation; and
- 3) Protections for low-income consumers against potential related rate-increases.

Renewable Portfolio Standards (RPSs), such as North Carolina’s REPS, are a vital policy driver of renewable energy market growth when policies are ambitious and well-designed; roughly half of all new renewable energy sources in the U.S. since 2000 are associated with RPS targets. *See* Barbose, G.L., “U.S. Renewables Portfolio Standards: 2018 Annual Status Report,” Lawrence Berkeley National Laboratory, (2018), available at <https://emp.lbl.gov/publications/us-renewables-portfolio-standards-1>. Policy stringency, or the strength of the target and timeline of the RPS goal, is especially important for driving growth of solar markets; features such as having regular planning processes and renewable energy credits (RECS, as defined below) have a larger effect on wind markets. *See* Carley, S., L.L. Davies, D.B. Spence, N. Zirogiannis, “Empirical Evaluation of the Stringency and Design of Renewable Portfolio Standards,” (2018), *Nature Energy* Volume 3, pp. 754-763.

North Carolina’s REPS policy is in dire need of an update or replacement in order to be an effective policy driver. The policy was enacted in 2008 and requires investor-owned utilities in the state to meet 12.5% of their energy needs with renewable energy resources or energy efficiency measures by 2021 and electric cooperatives and municipal utilities to meet 10% of their needs with renewable energy and efficiency by 2018. Unlike many states in the U.S. with renewable energy targets, North Carolina’s policy has not been significantly updated to address the urgency of the climate crisis since it was enacted, rendering it obsolete with less than two years to go. As the Draft Plan’s Energy Sector Profile & Landscape Supporting Document points out, the state is already exceeding its REPS target with in-state generation, demonstrating the policy is no longer a market driver. (p. 36). The Clean Energy Plan is an opportunity to improve the REPS in the following ways:

**First**, the Final Plan must include a recommendation for, in addition to a strengthened or replaced REPS policy, a clear and ambitious REPS target that puts the State on a path to 100% clean energy by 2030, in line with climate science demands for electricity sector transformation. *See* IPCC, “Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty” (“IPCC 2018”), available at <http://www.ipcc.ch/report/sr15/>. To meet this goal, only clean, renewable energy sources should count toward the REPS. Currently, what constitutes “renewable” under existing law is inappropriate and counter to addressing the climate crisis; in addition to solar and wind energy sources, the REPS policy allows dirty sources such as biomass, landfill gas, and anaerobic digestion to count as renewable energy. These sources do not fit within the State’s articulated vision for a clean energy future, because they are not clean and inequitably harm communities. For example, the most widely-used biogas technology relies on the primitive lagoon and sprayfield waste management system at industrial hog operations, which has a devastating impact on the environment and public health for communities living nearby and downstream from industrial hog operations. The Draft Plan, in calling for an increase to the overall REPS goal, does not explicitly state that these resources should be excluded from an updated or replaced REPS policy. The Final Plan must exclude these dirty technologies from its REPS policy recommendation.

**Second**, the Final Plan must only include carve-outs for clean energy resources that provide tangible community benefits. The Draft Plan recommends that either the current REPS policy be updated with current carve-outs remaining in place, or the policy be replaced with a technology-neutral policy that requires a certain amount of electricity sales to come from zero-carbon emitting sources. (p. 86). In general, carve-outs specifically for distributed or solar generation effectively drive solar adoption. The more ambitious the carve-out for solar resources, the better the build out for local solar resources. But carve-outs should not be created to prop up false solutions to the climate crisis, including fracked gas or swine biogas. To ensure a clean and equitable energy future for all North Carolinians, the Final Plan must ensure that false solutions such as biomass and biogas are excluded from carve-outs, and recommend that distributed solar, particularly low-income and community solar, is included as an ambitious carve-out in the new REPS policy.

**Finally**, the Final Plan must recommend that the new REPS policy include safeguards for low-income communities to bearing an increased energy burden. There will be upfront costs to transitioning off fossil fuels and on to clean energy sources, which will pay off in the long run, but need to be covered in the short term by those who can afford it. In a region where low-income communities and communities of color already suffer a disproportionate energy burden and bear the brunt of climate change impacts, it is imperative that an updated REPS policy include provisions such as a rate increase cap for low- and moderate-income families and businesses and ensure that utilities fairly pay their share of the transition costs. For example, Massachusetts' Solar Massachusetts Renewable Target (SMART) incentivizes low- and moderate-income solar installations, and Illinois' 2016 RPS update created a carve-out for distributed solar, including community solar, and set aside funding for low-income solar. *See* Low-Income Solar Policy Guide: Massachusetts, available at <https://www.lowincomesolar.org/best-practices/single-family-massachusetts/>; *See also* Improved & Modernized Illinois Renewable Portfolio Standard, Environmental Law & Policy Center, available at <http://elpc.org/wp-content/uploads/2018/04/2018-FactSheet-IllinoisRPSFixSummary.pdf>.

**b. The Plan Must Include an Ambitious Plan and Timeline to Decarbonize the Transportation Sector.**

The Final Plan also must adopt an ambitious pathway to tackle the state's second leading source of GHG emissions: transportation. GHG pollutants from transportation make up more than 32% of the state's total emissions. *See* North Carolina Dept. of Environmental Quality (2019), "North Carolina Greenhouse Gas Inventory (1990-2030)," (2019), available at <https://files.nc.gov/ncdeq/climate-change/ghg-inventory/GHG-Inventory-Report-FINAL.pdf>. In particular, highway mobile sources—which include light duty vehicles of passenger cars and trucks, and heavy-duty vehicles, including buses and commercial trucks—account for 90% of transportation emissions. At the same time, fossil fuel vehicles threaten the public health and safety of North Carolinians, costing billions of dollars in health costs each year on a nation-wide

basis. See American Lung Association, “Clean Air Future” (October 2016), <https://www.lung.org/local-content/california/documents/2016zeroemissions.pdf>.

Thus, in order for the Final Clean Energy Plan to meet the goal of zero emissions by mid-century, the Plan must not only green the electricity grid but also, in tandem, electrify ground transportation and reduce vehicle miles traveled in order to achieve meaningful GHG emission reductions by 2030, as well as combat egregious air pollution problems.

Several elements are key to running transportation emissions to zero; such elements are absent from the Draft Plan. **First and foremost**, the Final Plan should reduce the need for transportation by reducing vehicle miles traveled (“VMT”). Regional transportation planning agencies continue to invest heavily in roads and freeways instead of transit. And local land-use officials continue to approve sprawling residential and commercial developments that not only require residents to drive more, but also destroy natural habitat and strain water supplies. Reducing VMT means encouraging active transportation (like walking and biking), planning just and affordable communities close to jobs and services, and redirecting highway investments into public transit operations and infrastructure. Existing efforts to reduce VMT must be redoubled. We need the cars on the road to be electric and fueled by clean energy—but to beat the climate crisis, we’ll also need a future North Carolina that isn’t designed around the private automobile.

**Second**, the Clean Energy Plan should recommend that North Carolina adopt a plan to electrify all public transportation, including public buses and school buses. Electrifying buses is critical not only for GHG emissions reductions, but also to improve air quality in communities where buses more often frequent—which tend to be low-income communities of color that disproportionately suffer from local air pollution such as particular matter and NOx. See, e.g., Tessum, C. et al, “Inequity in Consumption of Goods and Services Adds to Racial-Ethnic Disparities in Air Pollution Exposure,” Proceedings of the National Academy of Sciences of the United States of America (March 2019), <https://www.pnas.org/content/116/13/6001>. As the Draft Plan fully recognizes, electrifying buses “can make an especially big difference for communities that are most directly impacted by motor vehicle pollution, such as those urban areas with diesel bus traffic or those located close to freeway corridors.” (p. 133). Moreover, the technology for bus electrification is here; falling battery prices are quickly pacing electrified buses to be market competitors with fossil fuel buses. See U.S. PIRG Education Fund, Paying for Electric Buses (2018), <https://uspirg.org/sites/pirg/files/reports/National%20-%20Paying%20for%20Electric%20Buses.pdf>.

**Third**, the Plan should recommend a policy that mandates 100% of all new car sales in North Carolina by 2030 will be zero-emission vehicles (“ZEVs”), triggering the phase-out of all fossil fuel cars. We applaud E.O. 80 directing the Department of Transportation to develop a North Carolina ZEV Plan designed to increase the number of registered ZEVs in the state to at least 80,000 by 2025. But this number of ZEVs is *de minimis* in light of North Carolina’s total passenger vehicle fleet of 3.5 million cars. In short, the EO 80 goal is a floor—not a ceiling—



and DEQ has the authority address transportation emissions in the time-scale that climate science demands: deep reductions in all carbon emissions by 2030.

Transitioning away from fossil fuel cars is no longer an issue of technological or economic feasibility, but rather one of sheer political will and government policy. Due to the falling market price of batteries and electric vehicles, ZEVs are projected to reach cost parity with fossil fuel cars as early as 2021. *See* Wu et al., “New Market. New Entrants. New Challenges. Battery Electric Vehicles,” Deloitte (2019), available at <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/manufacturing/deloitte-uk-battery-electric-vehicles.pdf>. However, even in light of market forces, it is critical that governments play an active role in shaping this transition to a ZEV passenger fleet. While the Plan recognizes the market forces at play and the need for adequate management (p. 44), Governor Cooper has the authority to drive expansion of the ZEV market instead of just following it by, for example, announcing as an Executive Order the ban on the sale of all fossil fuel cars by 2030, and enacting policies that increase consumer incentives for ZEVs as well as charging stations and infrastructure. In fact, strong government policy has driven the expansion of the ZEV market around the world. Fourteen countries, including the UK, France, and Scandinavian nations, and dozens of cities, including Paris and London, have announced a ban on the sale of fossil fuel cars as early as 2025, signaling to both consumers and automakers that the fleet of the future is fully electric. *See* International Council on Clean Transportation, “White Paper - Power Play: How Governments are Spurring the Electric Vehicle Industry,” (May 2018), available at <https://www.theicct.org/publications/global-electric-vehicle-industry>. Despite international precedent, no state, much less the U.S. federal government, has committed to banning fossil fuel cars in the United States. We encourage Governor Cooper to be the first leader in the nation to break this glass ceiling—propelling North Carolina into the vanguard of national and global climate leadership by instituting policies to achieve 100% ZEV sales no later than 2030.

As part of that directive, the Final Plan should provide that the State will expand the ZEV Plan to institute a detailed and deliberate roadmap to making this 100% ZEV penetration a success by 2030. While the Draft Plan details ways in which the Legislature and Building Code Council can encourage and test ZEV deployment (pp. 130-32), these steps lack the greater vision for a comprehensive transportation decarbonization roadmap. Such a roadmap must include: (i) policies to ensure ZEV affordability, especially a sliding-scale incentive structure for purchasing ZEVs based on income; (ii) policies that ensure sufficient enough charging infrastructure based on location and availability, including with respect to non-single-family unit dwellings and low-income communities; and (iii) policies that address the grid infrastructure needs to support this greater load on the electricity grid, while incorporating the added benefits of new ZEV batteries to the grid as storage and further energy decentralization.

Finally, as a preliminary step toward this transportation revolution, the Administration should phase out all internal combustion engine vehicles owned by the State and commit to purchasing only electric vehicles for the state-owned fleet immediately. In addition, the Cooper Administration should apply for and become a Section 177 state under the Clean Air Act, which

would authorize North Carolina to adopt California’s fuel economy standards in lieu of federal requirements. *See* 42 U.S.C. §7507. Under the Clean Air Act, the state of California retains the unique authority to set emission standards that meet or exceed federal standards. 42 U.S.C. §7543. Should North Carolina become a Section 177 state under the Clean Air Act, its fossil fuel cars sold in the state would need to comply with California’s fuel economy standards, which would improve the state’s current fleet while it transitions away from fossil fuel vehicles altogether.

Overall, we encourage DEQ and the Cooper Administration to incorporate these transportation pillars in the Clean Energy Plan because electricity and transportation go hand-in-hand in the renewable energy revolution. Moreover, such steps are entirely consistent with the EO 80’s vision and mandate.

**c. The Plan Must More Concretely Address Stationary Source Emissions, Including The Rapid Phase Out of Gas Plants.**

Turning back to the stationary source sector, we are encouraged by the Draft Plan’s generally ambitious recommendations to decarbonize the electric utility sector ( pp. 108-115), and urge that in the Final Plan, DEQ make as much concrete progress as feasible concerning the specific steps that will be taken to meet the Plan’s goals. In general, we believe that the “Clean Energy Driven” alternative is the optimal path forward, as it focuses on directly phasing out fossil fuel energy and expanding the REPS program to drive renewables, which we discussed above. However, here we again note that the Plan’s focus is on legislative changes to move these vital reforms forward. (p. 112.) While we of course have no objection to legislation, we urge that in the Final Plan the progress in this critical area not be left entirely contingent on new legislation, but rather that DEQ also identify all steps that can be taken by Executive action alone to push this alternative forward.

In addition, there is one glaring gap in the Draft Plan’s discussion of stationary source emissions: fossil fuel gas plants. Fossil fuel gas as has an enormous greenhouse gas emission footprint, which includes releases of methane, a highly potent greenhouse gas that is exponentially more harmful to the climate in the short term than carbon dioxide. *See* Myhre, G., *et al.*, 2013. *Anthropogenic and natural radiative forcing. In Climate change 2013: The physical science basis: Contribution of Working Group I to the fifth assessment report of the Intergovernmental Panel on Climate Change*, Cambridge, England: Cambridge University Press, 659–740, available online at [www.climatechange2013.org/images/report/WG1AR5\\_Chapter08\\_FINAL.pdf](http://www.climatechange2013.org/images/report/WG1AR5_Chapter08_FINAL.pdf). Indeed, while the conventional wisdom is that fossil fuel gas is preferable to coal, that depends on the amount of methane leakage that occurs along the supply chain, with one study suggesting that natural gas may be even worse for the climate than coal where leakage rates are much higher than 3%. *See* Alvarez, R.A. et al., *Greater focus needed on methane leakage from natural gas infrastructure*, 109 Proc. Natl. Acad. Sci. USA 6435 (2012); Howarth, Robert W., *A bridge to nowhere: methane emissions and the greenhouse gas footprint of natural gas*, 2 Energy Science and Engineering 47 (2014). Given that recent research has demonstrated that methane leakage

occurs at much greater rates than previously assumed, the Clean Energy Plan must address not only the phase-out of coal, but also must provide for a rapid phase-out of existing gas plants. See Alvarez, et. al, *Assessment of methane emissions from the U.S. oil and gas supply chain*, Science, (2018), available at <https://science.sciencemag.org/content/361/6398/186>.

The Final Plan must also recommend that there will be no further investments in new fossil fuel generation in North Carolina. This includes new gas plants, but also includes fossil fuel gas pipelines. Indeed, as the Draft Plan notes, North Carolina Utilities are continuing to invest in these pipelines, and to pass the costs of those investments on to North Carolinians. (p. 112).

**d. The Plan Must Call for the Electrification of Industrial, Commercial, Institutional (ICI) Boilers.**

One other aspect the Draft Plan does not fully explore is the electrification of large industrial/commercial/institutional (ICI) boilers, especially those that have some sort of thermal storage capability, which presents an excellent opportunity for North Carolina to advance the goals stated in the Plan.

The University of North Carolina at Chapel Hill (UNC) illustrates this point. Currently, UNC uses a system of 5 boilers to meet its steam needs. Two of the boilers can burn coal or natural gas and three of the boilers can burn natural gas with diesel backup. The University of Georgia had a similar system, but it replaced its coal boiler with an electric boiler several years ago. UNC could do the same, and there would be multiple benefits.

*First*, UNC's coal boilers are a large source of air pollution. Switching to an electric ICI boiler would stop this pollution. This would improve health and wellbeing in Chapel Hill and surrounding communities. It would also decrease greenhouse gas emissions.

*Second*, there would be a decrease in North Carolina funds flowing out of state. UNC buys all of its coal from out of state. Although hard to determine for certain, the natural gas UNC purchases probably also comes from out of state. The coal alone represents millions of dollars per year in payments to out of state companies to supply this fuel. A switch to an electric boiler powered by North Carolina electricity would decrease the drag on North Carolina's economy by spending millions to buy out of state fuel.

Third, and perhaps most important in terms of the Final Plan, an electric ICI boiler could serve a similar function to North Carolina's grid as a battery, but without requiring an investment in ratepayer capital. That is, when the North Carolina grid has an excess of electricity, especially during high solar PV production periods, UNC could run its electric ICI boiler. This would give the "extra" electricity on the grid a "place to go." UNC could even consume more electricity than its current demand because it has thermal storage capability in the form of chilled water storage. UNC generates its chilled water with an absorption chiller powered by steam from its ICI boilers.

However, unlike a battery system, the capital for UNC's electric ICI boiler would not come from electricity utility ratepayers. Thus, a grid resource would be added to the grid without any ratepayer capital.

There are two measures that are important incentives for electric ICI boilers. But to be clear, these measures are not subsidies as they squarely meet traditional rate making requirements for fairness to all ratepayers.

One is real time pricing. Georgia Power offers real time pricing to the University of Georgia for its electric ICI boiler. However, Georgia has a lower solar PV penetration on its grid than North Carolina. In North Carolina, currently or in the near future, solar PV generation should suppress real times prices when the solar PV generation is at or near its maximum output. This is especially true because North Carolina has so much inflexible generation on its grid. Nuclear power, which cannot be cost effectively turned down for short periods of time, made up 33% of North Carolina's generation in 2017. Thus, the low real time price during high solar PV generation times is a market signal that a place for electricity "to go" is needed and valuable to the grid. Electric ICI boilers can serve this need. And this is a win-win situation because the electric ICI boiler owner would be getting cheap energy to meet its needs.

The other measure is that the utility should pay for all or most of any transmission or distribution system upgraded needed to serve an electric ICI boiler. As explained above, the utility would be able to sell more of its product and the grid would be gaining a resource to deal with "excess" generation during periods of high solar PV generation. Thus, it is fair for the utility to pay for transmission or distribution upgrades.

While UNC provides one example, the Plan should set out an ambitious goal to electrify ICI boilers throughout the state, providing all of the advantages discussed above. We look forward to seeing a concrete plan for this transition in the Final Plan.

## **II. The Clean Energy Plan Must Include Additional Concrete Actions to Speed Local Clean Energy Development in North Carolina.**

In addition to the issue of updating the REPS policy discussed above, the Final Plan must also include specific recommendations for complementary policies and programs to further encourage the build-out of distributed clean energy in the state, particularly rooftop and community solar. The Draft Plan provides that the state "[c]onsider revisions to clean energy programs authorized by H.B. 589 to ensure successful delivery of desired outcomes, such as increasing customer access to renewable energy," ( p. 26) and require "utilities to offer virtual or group net metering to enable greater access to community solar" (p. 26). The Draft Plan also acknowledges that, "[t]he appetite for acquiring residential roof top solar continues to be unmet as evidenced by the recent sellout of the rebates within hours of being offered by Duke Energy as part of HB 589." (p. 48) In general, we applaud the Plan's recommendations to advance clean, distributed energy resources, but as we explain below, these recommendations must be further strengthened.

**a. The Final Plan Should Include Strengthened DER-related Policies.**

Distributed generation plays a unique and vital role in creating a renewable energy future that not only promotes deeper renewable penetration, but also advances fundamental goals of equal access to clean energy, social justice, and biodiversity protection. With minimal water use, no emissions from generation, and minimal land use impacts, distributed solar is the most sustainable energy source currently in production. *See* Wiser, R. et al., “The environmental and public health benefits of achieving high penetrations of solar energy in the United States,” *Nature Energy* Vol. 113, pp. 472-486 (2016); *see also* Hernandez, R.R., Hoffacker, M.K. and C. Fields, “Efficient Use of Land to Meet Sustainable Energy Needs,” *Nature Climate Change*, Vol. 5: 353–358, (2015). Further, building up distributed solar allows communities to gain local control over their energy system rather than leaving that control in the hands of investor-owned monopoly utilities. This shift empowers communities to make their own energy choices and gives them access to cheaper and cleaner energy, driving energy democracy. Progressive community solar policy can also enable renters and individuals who cannot afford to buy solar energy systems to invest in renewable energy, which in turn creates economic growth and local employment opportunities.

**i. The Final Plan Should Address the Full Menu of Social and Environmental Benefits of Distributed Solar and Include the Appropriate Policy Levers to Bring Those Benefits Across the State.**

The Draft Plan lays out recommendations for actions to, “[d]evelop rates that provide accurate price signals to demand-side resources about costs and value to the grid, such as Time of Use (TOU) or real time pricing,” and “[e]stablish new rate and compensation structures for DERs based on the value of grid services that can be provided by DERs, such as a “value of DER” tariff.” (p. 88). We applaud these recommendations, as accurate valuation of distributed solar and demand-side resources are key to advancing distributed solar markets. This is because distributed solar provides many more benefits than are generally considered in price considerations, and therefore this resource is consistently undervalued. *See* Hernandez, R.R. et al., “Techno-ecological Synergies of Solar Energy for Global Sustainability,” *Nature Sustainability*, Vol. 2 pp.560-568, (2019). When studies take a robust suite of costs and benefits into account in valuating solar resources, they end up with high values for distributed solar that make it more economical to invest in these resources and ultimately expand solar markets. *See* Environment America and Frontier Group, “Shining Rewards: The Value of Rooftop Solar Power for Consumers and Society,” (2016), available at <https://environmentamerica.org/sites/environment/files/reports/AME%20ShiningRewards%20Rp%20Oct16%201.1.pdf>.

Moreover, while the Final Plan must bring forward the Draft Plan's recommendations for creating rates that accurately value distributed solar resources, including considering time-of-use and value of solar rates, these recommendations must be implemented in the short- to mid-term rather than mid- to long-term, as currently proposed. Thus, the Final Plan must include a rapid timetable for a robust analysis of distributed solar's costs and benefits to society, the grid, and the environment to help inform these rates. This analysis must be done by a third-party, non-utility entity to ensure an unbiased result.

At the same time, the Final Plan must encourage distributed solar growth by recommending the rapid expansion and streamlining of statewide *retail rate* net metering – with payments for excess generation – to ensure that North Carolinians who invest in solar are getting fairly compensated for the energy they send to the grid. Because net metering can significantly improve the financial performance of a rooftop PV system from the consumer's perspective, these policies have contributed to the rapid growth rates of distributed PV in the United States. *See* Dargouth et al., “Net Metering and Market Feedback Loops: Exploring the Impact of Retail Rate Design on Distributed PV Deployment,” Lawrence Berkeley National Laboratory, (2016), available at: <https://emp.lbl.gov/sites/all/files/lbnl-183185.pdf> As North Carolina falls behind much of the country in rooftop solar expansion, it is imperative that the Final Plan recommend the protection and expansion of its net metering program, as well as ensure that the process of applying for net metering with individual utilities is streamlined by ensuring complementary DER-supporting programs, which we will explore further below, are developed.

In addition to recommending the expansion and streamlining of full retail-rate net metering, the Final Plan must include language denouncing and prohibiting discriminatory fixed fees on solar customers that discourage solar adoption. “Fixed fees,” “mandatory fees,” and “grid-access charges” are three terms that refer to the same mechanism: a pre-determined amount of money that utilities charge solar customers, regardless of their monthly energy use, which disregards the benefits their excess solar provides to the society and the grid. High fixed charges reduce residential and commercial customers' incentives to invest in distributed energy resources and energy efficiency because they lower the value of those panels and lengthen the panels' “payback period.” High fixed charges also penalize low-usage customers, who tend to be low income. *See* Whited, M. et al., “Caught in a Fix: The Problem with Fixed Charges for Electricity,” Synapse Energy, (2016), available at <https://advocacy.consumerreports.org/wp-content/uploads/2016/02/Caught-in-a-Fix-FINAL-REPORT-20160208-2.pdf>. As the State moves toward implementing EO 80 goals, and as near-term rate cases move forward, the Final Plan should recommend that the NCUC reject any proposed discriminatory fixed charges for solar customers.

**ii. The Final Plan Should Include More Robust Recommendations for Approaches to Rapidly Expand Access to Distributed Energy to As Many Residents As Possible.**

The Draft Plan (G-3, p. 27) identifies as a priority that the State “[e]xpand energy efficiency and renewable energy programs specifically targeted at underserved markets and low-income communities.” While we applaud this priority, we also recommend that DEQ prioritize and expand the existing “low-income community solar pilot” initiative as a short-term priority. State agencies should then utilize this opportunity to guide and accelerate the development and implementation of a state-wide community solar program, with a specific carve-out for low-income and disadvantaged communities, as a mid-term priority.

According to an assessment by GTM Research, between 50 and 75 percent of residential rooftops are unsuitable for solar systems. *See* “The Vision for U.S. Community Solar,” available at: <https://votesolar.org/policy/policy-guides/shared-renewables-policy/csvisionstudy/#reportdownload>. Community solar energy systems are a promising way to give those customers access to affordable clean energy. After net metering policies, community solar policies are the fastest developing and changing distributed solar policies at the state level. *See* “50 States of Solar,” NC Clean Energy Technology Center 2018, available at <https://nccleantech.ncsu.edu/ourwork/policy/the-50-states-reports/>. As of 2019, there are 20 states with community solar legislation either enacted or proposed.

Furthermore, the North Carolina Utilities Commission (“NCUC”) should revisit and require Duke Energy to revise its highly problematic proposed “Community Solar Program” (April 2019) to make the Plan fully compliant with H.B. 589, specifically [G.S. 62-126.8](#), and take into account the issues and recommendations identified in the Draft Plan. In contrast to Duke’s Community Solar Plan, the Draft Clean Energy Plan identifies a required, state-wide accessible and affordable community solar program as an avenue to significantly increase customer access to affordable clean energy. The Commission plainly has the authority to reject Duke’s proposed Plan. *See* [G.S. 62-126.8](#) (“the Commission may approve, disapprove, or modify a community solar energy facility program); *see also* specific H.B. 589 section on “Community Solar Energy Facilities,” available at [https://www.ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_62/GS\\_62-126.8.pdf](https://www.ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_62/GS_62-126.8.pdf). Given the many flaws in Duke’s Community Solar Program, the Final Plan should recommend the Governor direct the NCUC to reject Duke’s revised Community Solar Program proposal and report to the Legislature on noncompliance. The Commission must require Duke Energy to submit a third proposal that actually has a chance to succeed by meeting the requirements of [G.S. 62-126.8](#) and Commission Rule R8-72, and containing the basic qualities of a reasonable community solar program, as discussed below.

Additionally, we recommend an amendment to the existing legislation to make the statute mandatory for all electric utilities in the State. We also suggest modifying the value of the credit generated from the community solar energy facility to be based on the full-retail rate as opposed to the avoided cost rate. In any event, in order for the community solar program to function effectively, customers must be appropriately compensated, and the Final Plan should also include the recommendations outlined below.

***Recommendations regarding community solar program costs/benefits and bill credits/savings***

- Structure the subscription for customers in a way that provides both short and long-term economic benefits for all subscribers.
- The value of the associated bill credit must reasonably allow for the development, financing and accessibility of community solar facilities to ensure robust customer participation, and be provided for the useful life of the community solar project but not less than 25 years.
- Utilities should utilize existing communications channels with customers, while partnering with community-based organizations on outreach efforts to increase customer participation, particularly among LMI customers, as well as to significantly decrease marketing and Administration costs.
- The NCUC and utilities should adopt best practices from existing successful community solar program designs, including Minnesota and Colorado, to inform the fundamentals of a state-wide community solar program for North Carolina. See “Minnesota’s Community Solar Program,” available at <https://ilsr.org/minnesotas-community-solar-program>. See “Colorado’s Community Solar Program,” available at <https://votesolar.org/usa/colorado/updates/colorado-modernizes-its-community-solar-program/>.

***Recommendations for Increasing Low- and Moderate-income (LMI) community solar customer participation***

- It is essential for the utilities to adopt specific program design provisions to increase LMI participation, either a carve-out percentage or target.
- Ensure LMI and other underserved customers receive immediate savings to facilitate program participation.
- Eliminate any upfront deposits or sign-up fees.  
-> If a utility requires these, they should either be refundable or applied to buy down the subscription cost.
- Offer a pay-as-you-go subscription model to eliminate the upfront investment barrier to going solar.



- Explore opportunities to serve as a backup subscriber or facilitate the purchase of solar on behalf of LMI customers to help create an immediate value proposition.
- Facilitate the participation of large entities as anchor tenants to help offer tangible economic benefits for LMI households.
- Require utilities and project developers to evaluate opportunities to leverage any low-cost third-party funding for an LMI program/project during a post-PPA review and determination of final program costs and, depending on the final program costs, including:
  - >Direct or indirect incentives
  - >Grants and philanthropy
  - >On-bill financing
  - >Alternative credit score criteria
  - >Loan-loss reserve fund

### ***Recommendations for increasing transferability of Community Solar***

- Duke’s proposed program does not describe when a customer may cancel a subscription for reasons other than discontinuing electric service. We recommend that subscribers also be permitted to cancel a subscription if the program waitlist has customers that are willing to purchase the current subscriptions at that time.

In addition, there are a variety of existing resources and guides that can significantly help with the program design, as well as to shorten the development process. For example, Vote Solar has created a detailed Community Solar Checklist, that further highlights specific program design mechanisms, including subscriber options and compensation rates, to ensure wide-spread accessibility, equity, and affordability. See “Community Solar Checklist,” available at <https://votesolar.org/files/2515/4224/5005/CommunitySolarChecklist.pdf>.

#### **b. The Final Plan Should Address Developing and Implementing a State-wide Virtual or Group Net Metering Policy.**

The Draft Plan (D-1,D -4, p. 26) identifies as a priority that the State should “[c]onsider revisions to clean energy programs authorized by HB 589 to ensure successful delivery of desired outcomes, such as increasing customer access to renewable energy,” and to “[r]equire utilities to offer virtual or group net metering to enable greater access to community solar.” Again, we applaud these initiatives, and again urge that state agencies should develop a state-wide virtual net-metering or community solar specific programs – and policies, if needed –as a short-term priority.

**c. The Final Plan Should Address Developing a Green Bank/Clean Energy Fund (Mid-term Priority)**

The Draft Plan (D-3, p. 26) also outlines a Green Bank/Clean Energy Fund priority, which we also agree is a vital step necessary to expand access to distributed energy. The DEQ (and other relevant stage agencies) should utilize the mechanism of a Green Bank to finance DER-related projects and programs. It is crucial to ensure that the Green Bank prioritizes clean energy investments that provide substantial benefits to disadvantaged residents and communities. The DEQ and Governor should thoroughly evaluate the Green Bank Board nominees to ensure they have the expertise and experience necessary to build an effective Green Bank that prioritizes clean energy access for low-income and disadvantaged residents. Furthermore, the Green Bank should develop clear performance targets to ensure Green Bank programs and products: Reduce energy costs for all residents; create green jobs for low-to-moderate income residents; remove financing barriers to clean energy technology for low-to-moderate income residents; and support small businesses in reducing their energy costs as well. There are existing successful examples of Green Banks in other states, such as the Connecticut Green Bank and the New York Green Bank. *See* webpages, available at <https://ctgreenbank.com> and <https://greenbank.ny.gov/>. In addition, there are numerous publicly available best practices guides, resources and technical assistance providers to help streamline the development of a new Green Bank. *See* resources, available at <http://coalitionforgreencapital.com/resources/>.

**d. The Final Plan Should Address Increasing Competition in Electricity Generation.**

The Draft Plan (A-3, p.25) recommends a “study on the potential costs and benefits of different options to increase competition in electricity generation.” The state should definitely promote competition in the electricity market, and we recommend increasing access to clean energy options for consumers through a community choice aggregation enabling policy (short-term priority). Community choice aggregation (“CCA”) refers to a system in which a local government or other representative organization contracts with a clean energy supplier for a pre-specified amount of electricity on behalf of their jurisdiction. CCA programs work in partnership with the incumbent investor-owned utility, which continue to own and operate the grid and transmission infrastructure. Community choice aggregation enables cities and counties to choose where the electricity will come from for their residents and businesses. A newly formed non-profit public agency empowers the local community to bypass their investor-owned utility to ensure a more rapid and just transition to a clean energy future. Customers are given an additional, affordable option to support the development of clean energy resources, either by purchasing clean electricity on the market, or by developing clean energy resources in their local community. Under this model, the incumbent investor-owned utility continues to manage and maintain the grid and transmission infrastructure. *See* “Community Choice Energy: Democratizing Municipal-Scale Power,” Local Clean Energy Alliance, 2017, available at <http://www.localcleanenergy.org/files/CCA-Democratizing%20Municipal-Scale%20Power.pdf>. At this time, eight states allow for Community Choice Aggregation: California, Illinois,

Massachusetts, New Jersey, New York, Ohio, Rhode Island and Virginia. *See*, “Community Choice Aggregation,” Department of Energy, 2018, available at [http://apps3.eere.energy.gov/greenpower/markets/community\\_choice.shtml](http://apps3.eere.energy.gov/greenpower/markets/community_choice.shtml).

In the last few years, there has been rapid and successful growth of CCAs. In California, up to 85% of the state’s retail load could be served by CCAs or direct access providers by 2025, and that can be accomplished with lower rates for customers subscribed to clean energy plans that would be offered by incumbent utilities. *See* “How community choice aggregation fits into California’s clean energy future,” available at <https://www.greentechmedia.com/articles/read/how-community-choice-aggregation-fits-into-californias-clean-energy-future#gs.151c1y>. We thus recommend that North Carolina strengthen its regulatory environment for CCAs to promote its adoption.

**e. The Final Plan Should Address Providing Broad Access to Purchase Power Agreements and Other Forms of Third Party Financing to Increase Access to Distributed Solar Resources.**

Across the country, third party power purchase agreement financing for rooftop solar has been an important driver for distributed solar expansion. *See* State Policies For Power Purchase Agreements, available at <http://www.ncsl.org/research/energy/state-policies-for-purchase-agreements.aspx>; *see also* Solar Power Purchase Agreements, available at <http://www.ncsl.org/research/energy/state-policies-for-purchase-agreements.aspx>. Under these approaches, states allow financial agreements where a developer designs and installs a solar system on a home or business, and then sells the system’s electricity to the owner at a rate lower than the owner pays to the incumbent utility. This model allows for home- and business-owners who otherwise could not afford the upfront costs of solar panel ownership to contribute to and benefit from this clean energy resource, driving market growth. Indeed, the top ten states for distributed solar per capita in 2017 all allow for third-party PPAs. *See* States agree: Third-party ownership enables distributed solar, but what’s next?, available at: <https://ilsr.org/states-agree-third-party-ownership-enables-distributed-solar-but-whats-next/>.

The Draft plan acknowledged that stakeholders view “lack of third party sales” as a primary challenge, yet failed to outline a solution to this concern. (p. 18). North Carolina is one of only 7 states that currently disallows third-party sales of solar electricity, and only recently allowed solar leases via H.B. 589. *See* Third-Party Solar PV Power Purchase Agreement map, available at: [https://s3.amazonaws.com/ncsolarcen-prod/wp-content/uploads/2019/07/DSIRE\\_3rd-Party-PPA\\_June\\_2019.pdf](https://s3.amazonaws.com/ncsolarcen-prod/wp-content/uploads/2019/07/DSIRE_3rd-Party-PPA_June_2019.pdf). To encourage affordable DER growth, it is imperative that DEQ includes a recommendation to legalize third-party sales of solar electricity in its Final Plan. Moreover, the Cooper Administration should direct the North Carolina Utilities Commission to reinterpret the definition of “utility” to no longer restrict third-party energy providers in the state in order to advance third-party sales of solar electricity across the State.

### **III. The Clean Energy Plan Must Address Reforms to the North Carolina Utility Planning and Rate-Making Processes to Drive the Clean Energy Transition.**

Finally, the Draft Plan includes important proposals to address the vital changes needed to the North Carolina utility planning and rate-making process to drive the state's transition to clean energy. While we are encouraged by these plans, the Final Plan should provide even more concrete steps to move North Carolina utilities rapidly away from dirty fossil fuels.

As a threshold matter, the Draft Plan discusses a stakeholder process to “better align utility incentives with public interest, grid needs, and state energy and carbon policy.” (p. 25). While there are certainly important benefits of such a process, we encourage DEQ to set clear objectives for that process to insure that those participants with a vested interest in the existing energy system are neither able to delay nor derail these changes. In particular, the long history of Duke Energy and other North Carolina IOUs approach to these issues demonstrates that, as stakeholders, they will do everything in their power to insure that any changes in the electricity system continue to bring their shareholders maximum profits. This inevitably means that these companies will seek to raise obstacles to critical reforms like the expansion of distributed energy and storage technologies, energy efficiency measures, and other reforms from which these companies are unlikely to make money. By setting clear objectives and guidelines at the outset of any stakeholder process, the Administration can insure that private interests are not able to impede these vital changes.

With regard to the “new rate and compensation structures for DERs based on the value of grid services that can be provided by DERs,” (p. 23), we refer to our other (earlier) comments on properly valuing DER and urge that such valuation be made part of the rate-making process. Indeed, the Draft Plan's suggestion to “[e]xpand cost-benefit methodologies used to make decisions about resources and programs to include societal and environmental factors,” is precisely the kind of approach needed, and we recommend a Value of Solar proceeding, as has been done in other states, to establish the proper values for DER. *See* Wiser, R. et al., “The environmental and public health benefits of achieving high penetrations of solar energy in the United States,” *Nature Energy* Vol. 113, pp. 472-486 (2016); *see also* Hernandez, R.R., Hoffacker, M.K. and C. Fields, “Efficient Use of Land to Meet Sustainable Energy Needs,” *Nature Climate Change*, Vol. 5: 353–358, (2015).

As to other matters relevant to utility reform, we are encouraged by the Draft Plan's discussion of efforts such as “decoupling revenue and power generation”; increasing competition; providing performance incentives directed at clean energy development; and altering the ‘least cost’ framework to more expansively consider benefits, including reduced GHG emissions. (p. 62-71). Again, we simply urge that the Final Plan put real teeth on these objectives with concrete plans for how the utility planning system will be reformed to implement these vital changes. There simply is not time to put things off for later studies, particularly when there are many models from other states that North Carolina can adopt right now. In short, only through a radically transformed approach to utility revenue generation and incentives can North Carolina make the IOUs a full partner in the clean energy transition, and there is no time to wait.

Finally, as the Draft Plan notes, the most recent Integrated Resource Plans (IRPs) filed by North Carolina’s IOUs suggest that indicate that “the capacity of solar PV will remain at about the same level from 2025 to 2030.” (p. 34). At the same time, as the Plan also notes, the “current integrated resources planning (IRP) process does not include explicit clean energy goals.” (p. 67).

To meet EO 80s’ objectives, the fundamental approach to the IRP process obviously must be changed, and the IRPs updated accordingly.

**First**, as the Draft Plan also notes, the “current IRP process does not include transparency in its goal-setting and lacks rules governing stakeholder involvement prior to IRP submissions.” (p. 67). Thus, as a process matter the IRP planning process must be fundamentally transformed with clear opportunities for stakeholder engagement and meaningful participation.

**Second**, the clean energy transition and goals must be front and center in a new IRP planning process. To that end the process should *begin* with clear and unambiguous goals of decarbonization on a timetable consistent with the EO 80 timeline, and then the process should be focused on the mechanisms by which the IOUs will meet those goals. Thus, the IRP process should not be the place where IOUs propose *whether* to build new fossil fuel infrastructure and/or close down existing such facilities, but rather only on the timetable by which they will be phasing out existing facilities, and the pace at which they will install – and facilitate the installation of – clean energy projects.

\* \* \*

Once again, congratulations on the remarkable progress made in the Draft Clean Energy Plan. We look forward to seeing a Final Clean Energy Plan that fully addresses these remaining issues, and please do not hesitate to contact us should there be any further information we can provide.

Sincerely yours,

**CENTER FOR BIOLOGICAL DIVERSITY**

/s/ Shiva Patel

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**BICEP Network  
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Squaw Valley  
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Stonyfield Farm  
**Symantec Corporation**  
Timberland  
**Unilever**  
**VF Corporation**  
Vail Resorts  
Vulcan, Inc.  
Worthen Industries\*

September 9, 2019

**RE: Business Coalition Commends North Carolina's Clean Energy Plan**

To Whom It May Concern:

As the representative of the Ceres Businesses for Innovative Climate and Energy Policy (BICEP) Network, I write to provide comments on the draft Clean Energy Plan (CEP) released by the Department of Environmental Quality. The Ceres BICEP Network is a coalition of over 50 major employers across the United States, including businesses and institutions with significant operations and employees in North Carolina. Our members are committed to reducing greenhouse gas emissions and advancing a clean energy future through policy action.

We support the goal to reduce greenhouse gas emissions from the electric power sector by 70 percent below 2005 levels by 2030 and encourage the Cooper Administration, legislators and regulators to also work towards zero carbon emissions by 2050. We are troubled by the recent [IPCC 1.5°C report](#) and the [2018 National Climate Assessment](#), both of which highlight the imperative to rapidly transition to a clean energy economy in order to stave off catastrophic climate impacts.

We commend the thorough, open, and inclusive stakeholder process that led to the draft CEP and encourage additional efforts to think holistically about ways to incorporate emissions reductions in utility planning process like the annual Integrated Resource Plan and the Integrated System Operations Plan. We also encourage creative policy designs that support expanding renewable energy and energy efficiency such as third-party access, increased interconnection, building energy codes and new financing mechanisms.

We encourage the alignment of incentives with carbon reduction efforts. BICEP members are making major investments in energy efficiency because it helps them cut energy waste, save money, and quickly gain a return on investments. Energy efficiency should play a prominent role in the future of the grid. Customer data access and transparency, building code updates and innovative rate design pilots should all be pursued to meet these goals. Performance based ratemaking, in particular, can ensure that utilities have the proper financial structures to encourage efficiency, which can be advanced through full revenue decoupling. The decommissioning of carbon intensive assets should also be encouraged through securitization that will allow them to be retired without becoming undue financial burdens.

Decarbonization of the transportation sector is essential to tackling the [second largest source of North Carolina's greenhouse gas emissions](#). Businesses are increasingly setting ambitious goals around electric vehicles (EVs) and supportive state policies can help them achieve these goals. We look forward to the development of specific policy proposals.

North Carolina's history of leadership on clean energy investments is rightly celebrated and the Cooper Administration has taken a hard look at the next phase of clean energy technology and embraced the transition to a low-carbon economy. We look forward to the outlined next steps including a transparent, stakeholder-inclusive planning process

and deliberations with the legislature and regulators. North Carolina's leadership has laid out an exciting vision for the future. Please do not hesitate to reach out with any questions about the Ceres BICEP network and how our members can engage in the stakeholder process.

Sincerely,



Anne Kelly

Vice President, Government Relations, Ceres  
On behalf of Ceres BICEP Network

\*Companies listed in bold have a footprint in North Carolina





September 9, 2019

Governor Cooper,

In the past three years, North Carolina has suffered two major hurricanes and the remnants of a third, extreme heat waves devastating public health and agriculture, and flooding across the state causing mudslides and damaged infrastructure. Against this backdrop, you raised the mantle of leadership and announced Executive Order 80, recognizing that North Carolina needed to take immediate steps to address climate change. Executive Order 80 is an important step toward driving greenhouse gas emission reductions across North Carolina and accelerates our progress toward a clean, just energy future. We want to thank you for your leadership on climate action.

As a mayor representing over 90,000 North Carolinians I applaud many of the provisions in the Clean Energy Plan, particularly the call for transforming the electrical grid to save energy and make it more resilient; reducing the energy burdens of low-income residents; and cutting greenhouse gas emissions from the power sector to zero by 2050. For cities such as Asheville, we are energized by the Administration's desire to establish a Green Bank that will use funds to reduce the risk for private investment to support energy efficiency and clean energy and to provide technical assistance to local governments to facilitate use of Property Assessed Clean Energy authority to help property owners finance energy.

But we also recognize the legal limitations that exist for the Administration and cities such as Asheville. Policies to reduce emissions in the electric and industrial sectors will be a crucial part of any efforts to reduce greenhouse gas emissions in our state, as they account for over 40 percent of total emissions, according to the Department of Environmental Quality's draft Greenhouse Gas Inventory. We recommend that the Administration and Legislature work together and consider implementing the following key policies, among others:

- Establish a declining emissions cap to incentivize flexible and cost-effective reduction opportunities, by 2021. Such a cap should achieve reduction consistent with meeting the statewide 2025 goals, and be protective enough to put the state on track for complete decarbonization by mid-century. North Carolina should design the policy to allow for emission allowance trading and explore participation in the Regional Greenhouse Gas Initiative.

- Increase the Renewable Portfolio Standard and establish a stand-alone energy efficiency resource standard that ramps up to 2.0% (of retail sales) in new energy efficiency savings annually, prioritizing these resources for low-income North Carolinians and local governments.

In addition, the transportation sector makes up 31% of North Carolina’s emissions. The City of Asheville and surrounding communities are feeling the effects of an aging and decaying transportation network, and we need support to build out a sustainable and efficient transit system. We humbly recommend the following:

- Adopt a clean cars standard for North Carolina utilizing section 177 of the Clean Air Act to regulate vehicle emissions of pollutants such as carbon monoxide, nitrogen oxides, particulate matter and volatile organic compounds, as well as emissions of greenhouse gases.
- Join the 9 jurisdictions in the Transportation Climate Initiative that have committed to developing a market-based policy to put a firm limit on transportation emissions.
- Explore and implement policies to reduce vehicle miles traveled including increasing the percentage of Strategic Transportation Investments (STI) funds spent on non-highway projects, implementing North Carolina’s Complete Streets policy, modeling and analyzing GHG emissions during the NEPA process for new highways, considering lower-build alternatives to major new highway construction, re-visiting legacy highway projects, and partnering with municipalities to incorporate dense land use planning into transportation planning and programming.

We know the Administration cannot do this alone, and that’s why the City of Asheville has adopted a goal to transition all fuels to 100% renewable energy and reduce our carbon footprint by 80% by 2030. We also have felt the effects of climate change and are continually looking for ways to build our adaptive capacity and have included our climate resilience assessment as a part of our comprehensive plan. We see Executive Order 80 and the Clean Energy Plan as an effort to support that work through:

- Deep energy retrofits
- On-site renewable energy
- Workforce development programs
- Finance programs for energy efficiency, renewables, and infrastructure
- Market transformation for electric vehicles

We ask the Legislature to follow the Administration’s and North Carolina’s largest cities’ leadership. In support of all efforts to address climate change, the undersigned submit the following policy options for your consideration to achieve and exceed the goals set in Executive Order 80.

If North Carolina can work together, we can achieve our individual and collective goals around climate change. These investments can unlock the power of our state's economy, making North Carolina a national leader on clean energy jobs while helping protect and lift up historically disadvantaged communities. Your continued leadership is important and appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Esther E. Manheimer". The signature is fluid and cursive, with the first name "Esther" being the most prominent.

Esther E. Manheimer  
Mayor

**William L. "Bill" Murray**  
Senior Vice President - Corporate Affairs & Communications



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DominionEnergy.com

September 9, 2019

Michael S. Regan, Secretary  
North Carolina Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

Re: Comments of Dominion Energy North Carolina on Draft North Carolina Clean Energy Plan

Dear Secretary Regan:

Dominion Energy North Carolina ("the Company") is submitting the following comments on the North Carolina Department of Environmental Quality's ("DEQ") draft Clean Energy Plan ("CEP"). We applaud all the hard work and time that went into producing the report that resulted from Governor Roy Cooper's Executive Order Number 80 (North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy).

Dominion Energy North Carolina has a strong interest in North Carolina's energy future. The Company provides regulated electric utility service to over 120,000 customers within a service territory of about 2,600 square miles in northeastern North Carolina that includes Roanoke Rapids, Ahoskie, Williamston, Elizabeth City, and the Outer Banks. Along with Dominion Energy Virginia, Dominion Energy North Carolina is a subsidiary of Dominion Energy, Inc. ("DEI"), which is one of the nation's largest producers and transporters of energy with about \$100 billion of assets that provide electric generation, transmission and distribution, as well as natural gas storage, transmission, distribution and import/export services. In total, the Company and other affiliated public utility subsidiaries of DEI provide sustainable, reliable, affordable and safe energy to nearly 7.5 million customers in 18 states who energize their homes and businesses with electricity or natural gas.

We agree with the draft CEP's conclusion that the energy sector is undergoing a rapid transition, evidenced by widespread growth of utility-scale solar installation, increased demand for distributed solar solutions and electrification of the transportation sector. Dominion Energy North Carolina and Dominion Energy Virginia see support for the public policy goals of clean energy and carbon reduction reflected in the feedback we receive from

customers opting for clean energy. Indeed, many customer segments, including residential customers, data center customers, colleges, universities, financial institutions, retail chains and commercial customers, are all increasingly seeking renewable energy solutions in addition to reliable and affordable electricity. Moreover, a number of cities in our service territories are developing climate action initiatives with the intent of lowering their local area's overall carbon footprint.

To meet customers' demands while continuing to meet the obligation to provide reliable, safe and affordable electricity, Dominion Energy Virginia and Dominion Energy North Carolina have steadily transitioned their generation fleet and electric transmission and distribution systems across Virginia and North Carolina towards a more sustainable future. Examples of this ongoing transition include:

- The retirement of over 2,300 megawatts ("MW") of coal-fired and high heat rate oil and natural gas-fired generation over the past 10-years;
- The ongoing construction of the Coastal Virginia Offshore Wind ("CVOW") project along with the potential development of the first tranche of commercial-scale offshore wind generation off the coast of Virginia;
- A commitment to having 3,000 MW of wind or solar photovoltaic ("PV") generation in-service or under development in Virginia by the end of 2022;
- The procurement of approximately 770 MW of solar PV non-utility generation ("NUG") over the past 10 years, most of which is located in Dominion Energy North Carolina's service territory;
- Continued work to extend the licenses of the four nuclear units at Surry and North Anna Power Stations;
- Transformation of the electric distribution system to facilitate the integration of distributed energy resources and to permit more efficient deployment of demand-side management measures;
- The continued developmental work associated with energy storage technology, which includes a new pumped storage hydroelectric facility in Virginia and the proposed deployment of three battery energy storage system pilot projects currently under consideration by the Virginia State Corporation Commission; and
- The future development of efficient and reliable combustion turbine natural gas-fired generation in Virginia to help manage the intermittency caused by the growing amount of solar PV capacity installed throughout our system.

Therefore, we believe the Company's goals are very much in line with the overall vision put forward by the draft CEP: "a system that is clean, equitable, modern, resilient, and efficient, in addition to being safe, affordable, and reliable." To that end, we offer comments below on the strategy areas outlined in the draft CEP and comments on two areas not addressed by the draft CEP.

## **Dominion Energy North Carolina's Specific Comments on Strategy Areas Identified in the Draft CEP**

### **Utility Incentives and Comprehensive Planning**

The first major recommendation put forward in the draft CEP is the near-term launch of a stakeholder process “to inform future policymaking around policies and tools that better align utility incentives with public interest, grid needs, and state energy, and carbon policy.” Dominion Energy North Carolina would be supportive of participating in this stakeholder process if it is established. Dominion Energy North Carolina was actively involved in the stakeholder process in 2007 that implemented Senate Bill 3 (Session Law 2007-3), as well as the more recent stakeholder process in 2017 leading to enactment of North Carolina House Bill 589 (Session Law 2017-192). The Company has a strong interest in, and history of, participating in stakeholder processes to work through the complex legal, regulatory, economic and technical issues associated with improving energy policy.

As North Carolina moves through the stakeholder process to discuss potential changes to the State's energy policy landscape, it is important to recognize at the outset that Dominion Energy North Carolina believes the regulatory structure in North Carolina is well-established and produces adequate service at just and reasonable rates. Under the State's regulated utility framework that exists today, Dominion Energy North Carolina offers competitive electric residential rates – 16.26% below the national average according to Edison Electric Institute's most recent data reflecting rates in effect January 1, 2019. Our electric rates are also stable, having increased at a rate of only about 1.60% per year over the past decade. Dominion Energy North Carolina will also soon have more solar generation than load interconnected to the grid and has helped North Carolina become a national leader in installed solar PV generation. Currently, there are 72 solar Qualifying Facilities (“QF”) operating in Dominion Energy North Carolina's service area, which represents approximately 501 MW of solar capacity. That total will rise to approximately 691 MW assuming all of the QFs with which the Company has executed power purchase agreements come online. 691 MW significantly exceeds the Company's 2018 average on-peak electric load of approximately 525 MW.

In addition to making our supply-side generation portfolio serving North Carolina cleaner, the Company also offers and actively promotes energy efficiency and demand-side energy saving options for our customers. In July 2019, Dominion Energy North Carolina requested that the North Carolina Utilities Commission approve eight new energy efficiency programs for our residential and commercial customers in North Carolina. The Company believes that the current regulatory structure is already working effectively to achieve the vision of the draft CEP of providing North Carolinians with an energy delivery system that is “clean, equitable, modern, resilient, and efficient, in addition to being safe, affordable, and reliable.”

Based upon past experience, we do not believe electric deregulation is the answer for North Carolina. Nationwide, electric deregulation was popular during the 1990s. It promised lower prices and more choices for customers, but the ultimate result was something quite different. In fact, electric rates in deregulated states are on average nearly one-third higher today than the average among states that have retained regulation. To Virginia and North Carolina's north and west, in states attempting to deregulate, prices soared. In nearby Delaware, the price of electricity for residential customers climbed by more than 50%; in Maryland, more than 40%. Additionally, electric competition, especially for smaller customers, simply failed to materialize. These examples helped bring Virginia's own deregulation experiment, launched in 1999, to an abrupt halt. Eight years later, the General Assembly reversed course and reregulated the state's electric system. This is not the time for North Carolina to retry the prior generation of energy policy. It is time to move forward with transforming and securing the electric grid rather than reverting to the failed proposals of the past.

To that end, we are pleased that the draft CEP discusses grid modernization. As discussed in Dominion Energy North Carolina's 2018 Smart Grid Technology Plan, legislation was passed in Virginia in 2018 that recognized electric distribution grid transformation projects as in the public interest. It requires Dominion Energy Virginia to submit a plan to the Virginia State Corporation Commission for developing such projects. In response to this legislation, on July 24, 2018, Dominion Energy Virginia filed a ten-year plan to transform its electric distribution system through planning and adoption of smart grid technologies—the Grid Transformation Plan.

Grid transformation provides newer technology to reduce customer outages, quickens restoration times, increases overall distribution system resiliency and provides new tools for customers to track and control energy usage. Dominion Energy Virginia will place thousands of smart devices on the grid that automatically report outages when they occur and prevent certain outages before they happen by identifying equipment that could be near failure. Dominion Energy Virginia will also install both advanced control systems and the data analytics capabilities needed to capitalize on the inputs provided by the placement of thousands of smart meters. The devices can isolate outages by automatically rerouting power so fewer customers are impacted and will allow us to quickly dispatch crews directly to the source of the outage. Smart meters will empower customers to take control of their energy usage through new options like timely usage insights, customizable alerts for high energy usage and bills, and outage information that is automatically sent to Dominion Energy Virginia, thereby alleviating the need for customers to notify the utility of a power outage. In addition, this smart technology will provide customers with alerts regarding the restoration status of their power and streamline the process for starting or stopping service. Further, a smarter grid will improve how interconnection and integration of new renewable energy sources like solar and wind into our system operations. For customers, the ability to fully integrate distributed energy resources capabilities for grid support means more ways to use energy that has less of an impact on the environment.

Dominion Energy Virginia is currently in the process of preparing its second petition for approval by the Virginia State Corporation Commission of its Grid Transformation Plan. The outcome of the Virginia Grid Transformation Plan proceeding will inform the timing and scope of Dominion Energy North Carolina's smart grid deployment strategy.

### **Customer Access to Clean Energy and Economic Development:**

The draft CEP has a goal to increase "customer access to clean energy." As discussed above, the Company's customers have significant access to clean renewable energy because we will soon have more NUG solar capacity installed in North Carolina than load. DEI now owns the fourth-largest solar fleet among utility holding companies in the nation and the solar portfolio continues to grow, including significant solar capacity in North Carolina. DEI's fleet of solar generation facilities, either operational or under development, in North Carolina currently totals 423 MW across 13 projects. On April 22, 2019 DEI announced the most recent additions to our solar fleet in North Carolina. Under a joint effort with Facebook to support its goal of powering its global operations with 100 percent renewable energy by the end of 2020, we announced six new solar facilities dedicated to Facebook including three new facilities located in North Carolina:

- 75 MW Chestnut Solar in Halifax County, N.C.
- 75 MW Pecan Solar in Northampton County, N.C.
- 80 MW Gutenberg Solar in Northampton County, N.C.

Dominion Energy North Carolina is committed to seeking innovative solutions to meet the needs of both small businesses customers as well as major corporations like Facebook. From the federal government to the private sector, Dominion Energy North Carolina is committed to working with customers and state regulators to develop tariffs to help its customers achieve their renewable energy objectives.

Beyond solar, DEI is moving forward with new energy storage solutions. On August 2, 2019, Dominion Energy Virginia submitted its first application to participate in the pilot program for electric power storage batteries established by the Virginia State Corporation Commission. Dominion Energy Virginia announced three projects in Virginia, totaling 16 MW:

- A 2 MW/4 MWh AC lithium-ion battery storage project that will study the prevention of solar back feeding onto the transmission grid at a specific substation;
- A 2 MW/4 MWh AC lithium-ion battery storage system that will study battery storage as a non-wires alternative to reduce transformer loading at a specific substation; and



- A lithium-ion battery storage project at our Scott Solar facility consisting of a 2 MW/8 MWh DC-coupled system and a 10 MW/40 MWh AC-coupled system to study the potential for pairing solar with energy storage.

Dominion Energy Virginia has also entered into the early stages of conducting feasibility studies for a potential pumped storage hydroelectric facility in western Virginia. Dominion Energy Virginia continues to evaluate the possibility of construction at a site in Tazewell County, Virginia, and will spend the remainder of this year and part of next year conducting more extensive surveys of the proposed site.

The draft CEP has a goal to “[c]reate and foster statewide and regional offshore wind collaborative partnerships with industry, the public, stakeholders, and neighboring states to bring economic growth to NC.” Dominion Energy North Carolina believes offshore wind has tremendous potential. Dominion Energy Virginia is currently making history by constructing the CVOW demonstration project about 27 miles off Virginia’s coast. This offshore wind project will be the first of its kind in federal waters and the first owned by a utility. We see the potential for even more investment in commercial-scale offshore wind on the horizon and agree with the draft CEP goal of evaluating the tremendous clean energy and economic development benefits associated with offshore wind.

### **Equitable Access & Just Transition**

Dominion Energy North Carolina appreciates the inclusion in the draft CEP of a goal related to environmental justice. DEI is committed to hearing, fully considering and responding to the concerns of all stakeholders. This commitment includes ensuring a voice in decisions about siting and operating energy infrastructure is given to all people and communities, regardless of race, color, national origin, or income. Communities should have ready access to accurate information and a meaningful voice in the development process. DEI frequently holds public meetings to listen to and incorporate the different perspectives of its many stakeholders.

To that end, DEI recently became one of the first energy companies in the United States to adopt a formal Environmental Justice Policy to guide our work in this area. The policy is as follows:

### **Environmental Justice: Ongoing Commitment to Our Communities**

At Dominion Energy, we are committed to providing reliable, affordable, clean energy in accordance with our values of safety, ethics, excellence, embrace change and team work. This includes listening to and learning all we can from the communities we are privileged to serve.

Our values also recognize that environmental justice considerations must be part of our everyday decisions, community outreach and evaluations as we move forward with projects to modernize the generation and delivery of energy.

To that end, communities should have a meaningful voice in our planning and development process, regardless of race, color, national origin, or income. Our neighbors should have early and continuing opportunities to work with us. We pledge to undertake collaborative efforts to work to resolve issues. We will advance purposeful inclusion to ensure a diversity of views in our public engagement processes.

Dominion Energy will be guided in meeting environmental justice expectations of fair treatment and sincere involvement by being inclusive, understanding, dedicated to finding solutions, and effectively communicating with our customers and our neighbors. We pledge to be a positive catalyst in our communities.

### **Carbon Reduction & Grid Resilience**

One of the recommendations of the draft CEP is to decarbonize the electric power sector. As mentioned above, DEI has steadily transitioned its generation fleet and electric transmission and distribution systems to meet a green future by retiring coal-fired power plants, investing in renewables and engaging in energy savings programs. DEI agrees with the draft CEP goals of reducing greenhouse gases and is working to reduce its carbon dioxide emissions 80 percent by 2050.

Dominion Energy North Carolina supports using a stakeholder process, along with a comprehensive study and modeling, to determine how best to reach carbon reduction goals. We respectfully request to be included in this process. Utilities must have input into the modeling process and study parameters to ensure the limitations and realities of electric generation and distribution are understood, such that reliability and affordability are maintained. For example, the modeling process should take into account limitations associated with the variable nature of renewable energy, since solar and wind facilities are dependent on the availability of resources.

The draft CEP acknowledges that an economy-wide strategy to meet the state's greenhouse gas reduction goals would require emission reductions from other sectors in addition to electricity and transportation, such as fuel use in buildings, homes, and agriculture.

DEI is an industry leader in identifying and reducing methane emissions from our natural gas infrastructure, and we have set a goal to reduce methane emissions from our natural gas assets 50 percent by 2030. DEI currently participates in the United States Environmental Protection Agency's Methane Challenge, NgSTAR and ONE Future, which are national

programs designed to identify and reduce methane emissions across the entire natural gas supply chain.

The Company is committed to reducing emissions from consumer end-use sectors in North Carolina, especially from agricultural operations as recommended in the CEP. DEI has launched a joint venture with Smithfield Foods to convert hog waste and the resulting methane emissions from hog lagoons into renewable natural gas that can be injected into natural gas pipelines from customer use. Forty-eight farms in North Carolina are part of this program. Renewable natural gas is a carbon-negative fuel because it captures significantly more greenhouse gas emissions from biomass than are released from its end use in power plants, homes and businesses. If a stakeholder group is formed to discuss end-user emissions, Dominion Energy North Carolina would like to participate as there are complexities associated with accounting for those emissions.

### **Energy Efficiency and Beneficial Electrification**

The Company agrees with the draft CEP that energy efficiency is an important part of North Carolina's clean energy future. Under the Renewable Energy and Energy Efficiency Portfolio Standard framework enacted by North Carolina Senate Bill 3, Dominion Energy North Carolina has been actively offering an evolving portfolio of energy efficiency and demand side management programs to our customers in North Carolina. Most recently, on July 12, 2019, the Company filed for approval of the following new energy efficiency programs in North Carolina:

- Residential Appliance Recycling Program
- Residential Efficient Products Marketplace Program
- Residential Home Energy Assessment Program
- Non-Residential Lighting Systems & Controls Program
- Non-Residential Heating and Cooling Efficiency Program
- Non-Residential Window Film Program
- Non-Residential Small Manufacturing Program
- Non-Residential Office Program

Should these new programs be approved later this fall, the Company plans to make them available to our customers beginning in January 2020.

The Company is also encouraged by the draft CEP's goals pertaining to electrification of the transportation sector. We agree that there are significant opportunities and suggest a broad look at this topic. Our own research indicates that there is potential in the light and heavy duty sectors, as well as at least the following industries:

- Construction Equipment Electrification

- Mining Equipment Electrification
- Airport Electrification
- Government Fleet Electrification
- Trucking and Truck Stop Electrification
- Marine Electrification

## **Dominion Energy North Carolina's Comments on Areas not Addressed in the Draft CEP**

### **The Role of Nuclear Energy**

The draft CEP does not have any goals or strategies related to nuclear energy. Nuclear power must continue to play a major role in power generation in a lower-carbon, lower-emissions future. DEI has two nuclear facilities that support both Virginia and North Carolina: two reactors at Surry Power Station and two at North Anna Power Station. Work is ongoing to obtain 20-year operating license extensions from the U.S. Nuclear Regulatory Commission for both facilities. Relicensing the units will ensure that these reactors continue their zero-carbon production of electricity into the second half of the 21<sup>st</sup> century. The operation of the Surry and North Anna nuclear units avoids the release of approximately 22 million tons of carbon dioxide per year. Approximately 12,500 MW of solar PV facilities covering about 100,000 acres would be needed to match the Surry and North Anna nuclear units' annual power output.

### **The Role of Natural Gas**

The draft CEP also does not have any goals or strategies related to natural gas. We believe connecting Virginia and North Carolina with new supplies of cleaner-burning natural gas will help lower emissions and improve air quality. Dominion Energy North Carolina and other electric utilities across the country are switching to natural gas because it produces less than half the emissions of coal. Public utilities in Virginia and North Carolina need new, lower-cost supplies of natural gas to generate cleaner electricity, heat the homes of a growing population and power new industries like manufacturing. The pipelines serving our region are fully tapped and unable to keep up with consumer demand. That is why a group of regional energy companies, including DEI, are building the Atlantic Coast Pipeline – to deliver the new supplies of natural gas our region needs to generate cleaner electricity, keep our homes warm and grow the economy.

The Atlantic Coast Pipeline will be an energy provider, job creator and economic game changer for West Virginia, Virginia and North Carolina. This underground natural gas transmission pipeline will transport new supplies of natural gas from West Virginia to communities where it is urgently needed in Virginia and North Carolina. Along the way, the

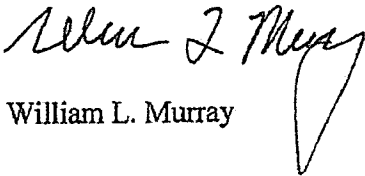
pipeline will help the region lower emissions, improve air quality, grow local economies and create thousands of new jobs in manufacturing and other industries.

The future development of efficient and reliable natural gas-fired combustion turbines is also needed to more reliably integrate solar resources across our system.

### **Conclusion**

Dominion Energy North Carolina applauds all of the hard work and time that went into producing the draft CEP as directed by Governor Roy Cooper's Executive Order Number 80. We believe our goals, actions and growth plan are very much in line with the overall vision put forward by the draft CEP: "a system that is clean, equitable, modern, resilient, and efficient, in addition to being safe, affordable, and reliable." We look forward to working with stakeholders as implementation of the CEP begins.

Sincerely,

A handwritten signature in cursive script that reads "William L. Murray". The signature is written in black ink and is positioned above the printed name.

William L. Murray



**MARK McINTIRE**

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September 9, 2019

Ms. Sushma Masemore, PE  
Deputy Assistant Secretary for Environment  
NC Department of Environmental Quality  
217 W. Jones Street  
Raleigh, NC 27603

Dear Ms. Masemore,

Duke Energy is pleased to submit the enclosed comments to the state's draft Clean Energy Plan (CEP) as the Department of Environmental Quality continues its efforts to gather input and finalize the plan. We appreciate Governor Cooper's leadership in developing sound energy policy for North Carolina. We stand ready to continue participating in broad stakeholder collaboration and offer the expertise we've gained in serving our customers' energy needs reliably and affordably for more than a century.

In our review, we considered these important issues through the lenses of impacts to customers, effectiveness, equality and feasibility and drew on our experience on the front lines 24 hours a day, 7 days a week working to provide electric service for North Carolina's residents, businesses and critical services – including in challenging circumstances such as Hurricanes Florence and Dorian. We share many of the state's objectives in this transition to cleaner energy and have made strong progress in the last decade. We also recognize the need to pursue the regulatory and legislative updates and technology advances we need to continue driving carbon out of the electric system in an equitable way that supports North Carolina's thriving economy.

Thank you for the opportunity to provide this input.

Sincerely,

A handwritten signature in blue ink that reads "Mark McIntire".

Mark McIntire, PE, BCEE

# Duke Energy's Comments on the Draft NC Clean Energy Plan

## Executive Summary

Duke Energy appreciates Governor Cooper's leadership to develop sound energy policy for North Carolina and the Department of Environmental Quality's effort to engage stakeholders in the development of this draft Clean Energy Plan (CEP). Many of the elements discussed in the plan align with Duke Energy's business strategy, including reducing carbon emissions, expanding clean energy, modernizing the grid and supporting the growth of electric vehicles. With below-average electricity prices, declining emissions, above-average carbon-free nuclear and installed solar capacity and policies in place to support continued investment in clean energy, the state is well-positioned to meet the expectations of residents and businesses for energy that is reliable, affordable and clean. North Carolina's history of broad stakeholder collaboration on clean energy policies has made the state a national leader, and Duke Energy is proud to be an integral part of helping the state build on the progress made to date and achieve its long-term goals.

Duke Energy respectfully submits the following comments on the draft plan. These comments follow four guiding principles:

1. **Customer centric.** All North Carolina citizens and businesses depend on electricity to power their lives. How does any proposed policy – at the state or federal level – affect the company's customers?
2. **Effectiveness.** What problem is the proposed policy attempting to solve? If implemented, would it be effective?
3. **Equality.** Duke Energy has the legal obligation to serve everyone within its service territory. Is the policy good for everyone or just a few? Does it pick winners and losers?
4. **Feasibility.** The electric system is an incredibly technical and complex machine that requires precision to remain in balance every moment of every day. Constructive energy policy reconciles technically feasible, operationally feasible and economically feasible.

As requested by DEQ, the company's detailed comments are organized along eight themes. A high-level summary of the company's perspective on the draft plan's approach to each of these themes follows:

**Greenhouse Gas Emissions and Climate Concerns:** Duke Energy is committed to the environment and is doing its part to lower the risk of climate change. Between 2005 and 2018, CO<sub>2</sub> emissions from the company's generation fleet fell by 31 percent enterprise-wide and nearly 35 percent in the Carolinas, outpacing the industry average of 27 percent. Over the next decade, Duke Energy is on track in the Carolinas to reduce carbon emissions by over 50 percent relative to a 2005 baseline. Beyond 2030 even further reductions are attainable with continued technology development in the areas of carbon-free generation and energy storage.

Duke Energy supports a continued dialogue with the state and diverse stakeholders regarding opportunities to further reduce greenhouse gas emissions while keeping energy reliable and affordable. The company believes that, with supportive state policies, emission reductions in the electric sector can be achieved without a price on carbon that significantly increases customer bills.

The company's detailed comments offer several clarifications and key factors that must be considered to ensure reliability and affordability throughout this transition to a cleaner North Carolina energy future. This includes the critical role – today and in the future – of nuclear energy, which contributes about 47 percent of Duke Energy's generation in the Carolinas and more than 80 percent of the company's carbon-free generation in this region.

**Utility Tools & Incentives:** As described in the draft CEP, “[North Carolina] enjoys some of the lowest retail electricity prices in the nation....” At the same time, North Carolina is ranked second in the nation for installed solar capacity and has outpaced the industry's average CO<sub>2</sub> reduction since 2005. The energy industry is undergoing a massive, top-to-bottom transformation, however. Utilities face increasing needs to modernize their systems to improve resiliency and reliability, keep pace with evolving customer expectations and new technologies, and to transform the electric grid to a two-way system that is more capable of integrating renewable distributed energy resources, well-protected from cyber and physical threats and gives customers more options and control over their energy use.

Duke Energy believes that modern utility rate-making tools, such as multi-year rate plans, are needed expeditiously to support more predictability and bill stability for customers and allow utilities to focus more on efficient operations and the types of innovation that give customers greater value at a faster pace.

**Comprehensive Utility System Planning:** The landscape of utility planning is evolving due to declining costs for renewables and storage, customer preferences and policy goals. Duke Energy has connected more than 3,000 MW of solar in North Carolina. With HB 589, the company will continue to grow that portfolio, with a target of 7,000 MW coming onto the system by 2025. Duke Energy's utilities in the Carolinas have received over 20,000 solar interconnection requests and have connected nearly 17,000 projects since 2006. North Carolina has more distribution-connected utility scale solar than any other state in the country.

Duke Energy supports a more robust approach to distribution planning, including extensive coordination with (generation) resource planning and transmission planning. For this reason, Duke Energy is already actively working toward more extensive integration of distribution, generation and transmission planning (Integrated System & Operations Planning or “ISOP”) with a goal of initial implementation in the 2022 Integrated Resource Plans (IRPs). Duke Energy agrees that engaging stakeholders in the development of ISOP is important. The company also believes that ISOP can work within the existing IRP regulatory framework and that ISOP will achieve the basic goals of Integrated Distribution Planning (IDP) being pursued by other states.

**Grid Modernization to Support Clean Energy & Grid Resiliency and Flexibility:** Providing safe, reliable, affordable and secure energy to all the company's customers is core to Duke



Energy's mission. The company is making smart, data-driven improvements to increase reliability, strengthen the grid against cyber and physical threats, expand solar and innovative technologies and provide customers with the intelligent information they need to make smart energy choices and save money. These improvements will provide benefits now and for years to come and are informed by seven "megatrends" – six of which can be found in the draft CEP. The company is already implementing several of DEQ's recommendations through the Grid Improvement Plan (GIP). The company's comments in this section offer several clarifications and identify opportunities to build on the important work that is already underway. Duke Energy's GIP will help prepare the state for a distributed energy future, and even incorporate distributed energy resources ahead of the industry in cases where that makes sense.

**Customer Access to Clean Energy & DER Interconnection and Compensation:** At Duke Energy, the customer is at the center of the company's mission. Evolving customer expectations, emerging technologies and changing public policies all contribute to a dynamic environment for Duke Energy and the industry. Part of the company's work to transform the customer experience includes providing customers more options and control over when and how they use energy. Duke Energy is proud of the new and expanded tools provided to enable customers to access and support renewable energy. This includes programs created by HB 589 – such as solar rebates, shared solar and Green Source Advantage – and more, like the Renewable Advantage REC purchasing program, which is currently pending before the NCUC. Duke Energy's comments in this section clarify several details of the company's existing and pending programs and instances where the company must balance competing priorities throughout this transition while meeting the obligation to provide all customers with reliable and affordable power.

**Equitable Access and Energy Affordability & A Just Transition to Clean Energy:** As a North Carolina company, Duke Energy understands that electricity is a significant monthly expense for many customers. That's why the company is committed to helping customers who struggle to pay for basic needs with programs and tools to reduce their energy costs and keep their power on. It is also why the company's investments in the community transcend business expenses and include support for programs that build strong and resilient communities. During the last three years, Duke Energy has averaged \$22.8 million in annual charitable giving in North Carolina. Additionally, the company's employees and retirees have donated their volunteer time, averaging \$6.9 million in annual value.

The draft CEP points to states like California, Hawaii and Rhode Island – places with some of the highest electricity rates in the nation – as models. It will be important to look to these and other states for lessons learned. It will also be important to consider the unique aspects of North Carolina's citizens, economy, climate and resources as opportunities to balance the goals of affordable, reliable and clean are identified. For example, rate increases may be more impactful in North Carolina because residents commonly use electricity for both heating and cooling and average incomes are not as high. Additionally, the lack of correlation between renewables and North Carolina peak load means, especially on winter mornings, that the point of diminishing returns is reached more quickly than states with a higher correlation between renewable output and peak load. This can lead to a greater financial burden for customers if not managed

properly. To address these challenges, the proposed “analysis of promising strategies” (page 5) could include a quantified affordability metric, such as a price cap.

The company’s detailed comments on equitable access, energy affordability and a just transition are informed by more than a century of service to North Carolina communities and, again, by the obligation to provide all customers with reliable and affordable power.

**Energy Efficiency and Demand Management** Duke Energy’s energy efficiency and demand response programs are a win for everyone. The company currently offers energy efficiency programs like Lower My Bill Toolkit, Residential Smart Saver and Neighborhood Energy Saver as well as demand response programs for business and residential customers. Across the Carolinas, more than 400,000 residential customers are actively participating in residential demand side management, allowing Duke Energy to control their air conditioners during peak demand times. These programs provide Duke Energy with an important tool that can be used to reduce energy demand. According to the Southern Alliance for Clean Energy’s *Energy Efficiency in the Southeast 2018 Annual Report*, Duke Energy Carolinas and Duke Energy Progress are the top two utilities in the Southeast for energy efficiency performance. The company’s comments on DEQ’s energy efficiency and demand management proposals are intended to help identify the most promising opportunities to advance these objectives based on extensive experience delivering successful energy efficiency and demand management programs to customers throughout the company’s seven jurisdictions.

**Transportation Electrification:** Supporting the use of electric transportation is a Duke Energy priority that will benefit communities, customers and the state’s future. Today, transportation contributes over 30 percent of greenhouse gas emissions in North Carolina. Based on DEQ’s GHG Inventory projections, and reflecting current Duke Energy forecasts, the transportation sector will overtake the electric sector as the largest contributor to North Carolina GHG emissions well before 2030 (See: <https://files.nc.gov/ncdeq/climate-change/ghg-inventory/GHG-Inventory-Report-FINAL.pdf>).

It will be critical to take a comprehensive approach and promote state policies to enhance EV adoption. While managed charging will become increasingly important as EV adoption grows, there is little evidence that EV-specific utility rates drive EV adoption. Therefore, the greatest emphasis should be placed on driving adoption with incentives and utility investment in fast charging infrastructure. As part of a commitment to build a cleaner and smarter North Carolina, Duke Energy is proposing the largest investment in electric vehicle (EV) infrastructure ever in the Southeast – a \$76 million initiative to spur EV adoption across the state. The company’s comments focus on opportunities for North Carolina to advance electric transportation, recognizing that EVs are already cleaner than conventional vehicles with the generation mix that exists today.

## Greenhouse Gas Emissions and Climate Concerns

Duke Energy is committed to the environment and is doing its part to lower the risk of climate change. Between 2005 and 2018, CO<sub>2</sub> emissions from the company's generation fleet fell by 31 percent enterprise-wide and nearly 35 percent in the Carolinas, outpacing the industry average of 27 percent. Over the next decade, Duke Energy is on track in the Carolinas to reduce carbon emissions by over 50 percent relative to a 2005 baseline level. Beyond 2030 even further reductions are attainable with continued technology development in the areas of carbon free generation and energy storage.

As opportunities to drive emissions out of the electricity system are identified, the U.S. is leading the world in CO<sub>2</sub> emissions reductions. Nearly half of all global reductions from 2007 to 2017 came from the U.S., and the electric sector is responsible for nearly 80 percent of U.S. CO<sub>2</sub> reductions [See: BP Statistical Review of World Energy, 2018, p. 49 (showing U.S. and global CO<sub>2</sub> emissions by country from 2007 – 2017 – U.S. emissions are 45% of all reductions); EIA Monthly Energy Review, May 2019, Tables 12.1 and 12.6 (showing U.S. and electric sector emissions from 1973 – 2018 – electric sector 2007 – 2017 are 78% of all reductions)].

Duke Energy supports a continued dialogue with the state and diverse stakeholders regarding opportunities to further reduce greenhouse gas emissions while keeping energy reliable and affordable and stands ready to assist in determining the right path. The company will evaluate any proposed policy on its merits, including the specific details of the proposal. With supportive state policies, the company believes that emission reductions in the electric sector can be achieved without a price on carbon that significantly increases customer bills. The company also offers that the following key factors should be considered in the further analysis of potential strategies or actions (page 5):

**The Critical Role of Carbon-free Nuclear Energy:** Today, nuclear is North Carolina's largest source of carbon-free energy (page 33). Nuclear is the only proven dispatchable, zero emitting resource and plays a vital role in lowering North Carolina's and Duke Energy's carbon emissions, contributing 47 percent of the company's total generation in the Carolinas and more than 80 percent of the company's carbon-free generation. In 2018, nuclear enabled the company to avoid the release of about 54 million tons of carbon dioxide (as much carbon dioxide as is released from more than 10 million passenger cars). The modeling scenarios conducted by stakeholders and submitted to DEQ in the CEP stakeholder process assume the continued operation of existing nuclear (including, in some cases, license renewal). Consistent with leading climate studies, these existing emissions-free resources are the cornerstone of any effort to further decarbonize the electricity sector. In addition, these facilities employ more than 5,000 workers in the Carolinas with an average salary of more than \$99,000 and paid more than \$308 million in property and payroll taxes in 2018. Research by Clemson University, the Carolinas' Nuclear Cluster and E4Carolinas concludes the nuclear industry provides a total economic impact of \$20-\$25 Billion to the two-state Carolinas region. (See: [http://e4carolinas.org/wp-content/uploads/2016/06/NC-SC\\_NuclearEconImpactReport.pdf](http://e4carolinas.org/wp-content/uploads/2016/06/NC-SC_NuclearEconImpactReport.pdf)).

**Maintaining Affordability and Reliability:** The draft CEP summarizes the evolving goals that participating stakeholders have for their energy providers, including a high priority on the

environment and carbon reduction while continuing to place high value on reliability and affordability. Research demonstrates that Duke Energy customers place the highest priority on reliability and affordability, and they also want more clean energy, a more secure grid and greater resiliency. Analyses of potential strategies or actions should place an emphasis on balancing evolving and longstanding priorities, including in consideration of the ideal timeline, policy design and target levels (recommendation I-2).

Maintaining affordability and reliability requires affordable resources capable of increasing and decreasing output on demand to complement variable output from solar and wind. As renewables continue to grow, the incremental energy and capacity value of these resources decreases due to extended periods of excess energy in the spring and fall (when demand is low) and insufficient output during dark winter mornings (when demand is high). While energy storage helps to mitigate short periods of excess and lower output, storage alone cannot address the capacity and energy deficiency during the winter months.

It is important to recognize that current battery storage technology represents both opportunities and challenges. Battery storage technology can quickly charge or discharge energy on demand. In addition to providing broader reliability and system benefits, the battery can help deliver energy during peak demand hours. However, batteries can only store a limited amount of energy, making battery storage a finite resource. The current dominant battery storage technology is lithium ion. Typical lithium ion battery projects have at most a 4-hour duration. While 4-hour batteries can effectively serve a portion of peak demand, eventually a longer duration solution will be required to maintain adequate system capacity. For this reason, Duke Energy is a strong advocate for research and development.

**Role of Natural Gas:** Natural gas also has a critical role to play in this transition. U.S. emission reductions to date have primarily been achieved through the replacement of coal with natural gas and a growing amount of renewables. The United Nations' Intergovernmental Panel on Climate Change (IPCC) stated in its 2014 summary report:

“GHG emissions from energy supply can be reduced significantly by replacing current world average coal-fired power plants with modern, highly efficient natural gas combined-cycle power plants or combined heat and power plants ... natural gas power generation without CCS acts as a bridge technology, with deployment increasing before peaking and falling to below current levels by 2050 and declining further in the second half of the century” (See: United Nations Intergovernmental Panel on Climate Change, Climate Change 2014: Mitigation of Climate Change, Summary for Policymakers, at 21).

Natural gas' ability to generate electricity 24/7 enables coal retirements, and both supplements and supports the addition of more renewable resources. To ensure North Carolina can reliably meet customer demand for electricity, there must be a complementary power source that can ramp up and down in response to demand and renewables' variability, regardless of the weather. Natural gas-fueled generation is ideally suited to meet this need. It is a flexible, dependable, inexpensive and low carbon resource (with less than half the CO<sub>2</sub> emissions of coal). Ensuring North Carolina has a resilient supply of energy – including affordable natural gas

– will be critical to enable timely retirement of coal units while maintaining a reliable and affordable electric system for customers.

**Continued Stakeholder Involvement:** The draft CEP recommends that DEQ, in partnership with academics, conduct a study of most cost-effective options to achieve a carbon target for the electricity sector, including clean energy driven and carbon policy scenarios (page 113). Any study should also determine the reliability implications of the pathways studied and provide opportunities for continued stakeholder involvement. Duke Energy recently evaluated one possible pathway consistent with a “two-degree policy” in the company’s 2017 Climate Report to Shareholders. The company has over a century of experience building, operating and maintaining North Carolina’s energy system and stands ready to support DEQ in its analysis. An important first step is to develop a shared understanding of baseline carbon emissions.

Additionally, Duke Energy offers the following specific or clarifying comments on this section of the draft:

- Page 33: “Traditional fuel resources such as coal, natural gas and nuclear...” Nuclear should be listed separately. Nuclear stands apart as the only proven dispatchable, zero carbon resource.
- Page 37: The discussion of drivers of decarbonization should include the role that inexpensive natural gas has played in enabling coal retirements (See: <https://www.eia.gov/todayinenergy/detail.php?id=39012>).
- Page 53: “...consisted of large central fossil fuel plants.” Add “and nuclear.”
- Pages 108 and 112: Define "uneconomical" fossil generation and peaking plants. For example, under what scenarios (e.g. carbon or natural gas prices) or on what timeline?
- Page 109: In Table 4 ("Accelerate Fossil Retirement"), the company recommends inserting "...or shift to gas use..." after "all coal plants retire by 2030." Additional questions to consider include: How would net book value recovery be addressed? Should there be an offramp with price caps or rate increase limits for customers over a certain timeframe? How would DEQ propose to replace all coal generation (> 9,000 MWs excluding Cliffside 6, which is 100 percent gas capable) with non-emitting resources? How would the winter morning peak be handled by non-emitting sources? Here, it is important to remember that – in contrast to the estimate on page 21 of the Emissions & Modeling Supporting Document – 1 MW of solar does not equal 1 MW of traditional generation. A recent study by the Kenan Institute at UNC demonstrates it takes 2,958 MW of solar connected to 10,250 MWH of battery storage to replace a single 650-MW natural gas combined-cycle plant. (See: <https://www.kenaninstitute.unc.edu/wp-content/uploads/2018/05/Kenan-Institute-Report-Measuring-Renewable-Energy-as-Baseload-Power-v2.pdf>).
- Page 111: The third paragraph states that North Carolina’s generation from “clean energy resources” in 2017 was 9 percent. This paragraph should also note the amount of generation from zero-emissions nuclear energy (more than 30 percent).
- Page 112: With respect to new fossil fuel infrastructure, DEQ should consider CCS-ready gas, including a feasibility analysis of CO<sub>2</sub> pipelines.

- Page 113: The comprehensive study should include the feasibility and cost of the various options, as well as reliability impacts (in addition to CO<sub>2</sub> reduction projections). Renewable portfolio standards are typically a much more expensive means to achieve the same carbon reductions relative to cap and trade programs. In the study, the mass cap option should include the option of acquiring offsets if the desired 2030 reductions cannot be met reliably and economically.
- Pages 113 and 115: It is not clear between page 113 and page 115 whether the “comprehensive study” will focus on the full range of 60-70 percent reductions (page 113) or only 70 percent (page 115). Duke Energy recommends the study examine the full range.
- Page 114: In recommendation I-3, it is not appropriate to consider carbon emissions associated with pipelines in this scenario for the same reasons that FERC and the recent EPA NEPA draft guidance advise that consideration should not be given where the impact is remote or speculative [“agencies preparing NEPA analyses need not give greater consideration to potential effects from GHG emissions than to other potential effects on the human environment” and “a ‘but for’ causal relationship is not sufficient” (see the June 21, 2019 CEQ-NEPA Draft GHG Guidance)]. The ACP is not for the sole purpose of power generation. However, if carbon emissions associated with natural gas pipelines are to be “counted,” they should be weighed against the carbon emissions that will be reduced when the pipeline enables the retirement of coal.
- Page 115: For recommendation I-3, legislative action would be needed to set a cost of carbon. The cost of carbon also needs to be fully vetted and debated. Academics, regulators and industry will all have opinions. Keeping electricity rates affordable should be a major consideration. Finally, this recommendation should apply to all North Carolina utilities.
- Global Observation: The recently promulgated federal Affordable Clean Energy (ACE) rule requires investments in heat rate improvements at coal plants. Any policy intended to accelerate coal retirements should either (1) provide for the recovery of those costs or (2) enhance the state's ability to avoid new investments - and therefore reduce customer impacts - at coal plants that will soon retire. The latter can be achieved through the State Implementation Plan (SIP) required by ACE. Similarly, Duke Energy is currently completing the study phase of federal Clean Water Act 316(b) rule and preparing to install capital compliance projects. Those compliance projects should also be evaluated considering the potential for earlier retirements.

## Utility Tools & Incentives

The current regulatory model in North Carolina has served utilities and their customers well for more than a century. As the draft CEP notes, “Our state enjoys some of the lowest retail electricity prices in the nation, with a ranking in the bottom 10 states for the past several years. North Carolina’s average residential rate has been about 6 percent less than the South Atlantic region and about 11 percent less than the nation since 2015” (page 35). At the same time, North Carolina is ranked second in the nation for installed solar capacity and Duke Energy has reduced carbon emissions from generation in the Carolinas by about 35 percent between 2005 and 2018, beating the U.S. average of 27 percent. The state enjoys low rates, high reliability and confident responses to extreme heat, cold and storms.

The energy industry is undergoing a massive, top-to-bottom transformation, however, which means the way energy providers do business is changing. Utilities face increasing needs to modernize their systems to improve reliability, keep pace with evolving customer expectations and new technologies, and to transform the electric grid to a two-way system that is well-protected from cyber and physical threats, integrates more renewables and distributed energy sources and gives customers more options and control over their energy use.

With respect to recommendations A-1 and A2, Duke Energy agrees that alternative utility rate-making mechanisms are needed expeditiously to provide more predictability and bill stability for customers and allow utilities to focus more on efficient operations and the types of innovation that give customers greater value at a faster pace. Across the country, states are implementing modern rules to benefit customers and transform the grid. While every state and utility is unique, these modern rules better align recovery of utility costs to serve customers with investment in the innovative products and services that customers want and need to run their lives. Multiyear rate plans and grid recovery mechanisms are just two examples that many states have adopted as part of a forward-looking energy regulatory framework. The company looks forward to continued dialogue with the state and stakeholders about the best tools to deliver that value.

Recommendation A-3 of this section comprises a “study on the potential costs and benefits of different options to increase competition in electricity generation, including but not limited to joining an existing wholesale market and allowing retail energy choice.” Duke Energy believes any study of this nature should:

- Be led by a neutral agent;
- Create common definitions and understanding around terminology of options, such as RTO, market and retail choice;
- Evaluate potential benefits, costs, risks, regulatory requirements, dependencies (e.g., combined utility systems in North Carolina and South Carolina), and the ability to meet the objectives of this CEP;
- Be clear about what decisions shift control and jurisdiction from the state to the federal government with respect to rules, oversight and processes/procedures (e.g., interconnection);
- Consider the impact of options across stakeholder groups, including customer classes (e.g., potential cost shifts);

- As a scoping input to the study, consider what control the states want to maintain, particularly as it relates to coordinated planning of generation, transmission and pricing; and
- As a scoping input to the study, consider what the study evaluations and assumptions should be for supply adequacy, capacity and reliability.

Finally, while the draft CEP calls for a study of both “costs” and “benefits,” this section as written is heavily focused on potential benefits. The final plan should explicitly acknowledge potential outcomes that conflict with the goals of the CEP and should be examined in any study. For example:

- **Advancing a Cleaner Grid:** Wholesale markets are not guaranteed to advance a cleaner grid; they are – at least today – price-driven and not carbon-driven.
- **Driving Down Prices:** Markets can go up or down, depending on dynamics, and customers are subject to those swings.
- **Reliability:** North Carolina and South Carolina currently benefit from excellent reliability and high-quality storm responses under increasingly challenging circumstances. The region is large with a diverse generation mix and a long track record of reliability performance, so "increased" reliability would not be an expected outcome of competition.
- **Equity and Affordability:** In states that require retail competition, residential and small commercial customers have sometimes suffered. For example, an investigation in Massachusetts found that consumers overpaid by nearly \$180 million and that low-income consumers were disproportionately affected. As a result, the Massachusetts Attorney General is calling for an end to the competitive retail market for residential customers (See: <https://www.mass.gov/competitive-electric-supply>).



## Comprehensive Utility System Planning

Duke Energy agrees that the landscape of utility planning is evolving due to declining costs for renewables and storage, customer preferences and policy goals. The company has connected 3,000 MW of solar in North Carolina, and with House Bill 589, will achieve 7,000 MW by 2025. Duke Energy's utilities in the Carolinas have received over 20,000 solar interconnection requests and connected nearly 17,000 projects since 2006. North Carolina has more distribution-connected utility scale solar than any other state.

A more robust approach to distribution planning is necessary, as well as extensive coordination with (generation) resource planning and transmission planning. For this reason, Duke Energy is actively working toward more extensive integration of distribution, generation and transmission planning (Integrated System & Operations Planning or "ISOP") with a goal of implementation in 2022 IRPs. Duke's ISOP development team has gathered input from other utilities, national labs, EPRI, consultants and academic groups to inform the company's vision and work-scope and has been working on extending modeling capabilities to better address renewables and energy storage for the last few years.

Duke Energy also agrees that it is important to get input from customers and other stakeholders to enhance and further integrate planning processes. The company is working toward a stakeholder process for ISOP and has begun outreach efforts to gather input from stakeholders on the approach. In addition, Duke Energy has been reaching out to other utilities with stakeholder engagement processes (Hawaii Electric Companies, TVA, Xcel, NV Energy etc.) to learn from their experience.

The ISOP engagement contemplated thus far is focused on gathering input and sharing information about the new ISOP processes, which target integration of capacity and energy resources such as distributed energy resources and customer programs across generation, transmission and distribution planning disciplines. Duke Energy has not yet evaluated the implications of transitioning the ongoing planning processes to a full or partial collaborative stakeholder process, and thus is not prepared to take a position in favor or against this recommendation. However, several factors should be considered in any stakeholder process for system planning:

- DEC and DEP Balancing Areas include both North Carolina and South Carolina resources and load obligations, and both states have benefitted from the economies of scale in a combined planning process. Any ISOP-related stakeholder engagement process should include both North and South Carolina stakeholder representatives to ensure balanced outcomes for customers in both states.
- Utilities hold a unique role as the only stakeholders with a regulatory obligation to serve under North Carolina, South Carolina and FERC/NERC oversight. These oversight processes ensure a focus on safe, reliable and affordable service and motivate utilities to maintain a balanced perspective to meet changing customer expectations, including environmental considerations. Other stakeholders may focus on a single objective. Utilities are inherently technology agnostic, but the "obligation to serve" does drive a high

priority on reliability and flexibility of resources. Many other stakeholders do not have this responsibility, and therefore may not place similar value on reliability and flexibility of resources.

Recommendation B1 proposes a “comprehensive system planning process with meaningful stakeholder participation, starting with integrated distribution planning (IDP)...” As described on page 67, Duke Energy is already working towards ISOP. The company believes that ISOP can work within the existing IRP regulatory framework and that ISOP will achieve the basic goals of IDP being pursued by other states.

In addition to these overarching comments on recommendation B-1, the company offers the following clarifying comments on this section of the draft CEP:

- Page 11: In the first paragraph, “delivering thousands of MW” should be “satisfying a peak winter demand of over 36,000 MW.”
- Page 11: The second paragraph broadly describes recent trends in electricity demand growth as relatively flat. This discussion should distinguish between energy and capacity. It should also recognize forecasted growth rates. The growth rate forecasts in Duke Energy’s 2019 IRPs, including impacts of new energy efficiency programs, are as follows: Duke Energy Progress Summer Peak – 1%, Winter Peak 0.9% and Energy – 1%; Duke Energy Carolinas Summer Peak – 1%, Winter Peak 0.8% and Energy 0.9% (See: <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=7f4b3176-95d8-425d-a36b-390e1e57a175>; <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=40bbb323-936d-4f06-b0ba-7b7683a136de>.)
- Page 12: Add the statement, “While 1 MW of solar does not equal 1 MW of traditional generation, a more detailed analysis of opportunities for coal retirements in North Carolina may identify opportunities to accelerate the transition to clean energy” before “Nearby....” This is important because the report cited in the draft CEP states, “for simplicity, the modeling compares each coal plant’s marginal cost of energy (MCOE) to the lowest levelized cost of energy (LCOE) for wind or solar resource localized around that coal plant” (Energy Innovation and Vibrant Clean Energy page 2). However, 1 MW of solar does not equal 1 MW of traditional generation. A recent study by the Kenan Institute at UNC demonstrates it takes 2,958 MW of solar connected to 10,250 MWH of battery storage to replace a single 650-MW natural gas combined-cycle plant. (See: <https://www.kenaninstitute.unc.edu/wp-content/uploads/2018/05/Kenan-Institute-Report-Measuring-Renewable-Energy-as-Baseload-Power-v2.pdf>).
- Page 12: “The opportunity to save money is available” is an unsupported statement.
- Page 28: For recommendation J-2, consider how this coordinated planning will intersect with federal jurisdiction (e.g. over cybersecurity). Add “physical” security.
- Page 54: “Stakeholders conveyed that a new regulatory framework...[can] avoid system costs....” While it may be true that some costs can be avoided, additional costs may also be created.
- Page 60: “Forcing reconsideration of utility’s longstanding responsibilities.” While Duke Energy agrees that utilities are being asked to meet new and evolving goals, moving ahead, many (if not all) of the long-standing responsibilities in the regulatory compact

(e.g., the obligation to serve, providing reliable and affordable energy) must continue to be provided by some mechanism.

- Page 63: The table should generically name all utilities as responsible entities, consistent with other parts of the document.
- Page 69: Recommendation B-1 suggests that IDP should include identification of “locational value” of DERs. Any analysis of locational value should include (1) both benefits and the costs of the resource, where they exist and (2) the impact of DERs on the Bulk Electric System (BES), including alignment with any NERC reliability requirements.
- Page 71: Recommendation B-2 implies that least cost planning may be an impediment to clean energy planning. However, least cost planning is not in conflict with environmental goals when clear environmental policy is established through lawmaking and/or regulatory processes. Successful examples include the Clean Smokestacks Act and federal programs for NO<sub>x</sub> and SO<sub>2</sub>. Duke Energy supports collaboratively informed processes to establish environmental policies that provide clarity for planning.
- Page 71: “For resources to be more accurately accounted for in utility planning regulators should consider....” Also add security (physical and cyber).

## Grid Modernization to Support Clean Energy & Grid Resiliency and Flexibility

Providing safe, reliable, affordable and secure energy to all the company's customers is core to Duke Energy's mission. The company is making smart, data-driven investments to increase reliability, strengthen the grid against cyber and physical threats, expand solar and innovative technologies and provide customers with the intelligent information they need to make smart energy choices and save money. These investments will provide benefits now and in the years to come and are informed by seven "megatrends" – six of which can be found in the draft CEP, including: (1) threats to grid infrastructure, (2) technology advancements in renewables and distributed energy resources, (3) lower carbon future and other environmental trends, (4) impact of weather events, (5) grid improvement and (6) customer expectations (see pages 10-12, 41, 48-49, 116-120, 125, and 129). In addition, Duke Energy has been tracking a megatrend of concentrated population growth in urban areas, which has significant implications for equity.

Duke Energy is already implementing several of DEQ's recommendations through the Grid Improvement Plan (GIP) process, including:

- Developing Integrated System & Operations Planning (ISOP), which will be considered by the NCUC (page 67-70);
- Enabling grid flexibility through a smart-thinking grid that can both adjust to grid instability resulting from increased DER penetration and reroute power to prevent more customer outages when events occur (page 116);
- Exploring microgrid technologies, especially for critical infrastructure (page 117-118);
- Quantifying the human cost of power outages by using the Interruption Cost Estimate calculator, developed by the Department of Energy and Berkley National Labs, to value the benefit of reduced outages and outage time for customers when evaluating grid resiliency investments (page 120); and
- Offering customers access to their usage data and innovative rate design, enabled by smart metering technology (page 125 and 129).

The company is proud of the transparent process through which it has developed the three-year GIP, including by engaging stakeholders to inform and develop the plan. The GIP does not include the base-level work that must be done to maintain service quality for customers, but does include programs to meet new challenges and optimize grid functionality for the 21<sup>st</sup> century. While some of the programs in the GIP that optimize Duke Energy's grid by addressing multiple megatrends are justified by positive cost-benefit analyses, Duke Energy disputes that all grid investments must be justified by a positive cost-benefit analysis using monetized benefits only (pages 74-75). Some programs, such as physical and cyber security investments, are necessary to defend the grid against attacks. Other system-wide programs investing in communication networks, systems and equipment to provide grid automation and intelligence would not be justified on a cost-benefit basis, since they provide basic foundational functionality to establish a smart two-way thinking grid. Those programs provide a foundation upon which grid optimizing work can provide value, and without them the company would not be able to meet customer and grid needs.

Duke Energy also disputes that all its grid investments would be selected only through an ISOP process (page 76-77). While ISOP and Duke Energy's GIP share a common vision of preparing for a future where Distributed Energy Resources (DERs) are increasingly economic, the scope of ISOP is more narrowly focused on the portions of distribution and transmission planning where DERs and customer programs offer the potential to contribute to bulk generation planning needs (under the IRP) while also deferring or avoiding traditional transmission and distribution upgrade investments. Both ISOP and the GIP show that the company is fulfilling its duty to deliver value to customers today while preparing for the future.

The current GIP represents a comprehensive, foundational "no regrets" package of investments. These are essential investments that will help transition from a one-way power flow capability to a dynamic smart thinking two-way power distribution grid. Many of the investments contained in the plan such as enhanced communications, Self-Optimizing Grid, Integrated Volt-VAR Control and 44kV uplifts are foundational in nature and support a future grid with capabilities to integrate greater amounts of solar, batteries and EVs. The GIP runs these foundational investments in parallel with standing up the appropriate tools and processes that make up ISOP. Duke Energy's GIP will help prepare the state for a distributed energy future, and even incorporates distributed energy resources ahead of the industry in cases where that makes sense.

The company offers the following additional clarifying comments on this section of the report:

- Page 10: With respect to the discussion of how goals must be balanced, part of the balance is adequate supply and reliability of electricity, and the security of that supply from both physical and cyber/digital perspectives.
- Page 10: Add "security" to the list of goals in the last sentence.
- Page 19: Add "and man-made" to "strengthens resiliency against natural disasters" to recognize the growing need to protect against cyber and physical attacks.
- Page 25 and 74: The draft CEP states that: "When evaluating proposals for grid modernization, [regulators should] consider ...and metrics of progress made toward grid modernization goals." These statements fail to recognize that no stakeholder, including the utility, has perfect foresight of how technologies and costs will change over time. Efforts to "measure" performance, while well intentioned, could increase costs without commensurate benefits if not reasonably scoped. Finally, any "targets and timelines" must recognize that the underlying inputs and therefore results will change over time.
- Page 43: The section on "battery" storage should include other storage technologies that can contribute to the integration of variable renewable energy, including pumped hydro.
- Page 45: The draft CEP states that "NC's rural electric cooperatives have been early implementers of advanced technology and are leading the way to increased reliability, two-way communications, load management and grid operations." North Carolina's IOUs are also leading in this area. Duke Energy's energy storage research and demonstration work includes 15 national projects that demonstrate 10 different grid applications and functions, with 8 different battery chemistries representing more than 40 MW of capacity, including projects at Mount Holly and McAlpine in North Carolina. The company has

plans for approximately 375-megawatt (MW) of energy storage across our regulated businesses, representing approximately \$600 million of new investment. This includes approximately 300 MW of energy storage at various locations on our Carolinas system and in partnership with areas where it can deliver the most benefits for the grid and the local community. Duke Energy's battery storage and microgrid projects include projects at Haywood County, Rock Hill and Hot Springs in North Carolina and has plans for projects in Anderson County (South Carolina); Cape San Blas, Jennings and Trenton (Florida); and Camp Atterbury and Naab (Indiana). (See: <https://news.duke-energy.com/releases/north-carolina-regulators-approve-duke-energys-innovative-microgrid-project-in-madison-county>; [https://www.eei.org/issuesandpolicy/Energy%20Storage/Energy Storage Case Studies .pdf](https://www.eei.org/issuesandpolicy/Energy%20Storage/Energy_Storage_Case_Studies.pdf))

- Page 46: The draft CEP states that AMI saturation in North Carolina is only 32 percent. This number appears low, depending on AMI saturation for other utilities. As of August 2019, Duke Energy has deployed smart meters to about 80 percent of North Carolina customers (approximately 2.8 million meters out of a total of nearly 3.5 million to install). The company has completed installations for Duke Energy Carolinas and is a little more than halfway complete in Duke Energy Progress. Deployment will continue through 2021.
- Page 53: "Developing the electricity system quickly became essential..." This remains true today in a much more volatile cyber and physical security environment.
- Page 59: Expediting or fast-tracking CPCN, siting, and right of ways for new transmission and distribution infrastructure supporting distributed energy resource integration and/or serving electric vehicle charging stations could help support the goal of "modernizing the grid to support clean energy."
- Page 119: Add physical security to "coordinate security."
- Page 120: The draft CEP recommends studying the "impact of storms and cyber-attacks and including analysis of greater investment in DERs, microgrids and grid hardening." This analysis should include physical attacks and the ability for the ACP to provide natural gas as a fuel source for microgrids (especially beneficial in eastern NC).

## Customer Access to Clean Energy & DER Interconnection and Compensation

At Duke Energy, the customer is at the center of the company's mission. Evolving customer expectations, emerging technologies and changing public policies all contribute to a dynamic environment for Duke Energy and the industry. Part of the company's work to transform the customer experience includes providing customers more options and control over when and how they use energy. The company is expanding options to better enable customers to access and support renewable energy. This includes programs created by HB 589 – such as solar rebates, shared solar and Green Source Advantage – and more, like the Renewable Advantage REC purchasing program, which is currently pending before the NCUC.

In addition, beginning on October 1<sup>st</sup>, the company is piloting several dynamic rate options for Duke Energy Carolinas customers enabled by smart meter technology. These pilot programs are voluntary and will help provide important information to help Duke Energy provide residential and small commercial customers with even more options to better manage their energy use.

Recommendations F-1 and F-2 address the potential for wind energy to play a larger role in North Carolina's energy future. Duke Energy has been investing in wind energy for more than a decade, and is a national leader in this area, generating 2,300 MW of wind electricity at 21 wind farms across the United States. In general, the company believes offshore wind energy has potential and could be a strong complement to the energy portfolio in the Carolinas. Given the unique characteristics of the state's load centers, a majority of which are in the western part of the state, the company would need to invest heavily in the transmission infrastructure needed to move that electricity across large distances. DEQ could consider a recommendation for expedited siting, permitting and right of ways, which could help meet this future need. Duke Energy currently has a large amount of solar in the eastern part of the state, as well as several nuclear plants serving that load. The company continues to investigate the feasibility of offshore wind, including conducting economic analyses comparing it to other technologies and stands ready to support the state in its analysis of this potential resource.

Below are several specific and clarifying comments about this section of the draft CEP:

- Page 26: Consider adding a dot in the table for legislation under “clean energy economic development opportunities” related to wind energy; current North Carolina laws contribute to limited wind development in the state.
- Page 26: Recommendation F-2 proposes an offshore wind assessment. Offshore wind may require new transmission; consider fast tracking CPCN and right of way processes for this infrastructure.
- Page 36: The draft CEP states that “how utilities comply with HB 589 will determine the level of solar capacity added in coming years.” A more accurate statement would be: “The ability to safely interconnect solar facilities to the grid, with consideration for operational needs, customer demands and cost, will determine the level of solar capacity added in the coming years.”

- Page 39: “North Carolina is currently ranked 7th in the nation for most installed solar capacity according to the Solar Energy Industries Association.” According to SEIA’s 2018 report, North Carolina is still second in the nation for installed solar capacity (See: <https://www.seia.org/research-resources/top-10-solar-states-0>).
- Page 40: In the discussion of wind energy’s success in other states, consider acknowledging the obstacles to wind development in North Carolina. For example, “To grow wind development in North Carolina and catch up to national trends, the state may need to address military concerns and require legislative support to remove current obstacles and community and local government support to overcome NIMBY-ism.”
- Page 43: The draft CEP states “comments made by the NCUC Public Staff regarding the lack of energy storage market transparency state that market participants and Duke Energy generally agree that energy storage can provide many grid benefits, such as frequency regulation, operational reserves and firm capacity; however, there is no mechanism to pay market participants for these services.” A more accurate statement would be: “..., and firm capacity; however, further review would need to be conducted to determine what ancillary services could be needed and/or beneficial for the state, and how market participants may be compensated for those services, recognizing that they are bundled in the payment system the company uses today”
- Page 48: The second paragraph refers to HB 559, but should read “HB 589.”
- Page 51: The following statement has no citation: “North Carolina was one of 21 states to lose solar jobs in 2018...” However, research from the nonprofit E2 provides the following assessment: “According to Clean Jobs North Carolina 2019, the state’s clean energy jobs grew 3.5 percent last year – nearly double statewide employment growth (1.9 percent) —and now account for more than half of North Carolina’s entire energy sector workforce (212,172). Clean vehicles led all sectors in growth, adding more than 1,000 jobs for a 19.5 percent growth rate” (See: <https://www.e2.org/wp-content/uploads/2019/07/E2-Clean-Jobs-North-Carolina-2019.pdf>).
- Page 53: Add “primarily” before “...one-way supply of electricity from suppliers to consumers.” Customer-sited Qualifying Facilities have existed since PURPA was enacted in 1978.
- Page 55: In the vision statement, strike “battery” to be inclusive of other promising storage technologies.
- Page 78: In recommendation F-2, include transmission infrastructure in the assessment of infrastructure needed for the offshore wind industry.
- Page 79: The draft CEP cites a “tension between accessibility and affordability” of renewable energy programs. These concepts may be in conflict but the tension primarily exists because solar plus storage cannot currently replace the energy provided by the utility at a cost that is lower than utility rates (which, as the draft CEP acknowledges, are low relative to other states).
- Page 79: The draft CEP cites a narrow time window for signing up for solar rebates as an obstacle to affordability and accessibility. Rephrase this statement to better clarify the underlying drivers. For example: “The rebate program has proven to be very popular because when it is combined with the economically advantageous net metering program the payback for solar is significantly reduced. Due to the total capacity limits established



in HB 589 and how quickly applications are received when the program opens, some potential customers have been unable to access a rebate.”

- Page 79: While not part of HB 589, Duke Energy has also filed a REC purchasing program for residential and small and medium business customers called Renewable Advantage. This program is currently pending approval from the NCUC.
- Page 79: For Green Source Advantage, a customer may also choose a bill credit in-line with their daily energy rate. In addition, to participate a customer's demand must total at least 1MW. This should read: “The program has a carve-out for NC universities, military and customers with demand of at least 1MW.”
- Page 79: The draft CEP states, “Business do not have the ability to enter into their own on-site third-party PPAs...” This should also note: “However, as established by HB 589, they can enter into a lease agreement with a similar financing structure to third-party PPAs.”
- Page 79: The last paragraph on upfront cost should note that the leasing option eliminates the upfront cost of solar. The barrier to adoption is simply the economics; today, the cost of solar does not provide immediate savings due to the low cost of energy in North Carolina and many potential customers require a favorable near-term payback.
- Page 80: The following statement needs to be updated: “...while others such as the Green Source Advantage program...” This program was recently approved by the NCUC and will be available to customers starting October 1, 2019 per the NCUC order.
- Page 80: The draft CEP states, “In short existing utility incentives to increase sales make it difficult...” Duke Energy is supportive of distributed generation and is trying to make investments in the grid to support DERs.
- Page 84: The draft CEP states, “Rather, in North Carolina the compensation is based on the utility’s avoided cost rate, meaning that the credit they receive is lower than the price of the energy they consume.” This is not a true statement. The full retail rate is comprised of energy, capacity, transmission and distribution. The utility does not oppose crediting community solar participants with the energy and appropriate capacity value, but it is opposed to all four values being received when only up to two are provided. If the credit methodology is not tied to the value of solar (regardless of premium) non-participating customers will be subsidizing the solar (including low income customers).
- Page 88: The draft CEP states, “Duke Energy expects that the total amount of projects that will be developed under the CPRE to be in the 4200 – 4700 MW range.” This is incorrect. The 4200- 4700 MW refers to the amount of solar that is now expected to be grandfathered under the legacy PURPA rules and subtracted from the CPRE target. HB 589 targeted a total of 6800 MW – an amount the system can handle according to the 2014 PNNL Study. HB 589 estimated that 2660 MW would be procured through CPRE based on the following equation: 6800 MW – 600 MW Green Source Advantage program – 3500 MW Legacy PURPA – 40 MW Shared Solar program = 2660 MW CPRE. Now the expectation is that legacy PURPA will be 4200 – 4700 which will reduce CPRE by 700 – 1200 MW. Therefore, CPRE is expected to procure 1460 – 1960 MW.

## Equitable Access and Energy Affordability & Just Transition to Clean Energy

As a North Carolina company, Duke Energy understands that electricity is a significant monthly expense for many customers. That's why the company is committed to helping customers who struggle to pay for basic needs with programs and tools to reduce their energy costs and keep their power on. It is also why the company's investments in the community transcend business expenses and include support for programs that build strong and resilient communities. During the last three years, Duke Energy has averaged \$22.8 million in annual charitable giving in North Carolina. Additionally, the company's employees and retirees have donated their volunteer time, averaging \$6.9 million in annual value.

Duke Energy is committed to helping customers who struggle to pay for basic needs with programs and tools to reduce their energy costs and keep their power on. The company offers payment plans and other options to help customers get back on track with their bill, including – to name a few – Equal Payment Plan, Home Energy House Call, Lower My Bill Toolkit, Residential Smart Saver, Neighborhood Energy Saver and Share the Warmth programs. The Share the Warmth Fund has provided more than \$25 million in assistance over the life of the program to help low-income families in North Carolina cover home energy bills, regardless of heating source.

Duke Energy actively invests in human capital to help advance the industry and the state. One example is the company's investment in training lineworkers to build an even smarter energy grid that will improve the way the company serves customers. The Carolinas Energy Workforce Consortium estimates that the industry will need 1,500 new lineworkers each year for the next 5-6 years in North Carolina to meet business needs. These clean energy jobs offer high pay and good benefits and will play a vital role in moving North Carolina's energy industry forward. Since 2014, Duke Energy has invested \$41.7 million in North Carolina Community Colleges to help meet this need. These investments include support for 10 North Carolina Community Colleges providing lineworker and energy sector training to support a smarter energy future for the state.

Below are several observations intended to help inform the delicate balance that achieving the CEP's multiple goals – including affordability – will require:

- Global Observation: Throughout the draft CEP, DEQ points to states like California, Hawaii and Rhode Island as models for North Carolina. These states have some of the highest electricity rates in the country and very different heating and cooling needs. When looking to these states for lessons learned, it will be important to consider how North Carolina differs. For example, North Carolina residents commonly use electricity for both heating and cooling. Duke Energy's average customers also do not enjoy the same income levels as certain states, so rate increases are more impactful. In 2017, North Carolina had a median income of about \$50,000 compared to \$60,000 in California, \$74,000 in Hawaii and \$61,000 in Rhode Island (See: <https://www.cnbc.com/2018/12/07/median-household-income-in-every-us-state-from-the->

[census-bureau.html](#)). Additionally, the lack of correlation between renewables and North Carolina peak load means – especially on winter mornings – that the point of diminishing returns is reached more quickly than states with a higher correlation between renewable output and peak load. North Carolina also has a large amount of existing nuclear energy that provides 24/7 emissions-free power; during periods of low demand, there may be fewer opportunities to displace higher-emitting resources relative to other states. This can lead to a much greater financial burden for customers if not managed properly. To address these challenges, the “analysis of promising strategies” proposed on page 5 could include a quantified affordability metric, such as a price cap.

- Global Observation: Improving the resiliency of the generation, transmission and distribution systems that serve consumers across the state is a shared priority. Duke Energy is investing today in making these systems more resilient to storms and other physical threats, as well as increased cyber security threats. These improvements provide benefits across all customer segments and income levels. Historically, low-income citizens bear more of the burden of significant storms, such as Hurricanes Matthew and Florence, which posed massive flooding and long-lasting damage to low-lying areas. Those customers face not only costs to repair or replace damaged property but also the increased systemwide cost of paying for storm restoration. With the increased likelihood of more severe storms due to climate change, Duke Energy has proposed securitization as a means of lowering customer financial impacts from storms.
- Page 27: Recommendation H-3 aims to create long term jobs in the clean energy sector. Consider including a priority around maintaining existing carbon-free nuclear plants and their importance to the economic viability of their local communities. These facilities employ more than 5,000 workers in the Carolinas with an average salary of more than \$99,000 and paid more than \$308 million in property and payroll taxes in 2018. Research by Clemson University, the Carolinas’ Nuclear Cluster and E4Carolinas concludes the nuclear industry provides a total economic impact of \$20-\$25 Billion to the two-state Carolinas region. (See: [http://e4carolinas.org/wp-content/uploads/2016/06/NC-SC\\_NuclearEconImpactReport.pdf](http://e4carolinas.org/wp-content/uploads/2016/06/NC-SC_NuclearEconImpactReport.pdf)).
- Page 79 and 84: The draft CEP states, “Rather, in North Carolina the compensation is based on the utility’s avoided cost rate, meaning that the credit they receive is lower than the price of the energy they consume.” This is not a true statement. The full retail rate is comprised of energy, capacity, transmission and distribution. The utility does not oppose crediting community solar participants with the energy and appropriate capacity value, but it is opposed to all four values being received when only up to two are provided. If the credit methodology is not tied to the value of solar (regardless of premium) non-participating customers will be subsidizing the solar (including low income customers). Any further study of virtual net metering should recognize this potential burden and consider opportunities to minimize or balance its impact.
- Page 95: The plan proposes to “ensure inclusion and meaningful involvement of historically marginalized individuals (people of color and people living in poverty) in decision-making regarding siting generation assets and implementing programs that would affect their rates, health and access to clean energy and energy efficiency opportunities.” This is an important goal, and Duke Energy supports the inclusion of

multiple stakeholders in a comprehensive process to evaluate asset additions. The state must work to define “meaningful involvement in decision making” to provide clarity to the utility and others involved, so processes can be adjusted accordingly. Further, the state must recognize that changes to these processes (from initial stakeholder input to local zoning to state certification and permitting processes) will increase the time and expense of facility siting required to meet the growing needs of the state.

- Pages 97 and 103: The draft CEP contemplates including environmental justice considerations in siting decisions (assigned to NCUC & DEQ). This likely requires legislation. North Carolina statutes do not provide for EJ review, except for landfills.
- Page 99: The plan appears to assume that a linear increase in achieved, dependable efficiency and demand-side management will occur through the introduction of new programs and offerings (i.e., that offering more efficiency programs and options will directly improve costs and conditions for low-income customers). It is important to recognize that the reality is more complex. Ultimately, adoption of more stringent energy-efficiency measures (unless mandated) requires changes in human behaviors.
- Page 105: The “family-sustaining” language, while laudable, was specifically inserted by a single individual to focus on creation of unionized jobs. North Carolina’s plan should be agnostic as to how good jobs are created.
- Page 106: In addition to utilities, DEQ should include other clean energy developers in the recommendation to “work with ‘high road’ contractors or those that provide living wages and benefits.”

## Energy Efficiency and Demand Management

Duke Energy's energy efficiency and demand response programs are a win for everyone. In addition to energy efficiency programs (described in the company's comments related to equity and affordability), the company has demand side management and demand response programs which can be activated when generation or power purchases would be costlier for customers; or during times of capacity constraints – when generation (Duke Energy plants or other regional plants) are unavailable. These include programs for business customers that can adjust energy consumption levels during peak time periods and as well as more than 400,000 residential customers across the Carolinas, who are actively participating in residential demand side management, allowing Duke Energy to control their air conditioners during peak demand times. Combined, Duke Energy's residential DSM programs can – when activated – shave up to 961 MWs of energy off the peak.

In addition, beginning on October 1<sup>st</sup>, the company is piloting several dynamic rate options for Duke Energy Carolinas customers enabled by smart meter technology. These pilot programs are voluntary and will help provide important information to help Duke Energy provide residential and small commercial customers with even more options to better manage their energy use.

Based on extensive experience delivering successful energy efficiency and demand management programs across the company's seven jurisdictions, Duke Energy offers the following observations and clarifying comments about these priorities in the draft CEP:

- Page 41 and 45: It is important to clarify that programs that use "price signals" also allow a customer to "buy through" an event. This can make the utility financially whole, but it does not reduce the need for a system with enough excess capacity to allow for these customers to ignore the signal and not reduce their demand.
- Page 69: The draft CEP recommends "identification of locational value for nodes on the distribution system where DER deployment could provide grid services." Assuming a methodology can be created for location value, does the DEQ propose that the Avoided Costs used to determine cost effectiveness of EE and DR (and DER) programs could be different across the system based on location? If so, a new mechanism for cost recovery will be required which accommodates these different values. Potential unintended consequences should also be considered. For example, customers on opposite sides of the same street, but on different circuits, could be paid significantly different incentives for the same actions. Or, if circuits without constraints (and therefore lower avoided costs) happen to be in low-income areas, the cost effectiveness of these programs would be eroded.
- Page 72 and 97: "Inclusion of Non-Energy Benefits in cost effectiveness test" has been considered and reported out to the Commission as part of Duke Energy's EE Collaborative. As that report summarizes, Collaborative members seemed to agree that NEBs do exist; however, there was no definitive source for an appropriate quantification of NEBs when determining program cost effectiveness.
- Page 82: It is important to remember that while PAYS has proven effective on a small scale for cooperative utilities like Roanoke EMC, the scale of an IOU program would

likely be very different and creating an additional charge that adds to customer bills may lead to additional disconnects. A customer participating in an on-bill program may choose increased comfort or function at the same usage instead of the same comfort or function level at lower usage.

- Page 97: With respect to “equity metrics,” to the extent possible, Duke Energy already tracks EE participation to understand the socio-economic segments that are participating in programs. Additionally, Duke Energy has specific programs targeted at multi-family and low-income customers. The company currently tracks and reports participation and impacts at this program level.
- Page 101: Related to the recommendation to “create carve outs,” getting low income customers to participate in "carve out programs" is not always the easiest or most cost-effective way to deliver EE to low-income customers. A great example is a Duke Energy program dedicated to providing low-income customers with energy efficient bulbs. Ultimately, the company found that it cost significantly less and was more effective to reach low-income customers with efficient lighting through a mass market EE lighting program.
- Page 101: “Discuss new program ideas:” This should be a short-term action item. These conversations are ongoing within the existing EE Collaborative. Also, the recommendation should include all utilities.
- Page 104: The proposed apprenticeship program will help build a qualified workforce of trade allies to implement EE. Utilities should be included as a stakeholder.
- Page 112: In Table I-1 under "Create mechanisms to effectively utilize EE..." it should be noted that EE should focus on winter peak shaving since that is driving capacity needs.
- Page 124: Utilities, including but not limited to Duke Energy, should be represented on the proposed Energy Efficiency Advisory Council.
- Page 125: The recommendation to provide Green Button Download My Data consistent functionality is an expectation associated with AMI deployment. Duke Energy believes that this functionality will be available to customers later this year and will provide a significant opportunity to learn about customer interaction with usage data. Duke Energy plans to actively participate in the NCUC's work regarding the potential for utilities to provide automatic flow of usage data to third parties at a customer's request.
- Page 126: Duke Energy does not believe that specific EE targets or requirements are necessary. However, the proposal to maintain the current ceiling for EE inclusion in REPs as a floor for EE used to meet the increased 2021 REPS requirement is likely an approach that Duke could comply with, if the calculation methodology for EE REPS credits does not change. At some point, it is possible this could cause an increase in the overall REPS compliance cost because there is no flexibility to use a lower percentage of EE if renewable alternatives are a less expensive manner to comply.
- Page 127: The recommendation to “enhance education” currently ignores the existing K-12 EE program that already provides some educational curriculum to schools. In addition, utilities should be considered stakeholders alongside those listed in the action recommendation on page 128.
- Page 129: The recommendation for innovative rate design pilots is consistent with current expectations. However, one important consideration around time-differentiated

rate designs is the overlap with existing and potential new demand response programs. Additionally, voluntary time-differentiated rates have the potential to decrease utility revenue but not peak demand if the customers that elect to adopt are “natural winners” who do not need to change their consumption patterns to benefit from lower prices during off-peak hours.

- Page 131: “Update Building Code:” While Duke Energy does not oppose this recommendation, it is important for the final CEP to make readers and policy advisors aware that increasing the energy efficiency requirement in the Energy Conservation Code will reduce the cost effectiveness of EE programs and potentially reduce the total potential for energy savings under utility programs. This due to the fact utility programs only get credit for energy savings above and beyond the building code and efficiency standards.

## Transportation Electrification

Supporting the use of electric transportation is a Duke Energy priority that will benefit communities, customers and the state's future. Transportation contributes over 30 percent of greenhouse gas emissions in North Carolina, and EVs are already cleaner than conventional vehicles with the generation mix that exists today (See: <https://www.ucsusa.org/sites/default/files/attach/2015/11/Cleaner-Cars-from-Cradle-to-Grave-exec-summary.pdf>).

While managed charging will become increasingly important as EV adoption grows, there is little evidence that EV-specific utility rates drive EV adoption. Therefore, the greatest emphasis should be placed on driving adoption with incentives and utility investment in fast charging infrastructure.

As part of a commitment to build a cleaner and smarter North Carolina, Duke Energy is proposing the largest investment in electric vehicle (EV) infrastructure ever in the Southeast – a \$76 million initiative to spur EV adoption across the state. In a filing with the North Carolina Utilities Commission (NCUC), the company outlined a watershed program that will provide incentives to customers. This program will also lead to a statewide network of fast-charging stations to meet growing demand. The three-year program requires NCUC approval.

The proposed initiative before the NCUC has several components:

**Residential EV Charging:** This program will provide a \$1,000 rebate for qualifying Level II charging stations for up to 800 residential customers. Level II charging allows customers to charge their EVs up to six times faster than a standard wall outlet.

**Public Charging:** Duke Energy will install and operate more than 800 public charging stations across North Carolina, including DC Fast Charging, Public Level II and multifamily locations, which will expand the state's network of EV charging stations.

**Fleet EV Charging:** The program will provide a \$2,500 rebate for 900 qualifying charging stations for commercial and industrial customers who operate fleets that are transitioning to electric and plug-in hybrid vehicles. Municipalities and universities also qualify for these rebates.

**EV School Bus Charging Station:** Duke Energy will provide financial support to eligible customers to procure up to 85 electric school buses. Duke Energy will install the associated charging infrastructure.

**EV Transit Bus Charging Station:** Duke Energy will install and operate more than 100 electric transit bus charging stations for eligible transit agencies electing to procure electric buses. Electric transit buses eliminate diesel emissions and reduce fuel and maintenance costs for transit agencies.

The final CEP should explicitly promote programs that drive EV adoption and accelerate the build-out of electric transportation infrastructure. This would complement the Department of Transportation's ZEV plan under Executive Order 80 and build upon the state's strong progress reducing emissions from the electricity sector.



DEQ could also consider other policy recommendations to increase EV adoption and leverage emissions reductions in the electricity sector to further reduce emissions from transportation. For example, DEQ could recommend that the legislature pass electric vehicle targets or incentive mechanisms to promote adoption. These incentives could scale down over 4 to 5 years as electric vehicles more available and cost competitive. Currently, the ten states that have already adopted targets or incentives are dominating the limited availability of electric vehicle options in the United States, and this is likely to continue.

Finally, as electric transportation expands, transmission and distribution investments may be needed to serve charging at scale. DEQ could consider a recommendation for expedited siting, permitting and right of ways, which could help meet this future need.

September 9, 2019

Re: Comments to the Draft Clean Energy Plan

To the State Energy Office of the NC Department of Environmental Quality:

Thank you for the opportunity to comment on the Draft Clean Energy Plan (the “Draft CEP”) released on August 16, 2019. My submission will focus on the plan’s lack of discussion regarding the potential to develop the state’s renewable natural gas resources, despite the great promise of those resources to deliver on many of the plan’s objectives.

I am the Director of Biogas Strategy for Duke University. In this capacity I work to secure supplies of renewable natural gas (RNG) to replace conventional natural gas on which the University depends. This natural gas use comprises 49% of the University’s total energy needs, including the energy needed to run the campus’ natural gas-powered steam plants.

The University’s pursuit of RNG, and the carbon reductions associated with avoiding emissions of biomethane from which RNG is created, stems from an ambitious climate neutrality commitment that requires Duke to zero out its greenhouse gas (GHG) emissions on an annual basis beginning in 2024.<sup>1,2</sup> Central to that mission is achieving reductions from local and in-state sources that yield environmental, societal and economic co-benefits. In both the University’s original and updated Climate Action Plans,<sup>3</sup> Duke prominently features biogas and RNG not only because of the state’s abundant biomethane potential (it ranks third in the nation, in large part owing to North Carolina’s population of 9M+ hogs),<sup>4</sup> but also because it considers steps to mitigate those emissions will bring significant co-benefits to North Carolina’s communities, environment and economy.<sup>5</sup>

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<sup>1</sup> The University’s baseline is currently slightly more than 250,000 MTCO<sub>2</sub>e.

<https://sustainability.duke.edu/sites/default/files/2019capupdate.pdf>.

<sup>2</sup> 2019 Duke University Climate Action Plan Update (April 1, 2019), Figure 1, *available at*

<https://sustainability.duke.edu/sites/default/files/2019capupdate.pdf>.

<sup>3</sup> *Id.*

<sup>4</sup> See National Renewable Energy Laboratory, Energy Analysis: Biogas Potential in the United States, *available at* <https://www.nrel.gov/docs/fy14osti/60178.pdf>. Notably, the prominence of pork production in North Carolina and the potential to generate energy from swine waste resulted in the inclusion of a swine waste-derived electricity carve-out in the NC Renewable Energy and Energy Efficiency Portfolio Standard. Electricity from poultry litter is also included. North Carolina distinguishes itself as the only state in the nation to include an animal waste set-aside in its REPS. Other sources of biomethane include waste broken down in anaerobic environments at dairy farms, landfills, wastewater treatment plants and food processing facilities. It is also possible to create biogas from crop residues and other animal waste, such as poultry litter. See EPC 2018 Biennial Report at 32 (describing the various sources of biogas, such as organics collected at wastewater treatment facilities, from agriculture, and from industrial or manufacturing industries that produce or process organic goods).

<sup>5</sup> The University’s demand for biogas projects has evolved as the technology and policies have evolved for its use. Starting in 2007-08, the University was focused largely on the capture and destruction of biogas produced by swine operations to achieve carbon offsets pursuant to the Climate Action Reserve’s Livestock Methane Protocol. As it became possible from a technical and regulatory perspective to directly rely on RNG to power its campus steam plants, the University has focused more on development of RNG as a direct fuel supply.

From a demand side, the University has a keen interest in obtaining RNG because a considerable portion of its baseline emissions could be reduced by switching from conventional natural gas to RNG.<sup>6</sup> Considering Duke’s significant reliance on natural gas and the state’s potential to produce a renewable replacement, it would be irresponsible for the University to overlook opportunities to incorporate RNG use part of its strategy for meeting its climate neutrality commitment.

Similar to the University’s climate neutrality plan, in Executive Order Number 80 (North Carolina’s Commitment to Address Climate Change and Transitioning to Clean Energy Economy) (“EO80”), Governor Roy Cooper acknowledged the state’s history of leadership and “*challenged North Carolina to extend that leadership to clean energy.*”<sup>7</sup> Per EO80, the North Carolina Department of Environmental Quality (DEQ) was charged with developing “a North Carolina Clean Energy Plan (CEP)” to “encourage the utilization of clean energy resources, including EE, renewable energy (RE) such as solar, wind, and energy storage; other innovative technologies in the public and private sectors; and the integration of these resources to facilitate the development of a modern and resilient electric grid.”<sup>8</sup>

In the Draft CEP, DEQ explains that it has created a plan that adheres to a vision of “[i]ncreas[ing] deployment of both grid scale and distributed energy resources such as solar, energy efficiency, battery storage, wind, electrification, and *other innovative technology solutions*”.<sup>9</sup> It also identifies five principles for enhancing customer access to clean energy, including (1) incentivizing independent power producers; (2) appreciating the benefits of bidirectional energy flow (3) catalyzing innovation, new business development and economic growth *in all parts of the state*; (4) investing in local communities and keeping those investments in local communities; and (5) strengthening resiliency to increasingly frequent and more severe weather events and decarbonizing the electric power sector.<sup>10</sup> However, despite these pledges and parameters, the CEP fails to include biogas, which arguably stands as one of the most obvious resources for meeting the CEP’s various objectives.<sup>11</sup>

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<sup>6</sup> See Figure 7, 2019 Duke University Climate Action Plan Update (April 1, 2019), Figure 1, *available at* <https://sustainability.duke.edu/sites/default/files/2019capupdate.pdf>.

<sup>7</sup> See NCDEQ Draft Clean Energy Plan *available at* <https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/Clean-Energy-Plan--DRAFT-REPORT-08162019.pdf>.

<sup>8</sup> In the development of the Clean Energy Plan, “DEQ is directed to collaborate with businesses, industries, power providers, technology developers, residents, local governments and other interested stakeholders to support the emergence of clean energy technologies, energy efficiency measures and clean transportation solutions.” Arguably, biogas supports two of these goals, including representing a clean energy technology and clean transportation solutions, via the substitution of renewable natural gas in the form of compressed or liquefied natural gas, for fueling vehicles. Comments submitted by Duke University in July 2019 include information regarding biogas’ benefits. The comments are attached as Appendix A and serve as a background document on biogas based on the parameters provided to the work groups earlier in the EO80 stakeholder process, specifically regarding the topic of Customer Access to Renewables and address the following question: *How can we give customers choices with respect to their energy source while maintaining affordability, reliability, and fairness for all customers?*

<sup>9</sup> Draft CEP at 19 (emphasis added).

<sup>10</sup> *Id.* (emphasis added).

<sup>11</sup> The American Jobs Project made the same conclusion, recognizing biogas, and swine waste-derived biogas in particular, as one of two clean energy-related economic growth sectors for NC, the second being the production of battery storage. See American Jobs Project, North Carolina Jobs Project, A Guide to Creating Advanced Energy Jobs (Mar. 2016), *available at* <http://americanjobsproject.us/ajp-state/north-carolina>.

In addition to the incongruity between the Draft CEP’s vision statement, which supports the inclusion of biogas, and the CEP’s exclusion of biogas, other parts of the Draft CEP detail criteria that biogas meets yet those parts fail to acknowledge biogas’ potential. Below are examples from the Draft CEP in which biogas arguably meets the stated criteria but is not mentioned:

- In Section 2.1.4, with respect to energy storage, although the Draft CEP appreciates pairing round-the-clock energy sources, such as batteries, with intermittently available renewables, it neglects to consider that biogas and RNG derived from biogas are also capable of providing round-the-clock power.<sup>12</sup>
- In Section 2.1.5, with respect to microgrids and similar to the example above, the Draft CEP leaves out biogas and RNG as a compatible and complimentary fuel source. Specifically, after explaining how microgrids work and their benefits (e.g., ability to “island off” from the utility grid; provision of grid flexibility and resiliency), and listing the types of technologies used in microgrid applications, the Draft CEP does not mention generators powered by biogas or RNG nor does it reference combined heat and power plants that could be fueled by RNG (as a replacement for fossil-derived natural gas). Microgrids that rely on biogas are not only possible but already exist in North Carolina. One such system, the Butler Farms Microgrid, “integrates a 20 kW of solar, a 100-kW diesel generator, a 185-kW biogas generator, and a 250 kW/735-kWh battery system”.<sup>13</sup> The Butler Farms Microgrid is conspicuously missing from an otherwise comprehensive sampling of microgrid projects.<sup>14</sup>

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<sup>12</sup> See Draft CEP at Section 2.1.4.

<sup>13</sup> See Rubenoff, Sarah, Microgrid Knowledge, “Rural NC Farm Cooperative Microgrid Increases Local Resilience,” May 8, 2018 (emphasis added). The Butler Farms Microgrid is a product of a partnership between Butler Quality Pork and Renewable Energy Farm, South River Electric Membership Corporation and North Carolina’s Electric Cooperatives and the power from the system helps to supplement the South River EMC’s power supplies while also providing back-up power to rural residents in case of power outages. As stated by the Joe Brannan, CEO of North Carolina’s Electric Cooperatives, the Butler Farms Microgrid examples the type of “innovative energy solutions . . . that will not only provide reliable power, but also encourage economic development, promote environmental sustainability and improve quality of life in rural communities.” Moreover, considering DEQ’s efforts to encourage climate mitigation via a Natural and Working Lands Initiative, leaving biogas out, and the agricultural sector that supplies a good portion of it, is nonsensical, particularly when agriculture accounts for a massive opportunity for sequestering carbon emitted through power generation and transportation.

<sup>14</sup> See Draft CEP section J-1 (recommending a requirement that utilities “develop projects focused on DERs, community solutions, and *microgrids at state facilities and critical infrastructure locations (e.g. hospitals, shelters) to enhance resilience*”; explaining that “[a] microgrid is a small electric system that combines *local energy resources* and control technologies to provide power to a defined area” and while “typically deployed at critical infrastructure locations such as hospitals . . . *they can also be deployed for all or part of a community*”; lauding microgrids for allowing “entities to operate as small islands when the larger grid is experiencing a major outage, and thus they represent an excellent opportunity for providing greater resiliency in the face of weather-related disasters” and listing examples including (1) Ocracoke Island’s microgrid, which allows the island to “continue to function” in the face of a severe weather event; (2) a cooperative venture between North Carolina Electric Membership Corporation and Tideland Electric Membership Corporation which includes a 3-MW *diesel* generator; (3) a microgrid using Tesla batteries; and (4) a “recently approved . . . pilot microgrid in Hot Springs, North Carolina, a remote town with a population of about 600 that is served by a feeder with a history of long-duration outages” which allows the community to island during power outages and also provides power at peak times).

- Building off of the point made above, the Draft CEP underscores the need to decarbonize our economy and urges that such actions be accelerated. In fact, in Section 2.3, the Draft CEP cites the 2018 National Climate Assessment’s conclusion that “*the widespread and potentially irreversible impacts of a changing climate require an urgent effort to both reduce emissions and build resilient communities.*”<sup>15</sup> The Draft CEP goes on to chronicle strides that have been made in North Carolina’s electric power sector regarding decarbonization. The Draft CEP also describes renewable energy and energy efficiency standards as well as consideration of a 100% renewable energy goal and notes that “*North Carolinians are asking for more options to procure and deploy clean energy technologies and invest in EE measures.*”<sup>16</sup> The Draft CEP further states that North Carolinian’s appetite for renewables continues to grow and that innovative technologies should be found; however, the Draft CEP does not consider innovative renewable resources like biogas.
- The Draft CEP also makes a point of reporting that “17 of the state’s 30 largest private employers have set targets to procure more RE or reduce their energy consumption, and 37 companies doing business in NC have set a goal to be powered by 100% RE.”<sup>17</sup> Duke University ranks second in the state in terms of the largest private employers<sup>18</sup> and while its commitment may have been part of the 17 companies referenced, the Draft CEP overlooked that one of the largest sources of renewable energy sought by North Carolina’s second largest employer is biogas.

If it is true that an urgent response is needed and more options must be found by which to “procure and deploy clean energy technologies,” then the Draft CEP has made a significant oversight by excluding a source of renewable energy that immediately mitigates GHG emissions (by capturing and converting biogas that would otherwise be released largely in the form of methane into the atmosphere into a source of energy), can be used as a round-the-clock renewable resource, can be used to produce electricity as well as directly replace natural gas, can bolster resiliency in the face of increased power outages (via a renewable resource), and bring

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It is perplexing that an example of a nationally recognized innovative system such as Butler Farms Microgrid is overlooked in the midst of these examples and in light of the Draft CEP’s following statement regarding the value of microgrids:

Microgrids –used for both community-scale applications and critical infrastructure –could have significant benefits in many parts of NorthCarolina. In many cases, these microgrids can utilize renewable resources and battery-based energy storage. As noted above, there are already excellent examples in which both IOUs and cooperatives have been able to benefit from the distributed resources installed as part of a larger microgrid. The state should encourage its IOUs and co-ops to consider additional microgrid projects to improve recovery from storm-related issues.

*Id.*

<sup>15</sup> Draft CEP at 48 (emphasis added).

<sup>16</sup> *Id.* (emphasis added).

<sup>17</sup> *Id.*

<sup>18</sup> See NC Dept. of Commerce, NORTH CAROLINA’S LARGEST PRIVATE EMPLOYERS RANKED IN ORDER ACCORDING TO FIRST QUARTER 2019 EMPLOYMENT SIZE (UPDATED ANNUALLY), *available at* [https://files.nc.gov/nccommerce/documents/LEAD/Top-Employers/Top\\_300\\_Employers\\_Manufacturing\\_and\\_Nonmanufacturing\\_2019\\_Corrected.pdf](https://files.nc.gov/nccommerce/documents/LEAD/Top-Employers/Top_300_Employers_Manufacturing_and_Nonmanufacturing_2019_Corrected.pdf).

economic benefits, particularly to rural areas while also bringing the agricultural sector into the solution instead of keeping agriculture outside of the decarbonization effort.<sup>19</sup>

- Other omissions of biogas exist with respect to the Draft CEP’s discussion of values and the ways that those values would be upheld. Specifically, on page 55, the Draft CEP states that, “of all the values identified by stakeholders in a DEQ-administered survey, [survey takers] *“overwhelmingly selected environmental and carbon reduction as the most important value to uphold, at 20%”*; with the next highest ranked priorities garnering 7% of the votes.<sup>20</sup> The Draft CEP listed four ways those values could be achieved, specifically by creating a plan that: (1) recognizes the combined benefits of the central grid and DERs; (2) invests and retains capital in local communities; (3) creates jobs of the 21st century; and (4) serves as a catalyst for innovation, new business development and continued economic development in the state.<sup>21</sup>

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<sup>19</sup> The Draft CEP mentions the agriculture sector but only in relation to solar generation and energy efficiency opportunities. The opportunity to reduce methane emissions, which would be in keeping with the Draft CEP’s goal of finding ways to decarbonize North Carolina’s economy by reaching one of the largest sectors of North Carolina’s economy, has been entirely overlooked, despite a GHG Inventory that recognizes the agriculture sector’s responsibility for offsetting some 25% of North Carolina’s total GHG budget. See NC Greenhouse Gas Inventory, Executive Summary, available at <https://files.nc.gov/ncdeq/climate-change/ghg-inventory/Executive-Summary-FinalGHGReport.pdf> (reporting that agriculture, forests, and natural lands sequester approximately 25% of the gross state emissions estimated in 2017). Importantly, the GHG inventory recognized biogas utilization – in this case from landfills – as a promising area for renewable energy production and methane reductions, explaining that:

Many large landfills in North Carolina are now collecting CH<sub>4</sub> and using the captured biogas as energy, resulting in 561,000 MWh of Electricity Generation and an additional 149,000 million British thermal units (MMBtu) of heat input in 2017. • There has been a reduction in GHG emissions from this sector since 2005, despite a large growth in population. This is primarily due to the energy recovery from landfill gas.

NCDEQ GHG Inventory Executive Summary at 8. Recognition of the potential of landfill gas is important because landfill gas represents one type among many biogas resources in the state, the most prominent of which being biogas produced from animal waste. Specifically:

Of the tremendous biogas potential for North Carolina, the anaerobic digestion of agricultural wastes, from swine farming manure and poultry farming litter, represents the greatest opportunity. North Carolina is home to approximately 2,300 permitted swine farms, 160 dairy farms, and an estimated 5,700 poultry farms. These farming operations produce a significant volume of food for our planet’s growing population, and as a result, produce a sizeable resource of manure and organic waste. This resource can be converted to biogas and renewable natural gas to fuel North Carolina’s growing energy needs.

2018 NC Energy Policy Council Biennial Report at 32, available at <https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Energy/Energy%20Policy%20Council/2018%20EPC%20Biennial%20Report%20-%20FINAL.pdf> (hereinafter “EPC Biennial Report”).

<sup>20</sup> Draft CEP at 55 (emphasis added).

<sup>21</sup> According to the American Jobs Project, development of a biogas industry in North Carolina could lead to the employment of an average of more than 2,200 people annually over the next 15 years. See About North Carolina, American Jobs Project, available at <http://americanjobsproject.us/pressreleases/advanced-energy-can-grow-north-carolinas-economy-and-create-good-jobs>; the complete report can be obtained at <http://americanjobsproject.us/ajp-state/north-carolina>.

- The Draft CEP also states that “[f]uture energy policy and regulations should strengthen our resiliency to natural threats, quickly decarbonize the electric power sector, and properly incentivize utilities, independent power producers, and consumers to make this vision a reality.” The Draft CEP also articulates three goals that must be achieved in the Clean Energy Plan, which are to (1) “accelerate clean energy innovation, development and deployment to create economic opportunities for both rural and urban areas of the State”;<sup>22</sup> (2) “[f]oster long-term energy affordability for North Carolina’s residents and businesses by modernizing regulatory and planning processes”; and (3) [b]y 2030, reduce electric power sector [GHG] emissions between 60% and 70% below 2005 levels and work towards zero emissions by 2050.”<sup>23</sup>

Regarding all of these goals, support of biogas development is essential. From an economic perspective, development of North Carolina’s biogas resources can provide investment and create jobs, particularly “in often struggling rural and agricultural communities” while providing “access to other new and emerging energy fuel markets, both in-state and as an export.”<sup>24</sup> Regarding affordability – presumably of renewable energy sources – updating regulatory and planning processes now to include biogas will help to accelerate biogas and RNG’s affordability, thus expanding renewable energy options available to consumers. Finally, considering the significant role that natural gas plays in our energy mix, and particularly the migration to natural gas-fired power plants over recent decades, finding a renewably sourced natural gas replacement is imperative to meeting the emission reduction goals for NC’s electricity sector, benefits which can be extended to the transportation sector via use of compressed natural gas for fleet fueling.

In sum, the state, its citizens and our climate cannot afford to overlook any opportunity capable of reducing greenhouse gas emissions, expanding renewable energy opportunities and improving North Carolina’s economy, and making the state more resilient to the increasingly severe effects of climate change. Biogas represents one such opportunity and is more crucial than ever to pursue. I respectfully

<sup>22</sup> Draft CEP at 56.

<sup>23</sup> See Draft CEP, Figure 14.

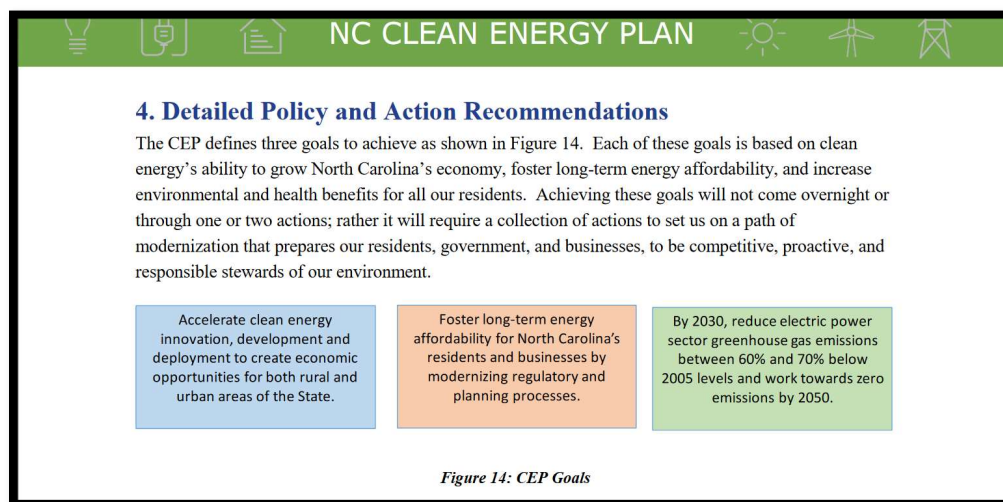


Figure 14: CEP Goals

<sup>24</sup> See EPC Biennial Report at 27 (pointing out that “[h]arvesting waste or underutilized organics from [the agricultural sector] . . . provides a means for North Carolina to take advantage of an existing, State-derived energy resource while leveraging one of its strongest economic engines – agriculture”).

request therefore that DEQ staff reconsider information previously submitted regarding the potential and value of biogas for inclusion in the Draft CEP. Alternatively, should DEQ determine that it requires more information before including biogas in the CEP, I urge the agency to revisit the inclusion of biogas upon the completion of the state biogas analysis in July 2020, which was recommended by the NC EPC in July 2018 and is currently underway under the leadership of the Research Triangle Institute in collaboration with Duke University and East Carolina University.<sup>25</sup> At the very least, I respectfully request that the final CEP acknowledge the anticipated issuance of this analysis, which will identify the state's full biogas resources and the options for their use.

Respectfully submitted,

Tatjana Vujic

Director of Biogas Strategy  
Office of the Executive Vice President  
Duke University

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<sup>25</sup> See EPC Biennial Report, Council Findings and Recommendations at 73 (recommending (1) development of a bioenergy resource inventory and economic impact analysis for North Carolina, establishment of goals for capturing and refining biogas into renewable natural gas for distribution; and establishment of goals for incorporating biogas-derived natural gas into the State's transportation fuels program for public fleets and public transportation; (2) an economic impact analysis including analyses of environmental and community benefits and impacts, for the beneficial and optimum utilization of the State's bioenergy resources; (3) creation of a bioenergy resource inventory for North Carolina; and (4) completion and summarization of the results for the 2020 Biennial EPC report).

The Lieutenant Governor submitted the 2018 Biennial Energy Report pursuant to N.C.G.S. §113B-12, which requires the Energy Policy Council to provide "a general overview of the energy conditions of the State of North Carolina" and transmit that overview "to the Governor, the Speaker of the North Carolina House of Representatives, the President Pro Tempore of the North Carolina Senate, the Environmental Review Commission, the Joint Legislative Commission on Energy Policy, and the Chairman of the Utilities Commission." *Id.* at 3. DEQ staffs the EPC and the Secretary of DEQ or a designee of the Secretary holds a seat on the EPC.



## Appendix A

**Re: Customer access to renewables; customer access to renewable natural gas: *How can we give customers choices with respect to their [natural gas energy] source while maintaining affordability, reliability, and fairness for all customers?***

***Submitted July 20, 2019***

### **What is happening and what is the policy tension?**

First, North Carolina has the potential to produce an incredible amount of biogas (also referred to as biomethane) thanks in large part to leading the nation in pork and poultry production,<sup>26</sup> the waste from which can replace enough natural gas to achieve an estimated 2M MTCO<sub>2e</sub> reductions annually, which is based on an estimated 39.9M MMBtu/year of biomethane produced.<sup>27</sup> What may be more extraordinary about biogas is that it can be used to generate electricity – either on site or by directing its use to highly efficient natural gas-fired combined cycle plants; it can be used as an alternative to fossil-derived natural gas in all of the ways residential, commercial and industrial customers use natural gas and it can be used in the form of compressed natural gas as a transportation fuel or used to create electricity to run electric vehicles.<sup>28</sup> And, as a fuel source that is available around-the-clock, it avoids issues of intermittency that sometimes thwart the proliferation of more traditional renewables. Finally, when biogas is captured and used to produce renewable energy, it not only replaces the use of a conventional fuel, as do other renewables, but it also cancels emissions that would occur from the decomposition of the organic waste from which biogas is produced.<sup>29</sup>

Despite these benefits, biogas remains vastly underutilized in NC. One big reason is that the glut of cheap natural gas – thanks to the fracking boom – keeps the price of natural gas artificially low, making it difficult for renewable natural gas to compete. Use of RNG thus far has occurred in North Carolina thanks to incentives created by the Renewable Energy and Energy Efficiency Portfolio Standard's swine (and to a lesser extent) poultry set-asides, which require North Carolina's electric utilities to generate

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<sup>26</sup> RNG is derived from biomethane produced through the breakdown of organic waste. Major sources of organic waste in North Carolina include swine and poultry waste, dairy waste, waste water treatment plants, landfills and crop residues.

<sup>27</sup> NC ranks second in pork production and in the top five with respect to poultry production.

<sup>28</sup> In addition to using RNG to produce electricity, RNG can be used in every way that conventional natural gas is used: as a renewable transportation fuel in the form of compressed natural gas, to produce steam for heating and cooling systems, to run hot water heaters.

<sup>29</sup> Biomethane is created when organic waste is broken down in anaerobic environments and can be used in a variety of forms to replace fossil-derived fuels, such as renewable natural gas, compressed natural gas and liquefied natural gas. Raw forms of biogas can operate electric generators with very little processing of the gas (i.e., dehumidification and pressurization), providing a source of fuel for natural gas-powered generators, which could prove particularly crucial in rural areas and on farms in the case of power outages associated with extreme weather events.

0.20% of their electricity from swine waste<sup>30</sup> and 900,000 MWh from poultry waste,<sup>31</sup> and payments for carbon offsets from the avoidance of the GHGs that would have been emitted if the waste were left to decompose. The economics of project development are changing somewhat because of federal and state mandates that have created new markets – and justifiable returns for biogas producers –for renewable and low carbon fuels, with some of the highest prices being paid for biogas derived from livestock. However, state policy and practices are not designed nor are they adapting to the biogas opportunity in ways that allow producers to get their gas to these markets, which will ultimately make RNG accessible to North Carolina customers. They could, however and if properly implemented, help RNG achieve economic parity with fossil-derived natural gas, just as efforts to spur solar in NC led to solar's dramatic price reduction and NC's standing as one of the top solar producers in the nation.

Omitting RNG from the renewables discussion while also limiting RNG to electricity production misses significant and uniquely North Carolinian opportunities to achieve its climate goals. Biogas is one of the unique renewables that can displace a fossil fuel while canceling out unmitigated emissions by producing it, run 24-7, be used as a transportation fuel, while serving an additional utility sector (i.e., natural gas). Biogas' contribution to NC's climate goals is also significant considering that natural gas accounts for 27.2 MMTCO<sub>2</sub>e or almost 23% of NC's GHG emissions.<sup>32</sup> Natural gas-fired generation accounts for 30% of the state's electricity.<sup>33,34</sup> Finally, federal and state mandates for renewable transportation fuels is making it possible for producers of biogas to receive lucrative returns on their gas.

The tension therefore is in finding ways to accelerate the capture and use of biogas so that customers can receive a greater percentage of their electricity from RNG, meet a greater percentage of their natural gas needs from RNG, and/or use biogas as an alternative vehicle fuel. Incentives to produce biogas do exist through state and federal mandates plus the REPS and carbon payments, but the hurdles often outweigh those incentives.

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<sup>30</sup> Biogas captured by anaerobically digesting swine waste is purified into RNG, injected into the natural gas pipeline, and nominated by the electric utility to one of its natural gas power plants. Alternatively, biogas can produce electricity on-farm and be interconnected to the power grid. In these ways, RNG serves as a renewable source of electricity.

<sup>31</sup> Because North Carolina is one of the biggest producers of both pork and poultry, the NCGA included set asides for the production of electricity from their waste streams in the 2007 Renewable Energy and Energy Efficiency Portfolio Standard (REPS). North Carolina is the only state to include animal waste in its REPS. A summary of the NC REPS can be found here: <https://programs.dsireusa.org/system/program/detail/2660>.

<sup>32</sup> See Table 2-3: CO<sub>2</sub>Emissions by Fossil Fuel Type for North Carolina and U.S., 2005-2016, North Carolina Greenhouse Gas Inventory (1990 – 2030), North Carolina Department of Environmental Quality Division of Air Quality January 2019, available at <https://files.nc.gov/ncdeq/climate-change/ghg-inventory/GHG-Inventory-Report-FINAL.pdf>.

<sup>33</sup> <https://files.nc.gov/ncdeq/climate-change/ghg-inventory/GHG-Inventory-Report-FINAL.pdf>

<sup>34</sup> Since 2005, emissions from coal combustion have dropped by 55% while emissions from natural gas have almost doubled during this same period. <https://files.nc.gov/ncdeq/climate-change/ghg-inventory/GHG-Inventory-Report-FINAL.pdf>.

To do this the state must take steps to appreciate biogas' significance and help biogas reach customers, primarily by creating regulatory and physical pathways for its collection and distribution to end users. In addition, there must be a way to address concerns related to biogas development that affect ongoing issues related to social and environmental justice, particularly with respect to swine and poultry operations. There is an opportunity for biogas to anchor overall improved waste management, producing a host of environmental, societal and economic co-benefits especially in areas directly surrounding such operations.<sup>35</sup>

**What policy or regulatory action might be required to address the tradeoffs you see? What entity would need to take the action you've identified? This answer also responds to "Are there ways you think NC should consider responding to this tension? What entity would need to take the action you've identified?"**

Currently, federal and state mandates for RNG in the form of transportation fuel are creating extremely lucrative incentives for biomethane, but it is difficult for developers to get this gas to these markets. Moreover, the NC REPS has created a de facto incentive for swine and poultry biogas through the swine and poultry set asides, which requires NC utilities to generate a subpercentage of their renewable portfolio from swine and poultry waste, but compliance with the mandate remains elusive for utilities, while compliance with through other means, particularly solar, has soared, which has resulted in reduced solar prices and greater customer access.

High-level recommendations for increasing biogas' use – and enjoying the GHG benefits of doing so - include:

1. Determine the extent and location of available biogas/biomethane resources in the state across all organic waste resources to determine the percentage of NC's GHG reductions can be met with biomethane.

Note: RTI International is leading an analysis between itself, Duke University and East Carolina University to measure available biomethane and the probabilities, based on technical and economic factors, for its development. The analysis will include determining the climate, environmental, societal, and economic effects of the use of biogas and will recommend policy measures to accelerate biomethane development, and the best uses for the gas (i.e., transportation fuel, RNG/pipeline, on-site energy generation).

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<sup>35</sup> Arguably, biogas development relates to the category of "Equitable access and just transition to clean energy". Regarding the question "*How can we ensure energy affordability and environmental justice while maintaining just and reasonable rates for all customers?*", biogas development, if properly carried out, could spur long sought-after improvements to overall animal waste management. If biogas developers could better access lucrative markets, then proceeds from the sale of gas could be used to help producers pay for additional control technologies and/or practices. In addition, through coordination with programs such as agricultural cost share (e.g., Environmental Quality Incentives Program; State Agricultural Cost Share) while payments for nutrient management could be established specifically so as to be paired with biogas development projects, which would make it possible for equipment and processes to be added to a basic digester project while adding little capital costs, thereby protecting consumers from a higher price for biogas and thus ensuring affordability and reasonable rates while enhancing environmental protections and community concerns.

The analysis was recommended by the NC Energy Policy Council in its 2018 report and has been funded by Duke Energy via the REPS annual provisions for renewable research funding. The analysis is expected to be completed by June 2020.

2. Facilitate RNG transport to end users and buyers to accelerate development / accelerate GHG reductions from in-state biomethane sources.

The primary way to achieve #2 is through cooperation from local distribution companies (LDCs) and the NC Utilities Commission, which have been hesitant to give RNG access to pipelines because of concerns that RNG doesn't meet the same standards as conventional natural gas. (Analysis conducted by Duke University and presented to the NCUC of biogas currently being produced by an in-state swine waste anaerobic digester showed that the biomethane was equal or superior in quality as to all constituents while concerns related to thermal value can be easily remedied with cooperation from the LDC). They are also concerned that accepting RNG that will ultimately move to buyers outside the state will subject them to FERC jurisdiction, even though such arrangements can be permitted without opening the LDCs up to federal oversight). Bias regarding RNG's quality plus unfounded concerns regarding risk of FERC's oversight encroaching into state activities of LDCs has impeded the rate at which projects can be developed because developers have a great deal of difficulty securing a place to inject RNG so that their gas can be delivered to buyers. This is occurring despite the existence of technology, financing and resources to carry out projects and despite NC being sought after for biomethane, particularly biomethane derived from agricultural sources.

3. Create technical support services for biomethane development, particularly for suppliers who own the waste but are not engaged in biomethane production for their primary income.

Currently there is no centralized entity that can answer questions or provide guidance and expertise to those interested in pursuing biomethane development. At the very least, there should be staff dedicated to biomethane development within an appropriate existing executive agency and ways to collaborate with the NC Department of Agriculture and municipal leaders should be prioritized.

At best, a stakeholder group or commission empowered to oversee biogas development and related issues, such as access to pipelines, RNG standards and testing, social equity and environmental justice issues particularly related to animal waste management (which affects acceleration of biogas production), additional waste management measures to reduce nutrients and pollutants such as ammonia associated with waste generated particularly from large feeding operations (which are significant drivers of the state's economy, particularly in rural areas), and addressing regulatory, legal and economic barriers while setting reasonable standards for development and maintenance and operation.

Such an entity would need to be comprised of experts in biomethane development and related issues and be dedicated to creating a strategy for biogas development and strategy implementation, at the collective and individual project levels. All of these steps combined would work to ease project development, reduce costs, and ultimately increase access to RNG for end users. More than anything, a cohesive strategy - and a way to efficiently and effectively oversee its implementation - must be put into place.

**How are people in other places responding to this tension? What are the most innovative and promising solutions? Do they seem feasible in NC?**

Biogas producers need outlets for their gas that pay them enough to make projects economically viable and they need ways to easily move the gas to those outlets. Mandates that create a price signal for RNG, such as the EPA-managed renewable fuel standard and California's Low Carbon Fuel Standard, entice project development (create the outlet or market) while cooperative regulatory structures and company policies that facilitate rather than make RNG injection harder versus conventional natural gas injection and transport must be put in place, which occurs by changing regulators' attitudes toward RNG and requiring companies to accept and transport the gas, which may require legislation or something akin to a renewable gas standard or renewable fuel standard. At bottom, RNG must be considered at least equal to natural gas and preferably superior to conventional natural gas and distribution companies must be helped to understand how they can accept RNG while improving their service to customers. Now, it appears that RNG is considered to be a detriment, therefore barriers and hurdles are raised.



Friday, September 6, 2019

**DRAFT**

Hon. Roy Cooper, Governor, North Carolina

Jeremy Tarr, Policy Advisor, Office of Governor Roy Cooper

Hon. John Regan, Secretary, North Carolina Department of Environmental Quality

Sushma Masemore, State Energy Director, North Carolina Department of Environmental Quality

Governor Cooper and Secretary Regan:

On behalf of E4 Carolinas Board of Directors we submit the enclosed comments on the draft North Carolina Clean Energy Plan.

As the leading energy association in the Carolina’s region which embraces an “all of the above” approach for addressing the clean energy needs of North and South Carolina, we applaud the efforts you and your staff are making to assure that our state remains a leader in addressing global climate change.

As you may know, in 2016, E4 Carolinas convened a group of North Carolina’s stakeholders to review and address our State’s clean energy needs. The North Carolina Clean Energy Plan (draft) that you have published aligns well with the 2016 recommendations of the [“Shared Perspectives of the North Carolina Electric Utility of the Future Steering Team”](#) which resulted from a two year E4 Carolinas’ effort. We’ve attached a copy of the publication to be added to the Clean Energy Plan public engagement archive.

We believe the Clean Energy Plan is well written and researched, including the supporting documentation. The Strategy Areas and Actions are in our opinion balanced, actionable and designed to move North Carolina forward as a clean energy leader.

However, we have identified an imbalance in the plan which we know will lead to a division of interest and mixed support for the plan by North Carolina’s energy industry. We encourage you to first study the facts in the table below derived entirely from the Draft North Carolina Clean Energy Plan report Figure 1 (appearing alongside the first paragraph of the introduction) and additional research pertaining to the document’s content and to further study the Plan after considering our comments.

<b>North Carolina’s Electricity Statistics by Resources Type</b>				
<b>Electricity Production by Fuel Type</b>	<b>2017 Electricity Generation % of Total</b>	<b>2017 Summer Generating Capacity % of Total</b>	<b>Contribution to Clean Power Generation % of Total</b>	<b>Number of Mentions in Plan Report N (%)</b>
Nuclear	33	16	75	3 (1)
Natural Gas	30	33		15 (5)
Coal	27	32		44 (15)
Hydro	4	6	9	4 (1)
Solar	4	10	9	167 (57)
Biomass	2	1	4.5	3 (1)
Wind	1	1	2.5	63 (21)
	~100	~100	~100	299 (100)



Nuclear energy, for example, produces 75 percent of North Carolina’s carbon-free power, but is mentioned once in the first paragraph of the introduction and never again in the document’s 137 pages. Natural gas, portrayed as an importance fuel source and a necessity in reducing power production from coal, is mentioned only one third as much as coal. And, there is no mention of Renewable Natural Gas, which holds significant potential in rural North Carolina’s swine, dairy and poultry production belt. Hydro, producing as much clean power as solar, receives treatment similar to nuclear, being mentioned 1/50<sup>th</sup> as much as solar. We also encouraged an examination of the document’s imagery for balance, as images are much more powerful influencers of thought than statistics.

Please do not take our remarks as dismissing or rejecting the importance of solar and wind in achieving needed reductions in the amount of greenhouse gas emissions in North Carolina. E4 Carolinas includes members who are involved in wind and solar production, and we fully believe these technologies to be a vital part of the North Carolina clean energy portfolio. However, we strongly believe that in order to make meaningful and lasting reductions in greenhouse gas emissions, a balanced portfolio that recognizes the significant impact of other generation sources such as nuclear and hydro should be reflected in the report given the critical role they represent in making North Carolina a leader in clean energy production.

Attention to such detail matters when producing a definitive document by which to unite North Carolina in pursuit of clean energy leadership. There exist infinite technical, financial, policy, community and environmental aspects which could be presented and argued for and against each of North Carolina’s clean power resources. We believe the Clean Energy Plan proposes a fair process for considering these and then investing appropriately in our clean energy resources. However, we believe for North Carolina’s energy industry to unite in the process and support the goals of this plan, its foundation must be balanced. The ingredients exist for the plan to be balanced and **most importantly** to be a plan with which our State’s leaders may unite the State’s energy industry to truly be a national clean energy leader. Clean energy leadership will not be attained, unless we all strive for that together.

We encourage modification of the Plan to provide the balance necessary to engage all stakeholders in the pursuit of clean energy leadership.

Best regards,

A handwritten signature in blue ink, appearing to read "J. Merrifield".

Jeffrey S. Merrifield  
Chairman

A handwritten signature in blue ink, appearing to read "David A. Doctor".

David A. Doctor  
President



September 9, 2019

Mr. Michael S. Regan  
Secretary  
North Carolina Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

Dear Mr. Regan:

The Edison Electric Institute (EEI) appreciates the Department of Environmental Quality prioritizing electric transportation to accelerate the state's clean energy goals, as outlined in the Draft Clean Energy Plan (CEP). EEI respectfully submits this letter to support a more active role for electric companies to advance electric transportation, beyond what the CEP recommends. EEI monitors the electric vehicle (EV) market across the country and appreciates the opportunity to provide a national perspective on the importance of the electric company role in supporting the growth of the EV industry and meeting customer needs.

EEI is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for 220 million Americans, and they operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States. EEI's member companies deliver the reliable, affordable, secure, and clean energy that powers the economy and enhances the lives of all Americans.

Electric companies are well-positioned to make targeted and strategic investments in EV charging infrastructure that benefit the broader community and accelerate EV adoption. The lack of EV charging infrastructure is one of the primary barriers to widespread EV adoption.<sup>1</sup> EEI and the Institute for Electric Innovation (IEI) released a report forecasting 18.7 million electric vehicles on the road by 2030 and estimated that 9.6 million charging ports would be needed to support that many vehicles.<sup>2</sup>

Electric companies can expand customer access to EVs, integrate EVs into the energy grid in an efficient and cost-effective manner, and accelerate the transition to widespread EV adoption—all in a way that is beneficial to all customers.

- Customer value: Electric companies are well-suited to expand electrification across multiple transportation modes and to expand access to EVs for the benefit of customers and communities. Electric companies can help provide a foundational system of charging infrastructure that supports the needs of customers, while also supporting a reliable, consistent, and positive customer experience.

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<sup>1</sup> See for example: National Renewable Energy Laboratory, *Consumer Convenience and the Availability of Retail Stations as a Market Barrier for Alternative Fuel Vehicles*, <https://www.afdc.energy.gov/uploads/publication/56898.pdf>.

<sup>2</sup> Edison Electric Institute and the Institute for Electric Innovation, *Plug-in Electric Vehicle Sales Forecast Through 2025 and the Charging Infrastructure Required Through 2030*, November 2018, available at [http://www.edisonfoundation.net/iei/publications/Documents/IEI\\_EEI%20EV%20Forecast%20Report\\_Nov2018.pdf](http://www.edisonfoundation.net/iei/publications/Documents/IEI_EEI%20EV%20Forecast%20Report_Nov2018.pdf).



- Grid integration: Electric companies are responsible for integrating electric transportation in a manner that benefits the energy grid and the customers who rely upon it. Electric companies are well-suited to help manage the transition to electric transportation in an efficient and cost-effective manner.
- Accelerating the transition: Electric companies can help accelerate the transition to electric transportation and the resulting benefits for customers and society. Electric companies have existing relationships with customers and also can deploy capital to spur the growth of charging infrastructure that is critical to enabling widespread transportation electrification.

As of May 2019, 43 electric companies had invested more than \$1.2 billion in electric vehicle programs in 23 states plus DC.<sup>3</sup> The structure of these programs varies by state and electric company, but typically includes at least one of the following elements: investments in, or ownership of, charging infrastructure; rebates and incentives to customers for EV charging infrastructure; and customer education and outreach. Electric company investment is appropriate because:

- It enables more choices for customers;
- It lowers the barrier to entry for customers by reducing the cost of an EV charger;
- Electric companies can support EV charging in their service territories in a way that all customers benefit, which may include providing access in disadvantaged and low-income communities where private investments may be lacking;
- A wide range of customers, such as homeowners and commercial property owners, and industry stakeholders, such as automakers and charging service providers, increasingly are asking electric companies for affordable, reliable, and easy-to-use charging infrastructure options;
- Electric companies can locate charging infrastructure in a way that is cost-effective for the energy grid and geographically useful for the charging needs of EV customers. This system-level planning can help fill gaps that the private market may not;
- The additional electricity uses from EV charging—if added to the system strategically—can reduce the average cost of service to all customers;
- Electric companies can maximize value for customers by making investments that are targeted and phased to meet the needs of the local market.

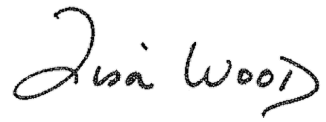
As states like North Carolina develop policies to support the deployment of EVs and grow the market for all participants, electric companies should be permitted, and encouraged, to participate in this space. They are well-positioned to play a critical role through targeted and strategic investments in EV charging infrastructure that benefit the broader community. Additionally, these investments can complement and accelerate other efforts underway to grow the EV market by third-parties and state governments.

A healthy electric transportation market will help to spur new entrants into the market that may offer innovative new products and business models. For the reasons mentioned above, North Carolina should not pass on the opportunity to allow electric company investments in EV charging programs.

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<sup>3</sup> Edison Electric Institute, *Electric Transportation Biannual State Regulatory Update*, [https://www.eei.org/issuesandpolicy/electrictransportation/Documents/FINAL\\_ET%20Biannual%20State%20Regulatory%20Update\\_May%202019.pdf](https://www.eei.org/issuesandpolicy/electrictransportation/Documents/FINAL_ET%20Biannual%20State%20Regulatory%20Update_May%202019.pdf).

Respectfully submitted,

A handwritten signature in black ink that reads "Lisa Wood". The signature is written in a cursive style with a large initial "L" and a decorative flourish at the end.

Lisa Wood  
Vice President, Customer Solutions  
Edison Electric Institute  
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**Comments by ElectriCities of North Carolina on  
The draft NC Clean Energy Plan  
Sept. 9, 2019**

The draft Clean Energy Plan (CEP), developed by the N.C. Department of Environmental Quality (DEQ) pursuant to Gov. Roy Cooper’s Executive Order 80 (Oct. 29, 2018), is an important document in the ongoing national and statewide conversation regarding our energy future. As such, ElectriCities of North Carolina appreciates the opportunity to comment on the draft plan.

ElectriCities member utilities serve more than 1.2 million people in North Carolina public power communities (see map below), including 32 members of the N.C. Eastern Municipal Power Agency (NCEMPA) and 19 members of N.C. Municipal Power Agency 1 (NCMPA1). The utilities we represent range in size from Bostic (population 316), to Fayetteville, Greenville, and High Point.

**Comments**

There is no doubt that the energy sector in the United States is undergoing profound change, and that a significant amount of disruption will continue in the sector for many years. The efforts of the Cooper administration to explore, quantify, and lead that change through an open process is commendable and will benefit current and future North Carolinians and the environment.

That being said, the draft plan does omit some important considerations. First, noticeably absent from the CEP is acknowledgement of nuclear energy as a reliable, safe,

carbon-free backbone of power supply in North Carolina. Nuclear energy is truly an enabling factor to allow for many of the policies proposed in the CEP pointed at carbon reduction, DERs, grid resilience, and electrification, among others. The CEP should, at a minimum, identify existing nuclear plants as valuable assets and key underlying factors of the plan. It should also leave the door open to the possibility of incorporating emerging technologies in nuclear power, such as small modular nuclear reactors, into power supply plans, allowing North Carolina to be both cost-competitive and environmentally competitive going forward.

As we look to the future, we must also keep in mind that not all electric customers and not all electric utilities are starting from the same place, nor do they have access to the same resources. While the CEP provides ample discussion of the effect that transforming North Carolina's energy sector will have on differently situated customers, it misses opportunities to distinguish between utilities in North Carolina. A plan that does not account for the differences in scale, access to emerging technical expertise, access to capital, and the many other factors that separate a 1,000-customer municipal utility in a Tier 1 county from a large, investor-owned utility will inevitably produce unintended consequences.

Similarly, the plan should explicitly acknowledge the need to balance the economic and other disruptions that will be necessary to achieve the plan's stated statewide emissions-reductions goals. We do not want to get to the point where, for instance, Halifax County leaders are precluded from recruiting a job-creating manufacturing facility because Charlotte's energy-efficiency goals have not been met. Likewise, a statewide implementation plan will need to account for cross-sector emissions trade-offs as mandates, new technologies, and price signals cause changes in consumer preferences and behavior. Taking into account the electrification of the transportation sector is one example of this concern, but it is also important to realize that we may not yet know

where sector trade-offs may occur in the future – so flexibility and opportunities for recalibration and redesign are important.

Next, the CEP also largely misses opportunities to acknowledge differences in governance structure and accountability among utilities. Several recommendations assume that all utilities plan and are held accountable in the same ways. This oversight is more than merely academic; its absence threatens to obscure the fundamental difference that makes public power communities unique: the direct accountability to customers and citizens. After all, it was this lack of accountability in a monopolistic enterprise that necessitated safeguards such as the NCUC and the Public Staff – but only for utilities where accountability would be lacking.

Public Power communities are justly proud of their electric utilities. To be sure, their pride is based on a history of providing reliable, affordable power under an arrangement that means that the community profits by providing this essential service. But they are also sources of pride because they reflect the values, hopes, and strengths of their community. As ElectriCities Members lead and confront the changing energy landscape, state-level plans must acknowledge and understand the unique benefits and limitations of municipal power in our state and refrain from one-size-fits-all solutions.

The community members in Public Power communities are no less interested in the coming technological changes to the energy sector than others in North Carolina, and they likewise share the environmental and other concerns that led to the draft CEP. Allowing them to lead change through locally responsive leadership that understands their challenges and aspirations will promote understanding and acceptance, at the very least. Locally led change also can foster the community buy-in and citizen leadership that the coming important and disruptive changes require and even assume.

Decades ago, city leaders in these communities responded to the will of the community to harness the novel power of electricity for the benefit of all citizens. We should let this spirit of innovation and community pride lead them to the energy future of tomorrow.

**Conclusion**

The overall vision of the Clean Energy Plan, as well as the inclusive process laid out to design it, provides an optimistic starting point for productive discussion. ElectriCities and the member utilities we represent stand ready to work toward achieving ambitious goals for the benefit of our communities, our state, and our common environment.

Respectfully submitted,

Michelle C. Vaught  
Vice President, Corporate Communications  
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J. Drew Elliot  
Sr. Government Affairs Liaison  
919-760-6322

ElectriCities of North Carolina, Inc.  
1427 Meadow Wood Blvd.  
Raleigh, NC 27604



September 9, 2019

The Honorable Roy Cooper  
North Carolina Office of the Governor  
20301 Mail Service Center  
Raleigh, NC 27699-0301



Ms. Sushma Masemore  
Deputy Assistant Secretary for Environment & State Energy Director  
N.C. Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

CC: North Carolina Utilities Commission  
Chairwoman Charlotte Mitchell and Commissioners ToNola D. Brown-Bland, Lyons  
Gray, and Daniel G. Clodfelter  
430 North Salisbury Street  
Dobbs Building, 5th Floor  
Raleigh, NC 27603-5918

**Re: 2019 North Carolina Clean Energy Plan Draft Report –  
Comments Submitted by the Energy Justice North Carolina Coalition**

Dear Governor Cooper and Ms. Masemore,

In the tragic wake of Hurricane Dorian, it is indisputable that we are in a climate emergency and need the type of holistic, urgent, and just energy revolution necessary to adequately address this existential crisis. On behalf of our over 80,000 members and supporters in North Carolina, we, the Energy Justice NC Coalition thank the Cooper administration for commencing the process of establishing a North Carolina Clean Energy Plan consistent with the Governor's landmark Executive Order 80. The Energy Justice NC Coalition consists of the undersigned local, state, and national environmental justice, social justice, faith, environmental, and conservation groups.

We welcome the Governor's goal to reduce greenhouse gas emissions by 60-70% below 2005 levels in the electricity sector by 2030, which is in line with the urgent call from the United Nations Intergovernmental Panel on Climate Change that the world must slash global emissions at unprecedented rates in the next decade to avoid climate catastrophe. However, as the Cooper administration shapes the specific policies to finalize the Plan, we urge the Governor to rapidly adopt policies that can practically achieve these targets and directly address the environmental injustices that plague the state's electricity sector. In particular, we strongly encourage the Governor to advocate for and take a lead on executive policy to end Duke Energy's monopoly over North Carolina's energy system.



and to transform the state's fossil-fuel-dominated electricity system to 100% renewable energy as soon as practicable in order to fight the climate crisis and ensure economic and environmental justice for all North Carolinians.

Following a litany of horrific hurricanes and forest fires where lives were lost, recurring coal ash spills, rampant air and water pollution, and millions of dollars of damage to public and private property, there is no question that North Carolinians are in the eye of the storm of the climate emergency. North Carolinians, and particularly indigenous peoples, communities of color and low-income communities, disproportionately suffer from the fossil fuel pollution that Duke Energy perpetuates. These same communities also bear the highest energy burdens in the state, with the most impoverished households spending an average of 17 percent of their gross income on home energy costs in 2016. Therefore, North Carolinians are urgently calling on Governor Cooper—for the remainder of the Governor's term and over the course of the election cycle—to be a true climate and equity leader in this era of runaway climate change. The hallmark of climate leadership in North Carolina is to keep fossil fuels in the ground and stop the influence of Duke Energy and other fossil fuel companies over the state's energy portfolio by ending the monopoly system. We are looking to Governor Cooper to prioritize the health of our families, climate, and democracy over Duke Energy and fossil fuel industry profits.

Below, we discuss key improvements to the Plan that are necessary to ensure that the final Clean Energy Plan meets the Governor's clean energy goals and achieves economic and environmental justice for all North Carolinians. Now more than ever, we are in a moment that requires swift and bold action.

### **1. End the Duke Energy Monopoly and Permit Energy Choice for all North Carolinians**

We are pleased that the draft Plan recognizes the need for comprehensive reform of utility incentives and utility system planning to drive the clean energy transition. The investigatory process laid out in Recommendation A-1 should begin immediately, and any legislation or regulatory action that might conflict with the decisions made by that process should be postponed until the process is complete.

The reform process should result in systemic change of the entire electric power sector. In particular, the regulatory compact between the state government and electricity monopolies like Duke Energy is based on the fundamental premise that utilities are required to act in the public interest. North Carolina adopted the current Public Utilities Act governing the regulation of public utilities in 1963, 55 years ago, when the effects of a fossil-fuel-based energy economy were unknown. Today, however, those consequences are crystal clear: global climate change, rising sea levels, ocean acidification, ecological disruptions, social collapse and mass species extinctions, the existential threat that the human species may be unable to survive the consequent changes in a rapidly heating and cooling world, and rampant air and water pollution that have led to increased public health risks and long-term illnesses, particularly affecting our state's low-income communities and communities of color.

In light of the incomparable harms of relying on fossil fuels to power North Carolina's electricity, Duke Energy continues to burn dirty energy (including fracked gas and coal), build new dirty energy plants, and hinder the widespread adoption of clean energy—all actions which work against the public interest. We know that the investor-owned electric monopolies that are regulated under the Public Utilities Act show no voluntary interest in reducing carbon dioxide and natural gas emissions at the rate required by a global consensus of scientists, as the utility monopolies continue to propose Integrated Resource Plans that are inadequate for a 21<sup>st</sup> century energy economy. Therefore, it is incumbent on the Governor to drive change in our energy system and end the monopoly of Duke Energy and other fossil fuel industry players.

## **2. End all Fossil Fuel Extraction and Rapidly Phase Out Existing Extraction**

To avoid the most catastrophic climate change damages, total greenhouse emissions must stay within the "pollution budget" for limiting warming to no more than 1.5°C. Fossil fuel extraction is the single greatest contributor to the climate emergency and must be limited to stay within this budget. There is enough oil, gas, and coal in already developed fields and mines globally—that is, places where the infrastructure is built and the capitol is sunk—to far exceed the pollution budget for 1.5°C if these reserves were all produced and burned. This means that meeting global climate goals will require North Carolina to put an immediate halt to the approval of new fossil fuel projects and phase-out existing oil, gas and coal burning power plants.

Simply put, the Governor must act to keep fossil fuels in the ground and harness the power of his executive authority to make this a reality. The Governor has the executive authority through his agencies to deny all state permits and challenge federal permits required for all new fossil fuel infrastructure in North Carolina, which includes both state projects and federal projects like the proposed Atlantic Coast Pipeline, the Mountain Valley Pipeline and the 12 Gigawatts of fracked gas power plants that Duke Energy plans to build over the next 15 years. The Governor also has the ability to ban fracking across the state. No clean energy revolution can be possible or address the climate crisis without halting all new fossil fuel extraction and phasing out existing extraction.

### ***Harms of dirty gas***

The goals set in the draft Plan can only be achieved if a moratorium is placed on new fossil fuel gas infrastructure. Since the Plan was not able to model methane emissions from fossil fuel gas operations, it does not account for that super-potent pollutant. Methane has 86 times the effect of CO<sub>2</sub> over a 20-year period, and is both leaking and being vented in large quantities from oil and gas operations.

The final Plan should include halting major pipeline efforts in North Carolina. In particular, the Atlantic Coast Pipeline brings gas from the fracking fields of Pennsylvania and West Virginia in order to supply a fleet of new gas-burning power plants that the corporation intends to build in North Carolina. The Mountain Valley Pipeline is also a fracked gas pipeline bringing gas from West Virginia to southern Virginia and cuts through

North Carolina. Research shows that the U.S. fracking boom is the primary cause of recent increases in atmospheric methane.

The fact that not all of these methane emissions occur in North Carolina is irrelevant. If this gas expansion is allowed to continue, North Carolina will be supporting the market that causes those emissions to occur elsewhere, and the resulting climate impacts will be felt across the state in the form of worsening droughts, flooding and wildfires. This is a global problem that is not served by emissions reduction plans that refuse to look beyond state borders. This continued gas expansion would also be an economic disaster, since those plants will be stranded assets well before 2030 as the costs of solar, wind and storage continue to drop.

If Duke's gas plans are implemented, any CO2 reductions achieved under the Plan would be nullified. Some of the recommendations in the draft Plan might have the effect of precluding gas expansion. But an explicit call for a moratorium on new gas would ensure that we avoid these risky developments as well as create market certainty for clean energy developers seeking to operate in the State.

### ***Harms of wood pellets***

Similarly, the climate impacts of North Carolina wood pellet operations are not accounted for in the draft Plan. While it is true that the wood pellets produced here are not part of the North Carolina energy mix, the State continues to issue permits to additional facilities that are clear-cutting NC forests to produce pellets for export to Europe. The burning of wood pellets for fuel is a misguided attempt to reduce carbon emissions. In fact, it worsens emissions in the following ways:

- carbon is emitted when the pellets are burned for fuel in Europe;
- carbon is emitted during logging and processing of the trees and shipping of the pellets; and
- the forests, if left intact, would be a significant carbon sink, absorbing CO2 and thus helping to slow the climate crisis.

### ***Harms of biogas***

The final Clean Energy Plan must address the air and water pollution harms of using biogas. The most widely-used biogas technology relies on primitive lagoon and sprayfield waste management systems at industrial hog operations, which store hog feces and urine in often-unlined pits and spray the liquid waste on to nearby cropland. This system pollutes streams, waterways and terrestrial ecosystems, harms public health of communities living nearby and downstream, and creates noxious odors. These harms are disproportionately felt by Native American, Latinx, and African American communities.

### **3. Ensure a Just Transition Led by Impacted Communities and Workers and that Upholds Indigenous Rights**

In effectuating this energy transformation, it is critical to prioritize support for communities that have historically been harmed first and worst by the dirty energy economy and for workers in the energy sector and related industries. The draft Plan includes just transition initiatives, and it can be further strengthened and made more robust. We encourage the Governor to flesh out a comprehensive economic plan to drive job growth and invest in a new green economy that is designed, built and governed by communities and workers. Building new energy, waste, transportation and housing infrastructure, designed to serve climate resilience and human needs; retrofitting millions of buildings to conserve energy and other resources; and actively restoring natural ecosystems to protect communities from climate change are but a few ways to build a sustainable, low carbon economy in which no one is left behind during this change.

Additionally, the draft Plan does not address indigenous peoples' rights. The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) must be upheld and implemented, along with treaties, instruments and decisions of international law that recognizes that Indigenous Peoples have the right to give or withhold "free, prior and informed consent" to legislation and development of their lands, territories and/or natural resources, cultural properties and heritage, and other interests, and to receive remedies of losses and damages of property taken without consent.

### **4. Build a 100% Clean Electricity System that Benefits All North Carolinians**

The draft Plan outlines a goal to "increase the existing Renewable Energy and Energy Efficiency Portfolio Standard (REPS) or create a new policy with zero-emitting resource targets. . ." RPS goals, like the State's REPS policy, are pivotal to states' success at ramping up clean energy generation, but they need to be binding, ambitious, and well-designed. North Carolina's current REPS policy is outdated, ineffective and facing expiration. The State must update its REPS policy or create an equivalent statewide mandate that lays out the path for 100% clean, renewable electricity generation by 2030. This policy must exclude dirty sources, including all fossil fuels and biomass, and have provisions to advance democratic energy sources, specifically community and rooftop solar.

In addition to Renewable Portfolio Standards, the State must invest in clean energy policies that support democratic clean energy development, including but not limited to: incentives for wind, solar, and storage investments; community solar and virtual net metering; time-of-use rates; and a green energy bank or statewide energy fund. The State must consider the environmental and social benefits of clean energy sources—particularly distributed clean energy sources—in prioritizing siting and determining compensation mechanisms.

Finally, the State must remove barriers to individuals and businesses investing in clean energy by blocking discriminatory fixed fees and allowing for solar third-party power

purchase agreements. This latter mechanism was strongly advanced by stakeholders in the facilitated workshops and should therefore be included as a recommendation in the Plan.

None of these policies can exist in a vacuum. The State must invest time and money into smart, long-term planning to ensure that these policies, new business models, and grid infrastructure are developed to protect the most vulnerable individuals and communities. As fossil fuel operations decline, the State can facilitate job training and create jobs for former fossil fuel workers to help build a clean energy system. Those who have been hit worst by the climate crisis and fossil fuel industry pollution need to be included in planning and decision-making around building a fossil fuel-free future, and they must have priority in building both skills and tangible wealth in the transition. As the State invests in new energy infrastructure, it must ensure that low- and moderate-income folks do not face a further disproportionate energy burden.

**5. Address the Inequitable Access to Clean Energy for Rural Residents, and the Harmful Policies and Practices Employed by Rural Electric Cooperatives and Municipal Electric Utilities**

The draft Plan does include some recommendations pertaining to policies and programs that electric cooperatives (co-ops) and municipal electric utilities (munis) can implement to expand access to energy efficiency and renewable energy for their members/ratepayers (and rightly includes co-ops and munis in the Energy Efficiency Resource Standard recommendation) However, it falls far short of achieving its purported equity goals in this regard. Specifically, the draft Plan does not address: the effective deregulation of co-op and muni governance, rates and investments by the state; the allowance in the state REPS for co-ops and munis to outsource the attainment of Renewable Energy Credits in order to meet their REPS' requirement; or the exemption of co-ops (and munis) from HB 589 (2017) and associated solar energy policies and program requirements. The deregulation of co-ops in particular has led to extremely high monthly fixed charges, punitive and/or ineffective net metering/net billing policies and rates, miniscule energy efficiency and renewable energy investments, and the persistence of high energy cost burdens for rural households.

The draft Plan does little to address these problems and barriers. As such, we recommend the following be added to the final Clean Energy Plan:

(1) propose/advance legislation similar to Colorado's 2010 Act "Concerning Increased Transparency in the Governance of Cooperative Electric Associations," which, among other things, required meetings of Boards of Directors to be open to member attendance, the timely posting of meeting agendas prior to each meeting as well as the meeting minutes following each board meeting, and the establishment and publication of clear nomination and election policies and procedures;

(2) enact an executive policy, and/or advance/propose legislation providing co-op and muni members/ratepayers a direct pathway for the review and resolution of

grievances related to governance, rates, investments, policies, etc proposed or implemented by their utility;

(3) place co-ops and muni rates, rate structures (including net metering/net billing rates) and investments under the purview of the North Carolina Utilities Commission; and

(4) develop a statewide network of co-ops, munis, and local weatherization, housing and economic development agencies to combine resources and enhance outreach and uptake for energy efficiency programming benefitting low-income reside, etc. include requirements for co-ops and munis to meet the obligations in an equal manner as for investor-owned utilities.

## **6. Electrify the Transportation Sector**

Though the Plan touches upon this issue, the final Plan must be strengthened by adopting an ambitious pathway to tackle the state's second leading source of GHG emissions: transportation. GHG pollutants from transportation make up more than 32% of the state's total emissions. In particular, highway mobile sources—which include light duty vehicles like passenger cars and trucks, as well as heavy-duty vehicles like buses and commercial trucks—account for 90% of transportation emissions. At the same time, fossil fuel vehicles threaten the public health and safety of North Carolinians, costing billions of dollars in health costs each year nationwide. Thus, in order for the Clean Energy Plan to meet the goal of zero emissions by mid-century, the Plan must not only green the electricity grid but also, in tandem, electrify ground transportation and reduce vehicle miles traveled in order to achieve meaningful GHG emission reductions by 2030 as well as combat egregious air pollution problems. The Plan completely fails to name a target date and relies solely on market mechanisms. We urge the Governor to set the ambitious target date of 2030 to ban all fossil fuel car sales in order to adequately meet the challenge of the climate crisis.

## **7. Ensure that the North Carolina Utilities Commission is Acting in the Public Interest and against the Climate Crisis**

In establishing systemic change in the utilities sector, it is clear that the transition period will still require a strong North Carolina Utilities Commission (“NCUC”) that acts in the public interest. Governor Cooper can utilize his legal authority to appoint commissioners to the NCUC, which is required to provide fair regulation within the public's interest, promote least cost energy planning, provide just and reasonable rates, and promote conservation of energy and the development of renewable energy and energy efficiency. To date, however, the NCUC has failed its duty to make decisions in line with these mandates to tackle climate chaos and long-term climate mitigation costs that will impact North Carolinian consumers. Specifically, the NCUC has failed to consider the risks to the environment and to the people of this state that are associated with continuing to build out an energy infrastructure dependent on large polluting and fossil-fuel generating power stations. Reforms in the leadership at the NCUC are needed to fulfill our common commitment to address climate change, transition to a clean energy economy, and protect

the beauty, integrity, stability and health of our human and biological communities for ourselves and our posterity.

We recognize and applaud the Governor's 2017 and 2019 appointments of Commissioners ToNola Brown-Bland, Daniel Clodfelter, Charlotte Mitchell, and new potential Commissioners who we expect to be confirmed. The existing Commissioners have stood firm under pressure from the fossil fuel industry and made fair decisions. We encourage the appointment of future new commissioners who will similarly commit to protect the interests of North Carolinians and who (i) have a proven commitment to protecting and promoting North Carolinians' public interests; (ii) have no conflicts of interest with fossil fuel money; and (iii) have legal, medical, and technical expertise as well as experience in holistic risk evaluation.

#### **8. Inspire and Give Hope to All North Carolinians**

We applaud the Governor's efforts to kick off the Plan with stakeholder processes, and we encourage the Governor's office to expand and accelerate these efforts to reach the many disparate communities that are intimately affected by the state's energy choices. We urge the Governor to proactively reach out to communities and organizations that are not typically represented in these spaces, especially community groups that are all volunteer, low-income communities, indigenous peoples, and communities of color.

The purpose of diversifying and strengthening the shareholder process is to inspire and give hope to all North Carolinians—for which we are desperate in light of ensuing climate and environmental injustices that pervade the state. We have hope that we will no longer be relegated to the inequity of having to pay the lion's share of a utility that is making us sick, destroying our communities and our future. We retain hope for a clean energy future that protects our environment and provides us jobs. We want and deserve hope that our politicians are people who are intrinsically inspired by the powerful words of our Constitution not extrinsically lured by the toxic corporate utility money. We hope that the Cooper administration can deliver on these hopes of all North Carolinians.

We appreciate your time and consideration.

Sincerely,

#### **Energy Justice NC Coalition**

350 Triangle  
Alliance for Climate Education  
Alliance for Energy Democracy  
Appalachian Voices  
Concerned Citizens of Maxton  
Center for Biological Diversity

Down East Coal Ash Coalition  
Friends of the Earth  
NC Climate Justice Collective  
NC Environmental Justice Network  
NC WARN  
Protecting Progress in Durham  
Rachel Carson Council  
RedTailed Hawk Collective

**The Energy Justice NC Coalition** is a collaboration of 14 local, state and national nonprofit organizations working to ensure economic and environmental justice for North Carolinians by restructuring the electric utility industry, and establish competitive retail and wholesale electricity markets in the state. Such a restructuring will separate the generation and sale of electricity from the development, maintenance and regulation of the transmission and distribution system. It will also create a more economical and efficient electricity market in North Carolina that lowers electric rates and eliminates the external costs of energy production currently borne by ratepayers and taxpayers.





Dear Ms. Martin,

Thank you for your efforts in drafting the Clean Energy Plan. North Carolinians are facing an increasingly dire climate crisis, and we appreciate you and the Governor's leadership in tackling the carbon emissions problem in our state.

A recurring theme in the Clean Energy Plan is the weight of economic considerations for installing more renewable energy sources. Environment North Carolina recently released a report, *The True Value of Solar*, which examines the benefits of solar that are traditionally excluded from cost-benefit analyses. We think that, in light of the emphasis on cost-benefit analysis in the Clean Energy Plan, that this report would be particularly helpful to the state as the plan is revised.

Many value-of-solar studies – especially those conducted by electric utilities – have left out key benefits of solar energy. Policymakers and members of the public who consult these studies may be left with a false impression of solar energy's value to the grid and society, with damaging results for public policy.

To make decisions that serve the public interest, policymakers should account for the full value of solar energy, including benefits to our environment and public health.

Societal benefits of solar energy include avoiding climate-warming carbon emissions from alternative fuel sources, avoiding dangerous air pollution with costly public health ramifications, and providing high-quality local jobs in solar panel installation.

A good evaluation of the costs of choosing solar or wind over polluting alternatives should include a consideration of the non-grid costs and benefits associated with each source. DEQ should take these costs and benefits into consideration when deciding which sources to use for North Carolina's energy future.

Sincerely,

Drew Ball  
State Director, Environment North Carolina



September 9, 2019

**Transmitted by e-mail to:**

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North Carolina Department of Environmental Quality  
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[michael.regan@ncdenr.gov](mailto:michael.regan@ncdenr.gov)

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Re: Comments on draft Clean Energy Plan, transitioning to a 21st Century Electric System

Dear Secretary Regan,

The Environmental Defense Fund (EDF) applauds the Cooper administration's leadership on climate action and the foresight to set a statewide carbon reduction goal supported by a comprehensive approach, as outlined in Executive Order No.80 (EO80).<sup>1</sup> From our work over thirty years in North Carolina, EDF has come to deeply understand the opportunities and challenges faced by North Carolina residents. We greatly appreciated the stakeholder driven planning process and respectfully offer the following comments and recommendations to the Clean Energy Plan (CEP) on behalf of our more than 50,000 North Carolina members and activists. For reference we have attached the comments we submitted to the NC Department of Transportation on the Zero Emissions Vehicle Plan.

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<sup>1</sup> Governor Cooper's Executive Order NO. 80, *North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy*, October 2018, available at: <https://governor.nc.gov/documents/executive-order-no-80-north-carolinas-commitment-address-climate-change-and-transition>

## Climate Crisis Requires Concrete Pollution Reductions

As the 2018 Special Report on Global Warming by the Intergovernmental Panel on Climate Change showed last fall, the world will need to cut carbon emissions in half from 2017 levels by 2030 and achieve carbon neutrality by 2050 to even attempt to keep warming below the critical threshold of 1.5 degrees Celsius.<sup>2</sup>

North Carolina must adopt a bold strategy to fully decarbonize its economy by mid-century. As the Trump Administration seeks to roll back federal climate protections, now is the time for states to step up. The State has committed to securing real reductions by issuing EO80 and joining the US Climate Alliance, a coalition of states committed to implement policies that advance the goals of the Paris Agreement<sup>3</sup>. Now it is time to build upon that commitment with concrete regulatory action designed to *ensure* North Carolina's emissions decline over time, hitting the EO80 reduction target of 40% below 2005 levels by 2025 and continuing to decline consistent with the state's Climate Alliance commitment to advance the goals of the Paris Agreement to limit warming well below 2 degrees Celsius.<sup>4</sup> As such, we strongly advocate for putting in place a declining cap on carbon that guarantees the state achieves economy-wide emission reductions of 45% below 2010 levels by 2030 and net-zero emissions by 2050, as recommended in the IPCC's 2018 Summary for Policymakers.<sup>2</sup>

North Carolina is already reeling from the impacts of climate change in the form of extreme weather, sea-level rise, and extreme heat; and the public is bearing the cost of inaction. The impacts of climate change touch a multitude of areas in North Carolinians' lives; but these issues do not exist independent of one another. The solution set must address the complex and intertwined challenges North Carolinians face.

Without actually putting the regulations in place to limit pollution, it is challenging to guarantee pollution will decline in the near term, let alone that it will continue to decline over time under a range of possible future scenarios. In fact, using projections from Rhodium Group's US Climate Service, EDF analysis shows North Carolina statewide emissions trending upwards again by the mid-2020s, creating a significant delta by 2030 (approximately 27 mmt co<sub>2</sub>e) between statewide

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<sup>2</sup> International Panel on Climate Change, *Global warming of 1.5°*, October 2018, available at: [https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15\\_SPM\\_version\\_report\\_LR.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf)

<sup>3</sup> <https://www.usclimatealliance.org/alliance-principles>

<sup>4</sup> Twenty-five governors have joined the Climate Alliance and pledged their commitment to reducing greenhouse gas pollution consistent with the core goals of the Paris agreement: "keeping a global temperature rise ... well below 2 degrees C ... and to pursue efforts to limit the temperature increase even further to 1.5 degrees C." <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

emission projections and a reduction target consistent with the IPCC's most recent recommendations.

Regulations that create an overall limit on carbon pollution are essential to assuring the emissions outcomes that North Carolina has committed to achieving, and guaranteeing that overall emissions continue to decline while striving to maximize local air quality benefits.<sup>5</sup> Moreover, such regulations can be combined with complementary clean energy and electric vehicle policies. By focusing on opportunities associated with both clean energy solutions and beneficial vehicle electrification – in the context of an overarching limit on emissions from both of those sectors—the state can deploy a powerful, mutually reinforcing strategy to tackle the two largest sectors<sup>6</sup> contributing to North Carolina's greenhouse gas (GHG) emissions.

### **Clean Energy Plan Lacks Clarity on Emission Reduction Potential**

The development of the CEP and ZEV plans is an important step in identifying potential pathways to achieve meaningful GHG emission reductions in the state. However, the plans as drafted fail to clearly identify how specific programs and policies will not only guarantee hitting the overarching 40% GHG emission reduction goal outlined in EO80, but also sustain and deepen those reductions by 2030 and beyond. Without this critical information, these plans may be unable to serve the ultimate spirit and purpose of the Governor's order to "combat climate change, make our state more resilient and lessen the impact of future natural disasters."<sup>7</sup>

While each plan identifies a robust series of program and policy recommendations, they both remain largely unclear as to the possible emissions reductions expected from any specific, or combination of policy recommendations. Although there are references to the time horizon for implementing certain policies, it remains unclear how quickly emissions reductions will likely be achieved as a result of any particular policy. Furthermore, neither plan outlines the relative cost-effectiveness of implementing each recommendation nor if there are synergies that can be capitalized on by adopting multiple policies either together or in a series. Without this information it is difficult for policy makers to determine which recommendations will provide the most prudent and just means of achieving the emissions targets as identified in EO80 and

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<sup>5</sup> Dallas Burtraw, Karen Palmer, Anthony Paul, and Paul Picciano, May 2019, *State Policy Options to Price Carbon from Electricity*, Resources for the Future Report 19-04, available at [https://media.rff.org/documents/RPT\\_19-04\\_ezAnXDF.pdf](https://media.rff.org/documents/RPT_19-04_ezAnXDF.pdf)

<sup>6</sup> North Carolina Department of Environmental Quality, Division of Air Quality, January 2019, *North Carolina Greenhouse Gas Inventory (1990-2030)*, 9-10

<sup>7</sup> North Carolina Office of the Governor, October 29, 2019, "Governor Cooper Commits to Clean Energy Economy for NC to Combat Climate Change, Create Jobs" available at <https://governor.nc.gov/news/governor-cooper-commit-s-clean-energy-economy-nc-combat-climate-change-create-jobs>

consistent with North Carolina’s support of the objectives of the Paris Agreement. Yet one policy strategy identified stands out as both the most cost-effective and most capable of delivering quantifiable reductions— a regulatory program that places a limit on the total pollution allowable from a sector or multiple sectors, and enables a flexible market-based compliance strategy.

## **DEQ Should Adopt Regulations to Cap Carbon Emissions**

To facilitate the efficient implementation of a declining carbon cap in North Carolina, we recommend that the state move forward to develop a state program that can link to an existing carbon market, specifically the Regional Greenhouse Gas Initiative (RGGI), which will soon include eleven states. As North Carolina moves forward in our efforts to address climate change we must ensure that our policies support a just transition and ensure that front line communities do not trade environmental burdens for economic ones. Effective regional carbon markets, like RGGI, can drive low-cost reductions in harmful climate and air pollution, all while promoting economic growth and investment in the clean energy economy. Linking with a pre-existing trading network has many benefits - most notably it’s proven track record for reducing emissions at a low cost. RGGI’s history and detailed review process do not necessitate further study by the state of North Carolina.

Carbon markets promote economic growth and investment in the clean energy economy by:

- a. **Leveraging low-cost pollution reductions from the power sector:** Carbon markets facilitate the most cost-effective emission reductions by coupling strict limits on carbon pollution with flexible compliance options. Markets can enable states to pursue significant and readily achievable cuts to carbon emissions from the power sector now — due in part to falling renewable energy costs and cost effective energy efficiency measures — and leverage these advances to catalyze deeper reductions across the economy.<sup>8</sup>
- b. **Driving innovation and creating jobs:** Well-designed carbon markets ensure ambitious pollution reductions go hand in hand with robust economic growth. California, which implemented an emissions trading program in 2012, added over 1.3 million jobs in 2013-2016 and grew its economy by 3% last year — while reaching its 2020 greenhouse gas reduction target four years early.<sup>9</sup> RGGI, comprising nine Northeastern states, generated \$1.4 billion in net economic benefits and 14,500 new job years from 2015-2017. Meanwhile, power sector

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<sup>8</sup> Rama Zakaria, August 2018, *Wheeler Expected to Weaken the Clean Power Plan Even as Pollution Reduction Costs are Dropping*, Environmental Defense Fund, available at <http://blogs.edf.org/climate411/2018/08/17/wheeler-expected-to-weaken-the-clean-power-plan-even-as-pollution-reduction-costs-are-dropping/>

<sup>9</sup> Jonathan Camuzeaux, July 2018, *Why It Matters That California Hits its 2020 Emissions Target Four Years Early*, Environmental Defense Fund, available at <http://blogs.edf.org/climate411/2018/07/12/why-it-matters-that-california-hit-its-2020-emissions-target-four-years-early/>

carbon dioxide emissions have fallen by 40% in RGGI states since the program launched in 2009.<sup>10</sup> More than four million Americans work in the clean energy economy. Regional climate leadership can catalyze additional economic opportunities across the country.

- c. ***Saving lives and securing health benefits, including for our most vulnerable communities:*** Carbon markets deliver lifesaving benefits for all by mitigating the threat of climate change, reducing harmful air pollution, and promoting economic growth. Regional programs can be designed to drive additional benefits to vulnerable communities, including low-income families and communities living in proximity to polluting facilities. For example, critical investments in energy efficiency for low-income communities, and complementary mechanisms to reduce localized air pollution, can secure essential improvements to health and wellbeing for all Americans.

### **Power Sector Emissions Could Increase in North Carolina Absent Regulations Firmly Limiting Pollution**

To understand the potential implications of adopting a carbon policy in North Carolina, EDF modeled a declining cap on the state's power sector emissions using the FACETS model.<sup>11</sup> The modeling evaluated a CO<sub>2</sub> emissions budget for the state's electric sector that is consistent with emission budget trajectories in the RGGI-region states—approximately 42 million tons in 2020, declining to 30 million tons in 2030 and 23 million tons in 2035.<sup>12</sup> This translates to a CO<sub>2</sub> emission reduction of 64 percent below 2005 levels in 2030.

Our analysis shows that in the absence of a declining cap, electric sector carbon dioxide (CO<sub>2</sub>) emissions are likely to increase in the future—as early as 2025—and could vary significantly, depending on the price of natural gas, potential expansion of RGGI, and the implementation of effective leakage mitigation measures in RGGI. It is critical that the policies North Carolina adopts today create certainty for the future—not only to ensure that GHG emissions do not increase once the easiest reductions in emissions have been achieved, but to provide regulatory and investment certainty for businesses and consumers in the state.

In contrast, scenarios where the North Carolina electric sector emissions are put under a cap project emissions outcomes that are between 78 and 93 percent lower than BAU in 2030 and

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<sup>10</sup> Bruce Ho, December 2017, *RGGI States Set a New Standard for Climate Action in 2017*, Natural Resources Defense Council, available at <https://www.nrdc.org/experts/bruce-ho/rggi-states-set-new-standard-climate-action-2017>

<sup>11</sup> Framework for Analysis of Climate-Energy-Technology Systems is a detailed model of the U.S. electric sector model designed to analyze different technology and policy options. <http://facets-model.com>

<sup>12</sup> Beyond 2030 the state budget continues to decline at the rate of 3% (of 2020's budget) annually

2035, respectively. Moreover, when North Carolina is not under any cap, CO<sub>2</sub> emissions from the state's electric sector are generally higher (by up to 2 million tons) when additional states (e.g., NJ, VA, PA) join the RGGI. In short, as additional states across the region take action to curb carbon pollution within their own borders, North Carolina could see a damaging increase in emissions as dirty energy sources find a home in states with less protective policies.

### Policy Recommendations for Final Clean Energy Plan

Following is a bulleted list of our policy recommendations to achieve the overall emissions reductions goals of EO80, relevant to both the CEP and ZEV plans:

1. Instead of further study into markets, as recommended in the plan,<sup>13</sup> the DEQ should take concrete action: timely notice a proposed rulemaking and bring stakeholders together in the context of a regulatory process to determine the right approach to place a binding limit on carbon pollution, at minimum from the electric power sector. The DEQ should establish a **declining carbon emissions cap**, and develop a market-based mechanism for compliance with that emissions cap to incentivize flexible and cost-effective reduction opportunities, starting no later than 2021. Such a cap should guarantee reductions consistent with meeting the statewide 2025 EO80 goal and securing 45% reductions below 2010 levels by 2030, and be protective enough to put the state on track for complete decarbonization by mid-century. North Carolina should design the policy to allow for emission allowance trading to provide for cost-effective reductions. In the context of such a process, the DEQ can determine how to design various elements of the program to achieve key state priorities – including how the program can be tailored to help spur investment in a clean energy economy. Further, the DEQ should evaluate the opportunity to develop a compatible program that allows for linkage with other carbon trading programs, specifically RGGI—a proven program driving low-cost reductions in harmful climate and air pollution.
2. The administration should pursue legislative proposals and/or regulatory pathways necessary to permit the following creative financing tools, which support investment in clean energy, beneficial electrification and energy efficiency:
  - a. Green Bank:<sup>14</sup> In order for North Carolina to take advantage of the clean energy investments required to accomplish the goals set forth in EO80 while stimulating economic development and fostering energy equity, the state should establish a Green Bank system. Green Banks provide a market-friendly approach for financing clean energy projects. A nonprofit green bank organization can

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<sup>13</sup> North Carolina Department of Environmental Quality, September 2019, *Clean Energy Plan, Transitioning to a 21<sup>st</sup> Century Electricity System*, available at <https://deq.nc.gov/energy-climate/climate-change/nc-climate-change-interagency-council/climate-change-clean-energy-16>

<sup>14</sup> Jen Weiss and Kate Konschnik, 2018, *Beyond Financing: A Guide to Green Bank Design in the Southeast*. Duke Nicholas Institute for Environmental Policy Solutions, (NI Primer 18-01)



- centralize the education, planning, and financing of clean energy and energy efficiency projects and will allow the market to deliver cost-effective investments that will drive down emissions across sectors.
- b. C-PACE:<sup>15</sup> To accelerate investment in commercial-scale renewable energy and energy efficiency projects, North Carolina should enable the use of Commercial Property Assessed Clean Energy (C-PACE). C-PACE allows for the financing of energy efficiency and renewable energy on commercial property via a voluntary tax assessment. Investments are secured by the property through a well-used and readily understood mechanism, and can thus be quickly and easily implemented. C-PACE is an easily adaptable, well understood tool. It has been enacted in 35 states and the District of Columbia, financing over \$800 million in projects.<sup>16</sup>
  - c. PAYS®:<sup>17</sup> In order to achieve the scale of investment required to meet the goals of EO80, North Carolina should also include additional creative funding opportunities such as on-bill tariffs for fleet electrification. This tariffed approach, traditionally used for financing energy efficiency projects, could be applied to transit fleets as demonstrated in the PAYS® for Clean Transport model. In this model a utility makes a site-specific investment with site specific cost recovery, capitalizes the upfront cost of batteries and charging equipment that connect them to the grid, and allows utilities to reduce barriers to participation and accelerate deployment of light-, medium- and heavy-duty electric vehicles.

In addition, we support the following tools identified during the Clean Energy Plan process that can accelerate North Carolina's progress toward a clean, just energy system.

1. Recommend the study and subsequent adoption of **Performance Based Ratemaking (PBR)** using metrics that incentivize regulated utilities to reduce greenhouse gas emissions.<sup>18</sup>

<sup>15</sup> United States Department of Energy Weatherization and Intergovernmental Programs Office, 2017, *Commercial Property Assessed Clean Energy (C-PACE): A Fact Sheet for State and Local Governments*, available at [https://www.energy.gov/sites/prod/files/2017/10/f39/FL1710\\_WIP\\_CPACEv2.PDF](https://www.energy.gov/sites/prod/files/2017/10/f39/FL1710_WIP_CPACEv2.PDF)

<sup>16</sup> Greg Leventis, Lisa Schwartz, Chris Kramer, and Jeff Deason, February 2018, *Lessons in Commercial PACE Leadership: The Path From Legislation To Launch*, United States Department of Energy Office of Energy Efficiency and Renewable Energy and Berkeley Lab, available at [https://www.energy.gov/sites/prod/files/2018/05/f51/Lessons\\_in\\_Commercial\\_PACE\\_Leadership\\_Finalv2.pdf](https://www.energy.gov/sites/prod/files/2018/05/f51/Lessons_in_Commercial_PACE_Leadership_Finalv2.pdf)

<sup>17</sup> Dario Abramskiehn and Alex Clark, September 2018, *Pay As You Save for Clean Transport*, Lab Instrument Analysis, available at <https://climatepolicyinitiative.org/wp-content/uploads/2018/10/PAYS-for-Clean-Transport-Instrument-Analysis.pdf>

<sup>18</sup> Advanced Energy Economy, June 2018, *Performance-Based Regulation, Aligning Utility Incentives with Policy Objectives and Customer Benefits*, available at <https://info.aee.net/hubfs/PDF/PBR.pdf>

- a. PBR links utility financial incentives to desired outcomes, placing the emphasis on performance rather than cost-of-service. PBR shifts the utility's incentives from increased usage and capital expenditures (and thus profits) to meeting priority policy objectives, include the provision of safe, reliable, affordable energy that reduce our GHG emissions. PBR combined with complementary regulatory policies, such as revenue decoupling and multi-year rate plans, can further enhance the utilities' ability to be forward looking and focus on producing outcomes that are best for North Carolina in place of the traditional utility "bottom-line."
  - b. By shifting the utility's primary focus away from capital investments, the utility will look at a broader array of potential solutions, thus encouraging innovation and flexibility required in a rapidly-changing technological market. Furthermore, emphasis on performance and innovation will enhance emission reductions past the 2030 mark, allowing for sustainable reductions to mid-century and beyond.
  - c. Outcome prioritization is essential to the PBR process and requires input from various stakeholders to set targets over both the short- and long-term. This process is thus amenable to a variety of electricity goals for the state, including energy efficiency, grid resiliency, and just transition.
2. The electricity rate making process, including PBR target setting, must account for externalities in order to fully and accurately represent the cost and benefits of various investment and decision-making strategies.
    - a. The North Carolina Utilities Commission should redefine the public interest to include metrics in addition to cost and reliability that account for the social cost of carbon, waste, etc.
  3. Authorize securitization to accelerate retirement of North Carolina's last remaining coal-fired power plants.
    - a. North Carolina's shift away from coal-fired power generation has been the largest contributor to the state's GHG emissions reductions. It is evident that continuing this shift from fossil fuels to carbon-free resources is essential to achieving EO80's GHG reduction goals.<sup>19</sup>
    - b. If not addressed proactively, stranded coal and gas assets can complicate the effort to transition away from fossil fuels. Creative financing strategies such as securitization can mitigate the economic and political risks from potential stranded assets.
  4. Adopt a plan for the just transition from a coal-based electrical energy economy. A strong example of this is Colorado.<sup>20</sup>

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<sup>19</sup> Sierra Club, September 2019, *A Roadmap for Reducing North Carolina's Greenhouse Gas Emissions: Recommendations on Governor Cooper's Executive Order 80*, (attached).

<sup>20</sup> Colorado General Assembly, House, Just Transition From Coal-based Electrical Energy Economy, HB19-1314, 2019 Regular Session, available at <https://leg.colorado.gov/bills/hb19-1314>

5. The state should further explore and adopt the recommendations set forth in the Energy Efficiency Roadmap.<sup>21</sup>
6. The North Carolina State Clean Technology Center (Clean Tech Center) has a history of supporting the development of the state's clean energy economy and for the past 30 years they have offered guidance and collaborated with partners in government, industry, academia, and the non-profit community. The ongoing support and technical resources provided by the North Carolina State Clean Technology Center and the energy centers located at other UNC System campuses will be essential in the state achieving its clean energy goals. The state should fully fund these critical University-based centers for energy technology and policy research and provide for a standing funding source so that this critical state resource is not continually threaten during annual budget negotiations.

As indicated in the survey administered during the EO80 ZEV plan development, more than 90% of those surveyed were concerned about the effects that climate change has on their daily lives.<sup>22</sup> We appreciate your hard work and strong leadership in addressing these critical issues, and look forward to the release of the final report. Thank you for your consideration of these comments. EDF looks forward to continued engagement with the Cooper administration on the development of policies and programs to successfully achieve all the goals of EO80.

Sincerely,



Dionne D. Delli-Gatti  
Southeast Director of Clean Energy  
Environmental Defense Fund  
4000 Westchase Boulevard, Suite 510  
Raleigh, NC 27600

ATTACHMENT: EDF Zero Emission Vehicle Plan Comments

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<sup>21</sup> Jennifer Weiss, August 2019, *North Carolina Energy Efficiency Roadmap*. Duke Nicholas Institute for Environmental Policy Solutions, available [https://nicholasinstitute.duke.edu/sites/default/files/publications/North %20Carolina%20Energy%20Efficiency%20Roadmap%20Final.pdf](https://nicholasinstitute.duke.edu/sites/default/files/publications/North%20Carolina%20Energy%20Efficiency%20Roadmap%20Final.pdf)

<sup>22</sup> North Carolina Department of Transportation, August 2019, *Zero-Emissions Vehicles Plan, A Strategic Plan for Accelerating Electric Vehicle Adoption In North Carolina by 2025*, available at: <https://www.ncdot.gov/initiatives-policies/environmental/climate-change/Documents/north-carolina-draft-zev-plan.pdf>

September 09, 2019

North Carolina Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

via email: [seo.publiccomment@ncdenr.gov](mailto:seo.publiccomment@ncdenr.gov)

Subject: Kairos Power Comments on Draft *North Carolina Clean Energy Plan – Transitioning to a 21st Century Electricity System*

Kairos Power appreciates the opportunity to present comments on the draft North Carolina Energy Plan, and applauds Governor Cooper's leadership in fostering and encouraging the utilization of clean energy resources. Please find our comments below. In summary, we encourage the State of North Carolina to consider new nuclear deployment as part of a strategic power portfolio, in recognition of the substantial *clean energy* benefit that this technology provides.

Kairos Power is an advanced reactor startup, founded in 2016, and based in the San Francisco Bay Area. We have substantial roots in North Carolina, with a regional office in uptown Charlotte. We elected to locate an office in the Charlotte area explicitly to be able to draw on North Carolina's significant talent pool in nuclear reactor design and manufacturing, owing to the region's role as a home to multiple companies engaged in nuclear development. We are active members of E4Carolinas platform for energy collaboration, and supporters of the UNC-Charlotte Energy Production and Infrastructure Center (EPIC).

Kairos Power is driven by our core mission, which is to enable the world's transition to clean energy, with the ultimate goal of dramatically improving people's quality of life while protecting the environment. We are working toward that goal through development of a fluoride-cooled, high-temperature reactor that we envision deploying first in the late 2020s and subsequently through the 2030s and beyond. Ours is one of the non-light-water advanced reactor technologies cited in Section 3 of the draft plan's *Supporting Document Part 2 – Energy Resources*, incorporating tristructural-isotropic (TRISO) coated particle fuel, molten salt coolant, and low operating pressures. The resulting design enjoys significantly increased margins of safety as compared with the already safe light-water fleet, and does so with enhanced economics born of a reduction in the number of safety systems owing to a significantly lower potential for radiological release, increased reliance on passive safety, and dramatic reduction in the safety-related footprint of the plant.

North Carolina's draft plan recognizes that net generation from nuclear represented over 31% of North Carolina's electric consumption in 2017. We are pleased that the report cites actual electricity production, and not simply installed capacity; this distinction recognizes North Carolina's average nuclear plant capacity of over 94%, which stands in stark contrast to most other carbon-free sources. But equally importantly, nuclear generation also represents *over 70%* of the state's *clean energy* production. This is a critically important figure of merit when it comes to strategic planning.

The report also cites World Nuclear Association statistics indicating nuclear plants generating 63% of United States carbon-free electricity, providing the main carbon-free generation source for over half its states, and avoiding annual emissions of over 750 million tons of CO<sub>2</sub> as compared to coal. According to

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the United States Energy Information Agency, North Carolina was third among the states in net electricity generation from nuclear power in 2017, and as discussed above, nuclear power actually represents a higher percentage of clean electricity in North Carolina than the national average. It is therefore unfathomable that the state would willingly give up its clear leadership role in clean energy production by failing to do everything it can to facilitate continued reliance on this essential resource.

According to the draft plan, Duke Energy's 2018 North Carolina Integrated Resource Plans do not reflect additional new nuclear generation capacity in their 15-year planning period. A combination of reduced demand, supplier challenges, and competition from mandated, subsidized renewables resulted in the cancellation of additional nuclear capacity at the Shearon Harris site, and deferral of the Lee Nuclear Station in Gaffney, SC (as the draft plan observes, Duke Energy still retains the combined construction and operating license for the Lee site in the event they choose to deploy a new nuclear plant). But the draft plan does not appear to discuss the extent to which this resource is disadvantaged by mandatory standards that focus on "renewable" energy and not *clean energy*.

Additionally, the draft plan does not discuss the fact that new reactor technologies offer the benefit of reduced use of land and other resources. For instance, a Kairos reactor could be sited using only a fraction of the Lee Nuclear site, leaving the remainder of the site available for other uses.

The draft plan indicates that "even though [nuclear plants] use naturally-occurring uranium as generation fuel, nuclear energy is not considered a renewable source (like solar or wind) because uranium reserves are not unlimited." This statement is misleading, though, because, according to the World Nuclear Association, there "no reason to anticipate any shortage of uranium that would prevent conventional nuclear power from playing an expanding role in providing the world's energy needs for decades or even centuries to come [and this] does not even take into account improvements in nuclear power technology which could effectively increase the available resource dramatically." Further, nuclear fuel *is* recyclable, and in fact there are even emerging technologies that would enable extraction of uranium from seawater, resulting in a virtually inexhaustible supply. In the existing nuclear fleet, a single fuel pellet the size of a fingertip contains as much energy as 17,000 cubic feet of natural gas, 1,780 pounds of coal, or 149 gallons of oil. In consideration of this remarkable difference in energy density and the dramatic differences between capacity factors for nuclear plants and most "renewables," therefore, the plan would benefit from a more balanced view of the value of "renewable" sources.

The draft plan also cites the "long life and potential hazard to health" of nuclear waste, but that discussion is slanted. Demonstrably safe long-term storage is a well understood and executed technology. Permanent disposal is not a technological challenge but a political one, and without discounting the complexity of that issue, the fact remains that the nuclear waste produced from commercial power generation nationwide to date could fit on a single football field about 24 feet high. And in contrast to nuclear waste, most other waste forms never decay. As a function of waste per unit power produced, most technologies cannot match this performance. Frankly, the draft plan does a disservice to the public by describing the waste challenge in such stark, unbalanced terms.

As the draft plan states, the United States Department of Energy estimated in 2010 that building a new nuclear plant could cost \$6-8 billion, and Tennessee Valley Authority's Watts Bar 2 plant cost \$4.7

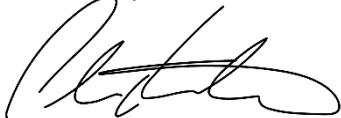
billion dollars to complete. But as discussed above, new designs are expected to cost significantly less to deploy, and innovative funding and financing approaches are also expected to result in significantly improved economics. While it would be fair to observe that these assertions have yet to be proven, it would be imprudent to preclude such an attractive option from the state's energy strategy.

Kairos Power's most significant concern with the draft plan is that, on one hand, it acknowledges the important role of nuclear plants as baseload generation, operating essentially "24/7 nonstop, year-round...except for brief periods of re-fueling and maintenance, and are not impacted by extreme hot or cold weather." It also recognizes that, "[b]y providing stable baseload generation, [nuclear plants] make the integration of variable output renewables and other technologies more feasible." Yet, on the other hand, the draft plan seems to stop short of recognizing the value of these assets by discussing only the need to *replace* "this traditional capacity and baseload generation [by] exploring other viable energy options." This strategy seems to convey a willingness on the part of the state to turn its back on the only truly effective, clean, baseload technology.

Kairos Power urges the state to rethink this strategy, and to adopt an approach that maintains the option of future nuclear development. While the state cannot direct Duke Energy and other utilities to include new nuclear plants in their planning horizons, it certainly can reduce or eliminate obstacles to its equitable consideration, and indeed incentivize its use. As observed in *Scientific American* just last week, "we can't solve climate change without nuclear power." Kairos Power is doing everything in its power to contribute to long-term solutions, and would enjoy the opportunity to collaborate with the DEQ staff to help identify strategies and policies that recognize the intrinsic value of this essential technology.

Again Kairos Power appreciates the opportunity to comment on the draft plan. If we can provide any additional information, please do not hesitate to contact me.

Sincerely,



Peter Hastings, PE  
Vice President, Regulatory Affairs & Quality

cc:

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**Via E-Mail:**  
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**North Carolina Department of Environmental Quality**  
**217 West Jones Street**  
**Raleigh, NC 27603**

**September 9, 2019**

**Re: NRDC Comments on NC DEQ draft Clean Energy Plan**

On behalf of the Natural Resources Defense Council (NRDC), we thank you for considering these comments are recommendations on North Carolina's draft Clean Energy Plan. While the state tries to recover from yet another catastrophic storm, the need for action on climate change has never been more pressing. This is why Governor Cooper's Executive Order 80 (EO80), and in particular the Clean Energy Plan, are crucial steps toward slowing and eventually reversing the impacts of climate change. We are thankful for the Governor's willingness to address this problem head on and seek workable solutions that will help keep North Carolinian's safer, drive our economy forward and build on actions taken across the country and the world to stop anthropomorphic climate change.

The draft NC Clean Energy Plan is a comprehensive prescription toward solving the multiple issues identified by stakeholders and drives clean energy solutions forward. What DEQ has been able to achieve in a relatively short period of time – educating stakeholders, identifying problems, and producing solutions supported by a majority of participants – is commendable. We are particularly encouraged by the inclusion of longer-term (2030 and 2050) goals for the electric power sector, as it has become particularly clear that this sector will need to move first and fastest, given the [many low-cost, clean](#) options already available, while clean solutions in other areas of the economy (like trucking, aviation and agriculture) are further developed and commercialized.

Furthermore, as we move forward identifying, refining and implementing solutions, we are encouraged by the Plan's commitment to equity. Climate change is a problem that affects all of us, but is particularly impactful to those most vulnerable. It is vitally important to keep vulnerable populations in mind while identifying issues and solutions. By the same token, the energy transition we seek to accelerate will provide numerous opportunities and benefits for workers and local communities. Ensuring that those benefits and opportunities are equality distributed and available to all was of great importance to the stakeholders and it's invigorating to see that value reflected in the draft plan.



We appreciate the opportunity to present these comments and we hope they will help create a strong final Clean Energy Plan. Below we provide some overall recommendations for the plan, and we offer detailed suggestions for a number of items. We stand ready to help tailor these policies to achieve the stated goals of EO80 when work shifts towards enacting solutions. Additionally we remain committed to helping the state transition quickly towards implementing the solutions outlined in the plan and hope we can help the state achieve its climate and clean energy goals.

## Overall Recommendations

### **1. Cut Climate Pollution through Executive Action**

One challenge with having such a comprehensive document is how to prioritize the many possible actions and strategies the state has to achieve the goals of the EO80. The first goal of EO80 is clear and urgent: “reduce statewide greenhouse gas emissions [GHG] to 40% below 2005 levels” by 2025. Ultimately, all the policies identified will help move the state in the right direction, but with the need to reduce emissions in the next five years, priority recommendations should focus on actions that will *directly* result in immediate GHG reductions. While many of the policies detailed in the plan require new legislation, we would suggest that the priority recommendations in the document focus on policies that can be implemented through executive action. This is not intended to discourage efforts to achieve bi-partisan support that would drive forward solutions, but rather, given the current political environment, to focus more attention on solutions that can be implemented in the short term.

### **2. Set Binding Carbon Reduction Goals for the Power Sector**

Within the priority recommendations, we encourage DEQ to focus on policies that would directly decarbonize the power sector. Specifically: setting carbon reduction goals in policy, such as through a binding carbon dioxide emissions reduction target, should occupy most of the implementation bandwidth in the short term. We recommend NC DEQ move quickly to implement policies to achieve a 70% reduction (from 2005 levels) in emissions from the electric sector by 2030 and drive toward zero emissions by 2050.

**In particular, the simplest and fastest way forward is to join the Regional Greenhouse Gas Initiative (RGGI).** The Northeast and Mid-Atlantic states (soon including our neighbor Virginia) have successfully demonstrated over the past decade how to slash carbon pollution from power plants while creating thousands of clean energy jobs, saving consumers money on their utility bills, and growing the regional economy. Across the region, RGGI has already contributed at least:

- \$4.3 billion in regional economic growth;
- 44,700 years of additional full-time employment;
- [\\$5.7 billion](#) in public health benefits, including preventing at least 8,200 asthma attacks, 39,000 lost workdays, and 300 premature deaths, by cutting dangerous air pollutants like soot and smog alongside carbon;
- All while saving customers an estimated [\\$773 million](#) on their energy bills (with billions more expected) thanks to energy efficiency and renewable energy investments funded under the program.

### **3. Lead on Clean Transportation**

Reducing emissions from the transportation sector by facilitating the transition to clean, efficient electric transportation and increasing the use of energy efficiency and demand side management are important elements that would move North Carolina swiftly towards its 2025 goals – doing so would also serve to accelerate the additional goals in the Clean Energy Plan, such as energy affordability, local economic growth, and innovation. Fortunately, North Carolina does not have to reinvent the wheel – the Transportation and Climate Initiative is one such regional example already underway that is helping to chart a clean transportation future. Under the [TCI banner](#), twelve states and D.C. are currently exploring how they might work together to cap and reduce transportation emissions while investing in clean solutions and promoting more equitable access to clean and low-cost transportation options. And great strides have been made recently [by a number of state utility commissions](#) to ramp up utility investments in the charging infrastructure we'll need to support thousands of electric cars, trucks and buses to clean up that sector.

### **4. Better Align Utility Incentives with public interest goals**

Utilities in North Carolina must be partners in this energy transition, particularly as we need to move quickly and we need to go far. The North Carolina Utilities Commission should initiate a discussion about the policy changes that will enable utilities to lead the charge. Rewarding utilities based on how they perform in achieving public interest goals, including reducing greenhouse gases, would be a great first step. Eliminating the link between retail sales and fixed cost recovery (revenue decoupling), retiring uneconomic fossil generation, and implementing shared savings mechanisms are all also policy opportunities to advance our mutual goals. We suggest that the North Carolina Utilities Commission open a docket to investigate how to implement these and other similarly aimed policies.

### **5. Maintain that Forest-Derived Bioenergy and swine waste-to-energy are not a Clean Energy Source**

The draft plan correctly acknowledges that forest-derived biomass is not a source of clean energy. Cutting and burning trees adds significant amounts of carbon dioxide to the atmosphere immediately, undermining the state's emissions-reduction goals. Biomass production and combustion also create serious local air quality problems and degrade natural, intact forests that are necessary for coastal resiliency and carbon sequestration. We commend NC DEQ for adopting this position in the draft plan, and encourage the agency to maintain it in the final version.

Similarly, the outdated and dangerous lagoon and sprayfield system of swine waste management, which predominates at industrial swine production facilities in North Carolina, is dangerous for communities living nearby and the environment. This system disproportionately impacts poor communities and communities of color and must end.

## **Additional Detailed Recommendations**

### ***A. The Final Plan should commit to emission reductions from the electric sector of 70% from 2005 levels by 2030 and 100% by 2050.***

While the state’s power sector has already achieved significant reductions in carbon pollution, it doesn’t mean that the state doesn’t need to do more to achieve the *economy-wide* goals of the Governor’s Executive Order. First, if all the proposed gas plants are built, the state’s emissions will continue to rise after 2025 as these new fossil-powered facilities come online. Even though the power sector may achieve over 40% reductions in the electric sector by 2025, emissions would likely grow post-2025.

Second, the power sector is one of the easiest and cheapest areas to cut carbon from. Renewables are clean and cheap, providing utilities with climate solutions that are best for the environment, public health, and their customers’ pocketbooks. In our electric sector modeling, conducted by ICF using their Integrated Planning Model (IPM), the average residential utility bill in the carbon + clean energy policy case is almost 2 percent lower than “BAU” by 2030—while also cutting over 20 million tons of carbon emissions (equivalent to the pollution from five large coal plants) annually compared to our BAU case. Smart, cost-effective policies could drive much deeper pollution cuts from the power sector—and help lift the burden from other sectors of the state’s economy, like agriculture and manufacturing, that can be costlier to decarbonize. If the state pursues both a carbon and clean energy policy package, the power sector could cost-effectively cut carbon pollution by 53 percent by 2025—and see emissions continue to fall after that.

Pushing the power sector to go further and faster is the best option for the state’s economy, North Carolinians, and our climate. The state, as part of its climate plan to meet EO 80, should ensure that they tap the low-cost climate potential of the state’s power sector and prioritize policies and actions that accelerate the transition from dirty to clean power.

### ***B. Establish the goals and timeline in the final plan and move quickly to adopt the policies needed to achieve it.***

The most direct way to “support the 2015 Paris Agreement goals and honor the state’s commitments to the United States Climate Alliance”<sup>1</sup> is to require significant near-term greenhouse gas emission reductions. We think it crucial that the state directly regulate greenhouse gas emissions in order to successfully achieve EO80’s goal of “reduc[ing] statewide greenhouse gas emissions to 40% below 2005 levels.” Of the over 38 individual policies recommended in the clean energy plan (or 46 if we include the

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<sup>1</sup> Executive Order 80, October 29, 2018: North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy.

subheadings), only one policy directly requires reductions in carbon dioxide emissions from North Carolina’s economy. Therefore we focus our attention on section I.1 of the clean energy plan.

Section I.1 suggests three options to target emissions from the electric sector and achieve the EO80 goal:

- 1) Clean energy programs that remove uneconomical fossil generation and increase the use of cleaner energy resources;
- 2) Carbon policy driven approaches that include targets for emission reductions and create a market for generating revenue;
- 3) A hybrid approach that combines both clean energy and carbon policies

Across the multiple states and regions that have taken aggressive steps to reduce their electric sector greenhouse gas emissions, their efforts are anchored by carbon policy driven approaches and usually also paired with complementary clean energy policies. In the electric sector modeling done by NRDC, this approach proved the most effective at reducing emissions affordably.

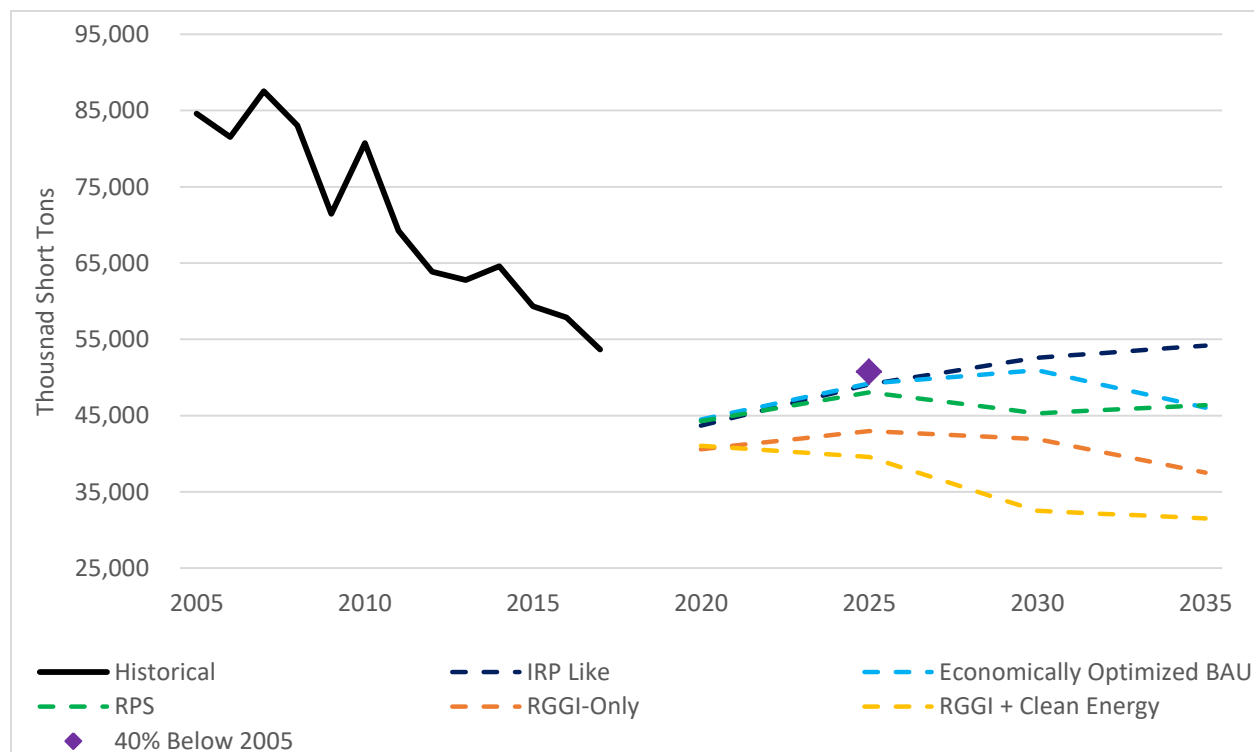


Figure 1. Historical and Projected Power-related Carbon Emissions in North Carolina

And while the hybrid approach (carbon policy + clean energy policy) is the most effective, they do not require that both policies be implemented at the same time. While we’d recommend North Carolina extend the Renewable Energy and Energy Efficiency Portfolio Standard (and ideally set stand-alone energy efficiency goals), these seem unlikely in the absence of legislative leadership. We would

therefore recommend North Carolina move quickly towards implementation of a carbon policy, which is hopefully joined by complementary clean energy policies at a later time.

**And instead of reinventing the wheel, we would suggest North Carolina begin exploring how to join the [Regional Greenhouse Gas Initiative](#) (also known as RGGI, or “Reggie”).** RGGI is a pioneering, market-based program to cut carbon pollution from power plants in nine Northeastern and Mid-Atlantic states—Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Since its 2009 launch, RGGI has saved consumers hundreds of millions of dollars on energy, with billions more in savings to come; created thousands of new jobs; and improved public health while helping cut carbon pollution from the region’s power plants in half. RGGI’s well-documented success shows how flexible, market-based approaches to cutting power plant pollution benefit everyone. The program functions as a model for other states and regions hoping to reap economic, health, and social benefits in the transition to clean energy that will be key to combating climate change.

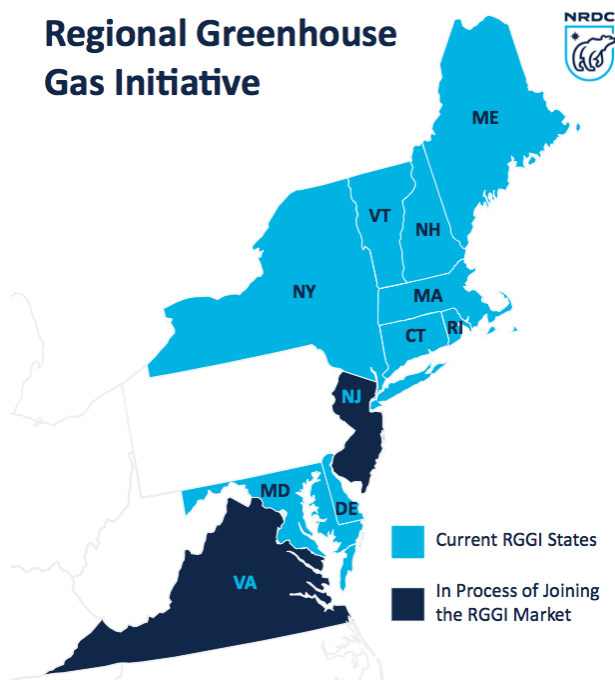


Figure 2. Current and Expected RGGI Participants

In August 2017, the RGGI states [agreed to a new round of carbon pollution cuts](#) through 2030 that will continue the program’s many benefits in future years. Currently, two additional states—[New Jersey](#) and [Virginia](#)—are also in the process of joining the RGGI market. As RGGI expands, it will be critical to ensure that new states commit to ambitious carbon pollution cuts in line with the RGGI program’s existing commitments.

## **How RGGI Works**

RGGI is a “cap and invest” program. Together, the RGGI states set a regional limit on the amount of carbon pollution that power plants are allowed to emit and sell pollution permits up to this limit through quarterly auctions. RGGI’s design requires large fossil-fuel power plants to buy the pollution permits, and the number of permits is lowered each year, so that the region’s power plants contribute progressively fewer emissions to global warming. Auction revenues are used to generate local and regional economic benefits, including through investments in local businesses that provide jobs for residents; weatherize homes; upgrade heating and air-conditioning systems; and provide clean, renewable energy.

## **How RGGI Pays Off**

### **Less Pollution**

Just as designed, RGGI has lowered the region’s carbon emissions. In fact, since the program began, RGGI has helped cut carbon pollution from power plants by more than half. Smart choices by the RGGI states mean that the downward emissions trend will continue, as the pollution cap is slated to decline by 2.5 percent a year through 2020 and 3 percent a year between 2021 and 2030. RGGI has also led to reductions in other dangerous pollutants that pour out of power plant smokestacks alongside carbon pollution. These pollutants—[mercury](#), [sulfur dioxide](#), [nitrogen oxides](#), and [particulate matter](#)—are linked to human health impacts including developmental delays, heart attacks, asthma attacks and other respiratory diseases, and even cancer. Between 2009 and 2014, RGGI created [health benefits valued at \\$5.7 billion](#).

### **Regional Economic Gains**

The cycle of benefits RGGI creates by cutting carbon pollution isn’t just good for our environment and our health. RGGI has also [created 45,000 job-years of work](#) across the region since the program’s launch (a job-year equals one year’s worth of full-time employment for one person) and [added \\$4.3 billion in economic value](#) to the region. Meanwhile, between 2008 and 2016, [economic growth in the RGGI states outpaced that of non-RGGI states by 4.3 percent](#), even as the RGGI states cut power plant carbon pollution faster than the rest of the nation.

### **Consumer Savings**

Thanks to energy efficiency measures and cost-saving renewable energy projects that RGGI helped put in place, consumers in the region have already saved hundreds of millions of dollars on energy costs—[\\$773 million so far](#)—and will eventually save \$6.98 billion on energy over the lifetime of these measures. Over RGGI’s first eight years, [electricity prices in the region fell by 6.4 percent](#), even as prices rose by an average of 6.2 percent in other states. Even consumers who don’t participate in energy efficiency programs benefit because participants cut demand overall, which [lowers the market price of electricity](#) for everyone.

## **A Model that Works**

Modeled on a [successful acid rain control program developed under President George H. W. Bush](#) and launched by a bipartisan group of governors, RGGI has enjoyed broad support throughout its history. With its proven track record, RGGI is a powerful example of how states and regions can jump-start a wide range of economic, social, and health benefits. By moving state and regional economies away from dirty fossil fuels, erratic energy prices, and antiquated power plants and toward clean technologies and innovation, RGGI creates jobs, lowers energy bills, and helps make U.S. businesses more competitive in the global economy.

As other states learn from RGGI's example, RGGI too continues to build on its success. In late 2017, the RGGI states completed a program review in which they [committed to achieve additional carbon pollution cuts through 2030](#) and to make other program improvements that will [capture even more benefits](#) for the region's consumers, economy, and environment.

### ***C. Combine the proposed comprehensive study (to evaluate the ideal timeline, policy design, and target levels) for the three policy actions recommended in I-1 with policy implementation***

While a comprehensive understanding of the policy details is crucial, we would suggest pairing this evaluation with the policy implementation process. Achieving the goals of Executive Order 80 by 2025 will require expeditious policy adoption. Ideally, the timeline and the target levels should be set in the final Clean Energy Plan, so that tailoring implementation can focus on tailoring a policy that will meet the adopted goals. And within a rulemaking process, the agency can and will develop ideal policy design.

With policy implementation potentially requiring a year or more, any additional delay will leave very little time with which to achieve the 2025 goals of EO80. It is crucial that we move quickly and implementing solution. Finally the stakeholder process for the clean energy plan has already set us on that path, once goals and timelines are set in the final Clean Energy Plan. Selecting and tailoring the necessary policies to meet them should be done expeditiously.

### ***D. If the final plan can set goals and timelines clearly, effective planning can begin at the North Carolina Utilities Commission***

The most recent order from the North Carolina Utilities Commission on the Duke Energy Integrated Resource Plans, has already established the requirement that Duke Energy Carolinas and Duke Energy



Progress incorporate in their modeling and planning the goals of Executive Order 80 and even the draft Clean Energy Plan.<sup>2</sup>

The Commission required that “on or before November 4, 2019, D[uke Energy Carolinas], D[uke Energy Progress], and the Public Staff shall file responses to the information requested in Appendix A, as specified in the body of th[e] Order.”

*3. DEC’s and DEP’s most current strategic plans to reduce carbon dioxide (CO<sub>2</sub>) emissions, including: (a) The implementation plan (including CO<sub>2</sub>glide path) that results in the attainment of DEC’s and DEP’s most current goals for reductions in CO<sub>2</sub>emissions.*

*(b)Modelling of the carbon reduction goals in the draft Clean Energy Plan released for public comment on August 16, 2019, by the North Carolina Department of Environmental Quality and Duke’s current carbon reduction plan. The modelling should not only show the resource portfolio needed to achieve these goals but should also show any cost differentials (increases or savings) from the base case and the preferred case. In modelling cost differentials, the plans should include anticipated costs attributable to disposal of coal wastes from ongoing and continued operation of coal-fired plants and anticipated cost savings attributable to earlier retirement of such plants.*

*(c) A comparison of DEC’s and DEP’s most current plans for CO<sub>2</sub> emission reductions to the Governor’s Executive Order No. 80 which states that “The State of North Carolina will strive to accomplish the following by 2025:a. Reduce statewide greenhouse gas emissions to 40% below 2005 levels.”<sup>3</sup>*

The North Carolina Utilities Commission is a vital partner as the state moves quickly to achieve the EO80 goals. We have already seen that the Utility Commissioners are paying close attention to the Clean Energy Plan. We expect that the final Clean Energy Plan goals will play a large role in the planning of the electric sector going forward and particularly in the 2020 Integrated Resource Plan docket. This is why it is so important for the final plan to set clear goals and timelines, as it will then allow regulators to design and implement the appropriate policies.

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<sup>2</sup> Available at <https://starw1.ncuc.net/ncuc/ViewFile.aspx?id=143d85de-b1e7-4622-b612-5a8c77e909d4>

From 27<sup>th</sup> of August, 2019, In the Matter of 2018 Biennial Integrated Resource Plans and Related REPS Compliance Plans; page 89:

“Carbon Dioxide Reductions and Coal Plant Retirements:

On October 29, 2018, North Carolina Governor Roy Cooper issued Executive Order No. 80 that, among other things, sets a goal of by 2025 reducing statewide greenhouse gas emissions to 40% below 2005 levels. This goal being well within the IRPs' 15-year planning horizons, the Commission concludes that DEC and DEP should be required to model their IRPs to show the efforts that will be required by each of them to contribute to the attainment of the goal. In particular, the two utilities should model plans that result, on a combined basis, in at least a 40% reduction in CO<sub>2</sub>emissions in 2030 compared to their combined 2005 CO<sub>2</sub> emission levels.

To address the issues surrounding carbon dioxide reductions, on or before November 4, 2019, Duke shall file written responses to the information requested in item number 3 of Appendix A. Based on these responses, the Commission may issue further orders related to the preparation of the utilities' 2020 IRPs.”

<sup>3</sup> Id. Appendix A page 3 of 5

### ***E. Maintain that Forest-Derived Bioenergy and swine waste-to-energy are not a Clean Energy Source***

The draft plan correctly acknowledges that forest-derived biomass is not a source of clean energy. Cutting and burning trees adds significant amounts of carbon dioxide to the atmosphere immediately, undermining the state’s emissions-reduction goals. Biomass production and combustion also create serious local air quality problems and degrade natural, intact forests that are necessary for coastal resiliency and carbon sequestration.

During the development of the CEP, DEQ staff presented a scientifically defensible definition of “clean energy” that is consistent with Executive Order No. 80 and with the views expressed by stakeholders during facilitated workshops. This definition states that “‘clean’ energy resources include solar, energy efficiency, battery storage, wind, efficient electrification, and other zero emitting technology options capable of quickly decarbonizing the power sector and modernizing the electric power sector.”<sup>4</sup> While this same definition appears in a call-out box in the Plan on page 17, DEQ should formally establish this as the agency’s definition elsewhere, to enhance clarity in the Plan.

In its June 2019 Facilitated Workshop, the DEQ clarified that biomass does not fall within the definition of clean energy, as it is not a “zero emitting technology.” At the time, however, it appeared the Department was considering biomass as a “lower-carbon alternative” to traditional fuels when the biomass is sourced using “environmentally sustainable” management practices. While we appreciate the Department’s affirmation in the CEP that biomass is not a form of clean energy, the earlier public reference to the use of biomass as a lower-carbon alternative remains very concerning.

Below we summarize why we believe the DEQ’s decision to exclude biomass from its definition of clean energy is very sound, and why there is no basis to contemplate forest-derived bioenergy even as a “low carbon” source. Our summary presents the science underlying two points: (i) forest biomass use cannot reduce emissions compared with fossil fuels within timeframes that address the worst consequences of climate change, regardless of the biomass sourcing and feedstock; and (ii) forest biomass sourced using sustainable management practices is not a low-carbon alternative; “sustainability” however defined, is not a proxy for carbon benefits.

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<sup>4</sup> Presentation to stakeholders at Clean Energy Plan Facilitated Workshop 5: Overview of Clean Energy Plan Vision and Guiding Structure, slide 9 (June 26, 2019), <https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/CEP-Combined-Workshop5-powerpoint.pdf>.

**I. Forest biomass cannot reduce emissions compared with fossil fuels within timeframes that address the worst consequences of climate change, regardless of the biomass sourcing and feedstock.**

When forest biomass is burned for electricity, it immediately emits CO<sub>2</sub> to the atmosphere at levels higher than coal or natural gas per unit of energy.<sup>5</sup> It is well established that the net emissions from this combustion (the emissions after factoring regrowth and/or avoided decay) persist in the atmosphere for time periods ranging from many years to centuries.<sup>6</sup> The length of this carbon impact depends on the feedstock used and the fossil fuel displaced, among other factors.

In the case of whole trees and other large diameter materials, it can take anywhere from 40 years to several centuries for forest regrowth and the associated carbon sequestration just to reach net emissions parity<sup>7</sup> with fossil fuels (the actual timing depends in large part on whether biomass combustion is compared to the coal combustion or natural gas combustion).<sup>8</sup> In a power-generating scenario that uses forestry residues<sup>9</sup> that would otherwise decay and release their carbon, the payback period is typically shorter because it is tied to the decomposition rate of that material and its size, but still is typically on the order of decades.<sup>10</sup> Based on this established science, it is clear that forest

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<sup>5</sup> According to the US EPA “[B]iomass firing in and of itself does not reduce emissions of CO<sub>2</sub> emitted from that source. Specifically, when measuring stack emissions, combustion of biomass emits more mass of emissions per Btu than that from combustion of fossil fuels, thereby increasing CO<sub>2</sub> emissions at the source.” U.S. Environmental Protection Agency, [Affordable Clean Energy Rule](#), June 2019.

<sup>6</sup> Pierre Bernier, et al., *Using ecosystem CO<sub>2</sub> measurements to estimate the timing and magnitude of greenhouse gas mitigation potential of forest bioenergy*. GCB Bioenergy, (Jan, 2013), <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1757-1707.2012.01197.x>; Bjart Holtsmark, *Harvesting in boreal forests and the biofuel carbon debt*, Clim. Change, (May, 2012), <https://link.springer.com/article/10.1007/s10584-011-0222-6>; Jerome Laganière, et al., *Range and uncertainties in estimating delays in greenhouse gas mitigation potential of forest bioenergy sourced from Canadian forests*, GCB Bioenergy, (Feb, 2017), <https://onlinelibrary.wiley.com/doi/abs/10.1111/gcbb.12327>; Jon McKechnie, et al., *Forest bioenergy or forest carbon? Assessing trade-offs in greenhouse gas mitigation with wood-based fuels*, Environ. Sci. Technol., (Jan, 2011) (appended to these comments), <http://www.pfpi.net/wp-content/uploads/2011/05/McKechnie-et-al-EST-2010.pdf>; K. Pingoud, et al., *Global warming potential factors and warming payback time as climate indicators of forest biomass use*, Mitigation and Adaptation Strategies for Global Change, (Apr, 2012); Anna Stephenson, et al., *Life Cycle Impacts of Biomass Electricity in 2020: Scenarios for Assessing the Greenhouse Gas Impacts and Energy Input Requirements of Using North American Woody Biomass for Electricity Generation in the UK*, UK Department of Energy and Climate Change, (Jul, 2014), [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/349024/BEAC\\_Report\\_290814.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/349024/BEAC_Report_290814.pdf); Michael Ter-Mikaelian, et al., *Debt repayment or carbon sequestration parity? Lessons from a forest bioenergy case study in Ontario, Canada*, GCB Bioenergy, (Jul, 2015), <https://onlinelibrary.wiley.com/doi/abs/10.1111/gcbb.12198>; Giuliana Zanchi, et al., *Is woody bioenergy carbon neutral? A comparative assessment of emissions from consumption of woody bioenergy and fossil fuel*, GCB Bioenergy, (Nov, 2012), <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1757-1707.2011.01149.x>.

<sup>7</sup> Net emissions parity is achieved when the sum of carbon in the regenerating stand and the GHG benefits of displacing fossil fuel reaches the amount of carbon in the forest stand if it had remained unharvested. See Ter-Mikaelian, et al. (2014).

<sup>8</sup> Andrea Colnes, et al., *Biomass Supply and Carbon Accounting for Southeastern Forests*, The Biomass Energy Resource Center, Forest Guild, and Spatial Informatics Group, (Feb, 2012), [www.biomasscenter.org/images/stories/SE\\_Carbon\\_Study\\_FINAL\\_2-6-12.pdf](http://www.biomasscenter.org/images/stories/SE_Carbon_Study_FINAL_2-6-12.pdf);

John Hagan, *Biomass Energy Recalibrated*, The Manomet Center for Conservation Sciences, (Jan, 2012), <http://magazine.manomet.org/winter2012/biomass.html>; Mitchell, et al. (2012).

<sup>9</sup> Timber industry terminology like "low grade wood" or "thinnings" or "non merchantable" trees might make sense for traditional forest products industries but are in no way relevant to a climate/clean energy policy. These categories tell you absolutely nothing about the carbon impacts of using those feedstocks as fuel for power generation.

<sup>10</sup> Repo, et al. (2014); Stephenson, et al. (2014); Mary Booth, *Not carbon neutral: Assessing the net emissions impact of residues burned for bioenergy*, Environmental Research Letters, (Feb, 2018), <http://iopscience.iop.org/article/10.1088/1748-9326/aaac88>.

biomass cannot reduce emissions compared with fossil fuels within timeframes to address the worst consequences of climate change (as for example, articulated in the recent IPCC report).

## II. Forest biomass sourced using “sustainable management practices” is not a low-carbon alternative.

“Sustainability,” however defined, is not a measure of carbon impacts. The concept or designation says very little, if anything, about the amount of CO<sub>2</sub> emitted by a given biomass source or the net effect of those emissions on atmospheric CO<sub>2</sub> concentrations over time. Below we assess a commonly cited instance in which sustainability is erroneously equated with carbon benefits – landscapes where forest growth exceeds removals. DEQ should reject these and other assertions that attempt to equate sustainable practices with carbon benefits.

### *Forest Growth, Removals, and Changes in Carbon Stocks*

The wood pellet and forest industries argue that biomass fuel harvested in regions where forest growth equals or exceeds removals (meaning overall forest stocks are stable or increasing) is deemed carbon beneficial. (Also known as Reference Point Accounting)

This approach was roundly rejected by the U.S. EPA’s own Scientific Advisory Board in its first assessment of the agency’s Framework for Biogenic CO<sub>2</sub> Emissions. According to the Board, reference point accounting:

*implies that forest biomass emissions could be granted an exemption simply because the location of a stationary facility is in an area where forest stocks are increasing. The reference point estimate of net emissions or net sequestration **does not indicate, or estimate, the difference in greenhouse gas emissions (the actual carbon gains and losses) over time that stem from biomass use.** As a result, [it] fails to capture the causal connection between forest biomass growth and harvesting and atmospheric impacts and thus may incorrectly assess net CO<sub>2</sub> emissions of a facility’s use of a biogenic feedstock. (emphasis added).<sup>11</sup>*

Arguments about “sustainable forestry” or sustained yield management suffer from the same pitfalls. Even when forest growth and removals are considered, sustainability criteria fail to fully account for net changes in carbon emissions from forest biomass and cannot be justified scientifically as a proxy for carbon accounting.

A recent report by the Chatham House, a distinguished UK think tank with a history of independent and rigorous research, reached the same conclusion:

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<sup>11</sup> U.S. Environmental Protection Agency, Scientific Advisory Board, Biogenic Carbon Emissions Panel, *Review of EPA’s Accounting Framework for Biogenic CO<sub>2</sub> Emissions from Stationary Sources*, September, 2011.

*It is often argued that biomass emissions should be considered to be zero at the point of combustion because carbon has been absorbed during the growth of the trees, either because the timber is harvested from a sustainably managed forest, or because forest area as a whole is increasing (at least in Europe and North America).*

*These arguments are not credible. They ignore ...the carbon sequestration forgone from harvesting the trees that if left unharvested would have continued to grow and absorb carbon.<sup>12</sup>*

According to a recent summary in the *Journal of Forestry*:

*An assumption that bioenergy harvesting in forests managed on a sustained yield (also called sustainable yield) basis does not create a carbon deficit is one of the most common errors in forest bioenergy accounting...Stating that sustained yield management is carbon neutral is incorrect.<sup>13</sup>*

Finally, none of the sustainable forestry certifications programs - even the most rigorous programs, which NRDC supports - include a carbon accounting mechanism. It's simply not what they were created for. As such, "sustainable forestry" or "environmentally sustainable" practices while plausibly beneficial for timber management or ecosystem/wildlife protection, cannot be treated as providing evidence that biomass harvested for energy production is carbon-beneficial.

#### **F. Enhancing the resiliency of the electric grid is an urgent priority**

Making the state's electrical grid more resilient to climate-related natural hazards (e.g. wind, flood, wildfire, hurricanes, coastal storms, etc.) should be a priority for North Carolina. NC Division of Emergency Management and Office of Recovery and Resiliency have been tasked with investigating the impacts of resiliency planning and including it in the state's Disaster Recovery Framework. While it is not clear from the language in the Plan whether this is only limited to energy infrastructure and utilities, NRDC is assuming that is the case, given that NCDEQ is tasked with creating a wholly separate Climate Risk Assessment and Resilience Plan under EO80.

In 2018 the National Institute for Building Sciences released a series of case studies for how utilities and transportation infrastructure had been protected and their risk mitigated from certain natural disasters. This study was limited in that it only assessed a small number of projects that had received funding through the federal Economic Development Agency. However, these case studies are quite useful for illustrating the financial benefit of ensuring that energy infrastructure is designed and built to withstand

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<sup>12</sup> Brack, D., *Woody Biomass for Power and Heat: Impacts on the Global Climate*, Chatham House, The Royal Institute of International Affairs, February 2017.

<sup>13</sup> Ter-Mikaelian, M., S. J. Colombo, and J. Chen. *The Burning Question: Does Forest Bioenergy Reduce Carbon Emissions? A Review of Common Misconceptions About Forest Accounting*. *Journal of Forestry*, 113(1): 57-68.

natural hazards. According to the study mitigating electric and telecommunications substations has a benefit-cost ratio of 9:1 with regard to flood risks. With regard to wind damage, improving electric power lines with underground lines or other improvements has a benefit-cost ratio of 6:1.<sup>14</sup>

An examination of data from the Federal Emergency Management Agency (FEMA) also reinforces the cost-effectiveness of making energy infrastructure more resilient. It should be noted that FEMA funding only can be used by utilities owned by government entities, not private energy companies and assets. Still, these data demonstrate that investments in more resilient energy infrastructure are cost effective.

Since 1989 720 projects have been funded across the nation through FEMA's Hazard Mitigation Grants Program (681), Pre-Disaster Mitigation Program (36), and Flood Mitigation Assistance Program (3). FEMA obligated \$646.6 million for these projects, whose total cost was estimated by applicants to be \$1.1 billion. These projects would have all had to demonstrate a positive benefit-cost ratio to qualify for FEMA funding.<sup>15</sup>

Similarly, FEMA's Public Assistance Grants have also supported reconstruction of energy infrastructure dating back to 1998, which is as far back as FEMA's data goes. FEMA obligated \$63.4 million for these projects, whose total cost was estimated by applicants to be \$82.9 million.<sup>3</sup> An additional \$104 million worth of projects applied for Public Assistance Grants, but only listed "Public Utilities" as the project type; therefore NRDC cannot distinguish whether these are for water utilities or energy utilities.

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<sup>14</sup> National Institute of Building Sciences, *Mitigation Saves: Utilities and Transportation Infrastructure Investments Can Provide Significant Returns*, 2018. Available at:

<https://cdn.ymaws.com/www.nibs.org/resource/resmgr/docs/NHMS-UtilitiesFactSheet.pdf>.

<sup>15</sup> FEMA, Hazard Mitigation Assistance Projects Data, accessed August 20, 2019. Available at: <https://www.fema.gov/data-feeds>.

**North Carolina Association of Electric Cooperatives’ Comments  
on the  
North Carolina Department of Environmental Quality’s  
*North Carolina Clean Energy Plan  
Policy & Action Recommendations Draft Report***

The North Carolina Association of Electric Cooperatives (“NCAEC”) appreciates the opportunity to comment on the draft *North Carolina Clean Energy Plan: Policy and Action Recommendations* (“CEP” or “draft CEP”) published on August 16, 2019 by the North Carolina Department of Environmental Quality (“DEQ”).

**COMMENTS**

NCAEC applauds the efforts of Governor Cooper, his administration, and DEQ in leading the effort to draft the CEP. NCAEC appreciates that DEQ purposefully drafted the CEP to articulate recommendations rather than directives. Recommendations implicitly preserve flexibility for further discussion about how the State pursues a 21<sup>st</sup> century consumer-centric electricity system that is “cost-effective yet maintain[s] affordability, reliability, equity, grid efficiency, sustainability, and economic viability for all.”<sup>1</sup>

As the CEP sets out,

[t]he energy sector is undergoing a technology revolution ... and is transforming the electricity system as we know it. ... States are recognizing that market forces driving this transformation come with many benefits, but also raise challenges and concerns. ... As new technologies are being adopted quickly, the change brings compelling opportunities as well as concerns and challenges that policymakers will need to address in the coming years.<sup>2</sup>

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<sup>1</sup> CEP at p. 10.

<sup>2</sup> CEP at p. 10.

By recognizing that “certain strategies and actions will require additional deeper dives and detailed analysis when considering new legislation or amending existing policies/practices[,]”<sup>3</sup> the CEP preserves space for further conversation about how best to serve consumers by capitalizing on opportunities, addressing concerns, and overcoming challenges.

The CEP is subtitled, “Transitioning to a 21<sup>st</sup> Century Electricity System.” North Carolina’s electric cooperatives have served as agents of transition in rural communities throughout the State for more than 80 years. Driven by service and guided by the principle of concern for community,<sup>4</sup> electric cooperatives understand that they must continue to serve as agents of transition, bringing innovation and technology to these communities that improves their quality of life without compromising the reliability and affordability of their electric service.

Working together, North Carolina’s 26 electric cooperatives are developing and delivering new energy solutions that put cooperative consumers and the vitality of our state first. Known as the Brighter Energy Future,<sup>5</sup> the roots of these forward-focused energy solutions grow from three values: (i) creating a low-carbon emissions environment through sustainability and continued investment in low- and zero-emissions resources; (ii) pursuit

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<sup>3</sup> CEP at p. 136; *see also*, CEP at p. 5.

<sup>4</sup> *See* “Our Principles,” accessible at <https://www.ncelectriccooperatives.com/who-we-are/>.

<sup>5</sup> *See* “North Carolina’s Electric Cooperatives Welcome Conversations Regarding State’s Energy Future and Rural Communities,” accessible at <https://www.ncelectriccooperatives.com/who-we-are/spotlight/north-carolinas-electric-cooperatives-welcome-conversations-regarding-states-energy-future-and-rural-communities/>.



of increased flexibility and resiliency of grid operations, including but not limited to expanded broadband-enabled integrative capabilities at the edge-of-grid where each electric cooperative most directly interacts with its members; and, finally, (iii) pursuit of beneficial electrification (e.g., transportation electrification).

NCAEC is pleased that the CEP is directionally aligned in multiple respects with the electric cooperatives' vision for a Brighter Energy Future. Where there is alignment, NCAEC and its members look forward to capitalizing on opportunities and advancing a Brighter Energy Future for our members.<sup>6</sup>

**A. How Matters**

NCAEC has opted not to “catalog” concerns with the draft CEP; instead, NCAEC believes it sufficient to point out that, while there appears to be growing consensus around what a 21<sup>st</sup> century electricity system should look like from a carbon emissions standpoint, there is not yet general agreement among stakeholders about *how* best to realize a low- to zero-carbon vision of the future.

As the CEP sets out,

[w]ith progressive energy and environmental policies and a strong history of public and private cooperation, North Carolina has positioned itself as a frontrunner in the clean energy economy space. Today, we have the highest concentration of smart grid companies in the world, are second in the nation for installed solar capacity, and are home to nearly a thousand clean energy companies in North Carolina that generate over \$6.4 billion in annual revenue for our state. New technologies and opportunities continue to offer an avenue for creating additional jobs, help North Carolina be globally

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<sup>6</sup> For example, multiple electric cooperatives are exploring or have already implemented EV rate designs that encourage off peak charging and EV adoption. *See* CEP at p. 134.

competitive in the new economy, and help us meet the challenges of climate change.<sup>7</sup>

The rural communities served by electric cooperatives are keenly interested in promoting engines of economic prosperity, and thus we are keenly interested in seeing the clean energy economy grow in rural North Carolina. But *how matters*. The *how* is of integral importance to ensuring cooperative members have access to increasingly clean, secure, and resilient electricity in addition to continued access to affordable, safe, and reliable electricity.<sup>8</sup>

As part of the CEP development process, DEQ convened a utility business model group (“UBM Group”). The UBM Group was comprised of, among others, representatives of Duke Energy, the electric cooperatives, NC Sustainable Energy Association, Environmental Defense Fund, Sierra Club, NC Justice Center, Southern Environmental Law Center, NC WARN, and Duke University’s Nicholas Institute. The UBM Group produced a white paper which serves to highlight the *how matters* concept:

The [UBM G]roup agrees that the design of any [policy] tool affects how and whether it supports clean energy deployment, utilities’ financial health, and ratepayers. In other words, the “how” matters. The [policy] tools identified [in the white paper] are not mutually exclusive. The tools will interact and affect one another’s performance, and the efficacy of any single tool can be either strengthened or weakened by other tools implemented, further adding to the importance of how the tools are constructed and implemented.<sup>9</sup>

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<sup>7</sup> CEP at p. 11.

<sup>8</sup> See CEP at p. 111 (“One of the most fundamental values is keeping electricity affordable to all North Carolinians. Another is building a clean generation fleet that provides the safety, security, reliability and resiliency that customers depend on.”)

<sup>9</sup> UBM Group White Paper at p. 1 (accessible at <https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/Group-4---Utility-Business-Model-Memo-FINAL.mdx.PDF>).

The draft CEP’s proposed transition to a 21<sup>st</sup> century electricity system involves multiple policy recommendations including, to name a few: (i) studying whether the state should increase competition in electricity generation by joining an existing wholesale market or allowing retail energy choice; (ii) exploring performance-based ratemaking; (iii) enhancing cybersecurity; (iv) revising the utility planning processes; (v) setting a carbon emissions reduction goal for the electricity sector; (vi) amending the Renewable Energy and Energy Efficiency Portfolio Standard (“REPS”) to create an energy efficiency requirement not unlike the current solar and animal waste “set aside” requirements; (vii) promoting virtual net-metering; and (viii) promoting increased access to electricity usage data for utility customers and their designees. For each of these recommendations and for the others enumerated within the draft CEP, *how matters*.

Several examples may serve to illustrate our point:

**i. Deregulation is not *how* best to proceed.**

CEP Recommendation A-3 proposes the state “[i]nitiate a study on the potential costs and benefits of different options to increase competition in electricity generation, including but not limited to joining an existing wholesale market and allowing retail energy choice.”<sup>10</sup> The electric cooperatives are concerned by this recommendation’s mention of joining a wholesale market and allowing retail energy choice.

The White Paper from the UBM Group recognized “that utilities continue to see value in maintaining the regulatory compact, commonly understood as the grant of an

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<sup>10</sup> CEP at p. 64

exclusive monopoly to a utility in exchange for public oversight and the obligation to serve all customers within the service territory at a reasonable price set by the regulator.”<sup>11</sup> It is worth noting that the UBM Group’s White Paper, written after robust discussion by the group’s utility and non-utility members, does not recommend pursuit of wholesale or retail deregulation.

Electric cooperatives’ concerns about deregulation are well-founded. Cooperatives were created in the 1930s and 1940s to deliver electricity to members within exclusive service areas precisely because competition and the market-based approaches of the day were not electrifying rural America. Similarly, today, competition and unregulated approaches have not yielded widespread availability of high-speed internet service in rural America. Put simply, competition and free market-based approaches are not cure-alls and can have inequitable consequences, particularly in rural areas.

While NCAEC and its members recognize the need for continued transition within the electricity sector, and while they recognize that stakeholders may wish to discuss certain “market-based” tools, NCAEC and its members do not support dismantling of the regulatory compact via deregulation, especially if deregulation will: (i) detrimentally impact electric cooperatives’ ability to serve their members and/or (ii) contribute to a widening, rather than a narrowing, of the rural-urban divide. It cannot be overstated: When it comes to transition in the electricity sector, *how matters*.

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<sup>11</sup> UBM Group White Paper at p.1.

**ii. Setting a state carbon emissions reduction goal and then studying what is feasible is not *how* best to proceed.**

The CEP has several recommendations regarding electricity sector carbon reductions including the recommendations that, in the near term, the state “[s]et North Carolina electricity sector carbon reduction goals in policy and legislation” (CEP Recommendation I-1) and “[c]onduct a comprehensive study to evaluate the ideal timeline, policy design, and target levels for the three policy actions recommended in I-1” (CEP Recommendation I-2). NCAEC and its members believe conducting a study prior to setting a goal may be the better approach. A study will enable more consideration of the role existing nuclear units and beneficial electrification (“BE”) will play within the electricity sector’s emissions profile in 2030 and 2050.

North Carolina currently experiences benefits from an abundance of emissions-free nuclear energy, whereas areas of the country with shuttered nuclear plants have seen an increase in carbon emissions. While retiring uneconomic coal generation has a productive impact upon carbon emissions, the opposite would be true in the absence of a clean, reliable nuclear fleet. The CEP should move toward the term “emissions free” generation, inclusive of renewable generation and nuclear power, and consider how the state can maintain its abundance of zero-carbon generation.

Furthermore, as the electric cooperatives stated in the UBM Group White Paper, “[P]rompted by [our] support for BE and [our] understanding that BE could result in higher electric sector GHG emissions but reduce statewide GHG emissions, [we] cannot endorse a recommendation that the State set a GHG emissions reduction goal for the electric sector.

[We] instead believe[] ongoing discussion among stakeholders is a more appropriate next step.” Broad adoption of electric vehicles and cost-effective conversion of industrial processes from fossil fuel to electricity would result in a dramatic reduction in overall economy-wide energy consumption and emissions in the State, while also saving consumers money. A carbon emission reduction goal that focuses purely on electric sector reductions may miss a great opportunity to decarbonize transportation through electrification.

When it comes to transition in the energy sector, *how matters*.

#### **B. Concerned, Not Complacent**

Because NCAEC and its members have concerns, we prefer to see additional discussion prior to implementation of any major policy changes. NCAEC’s and its members’ concerns should not be conflated with complacency or a desire by the electric cooperatives to maintain the *status quo*. Quite the opposite is true: Electric cooperatives are innovating. The draft CEP calls out repeated instances of cooperative innovation to date. As just one example, “NC’s rural electric cooperatives have been early implementers of advanced technology, and are leading the way to increased reliability, two-way communication, load management, and grid operation.” (CEP at p. 45). In fact, the cooperatives’ current deployment of innovative projects extends beyond those captured by the draft CEP; and North Carolina’s electric cooperatives will continue to innovate to find solutions that deliver their members a Brighter Energy Future.

In sum, the electric cooperatives have concerns; they are not complacent. For the betterment of rural member-consumers, NCAEC and its members stand “ready to work with North Carolina leaders to continue transforming our state into a national leader in [the] clean energy economy.”<sup>12</sup>

### **CONCLUSION**

The CEP is directionally aligned in multiple respects with the electric cooperatives’ longstanding mission and their vision for a Brighter Energy Future for their members. Where there is alignment among stakeholders, NCAEC and its members look forward to capitalizing on the near-term opportunities. Where stakeholders have not reached consensus on next steps, NCAEC and its members look forward to continued conversation to achieve alignment with DEQ and other stakeholders.

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<sup>12</sup> CEP at p. 136.



# NCCEBA

## REPRESENTING CLEAN ENERGY BUSINESSES

### **Comments of the North Carolina Clean Energy Business Alliance on the Draft North Carolina Clean Energy Plan**

**September 9, 2019 Revised**

#### **Introduction**

The North Carolina Clean Energy Business Alliance (NCCEBA) is a 501(c)(6) trade association representing a wide range of businesses in North Carolina's large and expanding clean energy economy. The state's clean energy sector employs over 40,000 people and invested more than \$9 billion into the state in 2017 and 2018 alone. NCCEBA and its members are committed to improving the quality of life in North Carolina through clean energy solutions while continuing to make major investments in the state and its local communities.

NCCEBA commends and congratulates the Cooper administration for preparing an outstanding first draft of the North Carolina Clean Energy Plan (CEP or the Plan). The Department of Environmental Quality (DEQ) conducted a thorough and inclusive stakeholder process to seek input on the CEP. The result is an impressive document that makes a compelling case for the need to transition the state to a clean energy future and lays out a set of recommendations for achieving that goal.

NCCEBA believes that there are a number of ways in which the Draft CEP can and should be improved before it is finalized. Our recommendations fall into three broad categories: (1) restructuring and simplifying the document to make it easier to digest and thus more effective; (2) reordering and prioritizing the recommendations; and (3) modifying or combining a limited number of the recommendations and proposing a few key additional recommendations. Our recommendations generally leave intact the substance of the CEP's three goals, its grouping of recommendations, and the content of most of the CEP's 37 granular policy recommendations, but add emphasis and priority to them to better communicate the urgency and tasks necessary to make the Plan a reality.

#### **Recommendations**

1. **Prioritize decarbonization.** The primary purpose and objective of Governor Cooper's Executive Order 80, and thus of the CEP, is to drive and accelerate a substantial reduction in carbon emissions in the state. Yet decarbonizations



appear second among the Plan's three goals and ninth among twelve strategy areas. It should be placed first in both.

2. **Focus and accelerate the decarbonization strategy.** The Draft CEP includes a mix of recommendations, some of which relate directly to reducing carbon emissions and others which deal with important but indirect or ancillary issues. With respect to direct carbon reduction, there are a variety of different policies and strategies proposed in the Plan, but it presents three primary strategies for achieving a 70% reduction in carbon emissions by 2030: (1) early coal retirements, (2) increased clean energy mandates, and (3) a carbon cap or percentage emissions reduction mandate.

While NCCEBA appreciates DEQ's comprehensive approach to tackling the problem, we believe that attempting to achieve the objective of decarbonization in so many different ways will be confusing, lead to long delays and be unnecessarily complex – and we think some of the recommendations are not advisable at this time. We think the better path is one that is much more focused and that can be implemented quickly. Indeed, one of our biggest concerns with the Draft Plan is that after taking the year needed to produce the Plan it calls for more study around its most important elements. We believe EO 80 already spells out the overarching carbon-reduction goal and that the Plan needs to spell out succinctly the how to achieve it in a timely fashion.

We believe that the best, most efficient path forward is for the legislature to immediately require the utilities to prepare and implement, subject to NCUC oversight and approval, IRPs that achieve designated carbon-reduction goals (we support 70% reduction in carbon emissions by 2030, with an interim reduction goal of 40% by 2025). That will necessarily drive accelerated retirements of inefficient, expensive and polluting power plants and a significant increase in cost-effective renewable resources and energy efficiency. At the same time, we support the longer term recommended exploration of process measures, such as increased competition that can reduce the cost of achieving the carbon-reduction goals and better align utility incentives with the goal.

Establishing commitments to aggressive carbon reductions is now a part of good corporate practice. According to a recent study published in Harvard Law School's forum on Corporate Governance, investment and relocation decisions are increasingly based on companies' ability to purchase low carbon energy. For this reason and in recognition of the dire threat of climate change, many companies, like Bank of America, Home Depot, and Stanley Black and Decker, were given an A rating by an independent organization that reviews companies long term commitments to reducing carbon emissions. Incorporating carbon reduction goals into North Carolina utility IRPs would be beneficial not only to the utilities and to their commercial and industrial customers, but also to rural North Carolina where most of the renewable energy development will take place. In addition, North Carolinians, as well as the state's major cities and universities, are overwhelmingly committed to a greater reliance on clean energy resources.

3. **Add an executive summary that succinctly identifies the plan's priority goals and recommendations.** The Draft CEP includes an excellent 20-page summary that will no doubt be useful for readers who choose not to delve into the Plan's more detailed

discussion of the challenges we face and the policy recommendations to address them. But for many readers, especially most legislators, even that will be too much detail and complexity. The Plan needs to start with a 2-3 page true Executive Summary that identifies the highest priority recommendations in the report. We have identified those that NCCEBA would put in this category below.

4. **Simplify and restructure the architecture of the Plan and Modify/Add a Limited Number of Recommendations.** We find the current structure of the Plan is unnecessarily complex and confusing and we believe it distracts from the effectiveness of the Plan and dilutes its most important recommendations. Appendix A points out this confusing organization (with some of the specific problems identified).

We therefore recommend the following specific changes to the form and content of the Draft Plan (presented here in the order the items appear in the Draft or need to be added to the Draft):

A. Combine the Vision into the Plan Goals (pp. 19-22). The distinction between these two elements is unclear and unhelpful, and they seem to create competing priorities (especially since there is no mention of decarbonization in the Vision). The Vision element relating to clean energy resources can be combined with the Goal dealing with that subject. Similarly, the Vision element regarding equitable access can be combined with the goal relating to affordability. We would support including the Vision Element regarding customer options under the goal “Accelerate Clean Energy.” As noted above, the decarbonization goal should be in place first.

B. We recommend eliminating the current seven “Priority Recommendations” (pp. 23 and 57) which are not in fact recommendations, but the categories of recommendations, and which are subsumed in the twelve sub-areas that appear under the five Strategy Areas (pp. 24-29), which we also recommend eliminating. This level of Plan architecture is totally unnecessary and confusing.

C. We then recommend consolidating the 12 recommendation sub-areas into nine (without eliminating any of the content), reordering them, and grouping the granular recommendations in each area as set forth below. We have included the current labeling of the recommendations so that they can be easily located in the plan, but they would be relabeled as reorganized here in a revised plan. We have also identified those recommendations in ***bold italics*** below that we believe should be called out as the highest priorities in the new Executive Summary. Finally, we have included a few explanatory comments in red. We are also providing our proposed restructuring of the plan in graphic form.

D. We propose deleting three of the granular recommendations in the draft plan and including four new ones. Two major challenges for achieving the overarching decarbonization goal are (1) improving our ability to integrate intermittent renewable resources into the grid at the least cost possible and (2) facilitating the deployment of battery storage. NCCEBA also recommends modernizing/reorienting NC’s electric grid to accommodate much more clean

energy and distributed resources (DERs). Such modernization must include improvements to the design and dispatch of generation and transmission assets. We recommend that all our new recommendations be categorized as short-term, though we recognize that grid modernization will have short-, medium-, and long-term components.

## **NCCEBA Recommended Plan Structure - 9 Strategy Areas with Detailed Recommendations for Each Strategy (Prioritized Recommendations in Bold Italics)**

### **A. Decarbonization of the electric power sector**

***A.1 (former I.1) Set carbon reduction goals in legislation. See discussion in Section 2 above about modifying the details of this goal. As discussed, we believe this should be a goal that is implemented through utility IRPs.***

(I.2) Studying the policy details and timelines of the three actions identified above. ***We think this recommendation should be eliminated in light of our recommendation on I.1.***

***A.2 (former I.3) Incorporate carbon reduction goals in planning process. In light of our recommendation on A.1, what would be incorporated into the planning process is not carbon pricing but carbon reduction goals.***

### **B. Clean energy and distributed resources** ***This section should stay focused on policies/actions to remove barriers and create incentives; direct outcome drivers are more appropriate in the prior section.***

***B.1 (new) (i) Conduct an inclusive and objective renewables integration study, including an evaluation of integration costs and recommendations for minimizing such costs and operating the grid in a smarter fashion.***

***B.2 (new) Pass legislation to promote the development of energy storage resources.***

B.3 (former D.3) Green bank or clean energy fund. Not primarily about customer access. ***Consider moving to the Clean Energy section above.***

B.4 (former E.1) Value of DER tariff

B.5 (former E.2) Transparency re system constraints

B.6 (former F.1) Collaborative partnerships for off-shore wind development

B.7 (former F.2) Study of supply chain and infrastructure needs for off-shore wind development

### **C. Electricity Market Design (formerly “Utility Tools and Incentives”)**

***C.1 (former A.1) Stakeholder process for studying alternative utility compensation models (e.g., decoupling, performance-based ratemaking)***

C.2 (former A.2) Pilot programs to evaluate PBR

***C.3 (former A.3) Study of options for increased competition (wholesale and retail)***

## **D. Comprehensive utility system planning**

***D.1 (new) Not allow utilities to construct or procure resources not approved in the planning process.***

***D.2 (former B.1) Comprehensive and transparent planning process***

(former B.2) Include societal and environmental impacts in cost-benefit analysis. This is largely duplicative of our leading recommendation of incorporating carbon reduction goals into the planning process; if our recommendation is implemented, this section can probably be deleted.

***D.3 (former B.3) Competitive procurement by IOUs***

**E. Grid modernization, resilience and flexibility** We found it odd that the Draft CEP has grid resiliency grouped with decarbonization rather than with grid modernization. We have corrected that.

***E.1 (new) Modernize NC's electric grid to accommodate much more clean energy, including investments to move energy from clean energy resource rich rural eastern North Carolina to the load centers in the Piedmont.***

E.2 (former C.1) Factors to be considered in evaluating grid modernization proposals.

E.2 (former C.2) Improved processes for evaluating grid modernization investments.

E.3 (former J.1) Require microgrids etc. at state and other critical facilities

E.4 (former J.2) Coordinate resilience planning and disaster recovery

E.5 (former J.3) Quantify human costs of power outages and incorporate into planning

**F. Customer access to clean energy** Exploration of retail competition is included under Electricity Market Design, but might be more appropriate here.

***F.1 (former D.1) Possible revisions to HB.589 programs.*** This recommendation needs to be more specific. In particular, GSA needs to be much bigger and the bill credit problem needs to be fixed. The community solar program is not meaningful in its current form.

F.2 (former D.2) PACE program

F.3 (former D.4) Virtual or group net metering/increase community solar Somewhat redundant of F.1/D.1.

(former D.5) Increase RPS or create new zero-emissions standard. This doesn't really deal with customer access, but in any case we think it should be deleted.

**G. Energy efficiency and demand-side management programs**

G.1 (former K.1) EE Advisory Council

G.2 (former K.2) Customer access to data.

G.3 (former K.3) Minimum EE goals within existing RPS

G.4 (former K.4) Enhanced education and awareness

G.5 (former K.5) Energy rate design pilots **This recommendation strays beyond EE/DSM**

G.6 (former K.6) Update NC Building Code

**H. Expanded electrification** **Note that we changed this heading to account for the fact that one of the recommendations is not about the transportation sector.**

H.1 (former L.1) Innovative rate design for EVs

H.2 (former L.2) Analyze the costs and benefits of greater electrification of homes, buildings, etc.

**I. Equitable access and just transition**

I.1 (former G.1) Consider equity issues in program design and facility siting

I.2 (former G.2) Low-income rate-class design

I.3 (former G.3) Expand EE and renewables programs to underserved/low-income communities.

I.4 (former H.1) Inclusion of “marginalized” communities in decision-making about program design and facility siting

I.5 (former H.2) EE apprenticeship program

I.6 (former H.3) Clean energy jobs for low-income and displaced workers

**Proposed Revised Plan Structure**

<b>Strategy Areas</b>	<b>Recommendations (Priority Recommendations in Bold Italics)</b>
<b>A. Decarbonization of Electric Power</b>	<b><i>A.1 Set carbon reduction goals in legislation</i></b> <b><i>A.2 Incorporate carbon reduction goals in planning process</i></b>
<b>B. Clean Energy and Distributed Resources</b>	<b><i>B.1 Conduct an inclusive and objective renewables integration study</i></b> <b><i>B.2 Pass legislation to promote the development of energy storage</i></b> <b>B.3 Green bank or clean energy fund</b> <b>B.4 Value of DER tariff</b> <b>B.5 Transparency re system constraints</b> <b>B.6 Collaborative partnerships for off-shore wind development</b> <b>B.7 Study of supply chain and infrastructure needs for off-shore wind development</b>
<b>C. Electricity Market Design</b>	<b><i>C.1 Study alternative utility compensation models</i></b> <b>C.2 Pilot programs to evaluate performance-based regulation</b>

	<b><i>C.3 Study of options for increased competition (wholesale and retail)</i></b>
<b>D. Comprehensive utility planning system</b>	<b>D.1</b> Disallow utilities to construct or procure resources not approved in the planning process
	<b>D.2</b> Comprehensive and transparent planning process
	<b>D.3</b> Competitive procurement by IOUs
<b>E. Grid modernization, resilience and flexibility</b>	<b><i>E.1 Modernize the electric grid to accommodate more clean energy</i></b>
	<b>E.2</b> Improved processes for evaluating grid modernization
	<b>E.3</b> Require microgrids at state and other critical facilities
	<b>E.4</b> Coordinate resilience planning and disaster recovery
	<b>E.5</b> Quantify costs of power outages and incorporate into planning
<b>F. Customer access to clean energy</b>	<b><i>F.1 Possible revisions to HB.589 programs</i></b>
	<b>F.2</b> PACE program
	<b>F.3</b> Virtual or group net metering, increase community solar
<b>G. Energy efficiency and demand-side management programs</b>	<b>G.1</b> Energy Efficiency Advisory Council
	<b>G.2</b> Customer access to data
	<b>G.3</b> Minimum EE goals within existing RPS
	<b>G.4</b> Enhanced education and awareness
	<b>G.5</b> Energy rate design pilots
	<b>G.6</b> Update NC Building Code
<b>H. Expanded electrification</b>	<b>H.1</b> Innovative rate design for EVs
	<b>H.2</b> Analyze the costs and benefits of greater building electrification
<b>I. Equitable access and just transition</b>	<b>I.1</b> Consider equity issues in program design and facility siting
	<b>I.2</b> Low-income rate-class design
	<b>I.3</b> Expand EE and RE programs to underserved communities.
	<b>I.4</b> Inclusion of marginalized communities in decision-making about program design and facility siting
	<b>I.5</b> EE apprenticeship program
	<b>I.6</b> Clean energy jobs for low-income and displaced workers

5. **Disaggregate medium- and long-term recommendations.** Currently the Plan includes three timeframes for implementing recommendations: short-term (next 12 months), medium-term (1-3 years), and long-term (3-5 years). NCCEBA agrees with this approach. However, in the graphic presentation of the granular recommendations, they are color-coded to indicate the applicable timeframe, but medium-term and long-term recommendation are lumped together. Especially since the 2020-21 legislative session, which falls in the medium-range period, may be where many recommendations need to be acted on, the Plan should differentiate between medium- and long-range recommendations in its graphic presentation.

## **Conclusion**

NCCEBA appreciates the opportunity to provide this input on the Draft CEP and again commends DEQ and the Administration for your outstanding work in developing the plan. We look forward to discussing these recommendations with you and to working together as you finalize the Plan.

### **APPENDIX A – CURRENT CEP ARCHITECTURE**

- 3 Vision statements p 19
  - Increased DERs
  - Give customers more options
  - Equitable access and rates
- 3 goals (not prioritized) p 56
  - Accelerate clean energy
  - Affordability and changing planning and regulations to promote clean
  - Carbon reduction
- 7 Priority Recommendations (not actually recommendation and not prioritized) p 23
  - Modernize utility incentives
  - Address equitable access and affordability
  - Require comprehensive planning
  - Decarbonize electric power
  - Facilitate interconnection DERs
  - Increase use of energy efficiency and DSM
  - Electrify transportation
- 5 strategies areas (unnecessary, not properly framed and not prioritized) p 56
  - Incentives and planning
  - Access and economic development
  - Equitable access
  - Carbon and grid resiliency
  - Electrification and EE
- 3 timing categories – p 56 actually the last 2 are not separated
  1. Short
  2. Medium
  3. Long terms (in placed lumps long with medium term)

- 12 detailed recommendation categories (which are not prioritized and include all of the seven “priority recommendations” and contain 37 granular recommendations) (in graphic p 24 in the lower boxes)
  - A. Modernize utility incentives p 60
  - B. Require Comprehensive planning p 67
  - C. Modernize the Grid p 74
  - D. Enable customer choice p 79
  - E. DER interconnection and compensation p 87
  - F. Clean energy economic opportunity p 92
  - G. Equitable access and affordability p 96
  - H. Just transition to clean energy p 102
  - I. Decarbonize the electric power sector p 108
  - J. Grid resiliency flexibility p 116
  - K. Increase EE p 122
  - L. Electrify transportation and other fossil use p 133



Via E-Mail:

September 9, 2019

Secretary Michael S. Regan

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Re: Comments on draft Clean Energy Plan



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Dear Secretary Regan,

The North Carolina Conservation Network (NCCN) submits these comments on the draft Clean Energy Plan (the Plan) that the Department of Environmental Quality (DEQ) published for public comment on August 16, 2019 pursuant to Governor Cooper's landmark executive order addressing climate change, Executive Order No. 80. NCCN is a statewide environmental advocacy group that works alongside over 140,000 North Carolinians and nearly 60 partner organizations to protect public health, the environment and an equitable, low-carbon future for our state.

At the outset, we wish to recognize the Administration and in particular the NCDEQ staff who conducted the stakeholder process and regional listening sessions that made this plan reflective of the values of North Carolina. The Plan gives us all a vision of an energy

system that promotes equity and public health while decreasing climate risk. We look forward to working with all responsible branches of state government to implement it.

We support the Plan as a whole. That said, like most drafts, the Plan can be improved, and we offer the following comments in the hope that they are capable of incorporation into the Plan's final version.

**The Plan should call for a firm 70% reduction from the power sector by 2030 and reduce electric sector emissions to zero by 2050 rather than “working towards” that goal.**

The Plan sets laudable goals but to achieve them NCDEQ must clarify what those goals are and recommend specific paths for the electric sector to achieve them. Modelling from the Plan shows both a mass cap and accelerated coal retirement scenarios are capable, independently, of achieving nearly 70% reduction in emissions from 2005 levels. We urge NCDEQ to commit to reducing electric sector emissions by 70% by 2030.

To achieve this reduction by 2030 rapid action will be necessary. We urge NCDEQ to *set a firm deadline of December 2020* to put forth a proposal of how the state can hit the 2030 goals. This would include completing any further study and modelling in conjunction with academia and outside actors of all three major scenarios: (1) adoption of a new Clean Energy Standard/ Renewable Efficiency Portfolio Standards (REPS), (2) Accelerated Coal Retirement, and (3) Carbon Mass Cap. That deadline is vital to allow sufficient lead time for these options to achieve the reductions in time and to be considered by lawmakers in the 2021 long session of the next legislative biennium.<sup>1</sup>

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<sup>1</sup>Table I-2, Page 113, Draft Clean Energy Plan

We note that to advance the goals of the Plan, the modelling needs not only to estimate the potential reductions each tool can achieve by 2030, but also assess the equity implications of using each policy, or combination of policies, for delivering zero electric sector emissions by 2050. How does each policy affect public health and, in particular, populations which already bear a disproportionate burden of pollution under the current electricity generation system?

Second, it is crucial that in achieving the 2030 target, we do not make achieving zero emissions by 2050 more difficult. Given that many Southeastern utility projections include an increase in emissions after 2030, a recommended policy set should be chosen for best fit for 2030 and 2050 goals.

**Work with the Commission to outline how each retiring coal plant can be replaced by clean energy rather than natural gas.**

The draft Clean Energy Plan assumes that state legislative action may be needed to achieve a more thorough needs and least cost analysis of existing coal combustion facilities. Yet as we saw from the NC Utilities Commission's (Commission) order of August 27, 2019, the Commission already has authority in the context of integrated resource planning to require regulated utilities to model scenarios of compliance with the Clean Power Plan. More narrowly, the Commission's August 27th order explicitly directs Duke Energy to evaluate whether the continued operation of existing coal facilities is economically prudent.<sup>2</sup> We urge DEQ, wherever possible, to recognize and support avenues of administrative as well as legislative action to achieve the Plan's goals-in particular by providing its own scenarios of how accelerated coal requirements could be cost-effectively replaced with clean energy.

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<sup>2</sup> Order of August 27th, 2019, In the Matter of 2018 Biennial Integrated Resource Plans and Related 2018 REPS Compliance Plans, North Carolina Utilities Commission, Docket No. E-100, Sub 157 DOCKET NO. E-100, SUB 157

Achieving zero emissions by 2050 will be far more difficult if the expansion of methane-burning electricity facilities continues through the 2020s. Counter to the Plan's goals, Duke Energy's 2019 IRP update, released after the draft Plan, increases the projected amount of projected natural gas built out in North Carolina over the next fifteen years.<sup>3</sup> We encourage NCDEQ help ensure that the Commission has access to alternative scenarios which are not dependent on expanded fossil fuel infrastructure.

**The Plan should call for the Commission, as it weighs the cost of proposed new generation facilities, to factor in a carbon price that it derives, not one supplied by regulated entities.**

The Plan correctly recognizes that the full social cost of carbon is not captured in present long-term utility planning methodology.<sup>4</sup> We urge DEQ to recommend that the Utilities Commission solicit information on appropriate carbon pricing to ensure that the full cost of carbon, including the cost of fossil fuel distribution infrastructure, is incorporated into utilities' least-cost planning as they develop integrated resource plans ("IRPs").

As suggested in Recommendation I-3, regulated utilities should be required to adopt a carbon price in IRP planning. We recommend that this requirement be put in place for 2020, the next full cycle of IRP planning, rather than the "update" year of 2021 as proposed in the Draft Plan, to prevent the potential construction of additional fossil fuel infrastructure that would be uneconomic under a full social cost accounting of its carbon impact. Second, we urge NCDEQ to provide the Commission with information on the full range of carbon (and carbon equivalent prices, such as methane<sup>5</sup>) prices considered at the

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<sup>3</sup> [2019 IRP Update Report](#), Duke Energy, Sept 3, 2019

<sup>4</sup> Table I-3, page 115, Draft Clean Energy Pla

<sup>5</sup> The social cost of methane was estimated as \$1,400 per ton under the Obama administration. "EPA Revises the Social Costs of a Potent Greenhouse Gas" Scientific American, Nov 20, 2017

federal level in the past five years-including the approximately \$50 per ton figure in use by EPA as recently as 2017.<sup>6</sup>

**The Clean Energy Plan should be implemented with a special focus on equity to ensure that all North Carolinians benefit from the transition to clean energy.**

Together, environmental justice and equity compromised the second most important value-set to stakeholders after carbon reduction.<sup>7</sup> Recognizing the challenges of capturing these concerns in what can often be a technical planning process, we salute DEQ's willingness to adjust its own public outreach procedures in an attempt to capture community as well as stakeholder input.

We encourage that NCDEQ take a collaborative approach in working with the Commission as both entities "explore ways to incorporate environmental justice into decisions and make commission processes more inclusive".<sup>8</sup> The lessons learned by DEQ soliciting community feedback across the state on the Plan will ensure that as the Commission conducts stakeholder outreach on environmental justice it is able captures the concerns of the public by meeting impacted communities where they are.<sup>7</sup>

Second, we urge that the role of NC Environmental Justice and Equity Advisory Board (EJEAB) be more clearly defined in the implementation of the Clean Energy Plan. Simply requiring that the EJEAB be "informed" does not ensure that body's meaningful participation in the implementation of the Plan.<sup>8</sup>

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<sup>6</sup>Id. Revisions to lower the estimated social cost of GHGs since 2017 change the methodology for such calculations substantially in a number of ways, perhaps most substantially by factoring in only projected domestic, rather than global, harms caused by emissions. We encourage NCDEQ to continue use of social cost numbers which account for global impacts.

<sup>7</sup>See Draft Clean Energy Plan, Figure 13, Page 55

<sup>8</sup>See Table H-1, page 103 Clean Energy Plan Draft

NCDEQ could strengthen and make more specific these commitments by committing to solicit NCEJEB feedback at specific points during the development of carbon sector reduction goals<sup>9</sup> as well as equity-focused recommendations.

### **Defining Clean Energy**

Finally, we urge NCDEQ to encourage use across state government of the definition of clean energy used during the Plan process, that is, “‘clean’ energy resources include solar, energy efficiency, battery storage, wind, efficient electrification, and other zero emitting technology options capable of quickly decarbonizing the power sector and modernizing the electric power sector.”<sup>10</sup> Such a definition properly excludes non-zero-emitting technologies such as the combustion of natural gas, biomass and biogas and should serve as the basis for state energy policy moving forward.

### **Conclusion**

We thank NCDEQ staff for their work capturing the input of stakeholders and North Carolinians at large on our state’s clean energy future. Your leadership is essential to ensuring that North Carolina is not left behind by the global shift toward clean energy and that our state is able to capture the economic, public health and ratepayer benefits of building a clean electrical grid.

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<sup>9</sup> See Table I-1, Clean Energy Plan Draft

<sup>10</sup>Sushma Masemore, Presentation to stakeholders at Clean Energy Plan Facilitated Workshop 5: [Overview of Clean Energy Plan Vision and Guiding Structure](#), slide 9 (June 26, 2019)

Sincerely,

Will Scott

Energy Policy Analyst

North Carolina Conservation Network

September 9, 2019

***Via Email***

Secretary Michael S. Regan  
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**Re: Comments on DEQ draft Clean Energy Plan**

Dear Secretary Regan:

The Clean Energy/Just Transition subcommittee of the NC Department of Environmental Quality Environmental Justice and Equity Advisory Board respectfully submits these comments on the draft Clean Energy Plan (CEP) that the Department of Environmental Quality (“DEQ”) published for public comment on August 16, 2019 pursuant to Governor Cooper’s milestone executive order addressing climate change, Executive Order No. 80.<sup>1</sup>

We applaud the leadership of Governor Cooper and this Administration on climate and energy issues in North Carolina. Climate change is an overarching issue that impacts all sectors. A true comprehensive, holistic approach is needed. North Carolina’s communities are experiencing many different effects from climate change, including adverse impacts from extreme weather related events and rising temperatures. Residents are suffering from higher energy burdens and are in need of more energy efficient upgrades for environmental, health and safety purposes. Our energy infrastructure is requiring more advanced improvements to better withstand growing demands and promote resilient outcomes, to name a few.

The draft CEP aims to help with these issues and more. We commend DEQ for completing such a diverse, inclusive stakeholder process. We acknowledge this was a massive undertaking in an aggressive time period. We appreciate the effort that was made gathering participants for the facilitator workshops and regional listening sessions around the state.

We are also in agreement that there is a focus and strategy on ‘Equity’ and a ‘Just Transition’ in the draft CEP. It is crucial that we design our processes to advance equity and expand opportunity throughout the transition to a clean energy economy. While we believe all of the strategies can and should address equity formally in each separately, we understand there were time constraints that may have limited the depth of attention given to equity in the draft CEP. We appreciate your inclusion of this value as an overarching theme, and we are further

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<sup>1</sup> Executive Order NO. 80: North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy (2018), <https://governor.nc.gov/documents/executive-order-no-80-north-carolinas-commitment-address-climate-change-and-transition>



encouraged with DEQ's commitment to align these processes with the Environmental Justice and Equity Advisory Board.

As the Clean/Equitable Transition Subcommittee of the Department of Environmental Quality Secretary's Environmental Justice Advisory Board, we stand in solidarity with the sentiment of the Clean Energy Plan and submit the following recommendations in good faith and in order to make ourselves available as a resource to ensure the best plan is put forth to the benefit of our fellow North Carolinians. Our comments are organized in three categories; Equitable Access and Just Transition; Economic Development; and Community Engagement.

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I. Equitable Access and Just Transition

**A. The state should draft clear definitions of Climate Justice, Equitable Access, and Just Transition.**

1. The draft Clean Energy Plan repeatedly references issues of 'equitable access' and 'just transition'. We commend the usage of these measures as a critical lense, and approve of the supporting strategies which are referenced in the plan<sup>2</sup>. However, we believe that the aspirations listed in the plan would benefit from clear definitions, drafted by the state, that will serve as guiding measures for any current and future proposed strategies to ensure that standards of equitable access and just transition are met. Specifically the plan should include clear definitions for;

- a) Climate Justice;
- b) Equitable Access;
- c) Just Transition;

These definitions should correspond to the various strategies which are articulated in the plan and should be used as measures when assessing the success rate of said strategies. Having state-articulated guidelines that can be used to answer the questions of whether or not certain strategies promote climate justice, promote equitable access, and foster a just transition help these concepts move from abstract concepts to measurable benchmarks.

The Equitable and Just National Climate Platform<sup>3</sup>, a broad coalition of environmental justice and national environmental groups included the following components for strategies that promote the building of inclusive, just economies:

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<sup>2</sup> Clean Energy Plan Draft pg. 27, 95

<sup>3</sup> Equitable & Just National Climate Platform, <https://ajustclimate.org>

- investing in the development of innovative decentralized models of energy provision;
- community governance and ownership;
- incorporation of social and health benefits into energy systems planning;
- incentivizing the inclusion of equity into future energy investment through public programs;
- and supporting public and private research and development to include equity considerations in new technology development. Regarding equity considerations, communities with disproportionately high underemployed and unemployed populations and communities that have been historically reliant on fossil fuel extraction and energy production must be centered in the conversation.

The Urban Sustainability Directors Network includes four components for sustainability planning, decision making, and program and policy design.<sup>4</sup>

- **Procedural (Inclusion):** inclusive, accessible, authentic engagement and representation in the process to develop or implement programs or policies;
- **Distributional (Access):** programs and policies result in fair distributions of benefits and burdens across all segments of a community, prioritizing those with highest need.
- **Structural:** decision-makers institutionalize accountability; decisions are made with a recognition of the historical, cultural, and institutional dynamics and structures that have routinely advantaged **privileged groups in society and resulted in chronic, cumulative disadvantage for subordinated groups.**
- **Transgenerational:** decisions consider generational impacts and do not result in unfair burdens on future generations.

The USDN also underscores the need to recognize structural and institutional racism as root causes of inequity for communities of color and indigenous

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<sup>4</sup> Guidebook on Equitable Clean Energy Program Design for Local Governments and Partners, Urban Sustainability Directors Network, (2018) pg. 9 [https://cadmusgroup.com/wp-content/uploads/2018/09/Cadmus-USDN-Equitable-Clean-Energy-Guidebook.pdf?utm\\_referrer=https%3A%2F%2Fcadmusgroup.com%2Fpapers-reports%2Fa-guidebook-on-equitable-clean-energy-program-design-for-local-governments-and-partners%2F](https://cadmusgroup.com/wp-content/uploads/2018/09/Cadmus-USDN-Equitable-Clean-Energy-Guidebook.pdf?utm_referrer=https%3A%2F%2Fcadmusgroup.com%2Fpapers-reports%2Fa-guidebook-on-equitable-clean-energy-program-design-for-local-governments-and-partners%2F)

communities and as obstacles for implementation of any plan seeking to promote an equitable and just transition.<sup>5</sup>

Finally, USDN has set forth 12 principles for program design that should be consistently upheld throughout the process of policy development and implementation.<sup>6</sup> **We strongly encourage the state to engage in similar drafting of explicit definitions for the aspirations of equitable access and just transition.**

**B. The state should recognize and include in its framing and timeline both economic and environmental drivers.**

1. The Draft Clean Energy Plan states that it *'examines a time horizon of about ten years, with an outlook to 2030. This period was selected because the availability of technologies and energy resources are generally well known, and market trends can be reasonably predictable.'* Though the economic framing is important, relying solely on this narrative negligently removes the environmental framing which is critical to fully understanding the need for a state energy policy overhaul. To put into context;
  - a) The United Nations Intergovernmental Panel on Climate Change report finds that, in order to limit global warming to 1.5°C, global net human-caused emissions of carbon dioxide (CO<sub>2</sub>) would need to fall by about 45 percent from 2010 levels by 2030, reaching 'net zero' around 2050.<sup>7</sup> This means that any remaining emissions would need to be balanced by removing CO<sub>2</sub> from the air. Meeting this target goal of 1.5°C as a cap on global emissions is necessary in order to limit the currently-felt effects of sea level rise, increased heatwaves, drought (and conversely extreme rainfall events), loss of coral reefs, and increase in frequency and intensity of extreme weather.<sup>8</sup>
  - b) As a result of current climate impacts, North Carolina currently sees extreme risks: more than 4.8 million people are living in areas at elevated risk of wildfire; the state is expected to see a 50% increase in drought severity by 2050; North Carolina's number of dangerous heat days is projected to increase 600% from

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<sup>5</sup> Id., pg. 10

<sup>6</sup> Id., pg. 11

<sup>7</sup> *Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.* <https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/>

<sup>8</sup> [https://interactive.carbonbrief.org/impacts-climate-change-one-point-five-degrees-two-degrees/?utm\\_source=web&utm\\_campaign=Redirect](https://interactive.carbonbrief.org/impacts-climate-change-one-point-five-degrees-two-degrees/?utm_source=web&utm_campaign=Redirect)

10 days per year to 60 days per year; more than 450,000 people are currently living in areas with elevated risk of flooding and 122,000 are currently at risk for coastal flooding, with another 44,000 projected to be at risk because of sea level rise<sup>9</sup>; and devastating increases in high-intensity storms such as Hurricane Florence (2018), which was projected to have 50% worse rains as a result of climate change.<sup>10</sup> All of these impacts spell out devastating consequences for both North Carolina's economy and populace. **We strongly encourage the state to include in both its assessment and narrative not only the economic and political costs of implementation of specific policies, but also, the costs, both socially and environmentally, of not acting. This should include a clear articulation of the disproportionate impact that will face historically marginalized communities.**<sup>11</sup> Additionally, the state should focus not only on addressing decarbonization of the energy grid, but on full analysis and cessation of any proposed solutions which further drive the climate crisis by contributing to global greenhouse emissions in all forms, including new fossil fuel infrastructure<sup>12</sup> and deforestation<sup>13</sup>.

## II. Economic Development

### A. Specifically Fostering Inclusive Practices for Economic Development

1. People of color and low-wealth individuals and families are at the greatest risk of exposure to both natural disasters and technological hazards in our state. A legacy of discriminatory housing and land-use policies have relegated a large share of these two groups to low lying, flood-prone neighborhoods, older residential structures often laden with a host of environmental and health hazards (asbestos, lead, mold, and mildew), and hyper-segregated broader communities with a disproportionate

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<sup>9</sup> <https://statesatrisk.org/north-carolina/all>

<sup>10</sup> <https://www.nationalgeographic.com/environment/2018/09/hurricane-florence-rain-climate-change-science/>

<sup>11</sup> [https://www.un.org/esa/desa/papers/2017/wp152\\_2017.pdf](https://www.un.org/esa/desa/papers/2017/wp152_2017.pdf)

<sup>12</sup> In 2018, Several states appealed to the Federal Regulatory Energy Commission to give greater weight to climate impact and associated climate risk during the issuance of permits for gas pipelines. We strongly advise North Carolina to follow suit and reconsider the impacts of planned pipeline projects as a part of the Clean Energy Plan.

<https://www.mass.gov/files/documents/2018/07/26/Multistate%20Comments-FERC%201999%20PL%20Policy%20Review.pdf>

<https://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/infographic-climate-change-risks-natural-gas>

<sup>13</sup> <http://www.pfpi.net/trees-trash-and-toxics-how-biomass-energy-has-become-the-new-coal>

concentration of locally unwanted land-uses (LULUs), such as landfills, which not only depress property values but also pose major threats to public health and safety. In the context of the climate crisis, these communities are often more vulnerable to the physical manifestations of climate change as a result of a lack of financial resources for evacuation and recovery and blindspots in federal, state, and local organized support efforts--i.e. FEMA aid currently structured to benefit homeowners as opposed to those who may rent, the flow of financial resources often more-freely reaching higher-income communities rather than low-income neighborhoods. Coupled with additional factors, such as the increase in vulnerability to the negative health impacts of climate change, and the current impact of energy burden, it is imperative that any aspirations of equity and a just transition are viewed through these lenses.

2. In response to the aforementioned state of affairs, a vibrant environmental justice movement has materialized to advocate vociferously for environmental hazards mitigation and remediation as well as culturally responsive recovery from adverse weather events that disproportionately affect these disadvantaged groups and underserved communities. Rarely, however, do environmental justice advocates lobby for the economic inclusion of the affected parties and communities in the *business* of hazard mitigation/remediation and pre-disaster planning, preparedness, recovery, and overall community resiliency.

Much of the work in disaster recovery typically is done by firms and workers from other states. For example, the firms that were awarded the contracts to clear the mudslides from I-40 and US74a in western North Carolina in 2019 are headquartered in Dublin, Ireland, and Miami, Florida, respectively. And while both companies have subsidiaries in North Carolina, the crucial question is: **What opportunities are there for homegrown business development, growth, and expansion in the disaster-recovery business, especially given the projected increase in adverse weather events in the years ahead?**

Similar questions can be asked about the \$1.2 billion in federal and state dollars allocated for Hurricane Matthew Recovery. **How many homegrown and historically underutilized North Carolina businesses have participated as contractors or vendors in the ongoing recovery? What share of recovery dollars have been awarded to such businesses? And how much of the completed recovery work to date has been done by local residents of the impacted communities or by workers from elsewhere in our state?**

Additionally, the state received \$236.5 million in post Hurricane Matthew Community Development Block Grant-Disaster Recovery (CDBG-DR) funding in 2016. According to a recent report by the Program Evaluation Division of the North Carolina General Assembly, owing to administrative

missteps and a range of other issues, **only 3 percent of this money (\$7.4 million) had been spent to assist low- and moderate-income residents of affected communities as of March 2019.** Clearly, in a state with world-class higher education institutions and highly-ranked business schools, we should have been able to recruit, train, certify, and strategically position a diverse portfolio of homegrown businesses to do the work required to help the residents of the most adversely impacted communities recover from a disaster that occurred three years prior.

**We encourage the state to recognize that the draft Clean Energy Plan and all subsequent energy development, resiliency, and disaster recovery efforts constitute opportunities for both diverse small business development and employment growth in North Carolina.<sup>14</sup>** Making a concerted effort to ensure that all marginalized and excluded groups are *economic stakeholders* in efforts to recover from major disasters and remediate other environmental crises will assure that community development is more inclusive and equitable in our state moving forward.

In order to do so, key state government stakeholders in energy procurement, environmental management, and disaster recovery, (including the Department of Transportation and the Department of Environmental Quality) must invest collaboratively in a “best in class” inclusive supplier development and supply chain management system--a technology-enabled platform for contracting and procurement would ensure that a diverse pool of homegrown certified vendors is not only available but also pre-qualified to provide the full range of goods and services needed to remediate an environmental catastrophe or recover from a major weather event.

Such systems are developed by turnkey third-party solutions providers who are readily available in the e-procurement marketplace. Specializing in supplier-diversity management services, the firms typically embed in their e-platforms three types of analytical tools that are essential elements of an effective inclusive contracting and procurement program for environmental remediation and disaster recovery.

*Supply-side tools:* instruments that recruit, screen or vet, prequalify, educate, and mentor diverse suppliers aspiring to do business with state government.

*Demand-side tools:* instruments that educate and train government staff about inclusive procurement, link prime contractors and diverse suppliers

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<sup>14</sup> *Stating that creating greater opportunities for historically under-utilized businesses to grow and prosper through enhanced local government contracting and procurement is necessary to generate greater equity and shared prosperity (Brichi, 2004; Edelman and Azemati, 2017; Robinson, 2017).*

with contracting and procurement opportunities, and manage relations between prime contractors and diverse suppliers.

*Reporting tools:* instruments that benchmark and set goals for supplier diversity in contracting and procurement, assess and manage vendor risk, and monitor a host of key performance indicators, including diversity spend, economic/community impact, and return on investment, via a vendor or diversity scorecard.

Evidence confirms that such systems facilitate inclusive and equitable economic development in local communities by creating jobs and economic growth opportunities for local businesses and families. In so doing, this is an ideal way to simultaneously attain *environmental justice* and *economic justice* for individuals, families, and communities that heretofore have borne the brunt of natural and technological disasters. Embracing such an approach, moreover, will position North Carolina to be on the leading edge of impact investing in underserved and vulnerable communities.

**B. The state should be specific about actions to enact an inclusive statewide tariffed on-bill investment program.**

1. The Draft NC Clean Energy Plan highlights Pay As You Save as an inclusive financing program in Recommendation D-5, which is part of the plan's recommendation to expand consumer choice. (See page 81.) The Draft CEP makes no mention, however, that the recommendation to expand adoption of tariffed on-bill programs is also a key recommendation in the EE Roadmap, which is the result of extensive consultation among stakeholders in the state. The state's policy goals to advance equity and expand opportunity *depend* on removing the barriers to investment in cost effective energy upgrades for all utility customers, regardless of their income, credit score, or renter status. That is why recommendation #19 in the NC EE Roadmap should be reinforced both in Section D-2 and in Section K. Furthermore, the final NC CEP should be specific and ambitious about actions the state will take to advance implementation, such as:
  - a) convening stakeholders for both for-profit and non-profit utilities
  - b) support for utilities exploring additional applications of tariffed on-bill investment to beneficial electrification, and
  - c) funding technical assistance with financial analysis and implementation.

**C. Expand Access to Utility Tariffed On-Bill Financing Programs**

1. **To remain consistent with its commitment to equity, the NC Clean Energy Plan must include and advance the NC EE Roadmap**

**recommendation to expand access to utility tariffed on-bill financing.** The Draft Clean Energy Plan recommendations for energy efficiency (Section K) are selected from the Energy Efficiency Roadmap, which was recently released through a partnership between DEQ and the Nicholas Institute at Duke University after extended period of stakeholder consultation.<sup>15</sup> However, the Draft Clean Energy Plan omits a crucial recommendation in the EE Roadmap that addresses the ability of millions of North Carolina residents and small businesses to access capital for cost effective clean energy upgrades. (See Recommendation #19.) The NC Housing Trust has highlighted counties across the state that bear the highest burden of energy costs,<sup>16</sup> and the EE Roadmap identified key barriers addressing that burden, which are repeated in the Draft NC Clean Energy Plan. For example, page 123 of the Draft NC CEP includes “lack of inclusive financing options.” However, the Draft NC Clean Energy Plan overlooked the recommendation #19 of the EE Roadmap that provides a responsive solution: **expand access to utility tariffed on-bill programs**. In a part of northeastern North Carolina that is recognized for persistent poverty, implementation of a tariffed on-bill program for energy efficiency upgrades has already demonstrated a dramatic increase in participation and associated investment that creates local jobs. The state should seize on this opportunity to build on success and accelerate investment in order to expand job opportunities across the state.

**D. The NC CEP should specifically address economic conditions in rural counties since all 10 of the persistent poverty counties in NC are rural.**

1. Every county in NC recognized for persistent poverty by the federal government is a rural county, and they are all in the coastal plains of the state.<sup>17</sup> Eight of the ten are also served by rural electric cooperatives. Findings by the NC Housing Trust show that the energy burden in these counties is among the highest in the state.<sup>18</sup> The final NC Clean Energy Plan should specifically address the conditions in persistent poverty counties, including active engagement with rural electric cooperatives across the state. Roanoke Electric, which serves multiple persistent poverty counties in NC, and the state should recognize the leadership role that Roanoke Electric has already played in drawing millions of dollars of new federal financing for investment in the state for clean energy upgrades. Replicating that success to draw more investment to

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<sup>15</sup>

<https://nicholasinstitute.duke.edu/sites/default/files/publications/North%20Carolina%20Energy%20Efficiency%20Roadmap%20Final.pdf>

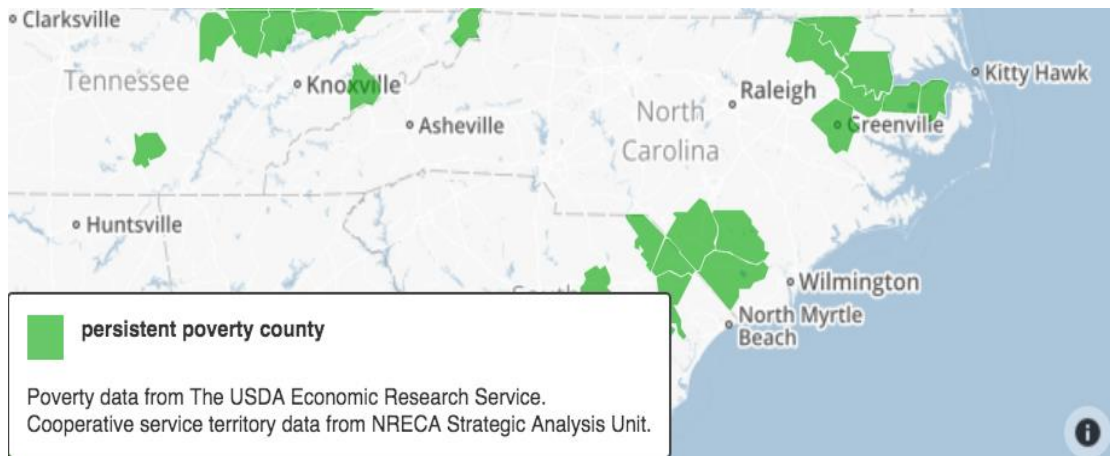
<sup>16</sup> <https://nchousing.org/housing-matters-mapping-energy-burden/>

<sup>17</sup> As labeled, the map is sourced from the National Rural Electric Cooperative Association’s Strategic Analysis Unit, which based its analysis on data from the USDA Economic Research Service.

<sup>18</sup> <https://nchousing.org/housing-matters-mapping-energy-burden/>



expand economic opportunity in more rural counties should be a priority in the state's Clean Energy Plan.



### III. Community Engagement

- A. Participation in the Facilitated Stakeholder Engagement Process: We appreciate the lengths to which the state went to ensure there was ample opportunity for public comment during the Stakeholder Engagement Process. However, we are concerned as to the success rate of the process in getting a diverse perspective from the community. Historically, the conversations around energy procurement and environmental issues have lacked diversity as well as the composition of the traditional national environmental non-profit groups. On any issue it is important who is in the room, and this is especially important for an issue, such as this, where disproportionate impact is central to the conversation. Adequate engagement of community stakeholder groups, including frontline communities, may require intentional and innovative thought in order to be achieved. While we showed appreciation to DEQ earlier on this front, we would also like to offer suggestions and help in any way to improve participation of frontline communities and grassroots participation during the CEP implementation process. **The Board appreciates the difficulty of this task, and suggests that the state EJ and Equity Advisory Board be consulted on outreach efforts to marginalized communities with DEQ staff and assist in any future efforts to increase participation.**

The Advisory Board is also concerned that there could be a skewed representation of the prevalence of equity and environmental justice concerns as represented in the report (page 18; Equity listed as 5%, Environmental Justice listed as 7%, Public Health 4%). This is concerning as it could be a result of the aforementioned unintentional exclusion. It is important that this potentially flawed metric is not used as justification to lower the

prioritization of equity, environmental justice, and public health concerns. Instead, we would suggest that the state work to develop metrics on diversity that measures the success for future stakeholder engagement processes. This should answer how diversity (racial, geographical, occupational) is gauged and used as a measure of success for the stakeholder engagement process.

Ensure inclusion and meaningful involvement of historically marginalized individuals (people of color and people living in poverty) in decision-making regarding siting generation assets and implementing programs that would affect their rates, health, and access to clean energy and energy efficiency opportunities– This goal is very important and can also take some extra effort to achieve. Even throughout this draft CEP process, the participant list is diverse but likely had limited participation from historically marginalized communities. Different strategies may need to be utilized in order to gather input from these communities such as identifying meeting locations other than governmental facilities, altering meeting times to accommodate working schedules (likely evening) and offering childcare and food during the meeting. Partnering with local community organizations and leaders as well as designing efforts or connecting with existing opportunities is helpful as well. This needs to be an intentional part of process implementation. **We recommend that DEQ identify areas that will require additional community outreach and share the information with the Environmental Justice and Equity Advisory Board.**

Thank you for your hard work on this draft CEP and consideration of these comments. We look forward to working with DEQ and this Administration on reducing greenhouse gas emissions and embracing a clean, just energy transition for the beautiful state of North Carolina and the people that call it home.



September 9, 2019

Sharon Martin  
North Carolina Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

Dear Ms. Martin,

The North Carolina Farm Bureau Federation is NC's largest general farm organization, representing the interests of farm and rural people in our state. This letter is to comment on North Carolina's Draft Clean Energy Plan. Thank you for the opportunity to submit these comments.

In the Draft Clean Energy Plan, the Department of Environmental Quality (DEQ) is missing a large opportunity related to renewable energy from agriculture. Agriculture has a much larger role to play in a clean energy economy besides giving up land for solar panels or investing in more energy efficient equipment. The Clean Energy Plan makes almost no mention of existing biomass resources in North Carolina. Great potential exists for clean energy production from animal manure generated by existing farms in the state. For example, the Optima KV site in Kenansville uses anaerobic digesters at swine farms to capture methane that would otherwise contribute to the state's greenhouse gas emissions. This methane is scrubbed and injected into the adjacent natural gas pipeline. This one site captures enough methane to power 880 homes (twice the number of homes in Kenansville) and reduce GHG emissions by 35,000 tons annually.<sup>1</sup>

More of these projects are planned through Align RNG, which is a joint venture between Smithfield Foods and Dominion Energy. Phase 1 of the project would include 48 farms in North Carolina. Overall, Align RNG's projects in North Carolina, Virginia, and Utah will be the equivalent of taking 120,000 cars off the road.<sup>2</sup> These projects will reduce odors, create renewable energy and remove greenhouse gases, all from an existing waste stream. These are the types of projects that should be encouraged by the state's Clean Energy Plan.

Detractors of these projects will point out the things that these systems cannot do. To be clear, anaerobic digesters by themselves will not meet the five swine farm performance standards in G.S. 143-215.10I, and this claim has never been made. However, there is no requirement for existing swine farms to add any additional treatment technology. Anaerobic digester projects can serve as a useful first step in adapting to new technology, and reduce impacts from existing

<sup>1</sup> <http://www.cavanaughhsolutions.com/bioenergy/projects/optima-kv/>

<sup>2</sup> <https://alignrng.com>

farms. Anaerobic digester projects are the type of low-hanging fruit that the state should embrace as part of the Clean Energy Plan.

The Energy Resources Supporting Document contains an error that should be addressed. Anaerobic digesters do not increase phosphorus or nitrate concentrations as is stated on page 98. Depending on system design, they can increase ammonia concentrations. This generally occurs when the anaerobic digester is a covered lagoon, and there is no secondary storage. In these cases (and all treatment system modifications), the swine farm is required to revise their Certified Animal Waste Management Plan to account for all of the nitrogen generated. In some cases, this means that the swine farm will need to change crops grown or use new sprayfields to accommodate additional nitrogen. This Plan must be approved by DEQ as part of the permit modification to add the anaerobic digester. In cases where a new anaerobic digester is constructed and the existing lagoon is used for storage, ammonia does not increase.

In addition to swine waste, there are substantial poultry waste resources that can be used for power generation. There are already several sites in the state that burn poultry litter (manure and wood shavings) for electricity. Again, these projects can take advantage of an existing resource to create renewable energy. Because poultry litter is handled as a solid material, greenhouse gas emissions are relatively low. However, the use of poultry litter to generate electricity can replace other sources that are more likely to emit large quantities of greenhouse gases.

Similarly there are substantial opportunities to use woody biomass for power generation. North Carolina has substantial forest resources, the majority of which are under private ownership. As the Draft Clean Power plan indicates, there is some disagreement over whether or not the wood pellet industry is carbon neutral. However, the use of woody biomass will be a better alternative than other sources that emit large quantities of greenhouse gases. As forest landowners harvest timber, the available forest resource markets influence their decision to replant with trees or to convert to another use such as cropland or development. The woody biomass market can provide an incentive for landowners to keep their land in forest long term.

In several locations in the Draft Clean Energy Plan (pages 26, 78 and 86), potential modifications to the Renewable Energy Portfolio Standards (REPS) law are addressed. It is important to note that the carve outs for swine and poultry waste have driven innovation in this area. In addition, the carve outs help to maintain support for renewable energy programs in rural areas of the state. It is crucial that any future changes to the REPS law keep requirements for poultry and swine waste.

Thank you for the opportunity to provide these comments. If you have any questions or need more information, please contact me at (919) 987-1257 or [keith.larick@ncfb.org](mailto:keith.larick@ncfb.org).

Sincerely,

Keith Larick  
Natural Resources Director



**To: NC Department of Environmental Quality**

**From: Angie Maier, Director of Government Affairs & Sustainability**

**Date: September 9, 2019**

**Re: Comments on Draft NC Clean Energy Plan**

Thank you for the opportunity to comment on the North Carolina Clean Energy Plan (CEP). The North Carolina Pork Council submits the following comments on behalf of the tens of thousands of North Carolinians who rely on the state's pork industry for their livelihood.

North Carolina's pork industry has, for many years, been a fierce advocate for renewable energy. We have embraced the opportunities provided by NC's Renewable Energy Portfolio Standard (REPS), with hog farmers and their partners continuously innovating, progressively building advances upon projects that came before.

Since 2011, more than 20 permits have been issued for swine farms to construct methane-capture technology on their operations. But within the next couple of years, at least 48 more farms will be adding methane digesters to their operations. The REPS law is working as intended. And, importantly, momentum is gaining.

While early adopters of manure-to-energy technology generated electricity on-site, the latest group of farms will be capturing methane that is then piped to a central location for conditioning, turned into renewable natural gas (RNG), and then injected into the existing natural gas pipeline infrastructure. This approach is and will be – in most cases – the best and most efficient way to utilize the biogas produced on our farms.

Our support of renewable energy opportunities has not just been with innovation on our farms. The pork industry has worked with a broad coalition of renewable energy advocates to support and defend the REPS law when it has come under attack at the state legislature. We are widely recognized as subject matter experts in the renewable energy landscape and will continue to devote time, energy and expertise to fostering a multitude of efforts in this arena.

Given this history, we were obviously disappointed to see no mention of RNG in the draft Clean Energy Plan. Even more troubling, is that the only reference to swine manure-to-energy efforts comes in the form of a suggestion to change the current REPS law to "require

a certain percentage of generation to come from zero-emitting resources... without any carve-outs for specific technologies.”<sup>1</sup>

Also problematic is the lack of meaningful input from the agriculture sector. Indeed, a clean energy plan for NC cannot be complete without inclusion of the agriculture industry.

Agriculture is NC’s top industry, accounting for \$91.8 billion of the \$538 billion gross state product and 17% of the state’s workforce.<sup>2</sup> Surely the intent of NC DEQ is to have a clean energy plan that is inclusive of all sectors of NC’s economy and a plan that is embraced by as many of our citizens as possible. Yet, the only reference to agriculture appears in just two sentences that are regarding solar panels and energy efficiency opportunities. Regardless of how many meetings and workshops were held in conjunction with the drafting of this plan, when that process does not yield comments from the agriculture sector, something in the process was flawed.

There is tremendous potential for renewable natural gas in NC and utilization of those resources are aligned with the stated objectives and goals of both Executive Order 80 and the draft CEP.

NC ranks third in the nation for biogas potential. That includes not just swine farms, but also dairy farms, landfills, waste water treatment plants (WWTPs), and food waste. The American Biogas Council estimates that if these resources were fully utilized, it would result in \$2.7 billion in capital investment and could produce enough electricity to power 497,523 homes or enough renewable natural gas to fuel 64,466 vehicles.<sup>3</sup>

Capturing methane from existing resources and converting to RNG has multiple benefits. It is indistinguishable from traditional natural gas so can be used for the same purposes, thus displacing fossil fuels. Combusting gas that would have otherwise been emitted into the atmosphere makes RNG at least carbon-neutral. Some suggest it is carbon-negative.

States like California, Washington, Oregon and New York have all recognized the potential of RNG in meeting their greenhouse gas (GHG) emission reduction goals. California’s Low Carbon Fuel Standard (LCFS) has been fully implemented since 2011 and since then, has resulted in a 74% increase in use of renewable fuel within the state and the CO<sub>2</sub> reductions realized are equivalent to the removal of 6.4 million cars from California roads.<sup>4</sup>

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<sup>1</sup> North Carolina Clean Energy Plan, Policy & Action Recommendations, Draft Report; p. 86.

<https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/Clean-Energy-Plan--DRAFT-REPORT-08162019.pdf>

<sup>2</sup> Agriculture and Agribusiness, prepared by Mike Walden, Economist, NC State’s College of Agriculture and Life Sciences. May, 2019. <https://cals.ncsu.edu/agricultural-and-resource-economics/wp-content/uploads/sites/12/2019/05/agribusiness2019Brochure.pdf>

<sup>3</sup> Biogas State Profile: North Carolina, American Biogas Council. [https://americanbiogascouncil.org/wp-content/uploads/2019/05/ABCBiogasStateProfile\\_NC.pdf](https://americanbiogascouncil.org/wp-content/uploads/2019/05/ABCBiogasStateProfile_NC.pdf)

<sup>4</sup> Greene, Paul. “101 for Low Carbon Fuel Standard,” Biocycle Magazine: March/April 2019. <https://www.biocycle.net/2019/03/11/101-low-carbon-fuel-standard/>

Investment in RNG is not limited to government. In 2014, UPS announced plans to convert 40% of their ground fleet use of alternative fuel by 2025. RNG is a significant part of their plan for conversion.<sup>5</sup> Here in NC, a joint venture between Smithfield Foods and Dominion Energy, Align RNG, will convert methane capture from 48 farms in NC and convert that biogas into RNG for pipeline injection. Smithfield Foods has previously announced in 2014 its intent to reduce its carbon footprint by 25% by 2025<sup>6</sup> and these on-farm projects are part of that goal.

With so many others already recognizing the benefits of GHG reductions by capturing and utilizing methane from existing sources and given the abundance of above-the-ground biogas resources, it is confounding that DEQ did not also include this resource in the draft CEP.

The missed opportunities with this omission should be corrected – for North Carolina to remain a leader. RNG’s potential is broad. One idea: NC could create local gas districts, completely detached from the existing pipeline infrastructure. Such localized clusters of pipelines could connect RNG producers directly to residential and industry consumers. These “micro-pipelines” could help attract jobs to rural areas of our state that are beyond the reach of current natural gas pipeline infrastructure. Such an approach would also have the benefit of providing clean, reliable, affordable heat to rural NC residents. Another idea: Exploring uses for RNG that could be produced by our state’s WWTPs might provide opportunities for our municipalities to have an additional income stream that could pay for much-needed upgrades to these facilities without having to pass the entire cost of those upgrades to the customers.

There are some who, apparently, are opposed to NC’s pork industry participating in the RNG market because making those improvements to our manure management systems – in their view – “is not good enough.” It is true that fringe groups would prefer for nothing to change than to allow farmers to upgrade systems, capture methane, and reduce our carbon footprint. That is a political position such groups have held for more than 20 years. We urge DEQ to avoid being detracted by tired arguments, and to instead join with us in realizing the great potential of renewable natural gas in our state’s energy future.

Thank you for the opportunity to provide feedback on the draft Clean Energy Plan.

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<sup>5</sup><https://pressroom.ups.com/pressroom/ContentDetailsViewer.page?ConceptType=PressReleases&id=1498485329184-479>

<sup>6</sup><https://www.smithfieldfoods.com/press-room/company-news/smithfield-leads-industry-as-first-major-protein-company-to-adopt-greenhouse-gas-reduction-goal>

September 9, 2019

Sushma Masemore  
Deputy Assistant Secretary for Environment & State Energy Director  
N.C. Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

Dear Deputy Secretary Masemore,

The North Carolina Sustainable Energy Association (NCSEA) thanks the team at the North Carolina Department of Environmental Quality (NCDEQ) for spearheading and developing this comprehensive draft North Carolina Clean Energy Plan (CEP) as specified in Executive Order 80 (EO 80). Thank you for including NCSEA in the process that created this draft CEP, and for seeking input from a wide range of stakeholders. Below you will find NCSEA's comments on the draft CEP and a brief list of recommendations that we believe would strengthen the CEP and can be incorporated into the final draft by the October 1, 2019 deadline set by EO 80.

## I. Introduction

Historically, clean energy in North Carolina has been driven by policies that enable independent power producers to contribute to the state's energy mix and created a market for clean energy under a monopoly-based regulatory system. From Senate Bill 3 (2007-08 Session, S.L. 2007-397), which created North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard (REPS), to House Bill 589 (2017-2018 Session, S.L. 2017-192), public policy has charted a path forward in a utility regulatory framework that was historically uncondusive to advancing the clean energy economy.

As noted in the CEP, the current utility regulatory framework is largely driven by the return on large capital investments and does not necessarily lead to the least-cost and highest-value solution for customers. Despite some of our past policy successes, NCSEA believes that the misaligned priorities between a utility's traditional path for earnings and new technologies and innovations that can better deliver value to customers remains one of the primary barriers to achieving the clean energy future envisioned by the CEP and demanded by energy customers across the state. It is apparent to NCSEA and many other stakeholders that participated in the CEP process that a transformational shift is necessary to lay a new foundation for a clean energy future. For the initiatives and policies outlined in the CEP to come to fruition, the interests of the utility must be aligned with the objectives laid out in EO 80. Currently, that is not the case. To reconcile the misaligned self-interests of the utility, North Carolina must establish a new utility regulatory model that incentivizes good performance and ensures that the energy system is clean, affordable, reliable, and equitable.

In these comments, NCSEA hopes to illustrate the constraints of the status quo and the importance of a transformational shift to a new energy landscape that aligns the interests of utilities with the interest of North Carolina. Only then can the full potential of the CEP be fully



realized. These comments are also intended to reveal the synthesis of policies and initiatives that could be encapsulated under the umbrella of performance-based regulation. For the purposes of these comments, performance-based regulation is defined as an approach to utility regulation designed to create and strengthen utility performance incentives, through a range of metrics, that produces the best results for ratepayers. By properly incentivizing the utility for performance that advances clean energy, North Carolina can ensure that the decisions made by utilities are consistent with the goals and objectives outlined in this plan and in Governor Cooper’s EO 80.

## **II. Status Quo Actions versus Transformative Change**

North Carolina’s energy economy is at a crossroads and an impasse. At the foundation of our energy economy, our state’s current statutes and regulatory rules prevent us from moving toward a clean, affordable, reliable, and equitable energy system. We cannot move forward without a functional modern regulatory framework rooted in a shared energy vision. The draft CEP points to the need for new utility incentives and regulatory reform, but it must be made explicit that the implementation of many of the initiatives and policies mentioned in the draft CEP hinge upon a new regulatory model. The status quo of North Carolina’s current energy landscape allows for piecemeal and incremental progress towards a clean energy future, but transformational change is necessary to uproot our dependence on fossil fuels and shift towards a true clean energy future.

Maintaining the status quo would likely just get us to the initial EO 80 emissions goals, while more transformative steps would enable the greater emissions reductions that the modeling efforts have suggested are feasible. The transformative approach builds a foundation for a clean energy future for North Carolina that can continue to expand on the goals of EO 80 long after this plan. While some of the actions outlined in the plan can be accomplished under the status quo, they may still be met with resistance from the utilities if they are not aligned with the utilities’ self-interests. For example, energy efficiency and demand-side management programs are executed in the current regulatory framework, but those programs could be bolstered by establishing them as performance metrics under a PBR framework. In this sense, the crux of the transformational change is the alignment of North Carolina’s and the utilities’ interests.

## **III. Modernizing Utility Incentives and Tools can Enable many of the Recommendations in the Plan**

Some of the key recommendations in the CEP are currently misaligned with the financial interests of investor-owned utilities and their shareholders. For electric cooperatives and municipal utilities, these recommendations may run counter to their contracts and financial commitments to their wholesale energy providers. For example, why would a utility want to facilitate greater deployment of distributed energy resources that are owned and operated by independent power producers when that diminishes sales of electricity?

NCSEA believes that these misaligned interests are a critical underlying barrier to many of the EO 80 goals. NCSEA was pleased to see that the *Utility Incentives and Comprehensive System Planning* section of the draft CEP included recommendations that could align clean energy goals with utility incentives and enable the transformative change we believe is necessary

for the regulation of energy utilities in the state. However, we recommend that this section of the CEP be prioritized and expanded to describe how many of the other elements of the CEP could be best enabled by recommending that the state adopt three key policy changes that were included in this section:

1. Revenue decoupling for electric utilities
2. Requiring performance-based regulation of these utilities
3. Adopting tools to accelerate the retirement of uneconomic or unclean generation assets.

By elevating these recommendations as key policy priorities in the CEP, many of the other priority recommendations could be accomplished using these policy tools.

As noted in the CEP, revenue decoupling breaks the link between the amount of energy a utility delivers to customers and the revenues it collects. NCSEA believes it is in North Carolina's interest to decouple the regulated electric utilities in this state, which North Carolina has already done with natural gas utilities. Nationally, as of 2018, 32 states utilize decoupling for their utilities, including 17 states which specifically decouple electric utility sales. NCSEA believes that when fully implemented, this initial step toward meaningful reform removes the financial incentives to prioritize increasing energy sales over investing in equipment and programs that increase energy efficiency savings and reduce peak energy demand.

If the first step towards a clean energy future is untangling the need to increase energy sales from the utility business model, then the second step is incenting key performance measures that produce clean, reliable, and affordable energy. As described in the CEP, performance incentive-based regulation creates a financial incentive for a utility to achieve performance outcomes and targets consistent with customer and public policy interests. NCSEA believes that a utility that provides least-cost, resilient, clean energy should be rewarded accordingly. When considered under performance-based regulation, most of the CEP priority recommendations could be performance measures that have already been vetted by stakeholders in the CEP process. For example, under performance-based regulation, a utility could be rewarded for expeditiously interconnecting distributed energy resources or they could be penalized for prolonged delays. Other priority recommendations from the draft CEP that could be used as performance measures include:

- Affordability
- Decarbonization of the electric sector
- Increasing the use of energy efficiency and demand-side management
- Making key investments that help electrify the transportation sector

To ensure that the goal of providing clean, affordable, and reliable energy to all North Carolinians is not hampered by existing traditional generation assets, utilities and policy makers must be provided with tools to accelerate the retirement of uneconomic or unclean generation assets. As noted in the CEP, these tools would adjust rates to speed up the depreciation of an asset so the utility and its customers are not left with stranded costs when an asset retires early. One such tool, securitization, allows utilities to refinance uneconomic utility-owned assets by creating a debt security or bond to pay down the undepreciated capital balance and allow the utilities to use these bonds to recover costs at a lower interest rate instead of using the utility's

higher rate of return, leading to savings for ratepayers. Securitization is currently being considered at the General Assembly but is proposed only for storm recovery expenses. NCSEA appreciates that the CEP describes securitization as a tool for refinancing all types of uneconomic utility-owned assets and recommends that this full definition of securitization be highlighted as a key policy priority in the final CEP. Without a tool such as securitization, utilities have no incentive to accelerate the retirement of uneconomic or unacceptably polluting generation assets.

Reframing the *Utility Incentives and Comprehensive System Planning* section of the CEP to focus on the ways decoupling, performance-based regulation, and securitization can align financial incentives between utilities and the priorities of the CEP would better focus the attention of stakeholders to get to work on implementing these key policies. We believe the draft CEP does not do enough to distinguish these policies from the many other laudable, though perhaps less impactful recommendations. Focusing political, social, and financial capital towards having these three policies adopted by the General Assembly will greatly improve the feasibility of most of the other key priorities and recommendations in the CEP. NCSEA believes the utilities should seek to implement the clean energy pathways identified by the CEP wherever possible, and that using these policies to shape their financial incentives will increase the likelihood of those pathways being created.

#### **IV. Synthesis of Strategies to Accomplish EO 80 goals**

In reviewing the draft CEP and other plans and assessments required by EO 80, it is apparent that the draft plans do not contain references to or take into account how their recommendations impact one another. For example, while the CEP recommends that utilities be required to develop innovative rate design pilots for electric vehicles, no such recommendation exists or is referenced in the N.C. Department of Transportation's ZEV plan. Further, the CEP does not describe how the recommendations included the N.C. Department of Commerce's Clean Energy and Clean Transportation Workforce Assessments will impact the amount of clean energy deployed in the state. Including a section or incorporating references throughout the CEP to how these other EO 80 plans and assessments interact with and rely on one another will reduce the chance that the efforts by these agencies becomes siloed and less impactful. This could be accomplished in a similar manner to how the draft CEP referenced the EE Roadmap.

To further ensure that EO 80 efforts don't become siloed and adapt to new innovations or changing stakeholder needs, DEQ should convene stakeholders and partner agencies every 2 to 3 years to check in on progress with implementing the CEP recommendations and those from the other EO 80 plans. This recommendation could be an expansion of section D-1 of the CEP which recommends that the General Assembly revisit HB 589 programs and consider whether revisions are needed to ensure desired outcomes are achieved to include the recommendations from the CEP and other EO 80 plans. This could help ensure that the CEP stays relevant and is updated in a similar schedule to when utility integrated resource plans are updated in North Carolina.



## V. Conclusion

NCSEA is encouraged by this draft CEP and appreciates the work NCDEQ put into facilitating the CEP stakeholder meetings and writing the draft CEP. We believe that if our suggestions are included into the final CEP, NCDEQ could help initiate efforts that would allow North Carolina to realistically exceed the goals outlined in EO 80. We look forward to continuing working with you to advance the clean energy economy and hope you consider our brief comments and incorporate our suggestions into the final CEP.

Sincerely,

Daniel Brookshire  
Regulatory and Policy Analyst  
North Carolina Sustainable Energy Association

July 31, 2019

Sushma Masemore, P.E.  
Deputy Assistant Secretary for Environment  
State Energy Director  
N.C. Department of Environmental Quality  
sushma.masemore@ncdenr.gov

Dear Sushma:

Thank you for the extensive opportunities to contribute to the state's Clean Energy Plan (CEP). In particular, we appreciate that you are open to receiving input outside of the stakeholder process, and we would like to take the opportunity to provide some.

The undersigned participants in the stakeholder process are all involved with NC WARN's Clean Path 2025 work which, as you know, asserts that fossil fuels can be swiftly replaced in the NC electricity sector with local solar, energy storage, and ramped-up energy efficiency and demand response programs.

We are disappointed that the stakeholder process did not directly address this analysis that we provided to you,<sup>1</sup> and we hope that the conclusions drawn therein will at least lend support to your efforts to make ambitious recommendations in the CEP.

Here are some basic principles that we hold and hope that the CEP will advance:

- 1) The climate situation is an emergency, and any plan to address an emergency should do what is needed, not merely what has been deemed possible in non-emergency times.
- 2) Climate scientists should define what is needed.
- 3) When you are stuck in a hole, the first thing to do is stop digging.

### **Policy implications of the above principles**

#### The emissions reduction target must be based in science

Stakeholder processes should be open to all, but the final word on policy needs to come from those who have the expertise required and do not have a financial interest in the outcome.

The world's scientists, in the form of the Intergovernmental Panel on Climate Change, have already told us that we must reduce emissions 45% by 2030 and 100% by 2050 to stay below a safe level of 1.5 degrees C of warming.<sup>2</sup> The emissions that must be reduced include emissions of methane, including emissions from production and compressors used along pipelines. Anything less does not address the problem. No stakeholder process can change that.

Crucially, the final selection of means for achieving any target must be determined by experts with detailed knowledge of utility operations but no financial stake in the outcome. The input of the utilities

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<sup>1</sup> Powers, B. *North Carolina Clean Path 2025: Achieving an Economical Clean Energy Future*, NC WARN, August 2017, <https://www.ncwarn.org/wp-content/uploads/NC-CLEAN-PATH-2025-FINAL-8-9-17.pdf>.

<sup>2</sup> IPCC, *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, October 2018, <https://www.ipcc.ch/sr15/>.

should not be weighed more heavily than that of other stakeholders. In the process of implementation by the NC Utilities Commission (NCUC), the utilities will have an opportunity to intervene and make suggestions on the details of each program.

#### New natural gas infrastructure is incompatible with climate goals

Although E080 only specifies a 2025 emissions reduction goal (40% below 2005 levels), if the CEP wants to meaningfully address climate risk, it must look forward to 2050, and must provide a pathway for NC to get to zero net emissions by 2050. We cannot get there if we build gas plants in the 2020s that have a useful life of 30 years or more. For this reason, and additional reasons detailed below, the CEP should recommend placing a permanent moratorium on new gas-fired power plants, strengthening our state's renewable energy portfolio standard (REPS), and ratcheting the REPS up over time.

#### New gas would exacerbate the problem of uneconomic stranded assets

There is too much economic risk associated with a commitment to new gas infrastructure. A recent op-ed in *Forbes* warns that "falling renewables and storage costs may render [natural gas assets] uneconomic within a few years" and concludes: "New natural gas is extremely risky in this context, and regulators would be wise to question its prudence."<sup>3</sup>

Instead, we must figure out a plan to decommission existing fossil fuel plants and make a big shift to renewables, storage and demand reduction, since existing plants already put us over safe climate limits, as reported in a forthcoming paper in *Nature*.<sup>4</sup>

#### Utility planning should account for the changing economics of natural gas vs. renewable energy

Chapter 62 of the North Carolina Public Utilities Act mandates that the NCUC require utility service that is "least-cost" for all customers, and that rates should include long-term management of energy resources to avoid "wasteful, uneconomic and inefficient uses of energy." Specifically, it says the policy of the state should be:

(3) To promote adequate, reliable and economical utility service to all of the citizens and residents of the State;

(3a) ...to require energy planning and fixing of rates in a manner to result in the least cost mix of generation and demand-reduction measures which is achievable, including consideration of appropriate rewards to utilities for efficiency and conservation which decrease utility bills;

(4) To provide just and reasonable rates and charges for public utility services... consistent with long-term management and conservation of energy resources by avoiding wasteful, uneconomic and inefficient uses of energy;

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<sup>3</sup> O'Boyle, M. "Cheap Clean Energy Makes New Natural Gas A Risky Bet Utility Regulators Should Avoid," *Forbes*, July 10, 2019, <https://www.forbes.com/sites/energyinnovation/2019/07/10/utility-regulators-should-avoid-risky-bets-on-new-natural-gas/>.

<sup>4</sup> Leahy, S. "We have too many fossil-fuel power plants to meet climate goals," *National Geographic*, July 1, 2019, <https://www.nationalgeographic.com/environment/2019/07/we-have-too-many-fossil-fuel-power-plants-to-meet-climate-goals/> (with link to pre-publication PDF of Tong, D. et al., "Committed emissions from existing energy infrastructure jeopardize 1.5 °C climate target," *Nature*, forthcoming).

(4a) To assure that facilities necessary to meet future growth can be financed by the utilities operating in this State on terms which are reasonable and fair to both the customers and existing investors of such utilities...

The CEP must explicitly address these requirements in light of disruption in the energy landscape. Already two different in-depth independent analyses have separately concluded that plans including significant renewable energy – NOT new natural gas construction – would provide least-cost energy to NC customers statewide.<sup>5</sup> Duke Energy acknowledges that modeling for its Integrated Resource Plan (IRP) currently does not fully incorporate the value of renewable and distributed energy and energy storage.<sup>6</sup> This is unacceptable. The only way to meet the mandate that utility service be “least-cost” for all customers is for the NCUC to require Duke’s IRP to fully consider renewable and distributed energy and energy storage resources.

Requiring Duke Energy to move more quickly toward the energy of the 21<sup>st</sup> century also will decrease the likelihood that its natural gas plants will become uneconomic stranded assets, which is likely to happen sooner than Duke Energy may claim. As Rocky Mountain Institute (RMI) notes: “the *new-build* costs of clean energy portfolios are falling quickly, and likely to beat just the *operating* costs of efficient gas-fired power plants within the next two decades.”<sup>7</sup>

In addition, with regard to natural gas peaker plants, Bloomberg New Energy Finance projects that solar combined with storage will be less expensive than gas peakers throughout the US by 2023, as illustrated by the graph below.<sup>8</sup>

Other states are showing that moving more rapidly toward renewable generation is not only a necessity for retaining a livable climate, but is also an economic and employment boon. States around the country -- including Virginia -- are questioning the need for new natural gas infrastructure and finding that renewable energy and storage are more economic in the long term.<sup>9</sup>

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<sup>5</sup> Powers, *Op. cit.*, and Attachment 1 to NCSEA’s Initial Comments on Duke Energy Carolinas, LLC and Duke Energy Progress, LLC’s Integrated Resource Plans, Docket E-100 Sub 157, March 7, 2019, <https://starw1.ncuc.net/NCUC/ViewFile.aspx?id=891ac0cc-7aa9-4835-aed2-b15e9b5713e6>, Attachment 1.

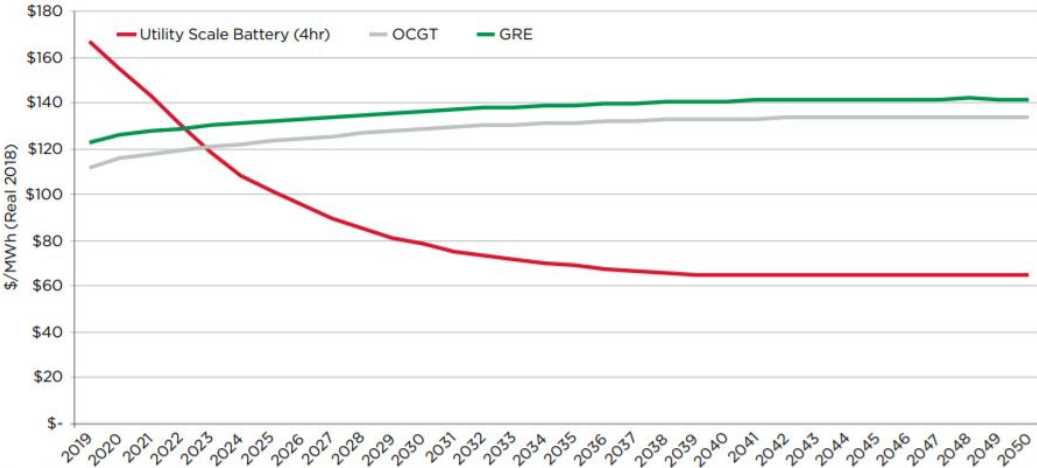
<sup>6</sup> NCSEA’s Initial Comments on Duke Energy Carolinas, LLC and Duke Energy Progress, LLC’s Integrated Resource Plans, Docket E-100 Sub 157, March 7, 2019, p. 7, <https://starw1.ncuc.net/NCUC/ViewFile.aspx?id=891ac0cc-7aa9-4835-aed2-b15e9b5713e6>.

<sup>7</sup> Dyson, M., et al. *The Economics of Clean Energy Portfolios*, Rocky Mountain Institute, 2018, <https://rmi.org/insight/the-economics-of-clean-energy-portfolios/> and Roberts, D., “Clean energy is catching up to natural gas,” *Vox*, Oct. 26, 2018, <https://www.vox.com/energy-and-environment/2018/7/13/17551878/natural-gas-markets-renewable-energy>.

<sup>8</sup> Stockman, L., et al. Burning the Gas “Bridge Fuel” Myth: Why Gas is Not Clean, Cheap, or Necessary,” Oil Change International, May 2019, [http://priceofoil.org/content/uploads/2019/05/gasBridgeMyth\\_web-FINAL.pdf](http://priceofoil.org/content/uploads/2019/05/gasBridgeMyth_web-FINAL.pdf) (original behind paywall here: <https://about.bnef.com/new-energy-outlook/>).

<sup>9</sup> Saha, D. “Natural Gas Beat Coal in the US. Will Renewables and Storage Soon Beat Natural Gas?,” World Resources Institute, July 8, 2019, <https://www.wri.org/blog/2019/07/natural-gas-beat-coal-us-will-renewables-and-storage-soon-beat-natural-gas>.

Figure 8: Projected LCOE of Battery Storage and Gas Peakers - United States



Source: Bloomberg New Energy Finance, 1H-2019 LCOE Update

Significant effort has been devoted to assessing the clean energy pathways for NC. Both the North Carolina Clean Path 2025<sup>10</sup> and Synapse<sup>11</sup> plans reveal substantial cost advantages to transitioning from fossil fuel-based generation to solar with storage. And, whereas utilities are insistent that integration of renewable power on the grid will require extensive investment in the grid and in backup fossil fuel generation, the Clean Path 2025 plan concludes that far higher levels of renewables, when accompanied by affordable amounts of storage and (now, almost standard) smart inverters, can be incorporated reliably with modest upgrades in electronics.<sup>12</sup>

Energy efficiency and demand response programs, if properly implemented, are low-hanging fruit for rapid reduction of both electricity consumption and peak demand

The CEP should include some easily and quickly achievable goals that can generate emissions reductions and bolster stakeholder confidence that their work was not in vain. Apart from new renewable generation and storage, the obvious candidates are energy efficiency (EE) and demand response (DR).

The stakeholder process has yielded a chorus of voices in favor of implementing substantial EE programs. The Energy Efficiency Roadmap<sup>13</sup> includes a suggested target of 10% by 2030 for regions serviced by investor owned utilities ( IOUs), which represents a substantial EE commitment, and is paired with a comparably sized demand response recommendation. However, increasing the EE savings rate from 0.62% per year to 2% per year could reduce our electricity consumption by 20% in ten years through replacement of high-emission equipment, as required by our climate situation.<sup>14</sup> A number of other states

<sup>10</sup> Powers, B. *Op cit.*, pp. 64-75.  
<sup>11</sup> Wilson, R, et al, *North Carolina’s Clean Energy Future: An Alternative to Duke’s Integrated Resource Plan*, Synapse Energy Economics for NC Sustainable Energy Association, March 2019. <https://starw1.ncuc.net/NCUC/ViewFile.aspx?id=891ac0cc-7aa9-4835-aed2-b15e9b5713e6>  
<sup>12</sup> Powers, B. *Op cit.*, pp. 64-75.  
<sup>13</sup> Clean Energy Plan, Supporting Basis Part IV  
<sup>14</sup> Powers, B. *Op. cit.*, p. 76.



including Massachusetts<sup>15</sup> and Rhode Island<sup>16</sup> have committed already to annual consumption reductions from EE measures of 2% or more.

Both building and equipment EE upgrades not only are effective at reducing consumption, but also are well understood to pay for themselves. The primary barriers to implementing EE with high participation are capital access, lack of consumer knowledge, and lack of motivation. The stakeholder process has identified numerous approaches to facilitating capital access and the EE Roadmap has honed in on mechanisms for supplying capital that build on existing infrastructure or have been implemented already elsewhere.<sup>17</sup> A key component is the implementation of on-bill financing, which allows customers to cover costs out of energy savings and facilitates equitable access to building and equipment upgrades. Utilities are well equipped to facilitate EE by providing knowledgeable, case-specific, solution selection and implementation.<sup>18</sup> Programs that pass significant savings back to consumers are key to improving consumer motivation.

Energy efficiency-driven consumption reductions have the potential not only to reduce overall electricity consumption by 20% in 10 years, but also to reduce both summer and winter peak demand by 30-35%.<sup>19</sup> These large reduction potentials follow from the dominance of cooling and heating in seasonal loads. If indeed North Carolina is now a winter peak state, as stated by the dominant electric utility,<sup>20</sup> then an appropriate place to begin the EE campaign is with replacement of inefficient electric heating systems.<sup>21</sup>

To accomplish a substantial EE savings rate, however, the CEP must establish a path for addressing the broadly identified issue of utility motivation. The EE Roadmap calls for an energy efficiency resource standard (EERS), which, like a renewable energy portfolio standard (REPS) with a mandatory EE component, would address utility reluctance to reduce consumption by establishing a mandate. However, the CEP needs to call for an aggressive EE savings rate, such as the above-mentioned 2% annual increment. Pending legislative action enabling implementation of an EERS, the CEP needs to direct the NCUC to implement a savings-funded EE payment mechanism and to promote all possible mechanisms for rapidly enabling access to capital.

Importantly, to stem the drive toward more fossil fuel infrastructure, we must pay attention not only to overall consumption, but also to mechanisms specifically addressing demand peaks. Demand response has been identified by the Federal Energy Regulatory Commission as having a particularly high potential to reduce peak load in the Southeast.<sup>22</sup> In North Carolina, where both air conditioning and electric heating contribute substantially to seasonal peak load and current levels of demand response are low, inexpensive HVAC control is identified as offering a 15 to 20% reduction in both summer and winter peak

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<sup>15</sup> Massachusetts 2019-2021 Energy Efficiency Plan Term Sheet, <http://ma-eeac.org/wordpress/wp-content/uploads/Term-Sheet-10-19-18-Final.pdf>.

<sup>16</sup> ACEEE 2016 Scorecard, Rhode Island, <http://database.aceee.org/state/rhode-island>.

<sup>17</sup> Clean Energy Plan, Supporting Basis Part IV

<sup>18</sup> Fox-Penner, P. *Smart Power: Climate Change, The Smart Grid, and the Future of Electric Utilities*, Island Press, 2014, pp. 152-153.

<sup>19</sup> Powers, B. *Op cit.*, p. 77.

<sup>20</sup> Duke Energy Carolinas, 2018 Integrated Resource Plan, p.8, accessed July 29, 2019, <https://starw1.ncuc.net/NCUC/ViewFile.aspx?id=aa9862b5-5e31-4b3f-bb26-c8a12c85c658>.

<sup>21</sup> Powers, B. *Op cit.*, p.76.

<sup>22</sup> FERC, *A National Assessment of Demand Response Potential*, June 2009, <https://ferc.gov/legal/staff-reports/06-09-demand-response.pdf>.

loads if implemented to achieve a high participation rate.<sup>23</sup> High participation is achievable through opt-out programs that provide *compensation at a level reflective of the costs of peak generation*.<sup>24</sup>

The Clean Path 2025 report shows that compensation reflective of new peak generation savings are an order of magnitude larger than credits currently provided by the utilities.<sup>25</sup> Proper compensation enables high participation without requiring critical peak or dynamic pricing. Given that solar with storage has less potential to reduce winter net peak loads than summer net peak loads, the Clean Path plan identifies emergency heat strip control as the most appropriate high-impact initial DR program. Given that Duke Energy has not yet implemented an emergency heat strip program in Duke Energy Carolinas (DEC) territory at all, despite the existence of an ongoing program in Duke Energy Progress territory, a properly compensated heat strip program in DEC territory would be an appropriate requirement for the NCUC to impose immediately.

Overall, these plans provide achievable, clean energy solutions that can be rapidly deployed.

#### Barriers to demand- and supply-side solutions must be removed

What are the barriers to implementing these solutions now? Currently, the barriers derive from practices and institutions designed to meet historic rather than contemporary goals. Specifically, existing practices and institutions were designed for a power system that assigned large benefits to generating power in very large power plants and as such, required a mechanism to ensure that significant capital could be raised at low rates. In the prior context, good planning did not require consideration of a broad and evolving set of options. In the new environment, where widely-distributed, appropriately integrated, renewable sources offer economical solutions, existing practices and institutions will not naturally produce plans that lead to either clean or least-cost solutions.

As others in our process and problem-solvers in other states have pointed out, a utility that generates profits largely from return on capital investment and from throughput cannot produce a least-cost solution when the least-cost solution is to increase efficiency and use fuel-free sources whose infrastructure has rapid payback and many ways of being funded. Hence the route to low-cost, clean solutions requires a new utility structure or aggressive mandates and new incentives that reward performance in lieu of spending. Prior incarnations of performance incentives have not been sufficiently comprehensive to overcome utility disinterest in foregoing rate-base and throughput growth.

While the process of reworking utility incentives may seem daunting, any choice to postpone it must be weighed against the price. Given the dominant utility's proclivity to double down on fossil fuels, both the environmental and economic costs of postponing redesign of the incentive system necessarily will be high. Furthermore, effort saved by not developing appropriate incentives will be spent many times over in needless games of cat and mouse over plans and utility-inspired legislative proposals designed to meet priorities that are not in the interests of North Carolina citizens.

#### One of the biggest barriers is access to electric grid performance data

Overall, the properties of low-cost clean solutions are understood. However, their efficient implementation requires tailoring at the local level. Proper placement of solar sources, storage and other equipment will be accomplished through extensive use of usage data and of capacity and performance data for the

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<sup>23</sup> Ibid., p.150.

<sup>24</sup> Powers, B. *Op cit.*, p.87.

<sup>25</sup> Ibid.

electric grid at several scales. If our utilities were incentivized to produce the most efficient, clean solutions, these solutions could be rapidly deployed.

If we leave our utilities with their current incentives, detailed solutions will need to be identified and implemented by others. A barrier to this latter approach is the perception by utilities that they not only own the grid, but also all associated data. Data sharing primarily is allowed in conjunction with special projects (such as collaborations funded by the American Recovery & Reinvestment Act<sup>26</sup>), under non-disclosure agreements (between utilities and large users evaluating programs), and where required by federal<sup>27</sup> or regional authorities, unless it isn't.<sup>28</sup> Thus, until the power providers' incentives are fully aligned with the interests of North Carolina citizens, we will need not only aggressive renewable energy portfolio standards and a functional interconnection process, but also extensive data transparency mandates.

#### North Carolina potential and economic, environmental, and justice benefits

Meanwhile, renewable energy and energy efficiency already are providing -- and, with the right policy drivers, can continue to provide in the future -- far more employment and economic benefits to our state than continued reliance on fossil fuel energy.<sup>29</sup> North Carolina even has among the best offshore wind potential on the East Coast,<sup>30</sup> development of which has the potential to create, according to one analysis, 56,000 new jobs.<sup>31</sup>

In addition, it does not make sense for the economic analysis of electricity generation to completely ignore the calculation of health benefits from the reduced burden of nitrogen oxides (NOx) emissions on NC citizens living and working near fossil fuel infrastructure. NOx emissions are precursors to atmospheric formation of ozone (and sometimes also to particulate matter), which exacerbates asthma and contributes to pulmonary and heart disease.<sup>32</sup> The NCUC should require Duke Energy to account for these health effects in its IRP analyses.

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<sup>26</sup> *Technology Performance Report: Duke Energy Notrees Wind Storage Demonstration Project, 2015 Final Report*, p. 1-5 for reference to DOE-Duke Energy negotiated terms and conditions; Appendix B for Inventory of Data Sources

<sup>27</sup> For example, Environmental Protection Agency, North American Electric Reliability Council, Federal Energy Regulatory Commission.

<sup>28</sup> Sorg, Lisa, *We tried to get Duke Energy's secret flood maps. We were stonewalled*. NC Policy Watch, 2017, <http://www.ncpolicywatch.com/2017/09/21/tried-get-duke-energys-secret-flood-maps-stonewalled/>, identifies unavailable coal basin flood zone maps required by EPA Coal Combustion Residuals Disposal Rule.

<sup>29</sup> Jones, J. "2019 Economic Impact Analysis of Clean Energy Development in North Carolina," news release, NCSEA, May 24, 2019, <https://energync.org/2019-economic-impact-analysis-of-clean-energy-development-in-north-carolina/> and NCSEA, *Clean Energy by the Numbers*, <https://energync.org/clean-energy-numbers/>.

<sup>30</sup> Musial, W., et al. 2016 *Offshore Wind Energy Resource Assessment for the United States*, National Renewable Energy Laboratory, September 2016, see especially pp.34-35, <https://www.nrel.gov/docs/fy16osti/66599.pdf>.

<sup>31</sup> Robertson, N., "Offshore drilling would bring jobs to NC," *News & Observer*, March 1, 2019, <https://www.newsobserver.com/opinion/article226992819.html>.

<sup>32</sup> *Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone*, Environmental Protection Agency, September 2015, chapter 6, <https://www.epa.gov/naaqs/regulatory-impact-analysis-final-revisions-national-ambient-air-quality-standards-ground-level>.

Although it is more difficult to quantify in dollars, it is important to consider the disproportionate impact of fossil fuel infrastructure, which is usually sited closest to low-income communities, including communities of color. Therefore the health burden of living in proximity to coal plants and coal ash ponds is borne by the most economically vulnerable citizens of our state.<sup>33</sup>

Finally, in its IRP as well as its forthcoming net metering study, the NCUC also should require Duke Energy to account for the economic benefit that net metering can provide both to the utility and to ratepayers.<sup>34</sup>

## Conclusion

What shall be the process for making these changes?

We think the CEP should contain a timeline for implementing the different recommendations. In addition, for each recommendation, next steps should be listed, as well as which parties can take the next steps. By this, we mean not only which state entity has the authority to implement the action. We mean that the state should identify other stakeholders who can help to push for the recommended actions and/or help provide research and analysis to facilitate the actions.

We are all in this together and we hope we and other stakeholders have demonstrated that we are willing to be more than passive participants in solving this problem. If a subset of stakeholders is identified to advance each recommendation in the CEP, our progress will be quicker.

A requirement for inclusion in this implementers' team, however, should be a show of good faith. If a potential stakeholder is identified as creating obstacles, that stakeholder should commit to removing them before being allowed to participate. In many, many ways, Duke Energy has stood in the way of clean energy progress in NC. Duke's outsized influence on state policy must end. The corporation should not be allowed to participate in state policymaking until it has committed to removing obstacles for which it alone is responsible: lack of data access, lethargic interconnection process, opposition to third-party PPAs, unusable design of Green Source Advantage and community solar programs, limits on leasing and rebates, refusal to offer on-bill financing, and more.

Thank you for your attention. We look forward to seeing the draft and thank you for all your hard work in completing it.

Best regards,  
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<sup>33</sup> It is worth noting that analogous arguments have been made against renewable energy incentive programs that claim that the economic "burden" of those programs should not be borne by customers who are not participating. Counter to that point is the argument that the health burden of living in proximity to coal plants and coal ash ponds is also borne by some customers but not others.

<sup>34</sup> Muro, M. and D. Saha. *Rooftop solar: net metering is a net benefit*, Brookings Institution, May 23, 2016, <https://www.brookings.edu/research/rooftop-solar-net-metering-is-a-net-benefit/>.



September 9, 2019

Sushma Masemore  
Deputy Assistant Secretary for Environment  
North Carolina Department of Environmental Quality  
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RE: Comments on North Carolina's Draft Clean Energy Plan

The Nicholas Institute for Environmental Policy Solutions ("Nicholas Institute" or "NI") respectfully offers the following comments to the North Carolina Department of Environmental Quality ("DEQ") regarding the agency's draft Clean Energy Plan ("CEP"). The Nicholas Institute, located at Duke University in Durham, North Carolina, improves environmental policymaking through objective, fact-based research and analysis. We have participated in all six CEP stakeholder workshops and appreciate the opportunity to share our comments.

The Nicholas Institute commends the DEQ for undertaking an inclusive and transparent stakeholder process to incorporate the voices of all North Carolinians in a plan for our collective clean energy future. The Nicholas Institute submits these comments based on our expertise in developing policy solutions in many of the plan's strategic focus areas. We stand ready to share our research and expertise to the implementation of policies that North Carolinians opt to support.

Our comments relate to the following recommendations:

- Initiate a study on the potential costs and benefits of different options to increase competition in electricity generation (A-3);
- Expand cost-benefit methodologies used to make decisions about resources and programs to include societal and environmental factors (B-2);
- Develop a green energy bank or statewide clean energy fund to catalyze the development and expansion of clean energy markets (D-3);
- Include non-energy equity-focused costs and benefits in decisions regarding resource needs, program design, cost-benefit analysis and facility siting (G-1);
- Decarbonize the electric power sector (I-1 and I-2); and
- Establish an Energy Efficiency Advisory Council to oversee the implementation of the EE Roadmap recommendations (K-1).

By highlighting these recommendations, we do not mean to suggest that they should be prioritized over the others. Instead, we are focusing on those recommendations where our expertise enables us to offer informed guidance (in the form of potential program details and description of ongoing potentially relevant research) and suggest paths forward.



## Clean Energy Plan Strategy Area: Utility Incentives & Comprehensive System Planning



Utility Tools & Incentives, Action A-3. *Initiate a study on the potential costs and benefits of different options to increase competition in electricity generation, including but not limited to joining an existing wholesale market and allowing retail energy choice.*

The Nicholas Institute agrees that objective study of this topic is warranted for North Carolina. Just this legislative session, state legislators introduced H.B. 958. If enacted, the bill would have empowered the North Carolina Utilities Commission (“NCUC”) to require utilities to join or create a regional transmission organization (“RTO”). RTOs manage the transmission grid and oversee wholesale market auctions; membership would therefore expose North Carolina’s utilities to greater competition at the wholesale level. Just two years ago, the North Carolina General Assembly passed H.B. 589, requiring among other things third party participation in the installation of solar projects in the state. Competition conversations are underway as well in South Carolina; meanwhile, advocates are collecting signatures for the 2020 Florida ballot initiative on retail electricity choice. These actions suggest a growing interest in exploring competition in the electricity sector, including as a means for more rapidly deploying renewables. Nor are competition debates new to North Carolina and the Southeast. In the early 2000s, North Carolina explored retail electric competition, while Duke Energy and Progress worked with South Carolina Gas & Electric to propose a GridSouth wholesale electricity market.

In the intervening years, other parts of the country have embraced different flavors of electricity competition. Increased competition, including full deregulation or participation in a wholesale market, has had varying effects on the cost, customer choice, and environmental impact of electricity provided in a given region. North Carolina has the benefit of examining the experiences of many other states and utilities, to inform an understanding of the benefits and costs that could accrue to North Carolinians from alternative electricity market configurations. Doing this in the context of Governor Cooper’s Executive Order 80 provides a focus and an urgency to this examination.

The Nicholas Institute has three specific comments related to this recommendation. First, DEQ might consider amending the recommendation to read, “competition in *the electricity sector*,” in order to encompass the generation, distribution, and metering of electricity. It would appear from the second clause (and its reference to retail energy choice) that DEQ’s intention is to initiate a conversation about more than competition in electricity generation. Since competition may be introduced at different points in the electricity value chain, or avoided in others, a recommendation that uses broader, value chain language affords more flexibility in the ensuing study and discussions.

Second, the Nicholas Institute suggests, even absent a legislative mandate, that the N.C. Utilities Commission should be a key partner in the development and use of any such study. Given the Commission’s independence and role in regulating the State’s investor-owned utilities, it is uniquely positioned to offer expertise and a platform for utilities and stakeholders to discuss a study that may yield potentially controversial findings.

Third, in the event it might help inform the recommended study, research is underway at the Nicholas Institute to identify a “continuum of competition” options for the electricity sector in the Southeast, including North Carolina. The idea behind the project is to inform competition discussions taking place in the North Carolina General Assembly, the Clean Energy Plan stakeholder process, and other venues. Often the discussions suggest there is a stark choice to be made, between business as usual, and full competition including retail choice (sometimes referred to as “the Texas model”). In fact, several other permutations exist in the United States and indeed, in the South. Competition is not a simple yes/no question but may take different forms, be time-limited or capped by volume of product, and cover different segments and services of the electricity sector. By providing analysis to this effect, we hope to enable more nuanced discussions about the rationale for and desired outcomes of competition.

This fall, the Nicholas Institute will publish a brief description of wholesale competition options, ranging from greater reserve sharing among regional utilities and participation in real-time wholesale energy market auctions to full participation in a new or existing RTO. NI will also release several case studies illustrating times when Southeastern states and utilities considered and then rejected competition, as well as decision points that resulted in greater competition. In the spring of 2020, we will release a paper on retail competition options.

The NI products will identify metrics that regulators, utilities, and stakeholders might use to assess the costs and benefits of competition, though it will not engage in a full economic analysis of each option. As such, this research might be a good starting point for the cost-benefit study contemplated here. We would be pleased to share our publications, the underlying research, and our insights from stakeholder interviews, with those tasked to complete the cost-benefit study.



Comprehensive utility system planning, Action B-2. *Expand cost-benefit methodologies used to make decisions about resources and programs to include societal and environmental factors.*

The issue of which energy resources should be deployed to meet North Carolina’s electricity demands, and the process for these decisions, is a point of tension between utilities, ratepayer and low-income advocates, energy economists, and the environmental community. This recommendation, if implemented with the cooperation of the NCUC, could go a long way to easing those tensions by forging a common valuation of additional factors to consider in the procurement of power.

Cost-benefit analysis enables an objective “apples-to-apples” comparison between energy programs and policies. When conducted by an impartial party using publicly available information, cost-benefit analysis can provide legitimacy to findings that an energy proposal is cost-effective or net-beneficial. However, *which* costs and benefits to consider remains an open question. One example of this is Duke Energy’s Energy Efficiency and Demand Side Management mechanism which currently uses a cost-effectiveness test, called the Total Resource Cost (“TRC”) test, to seek cost recovery for energy efficiency/demand response programs. The TRC is intended to measure the total cost of investment in energy efficiency (including the utility and customer costs) against the avoided cost of generating the electricity. The North Carolina General Assembly enables “all reasonable and prudent costs” to be passed on to consumers, and lists recoverable costs as including but not limited to “all capital costs, including cost of capital and depreciation expenses, administrative costs, implementation costs, incentive payments to program

participants, and operating costs.”<sup>1</sup> Therefore, the North Carolina General Assembly has not required the test to include the accounting of societal or environmental costs and benefits that would accrue to all North Carolinians from a given EE and DSM program, and neither the NCUC nor the utilities have included this broader accounting. Given the importance of these factors to a growing number of stakeholders, consideration of their inclusion in cost-benefit analyses is warranted.

While the statutory language is silent on social and environmental accounting (though it allows consideration of such costs and benefits), the North Carolina Constitution, art. XIV, section 5, requires the conservation, protection, and preservation of state lands and waters in public trust. This overarching policy directive can be given meaning through a full social and environmental accounting of the costs and benefits of energy decisions. More specific policy goals are evident in the language of Executive Order 80 (and echoed in the greenhouse gas reduction goals of the draft CEP):

- “North Carolina residents deserve to be better educated, healthier, and more financially secure”;
- “The effects of more frequent and intense hurricanes, flooding, extreme temperatures, droughts, saltwater intrusion, and beach erosion have already impacted and will continue to impact North Carolina’s economy”;
- “Climate-related environmental disruptions pose significant health risks to North Carolinians”;
- and
- “To maintain economic growth and development and to provide responsible environmental stewardship, we must build resilient communities and develop strategies to mitigate and prepare for climate-related impacts in North Carolina.”

The current approach of excluding impacts to society in energy cost-benefit tests could serve as an obstacle to realization of the goals of EO80 and the CEP. According to the National Standard Practice Manual<sup>2</sup> (“NSPM”), a guide to best practices for creating and implementing cost-effectiveness analyses, after the utility impacts have been included in the analysis, “any additional impacts should be included *if they are consistent with and justified by applicable policy goals.*”<sup>3</sup> A conversation about whether and how to include those societal impacts in decision-making could serve as an entrée for discussions around Executive Order 80 and the broader aims of the Clean Energy Plan.

North Carolina might employ a collaborative process “that is transparent and open to all relevant stakeholders,” as the NSPM recommends. The N.C. Utilities Commission, with input from stakeholders, could take the lead in selecting which societal and environmental impacts will be incorporated into the cost-benefit and cost-effectiveness analyses going forward and how they will be calculated in the assessment of energy resources.<sup>4</sup> The NCUC could rely on current best practices and guidance from

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<sup>1</sup> North Carolina S.B. 3 (2007); Session Law 2007-397,

<https://www.ncleg.net/sessions/2007/bills/senate/pdf/s3v6.pdf>; North Carolina Gen. Stat. 62-133.8.

<sup>2</sup> The National Standard Practice Manual is intended to provide a comprehensive framework for assessing the cost-effectiveness of energy efficiency resources. The NSPM provides a set of policy-neutral, non-biased, and economically sound principles, concepts, and methodologies for the balanced assessment of resource cost-effectiveness. National Efficiency Screening Project, National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources (May 2017), available at <https://nationalefficiencyscreening.org/national-standard-practice-manual/>.

<sup>3</sup> Pg. 11 National Standard Practice Manual – FAQs.

<sup>4</sup> Other state utility commissions have directed stakeholder processes in advance of specific dockets to explore just these types of issues, see Ari Peskoe, [Alternative Dispute Resolution at Public Utility Commissions](#), Harvard Environmental Law Program (May 2017).



resources like the NSPM and the [EPA’s health benefits per kilowatt hour analysis](#), to inform the identification of the most cost-effective and net-beneficial ways of meeting our state’s policy goals.<sup>5</sup>

Finally, and very importantly, any expansion of the cost-benefit methodologies to include societal and environmental impacts should also explicitly identify the impacts to communities – particularly communities of color, rural communities, and low-income households – that have been consistently disproportionately impacted by the externalities of the traditional energy generation system. For this reason, NI suggests that equity language should be included in this recommendation to ensure that the benefits and costs to these populations are consistently identified and valued in energy decision-making.

### **Clean Energy Plan Strategy Area: Customer Access to Clean Energy and Economic Development**



Customer access to clean energy, Action D-3. *Develop a green energy bank or statewide clean energy fund to catalyze the development and expansion of clean energy markets by connecting private capital with clean energy projects.*

The Nicholas Institute has dedicated significant resources to researching and understanding how clean energy funds, or “green banks”, can be positive catalysts for investment in clean energy and energy efficiency programs and de-carbonization of the grid.

The gap between current and potential funding and financing for clean energy programs in North Carolina is substantial. Targeted investment is needed to overcome the high poverty rates, high rental rates, poor housing stock, and utility rate structures that discourage energy savings and investments in clean and efficient energy sources. Today, these factors pose steep hurdles for building owners attempting to access public or private capital for clean energy projects. The Nicholas Institute strongly supports the use of a clean energy fund (or green bank) to overcome these hurdles and has done substantial research<sup>6</sup> on the potential design elements of a fund that could catalyze investment in clean energy and energy efficiency throughout the state.

A statewide clean energy fund is one of the single best mechanisms to overcome financial barriers and bring clean energy and energy efficiency investment to scale in North Carolina. A clean energy fund can leverage public funds to attract private investment and make money available to consumers and businesses at low cost. A clean energy fund can also facilitate market development by educating consumers, centralizing administration for originators and lenders, and connecting capital supply to customer demand. And because clean energy funds are capitalized from a diverse mix of public and private funds, they reduce risk to private lenders and induce participation in emerging markets.

As demonstrated by the empirical successes of clean energy funds and green banks in Northeastern and Western states, a clean energy fund in North Carolina stands to meet state and local government

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<sup>5</sup> As described in the NSPM, the societal cost test (SCT) is an approach to cost-effectiveness calculation that is inclusive of all costs and benefits to society, including, but not limited to public health impacts, system resiliency, economic development opportunities and greenhouse gas emission reductions.

<sup>6</sup> A white paper by the Nicholas Institute on such funds can be found at <https://nicholasinstitute.duke.edu/publications/beyond-financing-guide-green-bank-design-southeast>.

objectives such as spurring job creation and economic development, supporting energy equity, and improving local air quality. For example, the Connecticut Green Bank has successfully mobilized over \$1 billion of investment in the state, created over 13,000 jobs, lowered energy costs for over 24,000 residential and business customers, and reduced greenhouse gas emissions by 3.7 million metric tons.<sup>7</sup>

In addition, a clean energy fund could be a catalyst for other CEP recommendations, such as establishing a Property Assessed Clean Energy or Pay as You Save program (D-2) as well as expanding energy efficiency and renewable energy programs specifically targeted at underserved markets and low-income communities (G-3).

Given the tremendous potential of a clean energy fund to help North Carolina achieve its goals under EO80 and other statewide objectives, as well as its near universal support from many different CEP stakeholders, the Nicholas Institute is working to find ways to facilitate this recommendation's implementation. Starting this Fall, the Institute will be partnering with the Coalition for Green Capital ("CGC"), a leading expert and implementer of Green Banks, to produce an in-depth report to explore the creation and design of a North Carolina Clean Energy Fund. Based on CGC's experiences consulting on the establishment of Green Banks in other states, we recommend that the Fund be formed by non-governmental organizations and academia as a government-adjacent, independent 501(c)(3) non-profit corporation. Creating a nonprofit (as opposed to a quasi-public entity) avoids the need for the passage of legislation. Non-profits are also better positioned to receive and blend public, philanthropic, and private capital on their balance sheets.

We look forward to working with the State of North Carolina on this exciting project.

### **Clean Energy Plan Strategy Area: Equitable Access and Just Transition**



Equitable access and energy affordability, Action G-1. *Include non-energy equity-focused costs and benefits in decisions regarding resource needs, program design, cost-benefit analyses, and facility siting.*

Throughout the stakeholder process for the Clean Energy Plan, it was clear that stakeholders of all stripes see a need for North Carolina's energy policy to place a higher emphasis on equity. To ensure equity issues are sincerely addressed, participants suggested that equity considerations should be embedded in the states's energy deliberations, decision processes, and calculations.

The Nicholas Institute sees recommendation G-1 as closely related to recommendation B-2; any consideration of cost-benefit methodologies to include societal and environmental impacts should also explicitly include accounting of the costs and benefits to communities – particularly those of color and low-income – that have been consistently disproportionately impacted by the externalities of the traditional energy generation system. For this reason, NI suggested above that equity language should be included in recommendation B-2 in the final version of the Clean Energy Plan.

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<sup>7</sup> Connecticut Green Bank website, Green Bank 101: A Robust Economic Development Engine. Accessed 9/5/19. <https://ctgreenbank.com/economic-development-engine/>

Second, recommendation G-1 could be modified to reflect energy justice and energy burden academic discourse. For instance, the Nicholas Institute encourages DEQ to consider the constructs used in Brown et al.'s most recent review, *Low-income Energy Affordability in an Era of U.S. Energy Abundance* (2019).<sup>8</sup> Brown et al. purport that “multiple definitions are used to discuss low-income energy burdens, to qualify households for assistance in different programs, and to estimate the potential for future energy bill reductions. This is problematic for program managers and policy analysts because the extent and nature of the energy burden problem depends on the measure that is used. With inconsistent definitions, it is difficult to compare results across studies and derive lessons learned.” We add that with inconsistent definitions, it will be difficult for North Carolina to craft policies and programs that truly assist burdened populations or remediate systemic equity issues.

Informed by their work, as well as the work of utility commissions in other states,<sup>9</sup> the Nicholas Institute suggests that the language of the recommended actions for G-1 adopt of the following terms and definitions, as provided by *Brown et al.*:

- Household energy burden – the share of a household’s income that is spent on specified utilities and heating fuels where the numerator reflects both the household’s consumption as well as electricity rates, and the denominator reflects total household income or budget.
- Energy poor households - all those that spend on average more than 6% of their income on meeting energy costs.

Brown et al. suggested that a single threshold for energy burdened or “energy poor” households may not accurately characterize the differential burdens felt by low- and moderate-income households. Therefore, they suggested the following range of thresholds:

- energy stressed - households with energy burdens of 4%–7%;
- energy burdened - households with energy burdens of 7%–10%; and,
- energy impoverished – households with energy burdens greater than 10%.

NI agrees that a single threshold of energy burden, defined as any household spending more than 6% of its income on energy, does not capture the full story. For instance, as depicted below in Figure 1, the data make clear that many low- to moderate-income households in North Carolina are paying more than 6% of income on energy.<sup>10</sup> Therefore, NI is analyzing household income and energy bill data for North Carolina, in an effort to identify and characterize “tranches” of energy burden (by location, home age and type, and demographics) tailored to our state. We would be pleased to share our findings with DEQ and other agencies and stakeholders, to inform a conversation on energy burden and the design of tailored programs that can address the unique challenges of populations experiencing each of the three burden levels.

One example of how this terminology can be adopted into the CEP is the description for G-1 on page 97 of the draft CEP. The paragraph could be revised to say, “Utilities and state agencies could better incorporate equity into program design, such as EE program design, by adding metrics that track how many *energy burdened households* are enrolled or creating specialized carve-outs designed to ensure certain percentages of program funds are proportionally dedicated towards energy stressed, energy burdened, and energy impoverished households.” Additionally, the NCUC action described in *Table G.1*

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<sup>8</sup> Marilyn A Brown et al 2019 *Prog. Energy* 1 012002 found at <https://doi.org/10.1088/2516-1083/ab250b>

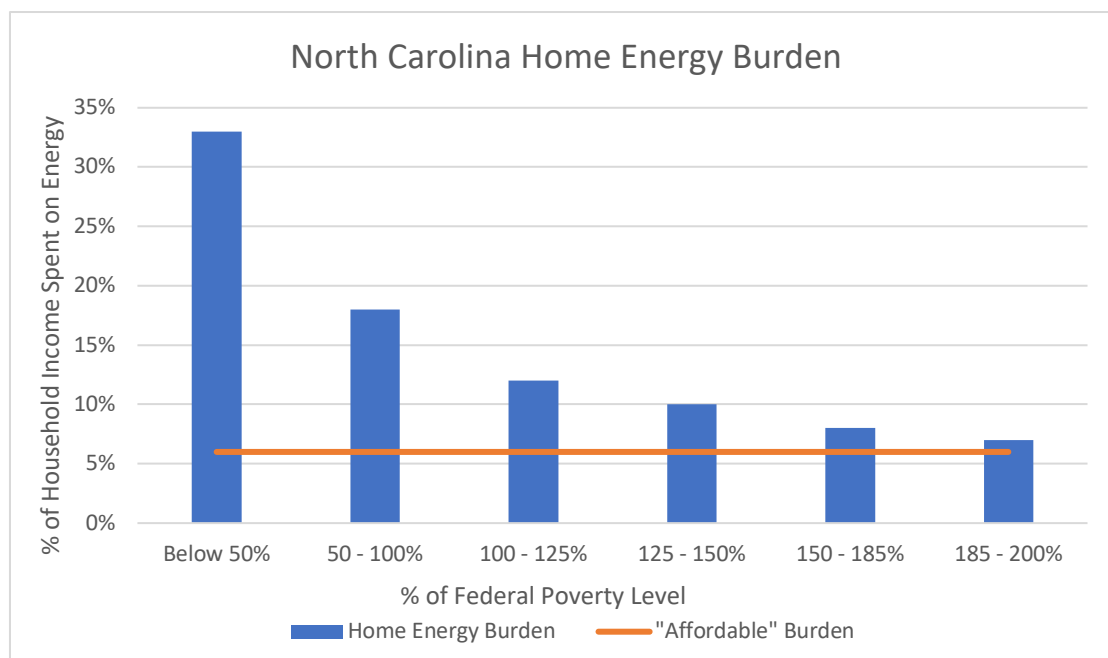
<sup>9</sup> See, e.g., Pennsylvania PUC, “Home Energy Affordability for Low-Income Customers in Pennsylvania” (Jan. 2019), at <http://www.puc.pa.gov/pdocs/1602386.pdf>.

<sup>10</sup> Credit: Steven Schlauch, student researcher at the Nicholas Institute for Environmental Policy Solutions, using data from <http://www.homeenergyaffordabilitygap.com/index.html> and census data.

could be revised to state, “consider impacts to *all levels of energy burdened households* in utility resource planning.”

The adoption of these terminology in the Clean Energy Plan could have profound ramifications in changing the policy discourse in North Carolina. One possible outcome could be that for all future programs aimed at improving energy equity, we might be more precise in designing programs that provide the most beneficial services to the North Carolinians in greatest need.

Figure 1: Depiction of North Carolina Households Paying More than 6% of Income for Energy Costs



**Clean Energy Plan Strategy Area: Carbon Reduction and Grid Resilience**



Decarbonization of the electric power sector, Action I-1. *Set North Carolina electricity sector carbon reduction goals in policy and legislation.*

Decarbonization of the electric power sector, Action I-2. *Conduct a comprehensive study to evaluate the ideal timeline, policy design, and target levels for the three policy actions recommended in I-1.*<sup>11</sup>

Given the ambitions declared by Governor Cooper in Executive Order 80, utility sector targets are essential for any decarbonization plan. EO80 set aggressive greenhouse gas reduction goals for the state of North Carolina by 2025 and directed the development of a Clean Energy Plan to modernize and de-

<sup>11</sup> We assume the three action items are those listed on page 112 of the draft Clean Energy Plan: set a Clean Energy Standard of expand REPS; reduce fossil fuel use; and set a CO<sub>2</sub> reduction target for the power sector. This might be clarified for the final Clean Energy Plan.

carbonize the state's power sector. Therefore, recommendations to curb fossil fuel use and carbon emissions from the power sector are central to the Plan's purpose. Of course, deployment of non-emitting renewable generation and energy efficiency programs are critical, as are considerations of equity and societal costs and benefits as the state endeavors to re-make its energy systems. But in many ways, the three recommendations listed above are the primary yardsticks against which the success of the Clean Energy Plan will be measured. Fortunately, the state has already made good progress on carbon reduction goals in the power sector – emissions have decreased 34% since 2005.<sup>12</sup> In fact, there is enormous potential to exceed the EO80 reduction target in this sector, while electrifying other parts of North Carolina's economy – transportation resources, building heating and cooling, heavy industrial processes – to achieve an economy-wide 40% reduction target from 2005 levels in six years.

If North Carolina proceeds with implementation of these recommendations, NI could offer its expertise in policy design and stakeholder engagement to facilitate the setting of carbon reduction goals and policies. We can leverage our expertise to ensure that the right questions are being asked, and that resulting outcomes are appropriate, reasonable, and aligned with broader State goals and policies. Looking to the literature as well as live examples of carbon reduction policies across the United States, there are a range of policies to choose from in this realm, from individual permit limits or assessment of fees for every ton of carbon emitted, to a sector-wide declining cap on emissions or an emissions rate-based Clean Energy Standard. The Nicholas Institute could produce a policy relevant report on these design options, as a stand-alone product or in conjunction with an engaged stakeholder process.

NI has a strong track record in this area of policymaking. Nicholas Institute researchers and affiliated Duke University faculty have designed and evaluated carbon caps and carbon pricing policies for many years.<sup>13</sup> Recently, in partnership with the Regional Greenhouse Gas Initiative (RGGI) Project Series, NI has hosted meetings with states considering a power sector carbon cap and published a policy brief walking states through the decision-making and stakeholder engagement process.<sup>14</sup> NI has also convened stakeholders to produce the North Carolina EE Roadmap, and has led Southern regulators in conversations about electric vehicle infrastructure.

The Nicholas Institute has deep experience in power sector carbon reduction policies as well as facilitating tough conversations among diverse stakeholders. We would welcome the opportunity to use this expertise to further carbon reduction policies in the state of North Carolina.

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<sup>12</sup> N.C. Department of Environmental Quality, North Carolina Greenhouse Gas Inventory, 1990-2030 (Jan. 2019), at <https://files.nc.gov/ncdeq/climate-change/ghg-inventory/GHG-Inventory-Report-FINAL.pdf>.

<sup>13</sup> See, e.g., Billy Pizer, Brian C. Murray, and Christina Reichert, Increasing Emissions Certainty under a Carbon Tax. *Harvard Environmental Law Review Forum* 41 (2017); Brian C. Murray, Peter T. Maniloff, Why Have Greenhouse Gas Emissions in RGGI States Declined? An Econometric Attribution to Economic, Energy Market, and Policy Factors, *Energy Economics* 51, 581-589 (2015); Billy Pizer, Richard Newell, and Daniel Raimi, Carbon Markets: Past, Present, and Future. *Annual Review of Resource Economics* 6, 191-215 (2014).

<sup>14</sup> See <https://nicholasinstitute.duke.edu/publications/getting-yes-internal-preparations—state-carbon-trading-checklist-meeting-governor> (May 2019). While this brief focused on a cap-and-invest program best typified by the Regional Greenhouse Gas Initiative, the Nicholas Institute understands that some stakeholders are not comfortable with a program that enables sources to trade emissions allowances, and that a starting point in discussions might not assume this design feature.

## Clean Energy Plan Strategy Area: Energy Efficiency and Beneficial Electrification



Energy Efficiency & Demand Side Management Programs, Action K-1. *Establish an Energy Efficiency Advisory Council (EEAC) to oversee implementation of the EE Roadmap recommendations.*

Energy Efficiency (“EE”) is widely considered a least cost option for meeting energy demand while reducing energy costs and carbon emissions. While EE has experienced slow and steady growth in North Carolina, much more can be done to maximize the full potential of this least cost resource. Despite bipartisan support for the economic and environmental benefits of EE and an increasing focus by advocates, utilities, and big energy users, there are still barriers blocking the realization of EE’s potential.

The North Carolina Energy Efficiency Roadmap - a ten-month facilitated stakeholder process - collected the expertise and ideas from over 100 EE stakeholders in the region and maps out 32 recommendations to help the state implement new solutions, remove barriers, and achieve its shared EE objectives. A key to the implementation of all the EE Roadmap recommendations – including the recommendations outlined in the CEP (K-2, K-3 and K-4) – is the creation of an Energy Efficiency Advisory Council (EEAC). The Nicholas Institute strongly recommends the creation of the EEAC as the first step in achieving the state’s EE potential.

An EEAC is positioned to play an invaluable role in ensuring North Carolina will realize maximized energy savings (EE) via energy efficiency programs, thereby enabling the reduction of greenhouse gas (GHG) emissions at an ambitious pace. States with exemplary EE programs possess similar bodies that perform a similar function to the proposed EEAC; Massachusetts – the first in the nation on ACEEE’s annual State Efficiency Scorecard for the last eight consecutive years – is one such example.

As DEQ progresses in developing and planning for the EEAC, the Nicholas Institute offers the following for further consideration:

- 1) Empower the EEAC with the responsibility of:
  - a. Reviewing and monitoring the ongoing implementation of energy efficiency programs in North Carolina;
  - b. Ensuring that the NC EE Roadmap is implemented in a timely fashion, and that an honest and transparent accounting of success, failures, and progress can be documented; and,
  - c. Making “go”, “stop” and “pivot” determinations as necessary to ensure that only the most impactful solutions are being implemented.
- 2) Establish a voting body so that the EEAC can stay objectively committed to the policy goals of EO80 and the CEP. This body can include representation from ratepayer advocates, commercial businesses, low income interests, energy-efficiency experts, the environmental community, and the Department of Environmental Quality. DEQ is perhaps best positioned to serve as the chair of the EEAC.

- 3) Establish a non-voting body of energy efficiency experts comprised of representatives from the utilities, energy-efficiency businesses, and other energy efficiency program administrators, to provide subject matter expertise and participate in working groups.
- 4) Enable the EEAC to set their own priorities through an approved resolution that indicates where the focus of the EEAC will be for the next 12 months. A technical Consultant Team (an assortment of one or more objective subcontractors) could be hired to work through the program level analysis required for the review and monitoring of program development, execution, and evaluation.
- 5) Allow for the creation of management committees that can help address the differences between utilities service territories in terms of level of urbanization, socio- economic conditions, size of the commercial sector, and building demographics. Such committees could include:
  - a. A Commercial & Industrial Management Committee (C&I MC) to provide strategic oversight for all commercial and industrial programs
  - b. A Residential Management Committee (RMC) to provide oversight for all non-low-income residential programs.
  - c. A Low-Income Residential Committee (LIRC) to provide oversight for all low-income residential programs.
  - d. An Evaluation Management Committee (EMC) that will work to identify evaluation priorities and set priorities for a variety of research areas that are managed by the utilities.

The management committees can meet monthly they explore issues, consider new solutions, review practices, and plan and execute initiatives.

- 6) Design the EEAC to conduct regular evaluation studies, completed by independent evaluation consultants with oversight provided by both the utilities and the EEAC's EMC.

### Conclusion

The Nicholas Institute appreciates this opportunity to comment on the draft Clean Energy Plan for North Carolina, and looks forward to partnering with DEQ, other state offices and agencies, and the broader stakeholder community on the actions proposed in this plan.

Respectfully submitted,

Kate Konschnik  
Climate and Energy Director  
Nicholas Institute for Environmental Policy Solutions

Jennifer Weiss  
Senior Policy Associate  
Nicholas Institute for Environmental Policy Solutions

Gennelle Wilson  
Graduate Research Assistant  
Nicholas Institute for Environmental Policy Solutions

To the North Carolina State Energy Office:

Nuclear Matters® appreciates the opportunity to provide comments on the Draft North Carolina Clean Energy Plan. Nuclear Matters is a national coalition of over half a million advocates that works to inform the public and policymakers about the clear benefits of nuclear energy. We support solutions that properly value nuclear energy as a reliable, affordable, safe and carbon-free electricity resource that is essential to America's energy future.

The Nuclear Matters community urges you to include carbon-free nuclear power in the North Carolina Clean Energy Plan. We are sharing with you today 120 comments from Nuclear Matters advocates who believe nuclear energy is essential in the state's effort to transition to a clean energy future.

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. North Carolina's nuclear power supplies 77% of our state's carbon-free electricity. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

We thank you for your consideration.

Nuclear Matters

First Name	Last Name	City	State	Zip	Advocate Email Address	Comment
						Dear NC State Energy Office  As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).  Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.  I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.  Regards, Matthew Albinger
Matthew	Albinger	Shelby	NC	28150	albymatt69@gmail.com	
						Dear NC State Energy Office  As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).  Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.  I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.  Regards, Judy Allen
Judy	Allen	Vanceboro	NC	28586	jdylIn@yahoo.com	
						Dear NC State Energy Office  As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).  Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.  I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.  Regards, Lou Apa
Lou	Apa	Sanford	NC	27330	louapa@yahoo.com	



<p>Christopher Baranski Raleigh NC 27613 cbb4104@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Christopher Baranski</p>
<p>Katherine Boy North Topsail Beac NC 28460 katherine.louise9219@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Katherine Boy</p>
<p>William Buice Raleigh NC 27603 wmbuice@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, William Buice</p>
<p>John Callahan Lake Park NC 28079 jcallahan6952@carolina.rr.comm</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, John Callahan</p>

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I work at a nuclear power plant in the Raleigh area and I can assure you that the group of folks that keep that plant running safely to provide a reliable, clean base load are the most dedicated and intelligent folks I've met. Any proposed plan that dismisses nuclear energy is dismissing the folks that give their careers, their free time, and their passion to a field that they believe in. Dismissing nuclear energy in a clean energy plan is proposing a plan that won't work for the country in the long term, as many studies have already shown.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Sarah Conner

Sarah Conner Durham NC 27707 sarahcombee@gmail.com

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
robert cook

Robert Cook Greensboro NC 27406 cookjrrw53@gmail.com

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Zon Davison

Zon Davison Mooresville NC 28117 racecityzcd@gmail.com

Sarah	DeSilva	Castle Hayne	NC	28429	sarah.desilva@ge.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Sarah DeSilva</p>
Patrick	Downey	Wilmington	NC	28405	shadoe722@yahoo.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Patrick Downey</p>
Vijay	D'Souza	Charlotte	NC	28270	vdsouza1@gmail.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Vijay D'Souza</p>
Richard	Elliot	Mooresville	NC	28115	relwold1@gmail.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Richard Elliot</p>

						<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Brandon Ellis</p>
Brandon	Ellis	Wilmington	NC	28405	bde0925@gmail.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Nuclear energy is mentioned only three times throughout the entire plan, and only in relation to the state's current nuclear generation in the Introduction. Nuclear currently provides approximately 1/3 of the state's current electricity but contributes more than 3/4 of the state's carbon-free electricity. No consideration is given in this plan to any future developments for inclusion of new nuclear in helping the state of North Carolina meet these energy goals.</p> <p>Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Matthew Fallacara</p>
Matthew	Fallacara	Charlotte	NC	28277	matthew.fallacara@gmail.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Jay Fox</p>
Jay	Fox	Mooresboro	NC	28114	jayfox8807@yahoo.com	

Dear NC State Energy Office

The Ask

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

I am a scientist and engineer with 45 years of experience in the electric power and nuclear power industries with Duke Energy, the Electric Power Research Institute, and as an engineering consultant to the industry. My expertise is the continual improvement of nuclear plant safety, reliability, and cost-reduction. Most recently, I have worked to modernize plants to enable life extension to 60-years and again to 80-years, and to adapt these plants to an evolving grid environment and to meet utility low-carbon emission goals.

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

The continued benefits of nuclear power through 2040 might seem assured, since Duke Energy plans to continue operation of its 5 nuclear units in NC and 6 units in SC. However, this commitment could change for any number of reasons addressed below.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation. I ask you to specifically address the issues and solutions offered below.

1. Preserve Existing Nuclear Assets in NC and those in SC Operated by Entities in NC

There are many ways to consider the cost of electricity from various sources. Renewables can be the lowest cost at many points in time, but their capacity is low, and intermittency increases their levelized cost of electricity. Natural gas is nearly always in the mix of lowest cost sources today, but gas prices have always been volatile, and "pricing carbon" is likely to be a reality long before 2040. Nuclear plants in many states are closing prematurely because nuclear power is not in the lowest cost mix of sources often enough to achieve short term profits. But when these plants are closed, they are replaced largely with fossil fuel sources with 30-year lives, which should never be acceptable to a clean energy plan. So the NC CEP must encourage the continued operation of existing plants at least

John Gaertner Charlotte NC 28203 jgaertner@carolina.rr.com

Dear NC State Energy Office

As a North Carolina resident, tax payer & voter, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Solar and wind are not a carbon free energy source, the resources required to create solar panels and wind turbines is immense the maintenance required is also immense. Nuclear plants are not perfect however they provide a baseload source of power along with hydro and (unfortunately) coal or LNG that supplement solar and wind. With good design nuclear plants are very safe and reliable sources of energy. Please don't let the unfortunate events at Fukushima, TMI, or Chernobyl tarnish what good nuclear has done for the American people and the citizens of this great state.

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Solomon Gainey

Solomon Gainey Rockingham NC 28379 solomong1977@gmail.com

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Jon Gomes

Jon                      Gomes                      Raleigh                      NC                      27607                      vapordynamyx@yahoo.com

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

I voted for you in the gubernatorial election, and part of the basis for that was that I didn't trust the Republican party to support green energy. I feel that omitting nuclear power from the CEP would be a step back even from the Republican stance.

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Phillip Gorman

Phillip                      Gorman                      Raleigh                      NC                      27603                      phil.gorman@gmail.com

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Nancy Hablutzel

Nancy                      Hablutzel                      Durham                      NC                      27703                      nancyzh@aol.com

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Brittany Hansen

Brittany                      Hansen                      Concord                      NC                      28027                      beohansen0689@gmail.com

<p>David            Harkin            Waxhaw            NC    28173    hdavid@carolina.rr.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, David Harkin</p>
<p>Richard            Harrison            Carolina Shor            NC    28467    harrisonre@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Richard Harrison</p>
<p>Robert            Hayes            Raleigh            NC    27695    rbhayes@ncsu.edu</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Robert Hayes</p>
<p>Jerald            Head            Wilmington            NC    28409    jhead1958@hotmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Jerald Head</p>

<p>Terry Herrmann Durham NC 27703 tjhsbh79@yahoo.com</p>	<p>Dear NC State Energy Office</p> <p>As a resident of North Carolina, I strenuously request nuclear power be included in the North Carolina Clean Energy Plan (CEP).</p> <p>Nuclear generated electricity prevents millions of tons of carbon dioxide emissions into the state's air and natural environment annually. It's one of the most reliable sources of electricity generation and operates 24 hours a day / 7 days a week / 365 days a year. These facilities are only shut down for a few weeks every couple of years to refuel and are not subject to interruptions of coal, oil or gas supplies.</p> <p>Nuclear energy contributes to the economic vitality of our state through thousands of high-paying jobs and millions of dollars in state and local taxes.</p> <p>Without support for nuclear power, these critical assets will gradually disappear from our energy mix and lead to ever increasing dependence on carbon-emitting or intermittent sources.</p> <p>Accordingly, I urge you to include carbon-free nuclear energy in our CEP.</p> <p>Regards, Terry Herrmann</p>
<p>Richard Hill Raleigh NC 27607 richard_hill@mindspring.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Richard Hill</p>
<p>Millie Hines Bryson City NC 28713 millie.ann.hines@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Millie Hines</p>



<p>Jason            Hou            Cary            NC    27519    jason.kumi@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Jason Hou</p>
<p>Jeff            Hren            Leland            NC    28451    jeffa.hren@ge.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Jeff Hren</p>
<p>John            Johnson            Cornelius            NC    28031    john@jetsquality.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, John Johnson</p>
<p>Renee            Johnston            Holly Springs            NC    27540    rbjohnston90@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Renee Johnston</p>

						Dear NC State Energy Office
						As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
						Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
						I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Dewey	Jordan		NC	27616	deweyjrph@gmail.com	Regards, Dewey Jordan
						Dear NC State Energy Office
						As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
						Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
						I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Megan	Jordan	Wilmington	NC	28401	megan.s.schroeder@gmail.com	Regards, Megan Jordan
						Dear NC State Energy Office
						As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
						Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
						I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Johnny	King	Olin	NC	28660	jomaraki@outlook.com	Regards, Johnny King
						Dear NC State Energy Office
						As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
						Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
						I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Myron	Koblansky	Charlotte	NC	28205	myronk@gmail.com	Regards, Myron Koblansky

<p>Anthony Laskis High Point NC 27262 hippiclimber@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Anthony Laskis</p>
<p>Robert Lewis Goldsboro NC 27534 rbrtlws@hotmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Robert Lewis</p>
<p>Andrew Lipetzky Raleigh NC 27607 aclipetzky@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Andrew Lipetzky</p>
<p>Juliana Lipetzky Raleigh NC 27607 aclipetz@ncsu.edu</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Juliana Lipetzky</p>

<p>Joseph Livote Wilmington NC 28403 j.livote@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Joseph Livote</p>
<p>Jim Louy Denver NC 28037 jvlouy@icloud.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Jim Louy</p>
<p>Tiffany Louy Denver NC 28037 trlouy@icloud.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Tiffany Louy</p>
<p>Anne McGovern Matthews NC 28105 anneerone@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a Democrat and North Carolina resident, I urge you to include our largest source of carbon-free electricity - nuclear energy - in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include this significant source of carbon-free energy isn't a real clean energy plan. Nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>Please include carbon-free nuclear energy in our CEP and help North Carolina be a national clean energy model.</p> <p>Regards, Anne McGovern</p>

						Dear NC State Energy Office
						As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
						Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
						I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Samantha	Michael	Wilmington	NC	28405	samantha.michael@ge.com	Regards, Samantha Michael
						Dear NC State Energy Office
						As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
						Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
						I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Nicole	Monge	Huntersville	NC	28078	nmonge@apcoworldwide.com	Regards, Nicole Monge
						Dear NC State Energy Office
						As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
						Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
						I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
John	Moore	New Hill	NC	27562	jmontara@earthlink.net	Regards, John Moore
						Dear NC State Energy Office
						As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
						Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
						I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Erica	morales	Charlotte	NC	28262	ericamorales@aol.com	Regards, Erica morales

<p>Brad Morrow Morrisville NC 27560 alanmenken@yahoo.com</p>	<p>Dear NC State Energy Office</p> <p>Given the priorities of decarbonization and grid resiliency, I believe that the cleanest, safest, most reliable form of electricity production that already provides over a third of the electricity in our state, nuclear power, should receive a higher priority in the North Carolina Clean Energy Plan.</p> <p>Regards, Brad Morrow</p>
<p>David Oakes Wilmington NC 28409 david_oakes@bellsouth.net</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, David Oakes</p>
<p>Victoria Ollo Fayetteville NC 28314 victoria.ollo@outlook.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Victoria Ollo</p>
<p>Tyler Peek Morrisville NC 27560 tylerapeek@yahoo.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Tyler Peek</p>

Tyler	Peek	Morrisville	NC	27560	tyler.peek@durhamnc.gov	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Tyler Peek</p>
DANIEL	PELLEGRINO	Charlotte	NC	28205	danpellegrino8@gmail.com	<p>Dear NC State Energy Office</p> <p>As an NC resident and electrical engineer in the electric generation industry, I implore you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, DANIEL PELLEGRINO</p>
John	Petrowski	Oak Island	NC	28465	jtpetrowski@gmail.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, John Petrowski</p>
Andy	Pickle	Wake Forest	NC	27587	ampickle@aol.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Andy Pickle</p>

<p>Ian Porter Wilmington NC 28403 ianporter88@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Ian Porter</p>
<p>Hannah Reese Raleigh NC 27603 hrreese2@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Hannah Reese</p>
<p>Sue Reese Boone NC 28607 reesem@apstate.edu</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Sue Reese</p>
<p>W Richardson Raleigh NC 27606 wjr131@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, W Richardson</p>



<p>Eric Rizk Wilmington NC 28403 eric.rizk@yahoo.co.uk</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Eric Rizk</p>
<p>Dennis Roberts Murphy NC 28906 djrboxcar@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Dennis Roberts</p>
<p>Sandra Roberts Murphy NC 28906 sandra.e.roberts@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Sandra Roberts</p>
<p>DONALD SHAFFER Chapel Hill NC 27516 donald.shaffer@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, DONALD SHAFFER</p>

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP). I've lived in this state for the last three years and have come to appreciate many of its unique characteristics. I recognize your efforts to preserve our natural habitat and ask that you please be honest with your voter base about the only feasible solution to achieve large scale, carbon-free energy production.

Any clean energy plan that does not include our state's largest source of carbon-free energy is incomplete and isn't a real clean energy plan. Carbon-free nuclear energy prevents more than 30 million tons of carbon dioxide emissions from entering into the state's air and natural environment, ANNUALLY. Additionally, although economic stimulus is not the primary focus, I would be remiss if I neglected to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I implore you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Mark Sousa

Mark Sousa North Topsail Beac NC 28460 mjsousa8919@gmail.com

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Bruce Sowards

Bruce Sowards Troy NC 27371 bruceno12000@yahoo.com

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Jaime Sumpter

Jaime Sumpter Charlotte NC 28217 jaimesumpter@icloud.com

<p>Carl Sweely Charlotte NC 28208 carl.sweely@framtome.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Carl Sweely</p>
<p>Keith Templin Charlotte NC 28270 wktemplin@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Keith Templin</p>
<p>Charles Thompson Havelock NC 28532 habu.1@hotmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Charles Thompson</p>
<p>Hunter Travers Raleigh NC 27603 htravers@apcoworldwide.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I'm contacting you today to urge you to include nuclear carbon-free power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real plan. Nuclear carbon-free energy prevented more than 25.5 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the 2,600 high-paying jobs and \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include nuclear carbon-free energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Hunter Travers</p>

Dear NC State Energy Office

If you do not want to include Nuclear Energy in the plan for power you, look up "How bad is it really? -- Nuclear technology -- facts and feelings" on Ted talks, Sunniva Rose

and/or "Making Safe Nuclear Power from Thorium" <https://www.youtube.com/watch?v=oTKI5X72Nlc> , Thomas Jam Pederson. [https://www.youtube.com/results?search\\_query=Thomas+Jam+Pederson](https://www.youtube.com/results?search_query=Thomas+Jam+Pederson)

Each talk is under 20 minutes.

And here is what I have to say ...

It is the safest, cleanest, most reliable, most sustainable, best full time cheapest energy source in the world ... If you don't include it you are a dummy. Wind, solar, nuclear fusion and other "clean" energy sources, in addition to being only intermittent requiring batteries and other support are (or will be) polluting our environment and requiring continuing maintenance and service throughout their life times as well as huge cost for replacement when they wear out and for the installation and maintenance of transmission lines. EXPENSIVE, EXPENSIVE, EXPENSIVE ... And they do and will kill the most people with cancer and other side effects. New nuclear, such as the safe modern designs of modern reactors or Thorium based, will extend safe, reliable, locally available, pollution free nuclear energy for hundreds of thousands of years, have a very low environmental impact, lowest cost. It's a no-brainer. Takes only 3 M&Ms sized nuggets of Thorium to supply all the energy for the lifetime of a single person (car, house, travel, everything). Compare that to coal, oil, solar cells, wind mills, hydroelectric, nuclear fusion, ocean current or any other energy source you can think of. And Thorium is available now, in abundance, everywhere on Earth, even in beach sand in many places. If you don't believe me, have you listened to the YouTube links I gave you?

Thorium is not new. It heats the Earth from the inside out so it is not frozen. Thorium based power can reduce the half lives of our existing nuclear waste from eons to a few years. So get a life, save the world and support nuclear energy, particularly Thorium but at least what we already have ... God's gift to man for sustainable, cheap, endless energy ... not this other junk hyped by non-experts.

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Waylon Webbon Castle Hayne NC 28429 waylon.webbon@gmail.com

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Bryan Wilson

Bryan Wilson Wilmington NC 28403 androoilson@gmail.com

Dear NC State Energy Office

As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
John Wilson

John Wilson Burlington NC 27215 jwilson115@triad.rr.com

<p>Phillip Wilson Davidson NC 28036 pgwilson208@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Phillip Wilson</p>
<p>Phillip Wilson Holly Springs NC 27540 pewilso2@ncsu.edu</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Phillip Wilson</p>
<p>Phillip Wilson Davidson NC 28036 phil@cdfco.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Phillip Wilson</p>
<p>Andy Withers Semora NC 27343 woofpacker75@gmail.com</p>	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP). Reducing or eliminating nuclear power plants in our state should have no place in any serious "all of the above" energy plans. In fact, failing to expand our use of modern nuclear power in NC will likely leave us non-competitive for industries and jobs of the future.</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Andy Withers</p>

Peter	Yurgel	Delco	NC	28436 yurgelp@yahoo.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Peter Yurgel</p>
Timothy	Crook		NC	timothy.m.crook@gmail.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Timothy Crook</p>
Shikha	Prasad		NC	shikhap@tamu.edu	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Shikha Prasad</p>
Jason	Haurie		NC	jfhaurie@gmail.com	<p>Dear NC State Energy Office</p> <p>As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).</p> <p>Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.</p> <p>I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.</p> <p>Regards, Jason Haurie</p>

				Dear NC State Energy Office
				As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
				Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
				I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Grace	Watters	NC	gmwatters1@gmail.com	Regards, Grace Watters
				Dear NC State Energy Office
				As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
				Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
				I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Benjamin	Worden	NC	benmworden@gmail.com	Regards, Benjamin Worden
				Dear NC State Energy Office
				As a parent of a North Carolina resident family 15 miles from Jordan Lake nuke plant, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
				Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state. Lightbridge's new design fuel will make every nuke plant in the world more efficient, safer to prevent meltdowns (1000 deg C lower operating temp), no proliferation, and longer operating life (24 months vs 18 months). I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
DAVID	ARNDT	NC	darndtbfo@aol.com	Regards, DAVID ARNDT
				Dear NC State Energy Office
				As a North Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
				Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
				I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
John	Droz	NC	aaprjohn@northnet.org	Regards, John Droz
Chris	Baranski	Raleigh	NC n/a <a href="#">Cbaranski</a>	Make your voice heard - #nuclear energy should be INCLUDED in the NC Clean Energy Plan. <a href="https://act.nuclearmatters.com">https://act.nuclearmatters.com</a> 463 GH #Nu

Rich	Harrison	Carolina Shores	NC	n/a	<a href="#">harrisonre</a>	Make your voice heard - #nuclear energy should be INCLUDED in the NC Clean Energy Plan. <a href="https://act.nuclearmatters.com/Pbzzi">https://act.nuclearmatters.com/Pbzzi</a> #Nuc
Ernestine	Kuhr	Charlotte	NC	n/a	<a href="#">tmkuhr</a>	Make your voice heard - #nuclear energy should be INCLUDED in the NC Clean Energy Plan. <a href="https://act.nuclearmatters.com/VnZoiu">https://act.nuclearmatters.com/VnZoiu</a> #Nu
Mike	Nanney	Mooreville	NC	n/a	<a href="#">mike_nanney</a>	#NuclearMattersNC to add your voice
n/a	n/a	Charlotte	NC	n/a	<a href="#">Gentry</a>	#NuclearMattersNC keep our nuclear safe and online
Zach	Alexander	n/a	NC	n/a	<a href="#">505571zga</a>	@NC_Governor
Zach	Alexander	n/a	NC	n/a	<a href="#">505571zga</a>	We need to revamp our nuclear power capabilities. China continues to develop more efficient, safer, and cleaner nuclear resources. It's t
LC	Cook	n/a	NC	n/a	<a href="#">LCCook6</a>	Coal, nat gas and precious metals mining for solar has killed far people, plants and animals more than nuclear. #nuclearmattersnc
Nigel	Duckworth	n/a	NC	n/a	<a href="#">duckworth_nigel</a>	I'm not opposed to fossil fuels, but if any energy counts as "clean" it's nuclear. Besides that, unlike solar and wind, it is plentiful and reliab
Linda	Rarey	n/a	NC	n/a	<a href="#">Lrarey</a>	Tweet to add your voice
Barney	n/a	n/a	NC	n/a	<a href="#">TweetMeBarney</a>	Don't ignore the investment in the MOST reliable power there is...Tweet to add your voice #NuclearMattersNC
Tay	n/a	n/a	NC	n/a	<a href="#">tayno_k</a>	#NuclearMattersNC

Dear NC State Energy Office

I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,  
Rachel D'Ambra

Rachel D'Ambra n/a rachel@radincc.com

Dear NC State Energy Office

As an Nuclear Professional, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include NC's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I respectfully urge you to include carbon-free nuclear energy in the CEP and set the precedent for the rest of our nation.

Regards,  
Ce'Nedra Darragh

Ce'Nedra Darragh n/a cenedra.r.darragh@dominionenergy.com

Dear NC State Energy Office

As an engineer in the nuclear industry, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include the state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in the CEP and set the precedent for the rest of our nation.

Regards,  
Daniel Dorfman

Daniel Dorfman n/a daniel.a.dorfman@dominionenergy.com



						Dear NC State Energy Office
						I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
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						I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Stephanie	Hamel	n/a			stephanie.hamel@dominionenerg	Regards, Stephanie Hamel
						Dear NC State Energy Office
						I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
						Any clean energy plan that does not include North Carolina's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
						I urge you to include carbon-free nuclear energy in the CEP and set the precedent for the rest of our nation.
Susan	Kingman	n/a			skingman68@gmail.com	Regards, Susan Kingman
Tae	Ashlandi	n/a	n/a	n/a	<a href="#">TaeAshlandi</a>	Nuclear is the only way we can pull ourselves out of complete climate catastrophe at the moment.. #NuclearMattersNC @RoyCooperNC
						I found out the NC governor has taken an awesome step toward reducing carbon emissions in the state, but nuclear technologies are probably the only clean energy solution *ready right now* to take on the burdens our grid currently has.
H.R.R.	Gorman	n/a	n/a	n/a	<a href="#">hrrgorman</a>	Support nuclear energy! #NuclearMattersNC
Philip	McVey	n/a	n/a	n/a	<a href="#">Philip McVey</a>	Nuclear power is the most green of all power sources since it's the most concentrated. Safety technology is so much more advanced than earlier generations (e.g. 1970s) that it's dishonest to equate the two. #NuclearMattersNC
Sandra	Roberts	n/a	n/a	n/a	<a href="#">SandraR26553447</a>	Make your voice heard - #nuclear energy should be INCLUDED in the NC Clean Energy Plan. <a href="https://act.nuclearmatters.com/wmqxby8">https://act.nuclearmatters.com/wmqxby8</a> #NuclearMattersNC This clean energy matters and needs to be protected #NuclearMattersNC
						It produces more clean air electricity than hydropower, solar, wind or geothermal! Add it to your plan @RoyCooperNC
						@NC_Governor
Carly	n/a	n/a	n/a	n/a	<a href="#">ChronicalyCarly</a>	The Outer Banks will still get washed away but this will help our future.
n/a	n/a	n/a	n/a	n/a	<a href="#">brassfrog</a>	#NuclearMattersNC Governor Cooper, support clear nuclear energy! #nuclearmattersnc
n/a	n/a	n/a	n/a	n/a	<a href="#">BigPermie</a>	This is great! More states need more nuclear! @ScottAdamsSays
						NC_Governor
n/a	n/a	n/a	n/a	n/a	<a href="#">WRFinger</a>	Hey Governor, #NuclearMattersNC
Dave	n/a	n/a	n/a	n/a	<a href="#">DaveGee43081250</a>	Nuclear power is a clean energy #NuclearMattersNC
Michael	n/a	n/a	n/a	n/a	<a href="#">Good2GoMichael</a>	#NuclearMattersNC

Dear NC State Energy Office

As a Connecticut resident, I urge you to support efforts which include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include their state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to support carbon-free nuclear energy in North Carolina's CEP and set the precedent for the rest of our state and nation.

Regards,

Jennifer Rowland East Lyme CT 06357 jennifer.a.rowland@dominionene Jennifer Rowland

Dear NC State Energy Office

As a Mechanical Engineer at the Millstone Nuclear Power Station in Waterford, Connecticut, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include your state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,

Brand Sisk Old Lyme CT 06371 brand.sisk@dominionenergy.com Brand Sisk

Dear NC State Energy Office

As a frequent visitor to North Carolina, and a resident of Chapin, South Carolina I ask you to urge the Governor of North Carolina to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).

Any clean energy plan that does not include our state's largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.

I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.

Regards,

Chris Slaughter Chapin SC 29036 chrismslaughter@gmail.com Chris Slaughter

						Dear NC State Energy Office
						As a South Carolina resident, I urge you to include carbon-free nuclear power in the North Carolina Clean Energy Plan (CEP).
						Any clean energy plan that does not include the largest source of carbon-free energy isn't a real clean energy plan. Carbon-free nuclear energy prevented more than 30 million tons of carbon dioxide emissions into the state's air and natural environment in 2018 alone, not to mention the thousands of high-paying jobs and more than \$14 million in state and local taxes the industry gives the state.
						I urge you to include carbon-free nuclear energy in our CEP and set the precedent for the rest of our nation.
Duane	Twining	Prosperity	SC	29127	iluvmacs17@gmail.com	Regards, Duane Twining
						Read the facts... Where are you going to put all the wind farms and solar panels that would be needed to replace nuclear (or even gas!)? We need this carbon-free source of reliable base load electricity generation #nuclearmattersNC @NA_YGN
						@RoyCooperNC
						It's too bad that NC's Clean Energy Plan doesn't leave much room for nuclear, especially considering that nuclear accounts for 30% of the Tarheel State's power production and wind & solar combined barely make up 6% together @NA_YGN #NuclearMattersNC @RoyCooperNC
						Bravo @BernardFontana
						It will not be an overnight #change and without #nuclear it will be a nearly impossible change @NA_YGN
						@NEI
Steven	Bullock	Lynchburg	VA	n/a	<a href="#">BullockSteven</a>	@RoyCooperNC #cleanenergy #nuclearmattersnc #whynuclear
James	Lopez	Sunnyvale	CA	n/a	<a href="#">jamesilopez</a>	We need more carbon free electricity, not less #nuclearmattersNC electric cars are the future, our growth should be clean



Stewart T. Leeth  
Vice President, Regulatory Affairs and  
Chief Sustainability Officer

Smithfield Foods  
200 Commerce Street  
Smithfield, VA 23430

(757) 365-3064 tel

September 9, 2019

*Via US mail and Electronic mail*  
to [Michael.regan@ncdenr.gov](mailto:Michael.regan@ncdenr.gov)

**Michael S. Regan**, Secretary  
North Carolina Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

Re: Comments of Smithfield Foods, Inc. on Draft North Carolina Clean Energy Plan

Dear Secretary Regan:

Smithfield Foods, Inc. (“Smithfield” or the “Company”) is submitting the following comments on the North Carolina Department of Environmental Quality’s (“DEQ”) draft Clean Energy Plan (“CEP”). The Company appreciates DEQ’s efforts to craft a draft CEP in response to Governor Roy Cooper’s Executive Order Number 80, entitled “North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy” (the “Governor’s Order”). The Governor’s Order calls for the reduction of statewide greenhouse gases (“GHGs”) by 40 percent. DEQ has sought input on the CEP on a range of topics, including ways to reduce carbon emissions, the role of existing and new resources in transitions the state into a clean energy economy, ways clean energy can spur economic expansion, and ways that all North Carolinians have access to clean energy.

Smithfield supports the premises underlying the Governor’s Order and the overall elements of the CEP, but is submitting comments to encourage DEQ to ensure that the CEP supports renewable natural gas (“RNG”) production and is consistent with state policy, which is reflected, in part, by the State’s Renewable Energy Portfolio Standards and swine waste requirements. North Carolina is poised not only to be on the forefront of RNG production, but also to support an innovative new industry that will provide additional employment and revenue from clean energy production in many rural and agricultural communities. As set forth below, projects involving Smithfield and others that are currently underway in the State will utilize existing resources from one of the State’s most important industries – hog farming – to convert methane to RNG. RNG production is an important aspect of North Carolina’s clean energy future and should be included in the CEP.

## Smithfield's Commitment to Sustainability in North Carolina

Smithfield Foods, Inc., is a global consumer packaged goods and protein company. In 2018, our sales exceeded \$15 billion. Smithfield is the leader in numerous packaged meats categories with popular brands including Smithfield<sup>®</sup>, Eckrich<sup>®</sup>, Nathan's Famous<sup>®</sup>, Farmland<sup>®</sup>, Armour<sup>®</sup>, Farmer John<sup>®</sup>, Kretschmar<sup>®</sup>, John Morrell<sup>®</sup>, Cook's<sup>®</sup>, Gwaltney<sup>®</sup>, Carando<sup>®</sup>, Margherita<sup>®</sup>, Curly's<sup>®</sup>, Healthy Ones<sup>®</sup>, Morliny<sup>®</sup>, Krakus<sup>®</sup>, and Berlinki<sup>®</sup>. Headquartered in the United States for more than 80 years, Company business operations include packaged meats, fresh pork, hog production, and international export. Its products are sold to more than 5,700 customers in 43 countries on every continent (except Antarctica), including supermarket and hotel chains, wholesale distributors, restaurants, hospitals, and other institutions.

Smithfield's sustainability strategy is organized by pillars that represent our key areas of sustainability focus: animal care, environment, food safety and quality, helping communities, and people. For more than a decade, Smithfield has invested in sustainability by setting bold goals and hard targets. We have made great strides. Examples include significant reductions in water, waste, and energy use, successfully engaging 80 percent of our grain supply chain in more sustainable farming practices, improving employee safety, and implementing group housing for pregnant sows on our company-owned farms.

In 2016, Smithfield announced a far-reaching GHG reduction goal throughout its entire supply chain, from feed grain to packaged bacon. By 2025, Smithfield will reduce its absolute GHG emissions by 25 percent. When achieved, this goal will reduce emissions by more than 4 million metric tons, equivalent to removing 900,000 cars from the road. Smithfield collaborated with Environmental Defense Fund in setting its emissions reduction goal.

To help us get there, Smithfield also created a new platform within the Company, Smithfield Renewables, unifying our carbon impact reduction and renewable energy efforts under one umbrella. Smithfield has also partnered with Dominion Energy to form the joint venture Align Renewable Natural Gas ("Align"), which is now working on RNG projects across the State as well as in other locations. As global leaders in the energy and agriculture industries, Dominion Energy and Smithfield have the resources, expertise and market access to expand this proven technology on a wide scale across the region. The companies are jointly investing at least \$250 million in this initiative over the next decade with initial application on hog farms in North Carolina.

In North Carolina, Smithfield is working with family farmers to construct covered digesters to capture biogas, which will then be transported to central processing facilities to be converted into RNG. Smithfield aims to have more than 90 percent of Smithfield's company-owned and contract hog finishing spaces in North Carolina with the capabilities to produce RNG.

To complement the renewable energy efforts taking place on farms, Smithfield's Tar Heel processing facility, located in Tar Heel, North Carolina, is leveraging its wastewater treatment system to generate RNG. The Company plans to build a refinery and gas injection system that will collect and clean biogas from an existing onsite digester. The cleaned biogas will be injected into the natural gas pipeline to serve local consumers. The engineering for this initiative is complete, and the project will be

operational within one year. Once complete, the Tar Heel project will be capable of powering more than 2,000 homes in the surrounding area each year.

### **Smithfield's Goals Align with the Clean Energy Plan**

RNG produced through “manure-to-energy” projects is crucial to achieving a clean energy future and creating economic opportunity for North Carolina. First, like the Clean Energy Plan, Smithfield has committed to significantly lowering GHG emissions in North Carolina by 2025. Its RNG projects will not only capture the GHG emissions from farms, it will convert the GHG emissions to a usable and renewable form of energy.

Second, Smithfield's RNG projects will also support new and existing resources in the State and will spur clean energy economic expansion in rural North Carolina. Using anaerobic digestion technology, the projects will capture and process methane from family-owned and company hog farms alike, which will then be transported to central conditioning facilities where it will be converted to RNG.

The RNG, when injected into the gas pipeline system, will serve as a new revenue stream for family farms. Farmers who participate in the program will be paid for the energy their farms produce through long-term contracts. This will provide economic opportunity for hundreds of family farms in North Carolina, as it will turn one of farmers' largest costs into a new revenue source. In addition to converting “manure-to-energy,” the covered lagoon digesters will mitigate potential issues associated with severe rain events or flooding from hurricanes.

Smithfield's core mission is to produce “Good food. Responsibly.” This means being good stewards of the environment and invigorating local economies and communities. Smithfield's commitments and significant investment in a clean energy future in North Carolina not only further its core mission, but they also clearly align with the overall vision put forward by the draft CEP. These RNG projects promote an energy system “that is clean, equitable, modern, resilient, and efficient, in addition to being safe, affordable, and reliable.” In order to encourage – and certainly not discourage – the development and expansion of these projects, DEQ should acknowledge RNG as a valuable aspect of the CEP and North Carolina's clean energy future.

Sincerely,



Stewart Leeth  
Vice President Regulatory Affairs and  
Chief Sustainability Officer

# SOUTHERN ENVIRONMENTAL LAW CENTER

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September 9, 2019

***Via E-Mail & Online Submission:***

Secretary Michael S. Regan  
North Carolina Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603  
Michael.regan@ncdenr.gov

**Re: Comments on draft Clean Energy Plan**

Dear Secretary Regan,

On behalf of the undersigned conservation organizations and itself, the Southern Environmental Law Center submits these comments on the draft Clean Energy Plan that the Department of Environmental Quality (“DEQ”) published for public comment on August 16, 2019, pursuant to Governor Cooper’s landmark executive order addressing climate change, Executive Order No. 80.<sup>1</sup>

We commend the Cooper Administration for confronting the ongoing climate emergency. Severe storms like Hurricanes Florence, Michael, and Dorian that have flooded our communities are only the plainest manifestation of the threats it poses to our state. Record heat threatens public health and worsens energy burdens, which are already a serious problem in the state.<sup>2</sup> Indeed, climate change tends to increase preexisting inequality throughout the United States.<sup>3</sup> Rainfall patterns are changing in ways that increase the chances of both flooding and droughts; crop ranges are shifting;<sup>4</sup> and saline infiltration literally salts the earth our farmers plow.<sup>5</sup>

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<sup>1</sup> Exec. Order No. 80, North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy (2018), <https://files.nc.gov/ncdeq/climate-change/EO80--NC-s-Commitment-to-Address-Climate-Change--Transition-to-a-Clean-Energy-Economy.pdf>.

<sup>2</sup> Adam Chandler, *Where the Poor Spend More Than 10 Percent of Their Income on Energy. Hint: almost everywhere in the United States*, THE ATLANTIC (June 8, 2016), <https://www.theatlantic.com/business/archive/2016/06/energy-poverty-low-incomehouseholds/486197/> (last visited September 9, 2019); see also David Tucker, *Charging into the Question of Affordability: Residential Electric Rates in North Carolina from 2011 to 2013*, UNC ENV’T L. FIN. CTR. (Feb. 19, 2014), <http://efc.web.unc.edu/2014/02/19/charging-into-the-question-of-affordability-residential-electric-rates-in-north-carolina-from-2011-to-2013/>.

<sup>3</sup> FOURTH NATIONAL CLIMATE ASSESSMENT, CHAPTER 19: SOUTHEAST (2018), <https://nca2018.globalchange.gov/chapter/19/>.

<sup>4</sup> See *Effects of Climate Change on the Southeast*, N.C. CLIMATE OFFICE, <https://climate.ncsu.edu/edu/Impacts> (last visited Sep. 9, 2019); Nicola Jones, *Redrawing the Map: How the World’s Climate Zones Are Shifting*, YALE ENVIRONMENT 360 (Oct. 23, 2018), <https://e360.yale.edu/features/redrawing-the-map-how-the-worlds-climate-zones-are-shifting>.

The draft Clean Energy Plan is a strong start to addressing these threats. It includes bold but achievable greenhouse gas (“GHG”) reduction goals specific to the electric power generation sector of the economy: a 60% to 70% reduction from 2005 levels by 2030 and working towards zero emissions by 2050. We recommend the Department commit to a clear goal of 70% reduction from 2005 levels by 2030, and zero emissions by 2050. And we urge the Department to recommend the most straightforward path to that goal: a simple cap on carbon emissions.

The draft Clean Energy Plan also rightly focuses on equitable access to clean energy and ensuring that our transition from reliance on fossil fuels to a clean-energy economy is just.<sup>6</sup> As referenced in the plan, the energy burden on low-income ratepayers is significant and public policy solutions to address the disparity and ability to pay for energy costs between low and high income rate payers is badly needed.<sup>7</sup> In addition, the plan makes many practical and achievable recommendations that will “expand energy efficiency and renewable energy programs specifically targeted at underserved markets and low-income communities,”<sup>8</sup> and we support the plan’s recommendations to address equitable access and energy affordability.<sup>9</sup> Energy-efficiency and clean-energy programs—such as weatherization and community solar—can help to lift the energy burden that climate change is worsening by including a focus on savings for low-wealth households. Programs like an energy-efficiency apprenticeship, and support for creating long-term jobs with family-sustaining wages and benefits in clean-energy work, will help to ensure that no workers or communities are left behind in our transition to a clean-energy economy.

Finally, the draft plan correctly leaves no place for forest-derived biomass or swine-waste biogas in our state’s clean energy future. Cutting and burning trees adds huge amounts of carbon dioxide to the atmosphere immediately, undermining our emissions-reduction goals. Biomass production and combustion also create serious local air quality problems and destroy natural, intact forests that are necessary for coastal resilience and carbon sequestration. Swine-waste biogas relies on the primitive lagoon-and-sprayfield hog waste management system that continues to disproportionately devastate communities of color and the environment in eastern North Carolina.

We recommend some key ways to improve the draft Clean Energy Plan. Because time is of the essence, the plan should recommend doing as much as possible as quickly as possible. Wherever possible, the plan should recommend taking action rather than conducting further study. This decision should focus on whether we have sufficient information on policy considerations such as effectiveness at reducing GHG emissions, and whether additional

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<sup>5</sup> See Sarah Kaplan, *Ruined crops, salty soil: How rising seas are poisoning North Carolina’s farmland*, WASH. POST (Mar. 1, 2019), [https://www.washingtonpost.com/national/ruined-crops-salty-soil-how-rising-seas-are-poisoning-north-carolinas-farmland/2019/03/01/2e26b83e-28ce-11e9-8eef-0d74f4bf0295\\_story.html?noredirect=on](https://www.washingtonpost.com/national/ruined-crops-salty-soil-how-rising-seas-are-poisoning-north-carolinas-farmland/2019/03/01/2e26b83e-28ce-11e9-8eef-0d74f4bf0295_story.html?noredirect=on).

<sup>6</sup> Draft CEP 95. We do, however, concur with Appalachian Voices that the Clean Energy Plan should include a stronger focus on addressing the barriers to clean energy access that exist in communities served by rural electric cooperatives and municipal utilities.

<sup>7</sup> Draft CEP 35-36, 49, 96.

<sup>8</sup> Draft CEP 99.

<sup>9</sup> Draft CEP 96.



stakeholder input is necessary. It is also important for DEQ to avoid pre-judging the legal pathway to implementation for the policies in the Clean Energy Plan. The Department should include an up-front disclaimer that the portions identifying which entities will carry out the plan's recommendations are illustrative only and not the product of legal analysis. For every action that DEQ anticipates another entity will carry out, it should describe what it will do to facilitate the action. In addition, the time horizon for actions under the Clean Energy Plan should extend through 2050 wherever possible.

The plan should recommend establishment of a carbon mass cap at 25MMT CO<sub>2</sub>. Among the decarbonization scenarios modeled for the Clean Energy Plan, establishing a mass cap results in the greatest GHG emissions reductions.<sup>10</sup> In addition, a mass cap may be established without new legislation, meaning it may be implemented more quickly, which is crucial given the urgency of confronting climate change. And a mass cap easily can—and should—be set to decline to meet our long-term 2050 goals. A policy designed around a declining cap on carbon emissions should be designed thoughtfully to address equity concerns and foster a just transition to the clean-energy economy.

The second major action that we urge the Department to prioritize is to convene a stakeholder process on reforming the utility business model by aligning utilities' incentives with the public interest and the state's energy and carbon policies.<sup>11</sup> This process will help to resolve the existing tension between utilities' incentives and statutory mandate, and rapid clean-energy deployment and decarbonization. Consistently with stakeholder recommendations, the plan should require this stakeholder process to be *completed* within one year from the date that the final Clean Energy Plan is issued.

To clarify what technologies it intends to promote, the plan should define “clean energy.” During the development of the Clean Energy Plan, DEQ staff presented a good definition of “clean energy” that is consistent with Executive Order No. 80 and with the views expressed by stakeholders during facilitated workshops.<sup>12</sup> DEQ should simply formalize this as the definition of “clean energy” for the Clean Energy Plan. To be clear, forest-derived biomass and swine-waste biogas should not be included.<sup>13</sup> Also, the Clean Energy Plan should stick to the term “clean energy,” rather than alternating between “clean energy” and “renewable energy,” which can mean different things.

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<sup>10</sup> Draft CEP 109.

<sup>11</sup> Draft CEP 61.

<sup>12</sup> This definition states that “‘clean’ energy resources include solar, energy efficiency, battery storage, wind, efficient electrification, and other zero emitting technology options capable of quickly decarbonizing the power sector and modernizing the electric power sector.” Sushma Masemore, Presentation to stakeholders at Clean Energy Plan Facilitated Workshop 5: Overview of Clean Energy Plan Vision and Guiding Structure, slide 9 (June 26, 2019), <https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/CEP-Combined-Workshop-5-powerpoint.pdf>.

<sup>13</sup> Conservation groups have previously submitted comments discussing problems with these energy sources. Letter from Blakely Hildebrand, et al. to Sushma Masemore (July 30, 2019); Letter from Heather Hillaker, et al. to Sushma Masemore (July 23, 2019). We incorporate these letters by reference.

Finally, the Clean Energy Plan should address all GHGs. The draft Clean Energy Plan's emissions-reduction goals for the electric power rightly apply to all GHG emissions.<sup>14</sup> This is consistent with Executive Order No. 80, which sets an emissions-reduction goal for all GHGs, and with common sense: non-CO2 GHGs can have tens, hundreds, or even many thousands of times the warming potential of CO2,<sup>15</sup> and represent almost twenty percent of the GHGs emitted in North Carolina as measured by global warming potential.<sup>16</sup> One straightforward way for the plan to address methane and other non-CO2 climate pollutants is to be sure climate pollutants are included in the cost of carbon that will be incorporated into utilities' least-cost planning as they develop integrated resource plans.<sup>17</sup>

Thank you for your extensive work on this impressive draft Clean Energy Plan and for considering these comments. Under the leadership of the Governor's Office and the Department, our state can and will confront the climate emergency with bold action.



Gudrun Thompson, Senior Attorney  
Southern Environmental Law Center



Nick Jimenez, Associate Attorney  
Southern Environmental Law Center

Carrie Clark, Executive Director  
North Carolina League of Conservation Voters

Rory McIlmoil, Senior Energy Analyst  
Appalachian Voices

Brandon Jones, Catawba Riverkeeper  
Catawba Riverkeeper Foundation

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<sup>14</sup> Draft CEP 56. Our GHG Inventory assesses six major GHG pollutants: carbon dioxide, methane, notorious oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. NC 2019 GHG Inventory 1. Future GHG inventories—and our state's approach to GHG emissions reduction—should address additional important climate pollutants such as black carbon.

<sup>15</sup> NC 2019 GHG Inventory 61-62, App'x B, Table B-1.

<sup>16</sup> NC 2019 GHG Inventory 11.

<sup>17</sup> Draft CEP 114.

Daniel Parkhurst, Policy Manager  
Clean Air Carolina

Larry Baldwin, Executive Director  
Coastal Carolina Riverwatch

Larry Baldwin, Waterkeeper  
Crystal Coast Waterkeeper

Jefferson Curie II  
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Jake Faber, Appalachia to Atlantic Program Manager SouthWings

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Christine Ellis  
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Jovita Lee, NC State Campaigner  
Center for Biological Diversity

Rachel Weber, Forests & Climate Campaigner  
Dogwood Alliance

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Heather Deck, Executive Director  
Sound Rivers, Inc.

Elizabeth Haddix and Mark Dorosin, Managing Attorneys  
Lawyers Committee for Civil Rights Under Law—Regional Office

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Molly Diggins, State Director  
Sierra Club

Pamela Atwood, Director of Housing Policy  
North Carolina Housing Coalition

Al Ripley, Director, Consumer & Housing Project  
North Carolina Justice Center

cc:  
Jeremy Tarr  
Sushma Masemore



September 9, 2019

***Via Email***

Susha Masemore  
State Energy Director  
North Carolina Department of Environmental Quality

North Carolina Department of Environmental Quality  
217 West Jones Street  
Raleigh, NC 27603

**RE: Comments on Draft Clean Energy Plan**

Vote Solar appreciates this opportunity to provide comments on the North Carolina Department of Environmental Quality's (DEQ) Clean Energy Plan (CEP), as called for in Governor Roy Cooper's Executive Order No. 80 (E080). Cooper's E080 represents an opportunity for North Carolina to demonstrate leadership in the region and the country through a comprehensive, multi-sector approach to climate action, and the Clean Energy Plan is one of the first steps in creating concrete goals, targets, and actions from the directives of the EO. Vote Solar believes the CEP effectively identifies the barriers to decarbonization in the energy sector, and the actions described in the Plan present a valuable roadmap of potential actions stakeholders can take in effectively realizing a clean, healthy, and more affordable energy economy.

Vote Solar applauds the Governor Cooper, DEQ staff, and all stakeholders for their contribution to this comprehensive vision of North Carolina's clean energy future and looks forward to being an active partner in the iterative process of realizing this vision. By following this roadmap and continuing to improve upon its conclusions and recommendations, stakeholders, state agencies, lawmakers, and industry can work in concert to mitigate and adapt to climate change while providing economic opportunity for all North Carolinians through the programs and investments that will inevitably spring from this work. Vote Solar is committed to working toward a just transition in the energy sector and appreciates the corresponding ideals embodied in the draft CEP.

***Reforming utility incentives is critical to the Plan's vision of a clean, affordable, and resilient grid***

DEQ rightly identifies that the traditional model of utility regulation, which has served its function of providing stable, low-cost rates, is ill-fitted for the task of tackling the challenges of climate change and with its bias toward maintaining the status quo is, in many ways, antithetical to what is needed at this moment. The draft CEP recognizes that business model reform, and other regulatory tools for the North

Carolina Utilities Commission, are necessary to open the market in a meaningful way for distributed energy resources (DERs). DERs are uniquely positioned as resources that are adaptable and multi-use, with stackable values and various applications from providing energy, capacity, ancillary services, emergency back-up power, microgrids, and non-wires alternatives to traditional distribution and transmission investments. A distributed grid is, inherently, a more resilient grid than the status quo central-plant paradigm. It is critical that the utility business model adapt, and that utility planning process adapt with them, to accept a larger role for DER—including customer-owned and customer-sited DER—to mitigate climate risks to the physical infrastructure of the utilities.

Indeed, many of the issues that the draft plan aims to address, from insufficiency and incompleteness of current approaches to cost-benefit analysis, sparse access to clean energy, and underinvestment by utilities in energy efficiency, proceed from the fundamental mismatch of incentives that is embedded in the traditional central-plant model and the inherent biases of electric utilities under the traditional form of cost of service ratemaking (which reward utility investment in plant with an administratively set allowable rate of return, and incent higher total energy consumption to offset upward rate pressure). Utility incentive reform is at the cutting edge of state energy policy, and Vote Solar recommends that DEQ and other policymakers recognize the centrality of this issue and use the tools presented in the CEP to familiarize the state with this process and ‘learn by doing’. DEQ could underscore this issue by identifying recommendation part “A” as a priority area for the entire plan.

***The Plan should take steps to support the North Carolina Utilities Commission’s (“Commission”) regulatory authority, in light of the central and critical role that the Commission will play in realizing North Carolina’s energy future.***

The North Carolina Utilities Commission’s role is vital to the success of the Clean Energy Plan. The investor-owned utilities (“IOUs”) account for a significant share of the electric generation in the state and the Commission has plenary authority over the IOUs’ retail rates, integrated resource planning process, and siting and approval of generation plants through the granting of Certificates of Convenience and Public Necessity (“CPCN”). As North Carolina continues in its energy transition, the NCUC will be a source of guidance, regulatory certainty, and even innovation for utilities and the energy economy. In NCUC’s August 2019 order on integrated resource plans—released approximately two weeks after issuance of this draft

Plan—the Commission has already taken its first steps toward accepting the mantle of leadership set out by EO80 and translating the objectives of the Order and draft Plan into effect.<sup>1</sup>

Vote Solar believes that continued leadership of this kind by the Commission will be critical in ensuring the success of the draft plan. The CEP can support the Commission by providing clear directives, but should defer to the Commission in determining the scope of its regulatory authority in carrying out EO80 and specific elements of the draft Plan. For example, where the plan discusses modernizing utility incentives,<sup>2</sup> it may be the case that specific incentive mechanisms and proposals from intervenors in Commission dockets may fall within the broad and plenary powers of the Commission to supervise utilities. In this respect, the draft Plan should be modified to make clear that the extent of the Commission’s authority to adopt any new regulatory policies in the field of performance-based ratemaking will need to be evaluated on a case-by-case basis.

***Foundational data is still needed to optimize use of clean energy resources***

It is a truism in regulatory circles that there is a distinct information asymmetry between utilities and intervenors. In other cases, particularly as it involves increasingly granular grid operations data that is foundational to understanding the nature of DERs as a grid planning resource, there is a void of data for all parties because utilities simply lack the capability to capture it. The draft Plan rightly acknowledges that in many cases, stakeholders lack the data they need to make decisions around de-carbonizing the electric grid. DEQ should emphasize the importance and urgency of identifying and disseminating this data because of its implications for fulfilling other portions of the plan.

At the same time, Vote Solar would caution stakeholders not to proceed with evaluating certain actions, plans, and resources until that foundational data is available. This tension is most apparent in the case of distributed energy resources, where data about the surrounding distribution grid is critical to evaluating many value streams of these technologies (e.g. voltage regulation, deferred distribution investment, reduced line losses). As of the August 25 NCUC Integrated Systems Operations Planning (ISOP) workshop with Duke Energy, utility technical experts indicated that such advanced distribution planning (ADP) data wouldn’t be available for several more years, and that actionable recommendations based on that data could take even longer. To address this issue, DEQ should introduce prioritization and sequencing

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<sup>1</sup> State of North Carolina Utilities Commission (2019, February). Order Accepting Integrated Resource Plans and REPS Compliance Plans, Scheduling Oral Argument, and Requiring Additional Analyses. <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=143d85de-b1e7-4622-b612-5a8c77e909d4>.

<sup>2</sup> North Carolina Department of Environmental Quality Draft Clean Energy Plan, p. 60.

elements to the Plan. Evaluative and deployment actions should not proceed before the necessary data is available; in the meantime, the Plan should support relevant placeholder evaluation mechanisms until robust data and analysis is available to implement more granular and precise evaluation.

The fundamental lack of data is also material to some of the other recommendations within the plan. On the issue of net metering, the draft Plan recommends a transition to a value of distributed generation tariff to succeed the successful net metering program. This recommendation is premature and would result in abandonment of one of the most successful drivers of residential investment in renewable energy in the country with the promise of a DG valuation that is not yet possible. Vote Solar strongly recommends that the draft Plan modify this recommendation to call for the extension of net metering, at a minimum, until 2024 when Duke Energy Carolinas and Duke Energy Progress will have the basic data needed to evaluate the avoided transmission and distribution values of DERs, including ancillary services and other categories in the potential DER value stack.

This approach of caution is well established in other jurisdictions where net metering was extended in order to allow regulators and utilities to catch up with the data and processes necessary to fully evaluate the benefits of customer-sited DER. In New York, as part of the Reforming the Energy Vision (REV) proceeding, the New York Public Service Commission decided to extend net metering while a value of DER methodology was being developed.<sup>3</sup> That process has proved far more difficult than stakeholders originally anticipated, and to date net metering continues to be the primary policy supporting residential customers that want to install distributed energy resources.<sup>4</sup> In 2016, the New Hampshire Public Utilities Commission received a directive not unlike NCUC's directive from HB 589 to evaluate and potentially approve "alternative net metering rates." Ultimately, the New Hampshire Commission decided to keep net metering in a modified form (monthly net metering with a slight reduction in rollover credits) while the data capabilities and methodologies were developed to determine an accurate distribution-value of distributed generation.<sup>5</sup> These examples demonstrate the timeworn lesson of, "If it ain't broke, don't fix it." In this case, the best practice is to stick with a policy with a proven ability to support DERs until regulators and

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<sup>3</sup> State of New York Public Service Commission, (2017, March). Order on Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, and Related Matters. <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BA04D9EF3-9779-477E-9D98-43C7B060DAEB%7D>.

<sup>4</sup> North Carolina Clean Energy Technology Center, (2019, January). Database of State Incentives for Renewable Energy: New York Net Metering Program Overview. <https://programs.dsireusa.org/system/program/detail/453>.

<sup>5</sup> State of New Hampshire Public Service Commission, (2017, June). Order Accepting Settlement Provisions, Resolving Settlement Issues, and Adopting a New Alternative Net Metering Tariff. [http://www.puc.state.nh.us/Regulatory/Docketbk/2016/16-576/ORDERS/16-576\\_2017-06-23\\_ORDER\\_26029.PDF](http://www.puc.state.nh.us/Regulatory/Docketbk/2016/16-576/ORDERS/16-576_2017-06-23_ORDER_26029.PDF).



stakeholders have confidence that the methodologies, data sources, and utility processes are available and calibrated to produce a reliable value of distributed generation.

Moreover, Vote Solar and other stakeholders have engaged in direct dialogue with Duke Energy about the future of net metering in North Carolina and about how HB 589 should, eventually, be implemented at the Commission. All parties that Vote Solar has consulted with, have agreed that a stakeholder process to identify and work on the data and methodological issues would be beneficial to development of a more robust and sustainable successor policy at the Commission. At this time, there is no indication that any utility is filing for changes to net metering and the agreed upon stakeholder process has not yet been initiated. Vote Solar urges DEQ to modify the recommendation on distributed generation tariffs to recognize this collaborative path is, theoretically, in place and ready to convene when circumstances require and that the end of net metering should not be assumed or preferred.

***Conclusion***

Thank you for the thought and effort that went into the draft Clean Energy Plan. The document lays out a vision and a roadmap for a clean and equitable energy economy in North Carolina; through a clear-eyed understanding of major roadblocks and a commitment to make decisions based on the best available data, the Plan can best equip stakeholders to make that economy a reality.

Sincerely,

Thad Culley, Southeast Regional Director  
Vote Solar

Tyler Fitch, Regulatory Research Manager  
Vote Solar

Comment	Commenter
<p>I can't find any information that you have taken into account 1) The methane leakage from natural gas production and distribution and it's corresponding reversal of some of the achievement made elsewhere in the plan 2) While I applaud your efforts that reference the urgency of climate change, I think you also need to specify a science-based timeline of when the grid needs to be carbon-free and validate that this plan can achieve that goal.</p>	<p>Abraham Palmer</p>
<p>Recommendation K1: Establish an Energy Efficiency Advisory Council (EEAC) to oversee implementation of the EE Roadmap recommendations. ACEEE strongly supports the creation of an Energy Efficiency Advisory Council (EEAC) to support implementation of the Clean Energy Plan's energy efficiency recommendations. Energy efficiency collaboratives offer an opportunity to build stronger energy efficiency programs that better reflect the needs of different groups, leverage the knowledge and expertise of energy efficiency businesses and service providers, and align program development, evaluation, and reporting with public policy. We recommend that in establishing the EEAC, the Department of Environmental Quality prioritize the following actions:</p> <ol style="list-style-type: none"> <li>1. Define a clear set of objectives</li> <li>2. Define rules for participation and how the process works</li> <li>3. Make the process public, transparent, and inclusive</li> </ol> <p>We elaborate on these suggestions and offer examples below.</p> <ol style="list-style-type: none"> <li>1. Define a clear set of objectives. The EEAC's purpose should be specifically stated and reflected in all of its activities. Potential focus areas for the group include efficiency program design, evaluation, and policy. The North Carolina Clean Energy Plan offers a framework for establishing these objectives in Recommendations K2-K6. Working groups within the EEAC could address each one of these objectives individually. Each of these recommendations will benefit from long-term input from a diverse stakeholder advisory group. We recommend that the EEAC be made permanent, although specific working groups may change over time as new policy and program priorities emerge.</li> <li>2. Make the work of the EEAC public, transparent, and inclusive. DEQ should define clear rules, procedures, and expectations for participation, working to cultivate a working group that is representative and inclusive. The materials of the EEAC should be available publicly, posted online in a timely fashion. Further, mechanisms should be put in place to ensure that EEAC recommendations are considered and valued by decisionmakers. Regular written updates to the NCUC, Governor, and General Assembly can ensure that the work of the group is acted upon. Furthermore, we recommend that key state government employees, regulatory agencies, and utility staff participate in the EEAC and act as two-way communication channels.</li> <li>3. Identify an EEAC facilitator and ensure this role is given the resources it needs to support the EEAC effectively. The facilitator should be a neutral party rather than a stakeholder, and will ensure that group meetings are efficient and that the findings of the EEAC are socialized with key parties.</li> </ol> <p>Examples of effective working groups:</p> <ol style="list-style-type: none"> <li>1. The Arkansas Parties Working Collaboratively (PWC) was launched in 2006 by the Arkansas PSC as a short-term effort focused on developing quick-start electric and gas EE programs. Regulators later made it a permanent collaborative because of its value and expanded the group's focus to creating/maintaining a technical reference manual (TRM). The PWC meets annually from mid-May to August of each year (remote and in-person), incorporating findings into the planning and management of current EE programs. Commission staff who participate in the PWC then annually file recommended TRM revisions to the commission for approval. The commission then usually adopts the PWC's recommendations. The PWC strives for consensus, but it is not required. They regularly file motions with the commission that include majority and minority positions. Former Chairwoman Colette Honorable of Arkansas PSC noted that the statewide collaborative shortened the amount of time required to complete tasks. PWC has completed four versions of a TRM, which includes EM&amp;V protocols that govern a range of EE activities</li> <li>2. The Illinois Stakeholder Advisory Group (ILSAG) was established by the Illinois Commerce Commission in 2008 to review electric and gas utilities' progress toward their EE and DR goals and provide input to program administrators on EE program modifications/necessary improvements. The group's responsibility was later expanded to include the development of a policy manual. The ILSAG has met monthly since 2008, both in person and by phone. Additional subcommittees are convened on an as-needed basis. Subcommittees focus on topics including the policy manual, income-eligible programs, commercial and industrial efficiency, cost-effectiveness testing, and CHP). A staffer from the Illinois Commerce Commission attends ILSAG meetings, writes up recommendations, and submits these recommendations to the ICC, who almost always adopts the positions of the ILSAG. The commission also regularly refers items to the SAG for consideration. Participation in the group is open to anyone, but has included utilities, ICC staff, executive agencies, environmental and consumer groups, evaluators, and EE practitioners.</li> <li>3. Massachusetts created an Energy Efficiency Advisory Council (EEAC) with the passage of the Green Communities Act in 2008. The MA EEAC brings together a broad group of entities impacted by energy policy (i.e. advocates, state agencies, those working in different end uses), and emphasizes consensus. The group is guided by expert consultants. In Massachusetts, the group is tasked with identifying statewide energy efficiency potential and setting the investment levels needed to capture all cost-effective energy efficiency. This has resulted in some of the most ambitious savings goals in the country, with Massachusetts achieving electricity savings of more than 2.6% in 2017.</li> </ol>	<p>ACEEE, Annie Gilleo</p>

<p>Hello,</p> <p>Thank you for transitioning to a Clean Energy Plan. I am a registered professional engineering in the state of North Carolina, with a background in Nuclear Engineering, and I care about the environment and am concerned about climate change. I was very disappointed that your plan did not recognize the carbon-free benefits of nuclear energy. All carbon-free, clean energy sources need to be utilized if we are serious about curbing emissions - that means hydro, geothermal, solar, wind, and NUCLEAR.</p> <p>The nuclear fleet in NC remains the largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</p> <p>Nuclear provides almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</p> <p>Nuclear energy means good, high paying jobs. Nuclear employs about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</p> <p>It is vital that the North Carolina Clean Energy Plan include nuclear as it is the cornerstone of clean energy in the Carolinas. Look at the state of Washington's clean energy plan as an example.</p> <p>Thank you for your time and consideration,</p>	<p>Adam Bingham</p>
<p>Wholesale markets have traditionally raised electric rates after a brief initial period of lowered rates. Additionally, wholesale markets prioritize the current requirements and profits over the long-term needs of an energy system. Switching from a regulated market with a long-term strategy to a wholesale market with short term gains driving the market appears to be a grass is greener type move.</p>	<p>Adam Reichenbach</p>
<p>Multiple times the report references pro-renewable advocacy groups' reports as a reference (ex. Energy Innovation and Vibrant Clean Energy and Conservatives for Clean Energy). The data in these reports is not vetted in a way that is consistent with national laboratories and other government agencies when addressing factual information. Therefore, rather than rely on advocacy agencies with questionable factual evidence the Clean Energy Plan should rely on government-backed sources with detailed cited information.</p>	<p>Adam Reichenbach</p>
<ol style="list-style-type: none"> <li>1. The Clean Energy Plan does not adequately include nuclear energy, the largest carbon-free energy resource for decades. The Clean Energy Plan should specifically state nuclear as an emissions-free source that should be considered to meet carbon reduction goals.</li> <li>2. When considering renewables, grid upgrade costs need to also be considered in total costs. Grid upgrade costs increase with increasing penetrations of renewables. The simple cost of construction of a renewable is not the same as the all-in cost required.</li> <li>3. When considering renewables, the price of grid-scale storage needs to also be considered in price. Solar and wind power are not dispatchable and therefore cannot meet a 24/7 grid. Especially as penetration of renewables increases in the market, energy storage will be required to match power output to customer demand. Therefore, the simple cost of construction of a renewable is not the same as the all-in cost required.</li> </ol>	<p>Adam Reichenbach</p>
<p>Advanced Energy would like to applaud the North Carolina Department of Environmental Quality for its leadership in preparing the Clean Energy Plan using an open, inclusive and robust process. We want to thank the DEQ for allowing us to participate in the facilitated workshops and working groups, and for encouraging broad stakeholder input throughout the development of the plan.</p> <p>It is evident that the plan is well-researched and -documented and that care was taken to balance the recommendations across stakeholder perspectives. We support its overall goals and priority recommendations (pages 22 and 23), and we are confident that these will move North Carolina toward an energy future that is clean, equitable, modern, resilient and efficient, while continuing to be safe, affordable and reliable.</p> <p>Achieving the goals for 2030 and beyond will require an ongoing commitment to the longer term changes outlined in the plan. We look forward to seeing — and helping — North Carolina continue to utilize and integrate clean energy resources while remaining at the forefront of technology innovation, research and development.</p>	<p>Advanced Energy, Christine Maurer</p>
<p>The NC State AFL-CIO applauds Governor Cooper for enacting Executive Order 80 and the Interagency Climate Council on their strong work to develop the multifaceted plans that will allow North Carolina to hold to the goals outlined in the 2015 Paris Agreement.</p> <p>Labor has a stake in many aspects of the related Executive Order 80 plans, given their far-reaching and ambitious nature. The International Brotherhood of Electrical Workers (IBEW) has been heavily engaged in developing the Clean Energy Plan's goals to transition to a 21st century electricity system, and a number of affiliates, including the Longshoreman, Railroad Workers, Communication Workers, Pipefitters, and many more will be impacted by the outcomes of these plans and the resulting shifts in the economy.</p> <p>The Clean Energy Plan is a step in the right direction for North Carolina's Energy Future and we appreciate the opportunity to provide feedback and the inclusion of Just Transition as a principle throughout the CEP. We do however request that DEQ add consideration of and protections for potentially displaced workers into the section on Just Transition. We will resubmit our original Just Transition Memo by email as an attachment. This memo was originally submitted on July 18, 2019 and we ask that it be reviewed for reconsideration in drafting the Final Plan.</p>	<p>AFL-CIO, Aiden Graham</p>
<p>Do we have conclusive evidence that switching to clean energy will improve the air and water quality? What is the proposed cost and over what period of time will this plan be implemented?</p>	<p>AI Goodrich</p>

<p>Where is nuclear power in this plan? Why does this plan fail to support the states largest carbon free source of power?  NC is going to put nuclear power out of business and will not understand the impact until it's too late.</p>	<p>Alan Morisi</p>
<p>I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> </ul>	<p>Alicia Baker</p>
<p>Please add clean energy incentives for Nuclear Power to the Clean Energy Plan. Nuclear Plants provide carbon free electricity. We cannot allow the 33% Nuclear generation in 2017 to go to sources that will increase the carbon output! Without clean energy incentives it is only a matter of time until more units will be shut down because they cannot compete with the low natural gas prices and abundance of solar. In areas where Nuclear Plants have already shut down it has had devastating impacts to families, communities, and the environment. In addition, Nuclear Plants contribute substantial tax dollars to the local and state government.</p>	<p>Alicia Baker</p>
<p>The glaring omissions in this plan, to our minds, are failures to curtail wood pellet manufacture and the rampant clear-cutting that fuels wood pellet plants AND the nearly total failure to curtail methane emissions made possible by expansion of natural gas extraction, transmission, and burning. You must act on these issues!</p> <p>The plan must be implemented starting immediately. Your department must work HARD with Governor Cooper to see that the NC Legislature passes laws to get this plan working for every citizen now.</p> <p>The plan is a good start, and should be put into action at once.</p>	<p>Alicia Berry</p>

RE: Letter to the Department of Environmental Quality (“DEQ”) supporting Combined Heat and Power (“CHP”) and Waste Heat to Power (“WHP”) in the NC Draft Clean Energy Plan

Dear Secretary Regan and Chief Deputy Secretary Nicholson:

We, the Alliance for Industrial Efficiency (“Alliance”), commend the DEQ for preparing a draft of the North Carolina Clean Energy Plan for public discussion and comment, and would like to take this opportunity to strongly recommend that CHP and WHP be prioritized in the strategy area of increase use of energy efficiency and demand side management resources.

Additionally, we support the current recommendations under Section 4.5: Energy Efficiency and Beneficial Electrification, particularly sub-section K-3, which would modify the existing Renewable Energy and Energy Efficiency Portfolio Standard (“REPS”) to require investor owned utilities (“IOUs”) to meet at least 25% and up to 40% of their REPS obligations with energy efficiency measures by 2021.

The Alliance is a diverse coalition that includes representatives from the business, non-profit, labor, and contractor communities. We are committed to enhancing manufacturing competitiveness and reducing emissions through industrial energy efficiency, particularly through the use of clean and efficient power generating systems such as CHP and WHP. CHP and WHP capture wasted heat and reuse it, thus using fuels most efficiently while cutting consumer energy costs and emissions. Because they generate power onsite, they improve the reliability of power services by allowing the host to operate even when the grid is down, and they deliver heat—an important and often ignored component in manufacturing.

By prioritizing CHP, WHP and other energy efficiency measures, the DEQ could:

- Reduce carbon emissions and increase energy savings. By 2030, North Carolina’s industrial sector customers can save more than \$5.3 billion on electricity costs and reduce CO2 emissions by 3.7 million short tons annually, using CHP, WHP and other industrial efficiency measures. In 2017 North Carolina’s industrial sector accounted for 19 percent (\$102 billion in 2017) of the total gross state product; employed over 10 percent of the workforce ; and consumed nearly a quarter of the total energy used statewide. Additionally, direct utility investment into CHP and WHP could help IOUs achieve their REPS obligations, strengthen their resource portfolios with dependable power, and realize tangible economic benefits.
- Seize unrealized CHP and WHP potential. North Carolina’s deployment of CHP and WHP lags far behind its potential to produce power. The state could produce an additional 4,352 MW of power (equal to nine new power plants) from CHP and WHP with more than half of that (2,421 MW ) remaining onsite at industrial facilities. But the state has only 66 CHP sites generating 1,122 MW of clean and efficient power.
- Ensure energy reliability and resiliency in North Carolina’s critical infrastructure. Capturing and using the waste heat allows CHP systems to reach fuel efficiencies of up to 80 percent, compared to about 50 percent for the separate generation of heat and power. When configured properly, a CHP system can continue to operate when the electricity grid is impaired, ensuring an uninterrupted supply of electricity to the host facility—a crucial feature in a coastal state prone to hurricanes and flooding. For example, North Carolina State University installed an 11 MW CHP system that allows the university to keep the heat on and lights running if an unexpected power outage were to occur.

Therefore, we encourage the DEQ to:

- 1.Prioritize CHP and WHP in the state’s future energy portfolio mix;
- 2.Analyze the potential for CHP and WHP in the energy efficiency implementation roadmap;
- 3.Establish a statewide goal for CHP and WHP deployment; and,
- 4.Strengthen the state energy efficiency targets within the REPS.

Thank you for your consideration and attention to this matter. As you move forward, we look forward to working with you to explore the potential for CHP and WHP in North Carolina and the appropriate actions to encourage their deployment.

Sincerely,

David Gardiner, Executive Director, Alliance for Industrial Efficiency

Alliance for  
Industrial Efficiency,  
William Sherman

<p>Hello,</p> <p>Thank you for transitioning to a Clean Energy Plan. I became a nuclear engineer because I care about the environment and am concerned about climate change. I was very disappointed that your plan did not recognize the carbon-free benefits of nuclear energy. This needs to be fixed. All carbon-free, clean energy sources need to be utilized if we are serious about curbing emissions - that means hydro, geothermal, solar, wind, and NUCLEAR.</p> <p>The nuclear fleet in NC remains the largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</p> <p>Nuclear provides almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</p> <p>Nuclear energy means good, high paying jobs. Nuclear employs about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</p> <p>It is vital that the North Carolina Clean Energy Plan include nuclear as it is the cornerstone of clean energy in the Carolinas. Look at the state of Washington's clean energy plan as an example.</p> <p>Thank you for your time, Amanda Lang</p>	<p>Amanda Lang</p>
<p>While there are many areas in this draft plan that will be helpful for climate change, unfortunately what is missing makes this entire plan and process a grossly disappointing whitewash on the undiscerning public.</p> <p>You have completely left out two important areas that massively contribute to global warming:</p> <ol style="list-style-type: none"> <li>1. Methane emissions are entirely absent in the plan and MUST be addressed, regardless of whether or not DEQ or Governor Cooper finally step up to halt the ACP or Duke Energy's expansion of fracked natural gas infrastructure in our state. This must not be excluded. According to Dr. Robert Howarth (a scientist who has testified before congress on this topic), the methane that leaks from natural gas makes it as much as 100 times more powerful as a greenhouse gas than CO2 and is responsible for the accelerated warming of the climate beyond what scientists predicted just decades ago.</li> </ol> <p>Governor Cooper has done nothing to address either of these major emission sources and the absence of them in this plan is very, very concerning. I hope you will go back into the plan and process and include fracked gas and methane as well as impacts from the logging industry in this plan. The people deserve to have the truth of where our emissions are coming from and how our state is contributing to the warming of our climate. Our emissions have not fallen. Please tell the truth and the whole truth and then base this plan on truly moving towards a clean energy future.</p> <p>Thank you.</p>	<p>Amanda Robertson</p>
<p>I read the summary and part of the details of the plan. It was long on generation savings and almost non-existent on real ways to save energy especially at Government owned buildings. I am an energy efficiency engineering tech at a major NC university and have worked in the K-12 sector as well. All of the building code changes will work short term, but the real killer is aged and out of tune HVAC equipment, and improperly setup HVAC equipment. Most any building we touch can reduce energy 30% by applying energy conservation measures (ECM). Many of these are extremely low hanging fruit. The issue here is that there is exponentially more work than we can get to. Additionally, many HVAC technicians are not sufficiently trained to maintain the equipment to work in the most efficient manner possible. The result is a massively inefficient set of buildings in the Government, K-12 and UNC system. This not only wastes energy and create GHG, but is a massive waste of tax payer and university students money.</p> <p>The root issues of all of it is a severe lack of qualified people to implement these and a uniform way to pay to have ECM's implemented. Most of these ECM's have much less than a year's payback by the way. The training is what the Community Colleges should be doing with a concentration on HVAC, controls and ECM's. The way to pay for these is to link ECM costs and the utility budgets at the hip. Use utility budget money to reduce utility costs. Use the savings to pay for more savings much like the previous HB bill was supposed to do. Instead, as the money was saved the utility budgets were cut instead of reinvested. Currently most Government entities either refuse to or are forbidden to link ECM's and utility budgets directly. They can't pay for the first ECM without money to start. Once they save the money, the utility expenditures decrease, but the ECM money still has to come out of operations money. No money, no savings. More money, more savings.</p>	<p>Andrew Benfield</p>
<p>Nuclear power is a very clean energy source that is consistently underutilized and underestimated. Nuclear power can provide the clean energy we desire at a power capacity which far surpasses the renewable energy sources currently available. Our current environment requires higher base-load generation sources to accommodate the customers of North Carolina and the United States. Having a carbon-free generating country is a lofty goal, but it is not accomplishable without introducing Nuclear into the equation. Most energy companies that have millions of customers could not receive the carbon credits they have without Nuclear. Please reconsider the plan to incorporate Nuclear, and some of the newer technologies available in that market.</p> <p>Thanks!</p>	<p>Andy Eaton</p>

<p>1.The Plan is driven by Roy Cooper’s Executive Order 80, which states that climate change is the issue. Given that, all technologies that reduce carbon, methane, and other greenhouse gases in the state should be considered including generation via biomass, waste, and nuclear.</p> <p>2.A stated goal is to “Facilitate Distributed Energy Resources (DERs) Interconnection and Compensate them for Values Provided to the Grid”. DERs are ill defined. Some examples of these resources are provided, but there is not always a clear case made about what value they provide. It does not always follow that value is provided by using many smaller, disbursed energy resources rather than one large resources. While the value of energy efficiency, that is doing the same amount of work with less electricity, clearly has an environmental benefit, others are not as clear. For example, using many small diesel generators rather than one large diesel for electrical generation is typically a more wasteful way to do things. A case for each type should be made.</p> <p>3.Page 39 says North Carolina is 7th in the nation for solar capacity per the Solar Energy Industries Association. It’s actually 2nd.</p> <p>4.A transformative change to the grid is proposed. It’s not clear how costs to deal with wide scale DERs like solar, such as large-scale storage and additional grid capacity, are considered. To only calculate costs based on \$/MWh of a solar or other energy production facility alone neglects additional costs of this transformative change.</p> <p>5.Use of batteries for large scale energy storage, as discussed in this report, greatly increases the amount of waste generated by battery disposal. This is typically chemically hazardous waste. How does the Plan address this increased waste stream?</p> <p>6.Similarly, how are waste streams for solar panels considered?</p> <p>7.None of the major contributors to this Plan have a background in regulating or producing energy, even though it largely focuses on changes to those groups. This raises questions about the Plan’s feasibility.</p> <p>Disclosure: I work as a nuclear engineer at Duke Energy and have for 12 years. The comments above are my own.</p>	<p>Andy Kalchik</p>
<p>Governor Cooper, I want to register my strong opposition to the expansion of pellet operations in North Carolina. It is hard to understand how England and the EU could ever have believed that burning wood for energy was a sustainable activity. Yes, you can plant trees to replace the ones that are taken from our forests. But there is no comparison between a plantation and a biologically diverse natural forest, it takes many years for newly planted trees to act as a carbon sink, and burning releases carbon immediately. We need to find every possible way to increase, not destroy, our tree cover, Some of the trees (3% according to Enviva) that are taken come from bottomland hardwood forests that have crucial roles in protecting biodiversity and water resources. Please re-think your commitment to this destructive industry.</p>	<p>Andy Riddle</p>
<p>I am Angela Rucker, I (work for or am a contractor for) Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina’s. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas’ customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> </ul>	<p>Angela Rucker</p>
<p>It seems nuclear power generation would be front and center in a plan that outlines clean energy for the state - it is the most reliable low to no carbon generation source. It runs 24/7, doesn't require sun or wind to generate and is the ONLY base load lot to no carbon generation.</p>	<p>Angela Waters</p>
<p>Having read over EO 80, I ask the Governor and DEQ to prioritize good, long-term, sustainable jobs for people in some of the poorest counties of our state. Pipeline jobs especially are short-term, and the majority of the money Dominion will make comes from Wall Street, as the pipeline will allow it to show growth and bump its stock. This has nothing to do with its actual economic impact in the state. I urge the Governor and DEQ to end dirty fuel infrastructure -- including the Atlantic Coast Pipeline, Mountain Valley Pipeline, and wood pellet plants -- and focus on living wage, stable jobs that benefit North Carolina.</p>	<p>Anita Simha</p>
<p>Having read over EO 80, I ask the Governor and DEQ to prioritize good, long-term, sustainable jobs for people in some of the poorest counties of our state. I urge the Governor and DEQ to end dirty fuel infrastructure -- including the Atlantic Coast Pipeline, Mountain Valley Pipeline, and wood pellet plants -- and focus on living wage, stable jobs that benefit North Carolina.</p>	<p>Anita Simha</p>
<p>Nuclear power needs to be included in this plan. Nuclear license renewals and new plant development need to be encouraged and supported going forward.</p>	<p>Art Zaremba</p>
<p>Upgrading our electric grid to clean energy is the most important issue that our state faces, and this is also a major economic opportunity. Introducing competition to our energy market is in the best interest of the hard working people of NC. Duke Energy will not have a monopoly in the future, no matter how hard they fight to keep it. Fossil fuels are inefficient compared to technology available today. We need investment in distributed clean energy sources. This creates jobs and as well as a safer and more efficient and cost-effective energy grid for our state.</p>	<p>Ashton Burnette</p>

Detailed Report F. Clean energy economic development opportunities (p.92): "NC Universities have been leaders in advancing ocean renewable energy technologies including hydro-kinetic sources from tides, currents, and waves. Continuing to advance research and testing is vital to harnessing this significant renewable energy component and economic development opportunity."	attachment
I am Barbara Williams, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future. <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations</li> </ul>	Barbara Williams
I support the Clean Energy Plan. It is important to me that NC can sustainably power itself after the era of fossil fuels ends.	Ben C.
Page 26, D-5: The REPS carve-outs for swine and poultry waste derived energy have motivated innovative and meaningful projects across the state. These carve-outs need continued support and utilities must be held to meet the requirements. There is significant momentum in North Carolina to continue developing these projects. North Carolina is a national leader in many agricultural commodities, namely poultry and swine, which places the state in a position to be a national leader in biogas production. Page 26, F-2: Biomass and biogas energy projects offer massive potential for economic development. Biomass and biogas should be specifically referred to in section F. Clean energy economic development opportunities. The projects bring added income to the agricultural sector and to the most impoverished areas of the state. There are major opportunities for North Carolina to become a leading equipment manufacturer and provider for agricultural biomass and biogas projects. The markets for this equipment are still being established in the United States.	Ben Cauthen (Cavanaugh Solutions)
Grid resiliency and reliability cannot currently be achieved with only wind and solar (page 19). It is conceivable that battery technology will allow solar and wind energy resources to supply sufficient energy during times when those resources are not actively producing energy due to weather conditions, although that is not currently a reality. Biogas projects are currently producing carbon negative renewable natural gas 24/7, 365 days per year in North Carolina and across the country. The technologies currently exist and are currently being utilized at large scale to produce reliable clean energy. Biogas and biomass are a significant distributed energy resource that already exists. It should be called out directly on page 19.	Ben Cauthen (Cavanaugh Solutions)
Biogas and biomass energy production can deliver on all the values identified by the stakeholders as priorities going forward (page 18). Many biogas and biomass projects generate a negative carbon footprint, are more reliable than solar and wind, offer job growth in the poorest areas of the state, and improve public health by reducing pollution caused by human and agricultural waste. Biomass and biogas projects are becoming more affordable as renewable natural gas is used as a direct replacement for conventional natural gas and vehicle fuels and the scale of projects is increasing. Biomass and biogas production offers 24/7 energy production and is extremely reliable when implemented with equipment and process redundancy.	Ben Cauthen (Cavanaugh Solutions)
Biomass and biogas energy production is not emphasized or properly represented in the plan. There are multiple sections within the plan where it should be referenced and discussed, such as: Page 26, F. Clean energy and economic development opportunities; Page 29, add section for CNG/LNG vehicles; Page 38, show levelized cost of biomass and renewable natural gas energy; Page 44, add CNG/LNG vehicles fueled by renewable natural gas; Page 48, 2.3, add the role of renewable natural gas in reducing carbon emissions.	Ben Cauthen (Cavanaugh Solutions)
Cavanaugh & Associates can assist DEQ in identifying and including the role of biomass and biogas energy production in this Clean Energy Plan. Please contact myself or others at Cavanaugh for additional inputs and wordage that are necessary to include to form a comprehensive plan.	Ben Cauthen (Cavanaugh Solutions)
NC needs clean air and water	Betsy Webster
The plan needs to deal with methane emissions and at a minimum should put a moratorium on new pipelines such as the Atlantic Coast Pipeline and should not allow construction of new fossil fuel fired power plants, including methane fueled plants. There are two problems with methane, First, like all other fossil fuels, it emits CO2 when burned and using methane as a fuel will continue to add CO2 to the atmosphere. We need to eliminate all greenhouse gas emissions. Second, methane is itself a potent greenhouse gas, 86 times more powerful than CO2. Methane leaks from pipelines. No pipeline company can guarantee no leaks. Thus, using methane as a fuel results in CO2 emissions and methane emissions. Reliance on methane will only make the problem worse. The plan also needs to prohibit clear cutting to manufacture wood pellets. This practice is not carbon neutral. By removing mature trees, this practice eliminates an important means of sequestering carbon. In addition to eliminating emissions of greenhouse gasses, we must also promote activities to capture and sequester the excess carbon which has already been emitted. Stewardship of our forests is an important part of such capture and sequestration.	Bill Blancato



<p>The plan needs to deal with methane emissions and at a minimum should put a moratorium on new pipelines such as the Atlantic Coast Pipeline and should not allow construction of new fossil fuel fired power plants, including methane fueled plants. There are two problems with methane. First, like all other fossil fuels, it emits CO2 when burned and using methane as a fuel will continue to add CO2 to the atmosphere. We need to eliminate all greenhouse gas emissions. Second, methane is itself a potent greenhouse gas, 86 times more powerful than CO2. Methane leaks from pipelines. No pipeline company can guarantee no leaks. Thus, using methane as a fuel results in CO2 emissions and methane emissions. Reliance on methane will only make the problem worse.</p> <p>The plan also needs to prohibit clear cutting to manufacture wood pellets. This practice is not carbon neutral. By removing mature trees, this practice eliminates an important means of sequestering carbon. In addition to eliminating emissions of greenhouse gasses, we must also promote activities to capture and sequester the excess carbon which has already been emitted. Stewardship of our forests is an important part of such capture and</p>	Bill Blancato
<p>Agriculture, some would say is the number one industry in NC. NC farmers produce safely and sustain-ably several million acres of grain crops for possible use in bio-diesel and ethanol. <u>In 1997, there was a moratorium on new swine farms in NC, which was made permanent in 2007. (see pg. 22)</u></p>	Bill Collins (NCSU)
<p>The agriculture industry contributes 92 billion to the states economy and accounts for more than 17% the states income ANNUALLY. (see pg. 20)</p>	Bill Collins (NCSU)
<p>There is a critical need in the document to clearly define what constitutes clean energy. The paper is well written and easy to read.</p>	Bill Collins (NCSU)
<p>Right now as I write there is low level seismic operations off our shores as a precursor to fracking and then Big Oil derricks to follow. Sadly I am from one of two counties (Jacksonville) that have not stepped up and said 'absolutely not!' to unclean energy and furthering the decimation of our incredibly fragile ecosystems and overall quality of our lives. Big Oil trump and minions will stop at nothing to see that we become yet another pawn in a winless game. We need to follow Virginia's recent example and do what Carolinian's have said they want. Wind turbines that are not remotely as obtrusive as unsightly derricks. Due to global warming as a crises, we will as predicted have more violent and frequent storms that potentially could rupture a pipe or other oil conduit effectively destroying our ocean, our beaches and our lives. There is no longer any room for the manipulations of special interests. We need to stop the process of seeking oil now and adopt turbine energy which will result in clean and affordable energy now through the future. We have a chance to show solidarity and show the world that we can't be bought bullied or manipulated. We need to embrace what is right and send a clear message that we don't want nor will we stand for big oil and it's ongoing campaign to decimate and pollute whatever viable oceans and lands we have. Please do the right thing and include this as a incredibly important moment for the sustaining of humanity. We the people deserve no less. And certainly our legacy must be we did what was best for our kids and their futures. No one will be excluded if we are pushed to accept this abhorrent practice and operation. This is political. And very real. There is something wrong and we need to fix it. We can and we will. We have the power to elicit change and that power is us.</p> <p>Thank You, Bill Fricke</p>	Bill Fricke
<p>On page 38 of the report, offshore wind is not considered, but as noted in the report, other states are moving ahead with offshore wind projects. A legislative action should be to reduce the required distance from shore for wind turbinds from 24 nautical miles to less than 8 nautical miles.</p>	Bill Jensen
<p>Methane: Don't let in get in our air! 1) Methane is a very potent pollutant that is increasing global warming. It is more damaging than CO2 and remains in our air for 20+ years. 2) Decrease it by not allowing conventional drilling and fracking. 3) Decrease its release into our air from storage, transportation and delivery by using available better technology in fittings, valves, nozzles etc. to significantly decrease methane leakage. The cost to industry...approximately 1%. That's right 1%. Easily passed on to the consumer who will gladly pay 1% more to decrease global warming.</p>	bob tobey
<p>Wood pellet plants (e.g. Enviva): They must be stopped! 1) They are cutting down NC coastal plain forests left and right which will take 50+ years to come back. 2) The pellets are then burned in Europe to produce power---how absurd! Burning wood to produce power is akin to burning coal and perhaps even more polluting to the Earth's air. This increases global warming. Think how much more air pollution we would have in NC if everyone was using a wood stove. 3) No new wood pellet plants and shutdown those that exist like Duke Energy is phasing out their coal burning plants.</p>	bob tobey
<p>I recently drove from NC to Colorado for a work assignment. I was blown away by the wind turbines in Kansas as well as Colorado. I can not understand how anyone can be against clean energy. <u>Please let's make NC the cleanest state in the US</u></p>	Bobbi Ryan
<p>This is not needed or has been well thought out. There is no cost associated with this plan. What are you going to do with the massive deaths of birds, <u>ducks and endangered bats with the wind turbinds?</u></p>	Bobby Abernethy
<p>If we're looking to reduce emissions in our state's production of electricity, we should definitely strive to keep Nuclear in the picture. Producing power with a Nuclear Reactor creates zero greenhouse gases. The Nuclear plants that currently provide power to North Carolina have very safe operating records, and maintain a high capacity factor (they are producing close to maximum output greater than 90% of the time). Nuclear is the largest scale producer of clean and green energy, followed by hydro. Wind and solar operate on a much smaller scale, without 24/7 reliability. All I'm asking is that when we're looking at clean energy options for our future, we don't forget who's producing over half of North Carolina's electricity, and doing so without any emissions. Nuclear, that's who. Thanks for your time.</p>	Bradley Rouse

<p>I am working with several local Climate groups, and I will reiterate much of what was said in a recent LTE in the Winston-Salem Journal. I applaud Governor Cooper's plan. It is bold, and it puts North Carolina in a leadership position. It deserves our support, but to be truly innovative and a leader in clean energy, NC must address some key omissions.</p> <p>There are two serious shortcomings in the draft: It neglects to decisively deal with methane emissions; the main focus is on carbon dioxide. Harmful methane is leaking at climate-damaging rates from fracking operations, from the wells to the power plants. Power companies are heavily investing our money in gas infrastructure. If Duke Energy builds new gas plants, pipelines and storage facilities, North Carolina may appear to have met its carbon dioxide goals, but it may be game over for the climate. Also, according to Forbes, gas plants built now will be "junk assets" as renewable energy and storage prices continue to drop. We will foot the multi-billion dollar bill for this avoidable waste.</p> <p>Call on the Department of Environmental Quality and the governor to attack the climate crisis head on. We cannot afford the human suffering and economic waste associated with increasing temperatures, rising seas, tragic storms and raging wildfires.</p>	Bree Hendrick
<p>I am working with several local Climate groups, and I will reiterate much of what was said in a recent LTE in the Winston-Salem Journal. I applaud Governor Cooper's plan. It is bold, and it puts North Carolina in a leadership position. It deserves our support, but to be truly innovative and a leader in clean energy, NC must address some key omissions.</p> <p>There are two serious shortcomings in the draft: The plan also fails to address clear-cutting of our forests to produce wood pellets, which are being burned in Europe. Healthy forests are important because they absorb the CO2 that humans pump into the atmosphere. Cooper continues to support gas infrastructure like the Atlantic Coast Pipeline and the wood pellet industry.</p> <p>Call on the Department of Environmental Quality and the governor to attack the climate crisis head on. We cannot afford the human suffering and economic waste associated with increasing temperatures, rising seas, tragic storms and raging wildfires.</p>	Bree Hendrick
<p>In reference to Docket E-100 Sub 83 I am a homeowner with a 4KB Photovoltaic array on the roof of a shop building 70 feet from my house. We built the shop in 2005 with southern orientation for photovoltaics, which we installed in 2009. The orientation of the house was not suitable for PVs.</p> <p>When we switched from Sell All (with NC Greenpower) to Netmetering, I was dismayed to find out two things: 1- My PV power can't apply to my home energy use because it's on a separate building (70 foot distance) with a separate electric service as required by Duke Power. 2- All the extra energy credits I build up through the year are taken from me in May, right before air conditioning season, when they would be most useful.</p> <p>This combination of factors means I get very little benefit from the investment I made in PVs. The shop building is solar warmed in the winter and uses very little energy. In the summer it does use some energy, but they've just taken all my credits from me so they don't help! My home is where we have refrigerators, etc, that use more energy, but Duke won't apply my PV credits to my house account.</p> <p>I made a large investment in PVs in 2009 and now I get very little benefit due to the way Duke administers PV accounts. It seems to me they benefit more from the energy I create than I do!</p> <p>Thank you for revising and improving the way Duke compensates private producers for the energy they create!</p>	Brenda Currin
<p>Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</p>	Brian Clay
<p>I am Brian Masciarelli, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free nuclear energy in the Carolinas. Here are some reasons why nuclear energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> </ul>	Brian Masciarelli

<p>Because concepts like equity and justice feature so prominently in this plan, I urge you all to be careful when considering what would actually constitute equity and justice with respect to energy rates. I suspect that equity with respect to clean energy access is not as big an issue as this report may advertise - 'green' generated electricity looks exactly the same as dirty electricity once it's on the grid, so the issue should focus more along the lines of replacement of traditional power generation sources with renewables and emissions free nuclear power wherever practical. And true - less affluent communities likely have less ability to replace aging appliances with more energy efficient models, or perform retrofits like solar power or geothermal heating/cooling. But energy rate justice is a stickier subject, especially since concepts like 'justice' are starting to become more subjective and politically motivated in general. It's easy to throw out some statistics that convey that a broader financial inequity exists amongst our society and that the effect trickles over into the energy sector. Those assertions trigger emotional responses that ultimately manifest themselves into cleverly (or confusingly) disguised surcharges on energy bills, i.e. a socialistic redistribution of wealth that does nothing to address the causes of the perceived inequality. I, admittedly, am likely more financially stable than most in our state. Does the fact that I have achieved that stability (I have not inherited anything, and have never won the lottery; rather, I have made an intentional series of prudent financial decisions to avoid overextending myself and my family) then make it "unjust" that I don't struggle to pay my energy bills whereas others might? Would it be more "just" to take some of my income away to pay for the energy needs of others? Simply stating that energy bills are a large part of living expenses for the less affluent suggests that it's unjust for that to be so. However, I suspect that this is just stating what should already be obvious - energy expenses are one of the major fundamental categories of living expense categories for anybody, regardless of income, so the attempted tie between this and some greater income inequality is contrived. Given then that energy expenses are one fundamental living expense category, and that rates are almost always consistent regardless of income, stating then that energy expenses represent a larger percentage of income for the less affluent than it does for the more affluent is just arithmetic (leaving the numerator constant while changing the denominator will in fact yield different percentages - again, this is just intuitively obvious, and not necessarily evidence of some greater social injustice).</p>	<p>Brian Robak</p>
<p>I cannot emphasize enough how important the state's nuclear power plants should be to the stated goals of having a reliable / stable electric grid and emissions free power generation. These plants already generate approximately half of the states power, do so 24/7 (rain or shine, windy or calm) and do so as the largest source of carbon free generation. It would be shortsighted and inefficient of this plan to overlook these assets in favor of subsidizing competing power sources that are viewed more favorably by the 'green' community. The reality, proven time and time again across the world, is that renewables end up being more costly, less efficient, and/or less reliable than original estimates, resulting in substantial delays in achieving carbon reductions, or even having the unintended opposite effect of pushing MORE carbon emissions generation (i.e. natural gas) onto the grid once sources like nuclear or coal are retired. Recent events such as grid instability in Germany resulting from the immediate decommissioning of their nuclear plants, rolling brownouts in California, or legislative action taken by the states of Illinois, New York, and Pennsylvania to attempt to preserve existing nuclear plants after deregulation had the unintended effect of announced premature plant shutdowns and the corresponding loss of carbon free power generation from their states' portfolios, suggests that we in NC should be proactive and deliberate about taking action to protect the nuclear (i.e. carbon emissions free) assets that we are already blessed with. Supplement the rest of the portfolio with wind and solar, replace coal and natural gas wherever practical, but please do not make a flawed assumption that solar will generate all the power we need and that battery storage will carry us through on nights and cloudy days. Now, all of this said - I do think it would be awesome if there were lucrative incentives to install residential solar and battery backup systems that could potentially, in time, help to stabilize the grid and reduce energy bills. As is, retrofitting an existing home with these items is far too expensive and homeowners are unlikely to 'break even' within a reasonable timeframe.</p>	<p>Brian Robak</p>
<p>I support the Clean Energy Plan and encourage North Carolina to continue pursuing bold action to fight climate change.</p>	<p>Candace Bruchs</p>
<p>There are at least two significant flaws in the draft plan. The first is that there is no specific target or plan for increasing the North Carolina capacity for total electrical energy production, and, the second, there is no provision for increasing nuclear power production.</p> <p>There are several drivers for increasing production of electrical power. The inevitable increase in population will require electrical power. Electrification of the transportation sector will require significant electrical power. The continuing growth of NC's technology centers and new startup companies will require continuing growth of electrical power. The planned shutdowns of coal power plants and eventual shutdowns of natural gas combustion plants will require substantial replacement sources of electrical power. Conservation should help, but there is very high risk in depending on it to provide large reductions in electricity use.</p> <p>While continuing development and application of solar power should continue at a high priority, nuclear power is the only demonstrated non-combustion technology with performance and reliability which can assure replacement of combustion power sources and can expand with confidence. The only technical drawback to nuclear power today is that it cannot compete on cost with natural gas plants. The problem with nuclear power is that several powerful national environmental organizations are adamantly opposed to it. Their objections do not seem to be supported by thorough scientific studies and appear to have a political rather than scientific basis. Recognizing the time scale for a new large nuclear plant, it's time for North</p>	<p>Carl M Cox, Jr</p>
<p>Our electrical grid susceptibility to terrorism to isolate communities is cyber important. Let us get up-to-date and move to protect ourselves and the planet.</p>	<p>Carole E Newsome</p>
<p>Duke's plan completely ignores methane emissions which are 20x more powerful than Co2. Natural gas is not "clean" and is a major source of climate change. Not acceptable!</p>	<p>Caroline Warren</p>
<p>The dearth of nuclear power inclusion is disappointing. Nuclear power is the best source of non-greenhouse gas emitting power, and any Clean Energy Plan NEEDS to include it.</p>	<p>Casey Klein</p>

<p>After studying global warming for some years, a major concern I have is that we will warm the earth so much that the methane contained in the permafrost in and near the Arctic will be released at such a rate that all our efforts to eliminate fossil-fuel use will become meaningless. We will have released a runaway train.</p> <p>The likelihood of that event, with gruesome consequences, is increasing today precisely because we are releasing so much of that very methane into the atmosphere. As you know, over a 20-year period methane is 86 times more powerful as a climate pollutant than carbon dioxide.</p> <p>There are many excellent aspects of the draft Energy Plan. And those admirable steps toward clean, local, renewable energy will be overrun by escaping methane if we do not 1) put a stop to new fracked gas infrastructure and 2) shut down the existing gas plants as quickly as we can.</p> <p>The consequences of losing this struggle are almost too huge to take in.</p> <p>Please show the nation, and the world, that North Carolina understands the crisis and is up to solving it.</p>	Cathy Buckley
<p>I'm in favor of on-bill utility financing and a green bank, more solar and community solar, batteries for storage, energy efficiency, affordable energy, more electric vehicles, and development of offshore wind. What's missing: the plan does not even address methane emissions or the Atlantic Coast Pipeline, which would be disastrous in terms of climate. Nor does it condemn the cutting of our forests and conversion into wood pellets.</p>	Cathy Holt
<p>Dear Mr. Regan,</p> <p>Please see below for comments supported by 335 individuals who are all members of The Center for Biological Diversity. A PDF attachment with all 335 of the personalized, individual comments will also be emailed to the State Energy Office.</p> <p>Dear Governor Cooper,</p> <p>Thank you for setting the goal to reduce greenhouse gas emissions by 60-70% below 2005 levels in the electricity sector by 2030. I applaud the call for greater distributed energy resources, as well as the importance placed on community input and benefits.</p> <p>In light of the incomparable harms of speeding climate chaos, polluting our air and water, as well as seizing private land and destroying habitat for fossil fuel infrastructure, Duke Energy continues to burn dirty energy, build new dirty energy plants, and hinder the widespread adoption of clean energy. As the utility works against the public interest by proposing Integrated Resource Plans that are inadequate for addressing climate change, it is incumbent on the Governor to drive change in our energy system and end the monopoly of Duke Energy.</p> <p>Furthermore:</p> <p>The Clean Energy Plan must more robustly address the phase-out of all carbon-based energy in North Carolina.</p> <p>The Clean Energy Plan must include an ambitious plan and timeline to decarbonize the transportation and building sectors.</p> <p>The Clean Energy Plan must include specific and ambitious targets to update North Carolina's "Renewable Energy Portfolio Standard" policy.</p> <p>The Clean Energy Plan must focus on advancing distributed energy resources, especially equitable and accessible policies for rooftop and community solar.</p>	Center for Biological Diversity, Shiva Patel
<p>The centralized utility that binds consumers to a monopolistic 'energy grid' needs to be updated to the realities of rapidly emerging decentralization of energy production options. Governments should not restrain its citizens, but incentivize and encourage its citizen's to pursue self-sufficiency options. Simultaneously, state (and federal) government should support a modern, more energy efficient grid with a dramatic decrease in dependency on fossil fuels.</p>	Charles Coble
<p>One thing is missing from this plan and it is the value that Nuclear power generation brings to our clean energy future.</p> <p>Nuclear energy has provided value to our citizens for nearly 50 years, and will continue to provide it in the future.</p> <p>Our state's nuclear power plants are our largest source of carbon-free generation, avoiding the release of million of tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</p> <p>Our nuclear power plants provide almost half of our citizens' electricity and have consistently operated more than 90% of the time for over 20 years.</p> <p>Nuclear power is always on and provides life sustaining power 24/7, during the day, at night, and during the extremes of the winter and summer. No other form of clean energy comes close.</p> <p>Our nuclear power plants employ thousands of employees across the Carolinas with additional contract workers supporting refueling outages and major project work throughout the year.</p> <p>Our nuclear power plant workers consistently support our communities where they work and live through donations as well as their time with community organizations.</p> <p>As we transition to a clean energy future, nuclear power will play a critical role and this role should be appropriately highlighted in this plan.</p>	Charles Morris

<p>I want to use my comments here for all categories dealing with clean energy.</p> <p>There are several serious drawbacks to the plan. It completely fails to address methane emissions. The emission figures in the plan are for carbon dioxide only but super-potent methane is spewing into the atmosphere at an alarming rate from fracking operations, all the way from the well head to the power plant.</p> <p>Duke Energy is planning to continue its massive expansion of fracked gas infrastructure and there is no call in the plan for ending, or even slowing, that expansion. If Duke is allowed to build new gas plants, pipelines and gas storage facilities, the state will claim to have achieved its 2030 goals while actually allowing a climate-wrecking amount of methane to be released into the atmosphere.</p> <p>The Governor and DEQ repeat Duke Energy's claim that emissions have already fallen 34% since 2005, which is only true if you count CO2 alone and pretend methane doesn't matter.</p> <p>Gas is also an economic disaster. Renewables create more jobs than gas and, according to Forbes, new gas plants built now will be "junk assets" as renewable and storage prices continue to drop.</p> <p>Similarly, there is nothing in the plan that stops the ongoing clear-cutting of North Carolina forests to produce wood pellets to be burned in Europe, despite the fact that intact forests are an important climate solution in that they absorb the CO2 that humans emit and trees also produce oxygen. Nor does DEQ count the enormous emissions from logging, processing and burning the wood pellets.</p> <p>The success of the plan depends on it being fully and rapidly implemented. If the Governor and DEQ rest on their laurels, it will not happen. They must push the legislature to pass the laws recommended by the plan. They must push the Utilities Commission to begin regulating Duke according to the recommendations in the plan.</p> <p>DEQ and the Governor must recognize the urgency of the climate crisis – which has just given the world its warmest July ever and record melting of the <a href="#">Greenland ice sheet – and push for real climate action now!</a></p> <p>September 9, 2019</p>	<p>Charles Talley</p>
<p>Gentlemen:</p> <p>Greetings from the "trenches" east of I-95. I have reviewed the Draft Clean Energy Plan and have more than a few comments:</p> <ol style="list-style-type: none"> <li>1) Although the "Plan" is called the "Clean Energy Plan", I cannot find anywhere within the main document or any of the six attachment Parts, a definition for the term "Clean Energy". I strongly urge the Administration to DEFINE the term Clean Energy with specifics. I note that in many instances, fossil fuels are, in fact, more "Clean" than alternative energy sources such as Wind Turbines.</li> <li>2) It is most concerning that the State of North Carolina has obviously spent a tremendous amount of precious tax payer dollars developing this plan and yet, there is absolutely no reference whatsoever to the Federal EPA Affordable Clean Energy Rule. Have we become so partisan that we would rather waste tax dollars and create something from scratch rather than use the resources of the Federal Government?</li> <li>3) Because the plan has so many "moving parts", perhaps I have missed something, but I do not see where anyone will be making any kind of measurements for actual CO2 (or other GHG's) saved for any of the changes which will be made.</li> <li>4) It is not clear that the plan will be implemented to maximize CO2 reduction. Because of the inefficiencies of necessary cycling, Natural Gas by itself can save more CO2 than a combination of wind and natural gas.</li> <li>5) I have not been able to find anywhere the true cost of implementation of this Plan. Again, there are so many "moving parts" and the introduction of ostensibly non-Clean Energy aspects such as Grid Modernization that it will be difficult if not impossible to determine the true cost of Plan implementation. Perhaps this is by design, but again as a taxpayer and an elected representative of other taxpayers we need to know how much money it will be costing the citizens of North Carolina.</li> <li>6) I am particularly suspect of the assertion claimed on Page 118 of Part 5 which states, "Clean energy and carbon policies keep energy affordable". Living here in Chowan County, post Hurricane Dorian, I can say if you really believe that, I've got some prime swampland here for sale which is equally affordable.</li> <li>7) Contrasting the above, I am heartened by the statement contained on Page 103 of Part 5 which states, "Offshore and onshore wind are generally not cost-effective." I could not agree more, and as a County Commissioner in Chowan County which will possibly be home to the second onshore industrial wind energy facility in North Carolina, I pray every night that the poor economy of this monstrosity becomes apparent to the developer before they actually begin construction.</li> <li>8) I was more than surprised that the most obvious "Clean" energy source was apparently not explored. Specifically, there is not any allowance for "New" Nuclear Power Plants. I figure that the gatherings and meetings of "stakeholders" were so packed with special-interest lobbyists that the common sense of Nuclear power generation was left on the cutting room floor.</li> </ol>	<p>Chowan County, Chowan County Commissioner Bob Kirby</p>

9) The Plan has an obvious emphasis on further development of Solar. Again, speaking as a County Commissioner in a Tier-1 County in Rural Eastern NC, I find the 80% Solar Equipment Property Tax Exemption which has been thrust on us by the State of North Carolina to be reprehensible. My constituents are being forced to carry an unjust burden through a higher County Property Tax Rate, because North Carolina will not allow Chowan County to tax Solar Equipment Owners at 100% of the value of Solar Equipment.

10) On the subject of increased solar development, virtually every acre of increased Solar Capacity means one LESS acre of crop farmland. With the Agriculture being the traditional economic powerhouse for North Carolina, by encouraging more Solar development, I fear we will be killing the goose that laid the golden egg.

11) Other states, most notably New York, have created similar Clean Energy Plans and independent economic experts have determined that implementation of the NY Plan will cost over one trillion dollars over its life.

12) We cannot afford this Clean Energy Plan.

Trusting that you find the above to be sufficient to delay implementation of this plan, I remain,

Sincerely,

Robert M. (Bob) Kirby  
PO Box 591

This plan is good in some ways BUT it completely fails to address methane emissions. The emission figures in the plan are for carbon dioxide only. But super-potent methane is spewing into the atmosphere at an alarming rate from fracking operations, all the way from the well head to the power plant. Duke Energy is planning to continue its massive expansion of fracked gas infrastructure and there is no call in the plan for ending, or even slowing, that expansion. If Duke is allowed to build new gas plants, pipelines and gas storage facilities, the state will claim to have achieved its 2030 goals while actually allowing a climate-wrecking amount of methane to be released into the atmosphere.

Yes, DEQ repeats Duke Energy's claim that emissions have already fallen 34% since 2005, which is only true if you count CO2 alone and pretend methane doesn't matter.

Gas is also an economic disaster. Renewables create more jobs than gas and, according to Forbes, new gas plants built now will be "junk assets" as renewable and storage prices continue to drop.

Similarly, there is nothing in the plan that stops the ongoing clear-cutting of North Carolina forests to produce wood pellets to be burned in Europe, despite the fact that intact forests are an important climate solution in that they absorb the CO2 that humans emit. Nor does DEQ count the enormous emissions from logging, processing and burning the wood pellets.

It completely fails to address methane emissions. Please fix this!! The emission figures in the plan are for carbon dioxide only. But super-potent methane is spewing into the atmosphere at an alarming rate from fracking operations, all the way from the well head to the power plant.

Please actually implement this plan and to stop supporting climate-destroying fracked gas infrastructure and the forest-destroying wood pellet industry. If gas and wood pellets continue, North Carolina will keep making climate change worse, not better.

Chris Gallagher  
Ekstedt

It's time to invest in clean, renewable energy for our needs.

Chris Hemedinger

I am a proponent of safe, efficient, clean, carbon free Nuclear Energy in North Carolina. Nuclear energy is key to a reliable clean energy grid paired with other renewable resources. In addition nuclear means good, high paying jobs in NC. It is vital that the NC Clean Energy Plan include nuclear energy.

Thanks for your time.  
Chris Long

Chris Long

<p>There is nothing in the plan to address the expansion of the wood pellet industry or to stop the clear-cutting of North Carolina forests to be burned for energy in Europe.</p> <p>Governor Cooper must put a stop to the expanding wood pellet industry. I call on the Governor to develop and conduct a North Carolina study to assess the cumulative impact of the industrial-scale wood pellet industry on forests, the climate, communities, and the economy. Until that study is complete, there must be an immediate moratorium on any expansion of the industrial-scale wood pellet industry in North Carolina.</p> <p>Urban forests are also a major component in the fight against climate change. Trees sequester carbon, absorb storm-water runoff, reduce heat, decrease noise, and improve the mental health of those fortunate enough to have trees in their community. Plus, of course, trees provide homes and food for birds and other wildlife.</p> <p>Another good way to support the health of trees in our communities is to establish a communal fund for tree maintenance and care, because people who don't have money often don't have options for tree care because they're too costly. First responders at the Fire and Police departments and other emergency resources, tools to address matters of life and death, are funded through taxes, and this should be too. Many people cut down trees or let them fall because they don't have funds or cannot care for them themselves. So they can't help but let them get unhealthy or beyond the point at which maintenance and trimming will help. Instead the trees become a risk because people have to either wait til the tree falls on their house and claim it on insurance, and some less fortunate people end up injured or dead because the tree falls on them.</p> <p>And if North Carolina is really serious about addressing climate change within its own powers, there should be a regulation ensuring that any new construction in the state that removes trees will also be required to replace them nearby.</p> <p>As a state we need to implement rules to stop using styrofoam and single-use plastics. This is horrible for our water globally. This is an example of the massive cultural shift we need to make to hold off climate change and stop destroying ecosystems across the planet.</p> <p>The plan also completely fails to address methane emissions. The emission figures in the plan are for carbon dioxide only. But super-potent methane is spewing into the atmosphere at an alarming rate from fracking operations, all the way from the well head to the power plant.</p> <p>Finally we need to follow the example of countries like India and eliminate the use of inefficient, dangerous, and wasteful suspended power lines, in addition to going completely to solar and wind energy. The amount of money going to these sustainable, renewable energy sources is far too low especially when compared to the amount going to the fossil fuel industry.</p> <p>A truly clean energy plan for North Carolina must address the wood pellet industry, methane emissions, single-use plastics, styrofoam, full funding of statewide tree and forest wellbeing, a real commitment to solar and wind power, and eliminating dangerous, outdated, and wasteful electrical poles. If these changes aren't made and quickly, North Carolina will keep making climate change worse, not better.</p> <p>Thank you for taking the time to read this. Christina Booth</p>	Christina Booth
<p>I am Christopher Swayney, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> </ul>	Christopher Swayney
<p>I am grateful North Carolina is choosing to take an active role in ensuring that our energy grid will both meet the needs of North Carolinians and wisely steward the environment. However, one item seemed lacking. Where is the support for the state's nuclear power infrastructure?</p> <p>Per the NC Clean Energy Plan, nuclear power accounted for 33 percent of the total electricity generated in 2017. This was more than three times of the energy generated by the other carbon-free sources combined. If we are to truly de-carbon our energy grid, we must continue to support nuclear power. Generating capacity improvements and license extensions of existing plants will ensure a robust, carbon-free baseload source, capable of supporting intermittent sources.</p> <p>North Carolina is a leader in nuclear technology, thanks to our nuclear fleet. For sake of the environment, let's keep it that way.</p>	Chuck Yarley
<p>C-1: The City is supportive of increased customer access to their usage data and sources of energy</p>	City of Charlotte, Erika Ruane
<p>K-1: Recommend that the Energy Efficiency Advisory Council include representation from NC municipalities</p>	City of Charlotte, Erika Ruane

K-2: No specific action was listed for the Green Button Connect My Data program. This functionality for the Green Button initiative would be powerful in enabling more swift action to connect energy consumers with energy efficiency providers. Moreover, enabling an automatic benchmarking program (like EPA Energy Star Portfolio Manager) can also lead to substantial energy efficiency improvements, particularly as municipalities consider mandatory benchmarking policies.	City of Charlotte, Erika Ruane
K-6: The City is supportive of this suite of actions. We have city-wide carbon reduction goals and having a strengthened building code for energy will be imperative in achieving that goal	City of Charlotte, Erika Ruane
K-5: Recommend that the pilot sites are co-located with low-income neighborhoods that have participated in the Duke Energy Neighborhood Energy Saver program in an effort to further reduce energy burden rate for those residents.	City of Charlotte, Erika Ruane
A-1: ▪ Municipalities need to be represented in this stakeholder process.	City of Charlotte, Erika Ruane
A-1: ▪The most impactful option listed for reducing carbon emissions and combating climate change are ‘tools to accelerate retirement of uneconomic generation assets.’ It is strongly recommended that the stakeholder process prioritize this option in its deliberations. Various utilities have made the retirement of uneconomic generation assets a priority, and their initiatives can be used to help find a workable path forward.	City of Charlotte, Erika Ruane
A-2: Not all of these potential utility tools lend themselves to, or necessarily need, pilot testing prior to implementation. The report coming out of A-1 should identify which of the recommended utility tools can move forward immediately and which would require preliminary pilot testing before being scaled.	City of Charlotte, Erika Ruane
A-3: The State Legislature may not be the correct responsible entity to lead this effort. Explain the rationale for designating the State Legislature as opposed to the NCUC or Governor’s Office as the responsible entity	City of Charlotte, Erika Ruane
B-1: Ensure that these actions lead to an output similar to the Hawaii example shared on page 68 of the CEP, where the process “will produce a 5-year action plan and a long-term pathway to achieve the legislative goals of 100% renewables.” In other words, the planning process should build on the common foundation of predetermined carbon reduction goals for the state.	City of Charlotte, Erika Ruane
B-2: The City is supportive of this action. Based on the CEP’s definitions of Short, Medium, and Long-term actions, this action’s timing should be designated as ‘Medium.’ (p. 21, CEP). The examples provided for Rhode Island and California can serve as helpful templates to quickly start the process to include societal and environmental factors in cost-benefit methodologies.	City of Charlotte, Erika Ruane
B-3: Important that this competitive procurement process uses the benefit-cost methodologies established in action B-2	City of Charlotte, Erika Ruane
D-1: In paragraph 1 under D-1, update the last sentence to reflect that the GSA program has been approved by the NCUC and is beginning implementation with the utility. (p. 80, CEP)	City of Charlotte, Erika Ruane
D-1; oThis action should be changed to Short-term, and revisions should be viewed from the lens of customers with continued barriers to adoption of programs currently available under HB 589. The City would specifically like to see: ▪Green tariff program designed for the needs of municipalities ▪Cost saving renewable energy opportunities for low income residents	City of Charlotte, Erika Ruane
D-2: The fourth action, giving local governments the authority to delegate administration of C-PACE to a statewide or regional third-party entity should be changed to a Short-term action. (p. 82, CEP) Because PACE is legislatively authorized in NC, this would seem to be a logical next step that could be incorporated into the next legislative session	City of Charlotte, Erika Ruane
D-3: There appears to be an action missing from Table D-3. The actions jump from determining how to establish a fund to supporting the fund if established. The actual establishment of the fund should also be called out as an action. Uncertain who the entity responsible for that would be	City of Charlotte, Erika Ruane
D-4: The City is supportive of this action, as we feel it would enable more equitable access to renewable energy for our residents, particularly those of low income and high energy burden rates	City of Charlotte, Erika Ruane
D-5: The City is supportive of this action. Those revised REPS targets or sales from zero-carbon emitting sources targets should be tied to EO80 goals, Paris Agreement goals, IPCC goals, or some other reputable source on climate change mitigation pathways	City of Charlotte, Erika Ruane
G-1: The timing of the first action in Table G-1, “Consider impacts of low-income communities in utility resource planning,” should be revised to ‘Short-term.’ This action could also be strengthened by including a report in the short-term that identifies how impacts to low-income communities are currently considered in utility resource planning. That would give the NCUC a reference point with which to measure progress in this important area	City of Charlotte, Erika Ruane
G-2: A great amount of precedent exists for designing low-income rate classes and other associated rate structures. This reference may be helpful for the stakeholder group convened for this action: ( <a href="https://www.puc.state.or.us/electric_restruc/LIUPWG-StateLI-WeatherizationPrograms.pdf">https://www.puc.state.or.us/electric_restruc/LIUPWG-StateLI-WeatherizationPrograms.pdf</a> ).	City of Charlotte, Erika Ruane
G-3: This reference to existing EE and RE programs targeted at underserved markets and low-income communities should help speed up the discussion, especially for actions 3-5 in this section. (p. 101, CEP) <a href="https://www.puc.state.or.us/electric_restruc/LIUPWG-StateLI-WeatherizationPrograms.pdf">https://www.puc.state.or.us/electric_restruc/LIUPWG-StateLI-WeatherizationPrograms.pdf</a>	City of Charlotte, Erika Ruane
H-1: The actions listed in Table H-1 may not go far enough to ‘ensure inclusion and meaningful involvement of historically marginalized individuals.’ Perhaps adding a required section in future IRPs and other relevant filings that demonstrates that inclusion and meaningful involvement of such populations would help solidify this suite of actions.	City of Charlotte, Erika Ruane
H-2: Recommend including municipalities to the stakeholder list for this action so that those workforce development efforts for EE trades can be aligned with Apprenticeship NC	City of Charlotte, Erika Ruane
H-3: The fourth action in Table H-3, where the entity responsible is identified as ‘Local Governments,’ is unclear as written. More detail describing this action would be beneficial	City of Charlotte, Erika Ruane
H-3: Recommend another action that the Department of Commerce provide recurring updates to the EO80 Workforce Assessment to show progress and changes	City of Charlotte, Erika Ruane
I-1: The sequencing of these actions relative to the action recommended in Table I-2 may be out of order. It might make more sense to conduct the comprehensive study, then pursue the 3 policy actions recommended in Table I-1. Otherwise, you run the risk of achieving sub-standard policy outcomes. The study would inform the policies and may help sway some elected officials that may not be convinced these policies should be implemented	City of Charlotte, Erika Ruane



I-1: The likelihood of this legislation passing will be substantially enhanced if Duke Energy is supportive of the legislation. The City recommends engaging with them during the development of the legislation, particularly as it relates to setting a date for retiring uneconomical coal plants and peaking plants	City of Charlotte, Erika Ruane
I-3 Recommend that the method developed for monetizing CO2 emissions be made publicly available and also submitted to peer review prior to implementation	City of Charlotte, Erika Ruane
J-3: The City is supportive of this action area, as it relates to a common theme throughout this draft CEP - that of a more holistic and comprehensive approach to quantifying and comparing the costs and benefits of various energy system choices	City of Charlotte, Erika Ruane
L-1 The City is supportive of this suite of actions	City of Charlotte, Erika Ruane
L-2: Employing electric heat as opposed to gas heat should be coupled with resiliency planning. The frequency of electrical outages far exceeds that of gas outages which could contribute to substantive public health issues during winter months	City of Charlotte, Erika Ruane
B-2) Suggest reconsidering the time for delivery of this recommendation to Medium. More discussion could also be had on the metrics and weight of the non-energy benefits that should be considered. B-3) The competitive procurement process should use the cost benefit methodology established in action B-2.	City of Raleigh Sustainability, Greg Sponseller
C-2) Still concerned about transparency and accountability if performance metrics, targets, and timelines are established solely by utilities. Simply the existence of a goal that regulators can hold utilities accountable does not ensure transparency and accountability. Could this be described in greater detail? Could an action be added to define or better clarify what "transparency" means for customers?	City of Raleigh Sustainability, Greg Sponseller
D-1) Suggest reconsidering this to be short term. Revisions should be considered from the perspectives of customers. D-3) How will progress be measured? D-5) Clearly define the options available for generation sources and what would be considered "zero emitting."	City of Raleigh Sustainability, Greg Sponseller
F-2) The only economic development opportunities identified are for offshore wind. There were numerous discussions about education, workforce training, emerging technology careers, "green" economic impacts in NC, etc. during the workshops. Why are they not included here?	City of Raleigh Sustainability, Greg Sponseller
G-1) There were discussions about the development of an equity tool at the state level that could be applied to program development and execution. This could be considered and/or added here.	City of Raleigh Sustainability, Greg Sponseller
H-1) How will we know if we have done enough to be inclusive in the process? Please indicate a benchmark or how it will be known that this inclusive process was successful. H-3) Department of Commerce should provide regular updates to the EO80 Workforce Assessment to show progress.	City of Raleigh Sustainability, Greg Sponseller
I-1) It sounds like the study will take place prior to this recommendation although they are not in sequential order in the document. Agree that this makes sense; it could be more clear in what order these should occur. I-3) Method for monetizing CO2e should be made publicly available and submitted to peer review prior to implementation.	City of Raleigh Sustainability, Greg Sponseller
J-1) Is there a calculation template to help local governments consider the full cost of outages that should be utilized for PV + storage applications? I'd imagine this gets very complex and includes many variables. Could such a tool be incorporated in Recommendation J-3?	City of Raleigh Sustainability, Greg Sponseller
K-5) There should likely be a recognition that utilities will likely want to engage with technology companies that enable innovative rate structures to be effective. This can and should occur whether it is stated in the plan or not. There should be partnership transparency between these cooperating groups that allow useful tools to be developed for customers.	City of Raleigh Sustainability, Greg Sponseller
L-2) Impact of electrification in industrial, manufacturing, and commercial facilities and operations should also be considered.	City of Raleigh Sustainability, Greg Sponseller
G-3. Expand energy efficiency and renewable energy programs specifically targeted at underserved markets and low-income communities. Our Water Utility (and many local government/other water utilities) also experiences quite a few cost burdened low income customers (who may rent and often have leaky toilets, faucets, outdoor water hookups). There are assistance programs that the local municipalities provide but they are grossly underfunded and run out very quickly each year. Are there current regulations holding back the adoption of more robust assistance programs at this time—could this be looked at as a policy change, as well as providing more assistance opportunities. In addition, what kinds of programs could be offered to assist homeowners, renters and property owners in fixing leaks and pipes as needed (where the municipalities don't have jurisdiction over private pipe lines into houses and facilities). Several old houses and facilities have copper pipes with lead fittings—this would also help cut down on issues of exposure to lead—think of the school system as one target group. If this comment isn't relevant in this section, water efficiency is so closely related to energy efficiency (and cost burden to low income residents) so if not relevant in this section- it should fit somewhere.	City of Raleigh, Megan Anderson

<p>H-1. Ensure inclusion and meaningful involvement of historically marginalized individuals (people of color and people living in poverty) in decision-making regarding siting generation assets and implementing programs that would affect their rates, health, and access to clean energy and energy efficiency opportunities.</p> <p>On page 103, include more specific steps that could be taken to ensure equitable processes are put in place. Include a step to create a common definition, process and approach for addressing equity in the way that services and programs are designed and implemented. Include a step to create benchmarks to measure impacts (positive outcomes and negative impacts to low income and POC) and to identify goals and ways to measure success.</p> <p>H-2. Launch an EE Apprenticeship program within Apprenticeship NC to expand access to clean energy careers.</p> <p>Local Governments, especially Economic Development and Sustainability Offices have a large role to play in supporting the roll out of EE apprenticeship programs. Even for rural areas of the State that don't have Economic Development or Sustainability programs, those that do can design models and partner with the State Government and school systems to create pilot programs that can be rolled out across the state. Organizations such as the North Carolina Sustainable Energy Association and The NC Justice Center also play a large role in EE and job training. There should also be local businesses of big and small workforces brought in as main stakeholders so that the training programs are designed in ways that model the needs/gaps/opportunities of the local hiring markets.</p>	<p>City of Raleigh, Megan Anderson</p>
<p>J-1. Require utilities to develop projects focused on DERs, community solutions, and microgrids at state facilities and critical infrastructure locations (e.g. hospitals, shelters) to enhance resilience.</p> <p>For Local Governments- it would be helpful to call out different types of facilities that are critical, such as public utilities, community centers that serve as shelters, etc. Also several facilities that do have backup systems do use gas generators—can we call out that Duke Energy should help local governments and others pilot alternative back up power options that fit the use of the space and need (ie: sometimes gas generators could be supplemented with at least some solar or storage options to offset the gas). The gas generators are run for testing quite often so fossil fuel use adds up even when there are few events. Also consider calling out the opportunities to pair the electrification of transportation with opportunities to provide power back to buildings at critical times (and also the need to pilot opportunities to power critical vehicles during events through microgrid solutions -as we transition our fleets to EV's).</p>	<p>City of Raleigh, Megan Anderson</p>
<p>Hello. I am writing to urge you to consider paying closer attention to the methane, a harmful greenhouse gas, being emitted from natural gas pipelines. Also, I am urging you to ensure that wood pellets, which release carbon dioxide, is NOT considered a form of clean energy. Not only is it a dirty fuel, but our forests are being decimated to create these wood pellets. That clearing of the forest contributes to climate change. In light of the recent Amazon rainforest fires, it should be abundantly clear the important of our forests in maintaining clean air, water, and keeping temperatures from rising. Cutting trees just to burn them is untenable, both long and short term. Thank you.</p>	<p>Claudia Lange</p>

From Hope Taylor, Exec. Director, Clean Water for North Carolina

For over 15 years, Clean Water for NC has advocated for rapid and widespread implementation of the cleanest, most cost-effective, most socially and environmentally just, and most job creating way to make energy services available affordably to residents and business throughout our state--energy efficiency. As we saw proposals like Duke Energy's "Save A Watt" try to claim grossly excessive profits for efficiency programs because actually saving energy was an intrinsic conflict of interest with their business model of increasing profits through increasing energy sales, construction of capital intensive centralized power generation and infrastructure, we knew we needed to take a path that built energy efficiency through a non-utility entity. An independent administrator, whether a non-profit such as those in Vermont and Oregon, or a state agency as in New York, can be structured to maximize the public benefits of energy efficiency, including energy cost savings, and associated improvements in health and economic well-being for lower income residents, climate stabilization, reduced hot discharges and evaporation from central power plants and other environmental improvements, higher value of housing stock, job creation and other economic development benefits.

In 2007, we contracted with Synapse Energy Economics to do a study of existing state level independent energy efficiency administrator programs as possible models for NC, and released the study at <https://frackfreenc.org/wp-content/uploads/Independent-Administration-of-Energy-Efficiency-in-NC-Synapse-Energy-Economics-Report.pdf>. This study led to the development of an Alliance of 15 organizations that proposed "NC SAVE\$ ENERGY" first to the NC Utilities Commission and then as legislation in 2009 and 2011 <https://frackfreenc.org/wp-content/uploads/H874version-1-May-2011.pdf>. Both because the program would be funded by a small utility surcharge and because of the intrinsic conflict with Duke and Progress Energy's business model, the utilities lobbied extensively against the bill. Whether funded by the legislature initially and dependent on revolving loans, or whatever the funding mechanism, we see enormous advantage in creating an independent entity whose sole mission would be to implement efficiency and other public benefits, a far stronger and more sustainable model than simply having an " EE Advisory Council."

This independent administrator model could also provide revolving loans for cost effective efficiency projects for business or residential installations, as well as for decentralized renewable energy installations, thus improving customer access to both efficiency and renewable energy. Such programs in other states have developed and provided such services as job training and certification of contractors, augmented federal weatherization program, helping to build a just transition in communities disproportionately impacted by high energy costs, environmental damage due to energy production (communities around coal plants) or otherwise disadvantaged as historic African American or Native American communities.

At a time when federal incentives such as high rate of return on investments in natural gas infrastructure and low gas prices have been driving utilities toward "natural" or hydraulically fracked natural gas, the state will need to take active steps to stop this trend, not only because of the CO2 produced by combustion of methane, but because of fugitive emissions of methane itself, a far more powerful greenhouse gas, from hastily constructed gas infrastructure, extraction and even in power plants. Depending on market trends and shortsighted utility planning will only accelerate climate change, despite the deceptively rosy picture painted simply by analyzing reductions in CO2 emissions.

Clean Water for North Carolina, Hope Taylor

Governor Cooper and Secretary Regan:

We write to you today to provide our comments to the draft North Carolina Clean Energy Plan.

Founded in Charlotte, ClearPath's mission is to develop and advance policies that accelerate clean energy innovation. We advance this mission by developing cutting-edge policy in coordination with academics and industry.

First, we commend the focus placed on decarbonization in the draft plan. We are especially pleased to see that the proposal recognizes the need to ensure a future energy system that is clean but also affordable, reliable, equitable, grid efficient, sustainable and economically viable. If a plan following these attributes is pursued, North Carolina would become a leader in the clean energy space among states.

However, we are disappointed in the relative lack of flexibility this plan provides to decarbonize the power sector. Rather than facilitating the deployment of all low-emission technologies to meet climate objectives quickly and affordably, the proposed plan simply provides preferential treatment for a narrow suite of technology solutions, mainly wind and solar energy. This is despite the immense nuclear, carbon capture, and renewable natural gas potential the state possesses.

Such an approach would directly counter the affordable, reliable, equitable, efficient, sustainable, and economically viable mantra that is used throughout the plan because it does not allow or incentivize companies to choose the best mix of clean energy resources to reach these goals and provide reliable power to North Carolina customers. Such an approach would inevitably make the transition to clean energy more expensive and less efficient. For example, J.P.Morgan studied a potential decarbonization scenario in California and found that a system that was 40% renewable and 35% nuclear with the remaining natural gas would provide deeper emission cuts and cost 20% less than a system that 80% renewable energy with the remaining power provided by natural gas. Similar outcomes can be expected in North Carolina.

Just as disappointingly, this approach crowds out fledgling North Carolina industries. For example, Charlotte is a hub of fourth generation nuclear research and start-ups, with multiple companies that could eventually employ hundreds of North Carolinians. Similarly, Durham is the home of 8 Rivers, an engineering company who has re-engineered the combustion cycle to create a power plant that emits no carbon at the same price as a traditional combined cycle natural gas plant. Finally, Eastern North Carolinians could gain greatly from expanded focus on renewable natural gas projects and research. Crafting policy that does not include these resources will discourage innovation and reduce potential job growth within the state.

Should the state choose to enact a more aggressive clean energy standard to accelerate an energy transition it should focus on a technology neutral standard that allows all clean energy resources to compete for market share instead of pursuing an increased REPS that would only provide for a few chosen technologies while distorting the market further.

We share your ambition to see North Carolina become a leader in clean energy and decarbonization. The benefits the state could reap from a health and economic standpoint are vast. These benefits only grow if policy that spurs innovation across all clean resources is pursued. We hope you will choose to modify the plan to account for such policies.

Best regards,  
Rich Powell  
Executive Director

Clearpath, Rich Powell

Why is Nuclear Energy excluded from the Clean Energy Plan?

I am Clyde Fletcher, I am a contractor for Duke Energy and I live in North Carolina. Be advised this is my opinion, and freely given as an Engineer working in the Nuclear Energy Industry for over 40 years. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.

- Nuclear Energy remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).
- Nuclear Energy provides almost half of Carolinas' electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.
  - Nuclear Energy employs about 5,000 workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.
  - Nuclear Energy professionals support communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.

It is a disservice to the North Carolina public to exclude Nuclear Energy from the Clean Energy Plan, as this is the largest, most reliable, and most economical green energy solution hands down.

Clyde R. Fletcher

Written Comments in Response to the Draft North Carolina Clean Energy Plan  
Submitted by the Coalition for Green Capital

The Coalition for Green Capital (CGC) submits these written comments in strong support of the recommendation to form a Green Bank (also known as a “green energy bank” or “statewide clean energy fund”) presented in the draft Clean Energy Plan.

North Carolina’s Green Bank could play a key role in achieving the goals of Executive Order 80. Issued by Gov. Roy Cooper in 2018, the Executive Order pledges to reduce North Carolina’s greenhouse gas emissions 40% below 2005 levels. Several cities in the state—including Asheville, Charlotte, and Wilmington—have adopted even more aggressive clean energy goals.

Establishing a Green Bank in North Carolina could also position the state to benefit from potential new federal investment. The National Climate Bank Act,[1] introduced in the Senate in July, would establish a Climate Bank at the federal level and make \$35 billion available to capitalize state and local Green Banks, as well as to directly invest in large-scale clean energy projects.

Currently, North Carolina generates 35% of its power from nuclear plants and 20% from coal.[2] Renewables represent a small but increasing portion of the state’s generation mix. This is driven largely by a rapidly developing solar market, which generates about 4.4% of the state’s electricity.

According to the Solar Energy Industries Association, North Carolina ranks second in the nation in cumulative installed solar capacity.

However, North Carolina has challenges ahead, as the state’s fleet of 11 nuclear reactors grows older. Most were built in the 1940s, raising the need to plan for their possible retirement. Coal generation also continues to decline, and together these trends could leave more than 55% of the state’s energy need unanswered. Addressing the gap with renewable energy will be important to meeting North Carolina’s climate goals, while also providing benefits to the state’s economy and the health of its residents.

A Green Bank can accelerate this trend towards renewable energy in North Carolina. It can help ensure that renewable energy is delivered affordably, without raising power prices for consumers. And, it can invest in energy storage and other technologies that will allow renewables to integrate onto the grid without affecting reliability. Given these advantages, it is no surprise that through the Clean Energy Plan stakeholder process, “a diverse group of individuals and other energy collaborators identified a need for an NC clean energy fund.”

Part of the appeal of Green Banks comes from the track record of success these institutions have built up in other states. Fourteen Green Bank institutions already exist across the U.S., and they have mobilized a collective \$3.67 billion in investment into clean energy projects through 2018.[3] The nature of these individual projects can vary considerably, but the common threads include helping state residents overcome financial barriers and improve their homes and businesses while reducing their energy bills.

Participants in the stakeholder process for North Carolina’s Draft Energy Plan identified a wide range of markets where consistent access to affordable capital represents a barrier, including: “project funding in renewable energy, energy efficiency, electric vehicle infrastructure, and other measures that reduce emissions, particularly in rural and poorer communities of the state that otherwise lack access to necessary capital.” Green Banks in other geographies have invested in these markets, including solar, energy efficiency, and projects focused on low- and moderate-income communities (LMI). Innovative efforts have included the Connecticut Green Bank’s successful Solar for All Program,[4] and Hawaii GEMS’ new program to allow renters to lower their energy bills by going renewable.[5] Income or homeownership shouldn’t be a barrier to accessing the benefits of clean energy.

#### Structure and governance of a North Carolina Green Bank

The draft Clean Energy Plan rightly calls on actors outside of state government—NGOs, academia, and local government—to determine how to establish a Green Bank in North Carolina. The role of the state government, as identified in the draft, is to provide public support and guidance. This places state government in critical governance and advisory roles, rather than being tasked with development and execution of a new financing entity. This division of responsibilities fits well with CGC’s experience in other states. CGC has conducted preliminary research in North Carolina, and next intends to produce a more in-depth report in partnership with the Nicholas Institute for Policy Solutions at Duke University. Based on CGC’s findings thus far, as well as CGC’s experiences consulting on the establishment of Green Banks in other states, CGC recommends that a North Carolina Green Bank (NCGB) be formed by NGOs and academia as a government-adjacent, independent 501c3 non-profit corporation. Creating a nonprofit (as opposed to a quasi-public entity) avoids the need for the passage of legislation. Non-profits are also better positioned to receive and blend public, philanthropic, and private capital on their balance sheets.

This non-profit Green Bank would also be well-positioned to work in close coordination with other Green Banks around the country that are now organizing to achieving collective scale. A non-profit Green Bank would be ideally structured to join the American Green Bank Consortium and engage in capital and product partnerships with its fellow Green Banks. It could also collaborate and work closely with all Green Banks to learn best practices in order to scale its operations more quickly.

CGC expects to provide more detailed findings and recommendations in our next report. At each stage of the process, we are ready to assist in identifying the path forward for a North Carolina-based Green Bank, and thank state leaders in North Carolina for the opportunity to comment.

#### Appendix: The Green Bank Model

Green Banks are specialized financial institutions that drive investment in clean energy and accelerate the decarbonization of the power sector. Green Banks can take multiple legal forms, including non-profit or quasi-public. They are typically capitalized with public funds, which can then be leveraged to maximize total investment capacity of the organization.

#### Core attributes

The Green Bank model is already in use in states across the US and in countries around the world. The flexibility afforded within the Green Bank framework is one of its strengths, and these institutions vary in their structure and focus. At the same time, they share a set of core attributes that contribute to their unique effectiveness.

- Reduce consumer energy costs and increase consumer access to clean energy.
- Use financial tools and expertise to draw private investment into carbon-reducing projects.
- Accelerate the reduction of greenhouse gas emissions.

#### Amplification of impact

One of the advantages of Green Banks is their ability to multiply their investment impact beyond the amount of capital initially provided. Methods to accomplish this include:

- Recycling capital: Lending money to be repaid, with interest, to the Green Bank, allowing each dollar deployed to be recycled and re-lent again.
- Project-level leverage: Mobilizing private capital at the project level through co-investment and credit enhancements, ensuring that each Green bank dollar draws in multiple private dollars of investment.
- Balance sheet leverage: Borrowing against existing assets, increasing lending capacity beyond the public capitalization. This method has not been used by existing Green Banks at the state level, but is used by other entities like commercial banks and development banks, and could be an effective approach for a large enough Green Bank.

thus far, as well as CGC’s experiences consulting on the establishment of Green Banks in other states, CGC recommends that a North Carolina Green Bank (NCGB) be formed by NGOs and academia as a government-adjacent, independent 501c3 non-profit corporation. Creating a nonprofit (as opposed to a quasi-public entity) avoids the need for the passage of legislation. Non-profits are also better positioned to receive and blend public, philanthropic, and private capital on their balance sheets.

This non-profit Green Bank would also be well-positioned to work in close coordination with other Green Banks around the country that are now organizing to achieving collective scale. A non-profit Green Bank would be ideally structured to join the American Green Bank Consortium and engage in capital and product partnerships with its fellow Green Banks. It could also collaborate and work closely with all Green Banks to learn best practices in order to scale its operations more quickly.

CGC expects to provide more detailed findings and recommendations in our next report. At each stage of the process, we are ready to assist in identifying the path forward for a North Carolina-based Green Bank, and thank state leaders in North Carolina for the opportunity to comment.

#### Appendix: The Green Bank Model

Green Banks are specialized financial institutions that drive investment in clean energy and accelerate the decarbonization of the power sector. Green Banks can take multiple legal forms, including non-profit or quasi-public. They are typically capitalized with public funds, which can then be leveraged to maximize total investment capacity of the organization.

#### Core attributes

The Green Bank model is already in use in states across the US and in countries around the world. The flexibility afforded within the Green Bank framework is one of its strengths, and these institutions vary in their structure and focus. At the same time, they share a set of core attributes that contribute to their unique effectiveness.

- Reduce consumer energy costs and increase consumer access to clean energy.
- Use financial tools and expertise to draw private investment into carbon-reducing projects.
- Accelerate the reduction of greenhouse gas emissions.

#### Amplification of impact

One of the advantages of Green Banks is their ability to multiply their investment impact beyond the amount of capital initially provided. Methods to accomplish this include:

- Recycling capital: Lending money to be repaid, with interest, to the Green Bank, allowing each dollar deployed to be recycled and re-lent again.
- Project-level leverage: Mobilizing private capital at the project level through co-investment and credit enhancements, ensuring that each Green bank dollar draws in multiple private dollars of investment.
- Balance sheet leverage: Borrowing against existing assets, increasing lending capacity beyond the public capitalization. This method has not been used by existing Green Banks at the state level, but is used by other entities like commercial banks and development banks, and could be an effective approach for a large enough Green Bank.

#### Financial methods

Green Banks use financial tools to achieve project-level leverage, addressing barriers that prevent private capital providers from fully investing in the target market opportunities. They seek to expand markets and create new opportunities for private investment.

- Addressing perceived project risks with credit enhancements: If private investors see an investment as risky (perhaps because it is based on an unfamiliar technology, or because it serves a customer base seen as a credit risk) they may be unwilling to offer capital at rates that are feasible for a project to move forward. Green Banks can offer credit enhancements, such as loan loss reserves or loan guarantees, that help de-risk investments for private investors.

Coalition for Green  
Capital, Jillian  
Bunting

- Addressing inefficiencies of scale with aggregation: Small and geographically dispersed projects like residential or small business energy efficiency are often not cost-effective for private investors to underwrite. Green Banks can bundle together and projects that are not cost-effective to underwrite on their own. Pooling these loans diversifies risk and achieves scale, making them far more attractive to lenders.
- Addressing resistance to first-of-kind transactions: Transactions that have never been done before are more labor-intensive than typical standardized transactions. Green Banks can put in the technical legwork to develop frameworks for new types of transactions. As the new transaction types become more common, processes become more standardized and friction is reduced.

Proven track record

Green Banks are a cutting-edge idea, but they have a proven track record. There are now 14 existing Green Banks in the US that have driven \$3.67 billion of investment to date. National Green Banks in other countries like the UK and Australia have also already financed billions of dollars of clean energy. These investments have reduced greenhouse gas emissions while also reducing consumer costs and generating returns for private co-investors. Specific examples can help showcase Green Banks' achievements.

- Catalyzing new markets: Supporting new technology markets helps demonstrate their potential and overcome initial barriers. For example, fuel cell technology has the potential to facilitate clean energy storage and zero emission propulsion. However, private capital providers are often hesitant to lend to the industry because at commercial scale its use is relatively new. In August 2017, the New York Green Bank committed \$45 million to a fuel cell technology company that provides hydrogen-based propulsion systems for industrial and commercial vehicles. This investment lessened the burden of cash collateral accounts and brought the technology into wider use, smoothing the path for future deployment and expansion.
- Mobilizing private capital: Another strategy for accelerating investments in clean energy is through business models that address private capital markets constraints and risk perceptions. Since 2010, Michigan Saves has mobilized \$200 million in private investments from just \$7 million in public capital. Michigan Saves uses a credit enhancement in the form of a loan loss reserve to attract private capital. The program's method of driving private investment ultimately means that many more consumers can be served, lowering both their carbon footprint and energy bills.
- Assisting low-and-moderate-income communities: Green Banks can help low and moderate income consumers overcome the upfront capital costs of relatively expensive upgrades. For example, the Connecticut Green Bank launched a "Solar for All" program targeting low-to-moderate income (LMI) households. The program offers combined residential solar PV and energy efficiency measures, and has reached nearly 2,500 homes, deployed over 16 MW of solar PV, expanded energy efficiency measures, led to the investment of nearly \$70 million, and reducing the energy burden on families by about 30 percent. Connecticut is now a "solar parity" state where LMI households are demanding solar PV the same as non-LMI households.

[1] Office of Senator Ed Markey. Senators Markey and Van Hollen Introduce Legislation to Create a National Climate Bank. <https://www.markey.senate.gov/news/press-releases/senators-markey-and-van-hollen-introduce-legislation-to-create-a-national-climate-bank>. July 8, 2019.

[2] Energy Information Agency. State Profile: North Carolina. <https://www.eia.gov/state/?sid=NC>. Accessed August 2018

[3] Annual Industry Report of the American Green Bank Consortium. <https://greenbankconsortium.org/annual-industry-report>

[4] <https://ctgreenbank.com/2018-slice-award-solar-for-all/>

[5] <https://www.greentechmedia.com/articles/read/justin-hawaii#gs.1jj3b8>

While I appreciate the value of increased wind and solar generation, the value of carbon free nuclear energy and its consistently very high capacity factors relative to wind and solar need to be recognized.	Colin Lancaster
Thank you for addressing the need for NC to have a Clean Energy Plan. If this plan fully is implemented without any legislative hurdles or electric utility influence to mothball the plan, it will position NC as a true leader in the inevitable transition to a clean & renewable energy economy. In addition to reducing CO2 emissions from electricity up to 70% below 2005 level over the next 11 years, I hope you will consider the reduction of methane emissions. Failing to consider Duke Energy's fracked gas expansion is indeed the "elephant in the room" that will like result in stranded assets as renewable & energy storage prices drop. In addition, your plan doesn't count emissions from logging & the processing of wood pellets from companies like Enviva.	Connie Leeper
Transition to clean energy	Connie Raper
In this 137 page document there are some things that I agree with, some things I disagree with, and some things I question. I disagree with trying to implement electric cars. These are extremely less reliable then gasoline powered cars. Some electric cars such as the leaf have a maximum mileage of 60 miles while gas powered cars can last for hundreds. Also, the batteries tend to die rather quickly and need charging. Imagine your cars battery dying and having to pull into a random persons house to charge it. You also mention something on requiring car manufacturers to alter the design of the cars. I feel that these are private companies and that if you want it changed so badly make your own company. Also I question how you are going to implement this 137 page plan because all I see is you saying you will implement it but not telling me why. I do support implementing programs in our schools to better educate kids on conserving energy.	Connor Rudisill

September 9, 2019

North Carolina - Department of Environmental Quality  
1501 Mail Service Center  
Raleigh, NC 27699-1501

RE: North Carolina Clean Energy Plan, Department of Environmental Quality (NC DEQ):

The Copper Development Association (CDA) appreciates the opportunity to offer these comments in support of the North Carolina Department of Environmental Quality Clean Energy Plan. CDA commends the NC DEQ's focus revitalizing and investing in wind and solar generation, grid modernization with efforts towards undergrounding of electrical transmission lines. The CDA is the North American based not-for-profit association of the global copper industry, influencing the use of copper and copper alloys through research, development, and education, as well as technical and end-user support. Copper is an integral part of electrical energy infrastructure because of its reliability, efficiency, and performance. The same physical properties are vital in the collection, storage, and distribution of energy from solar, wind, and other renewable sources that impact the grid and its supporting electrical infrastructure.

Solar and Wind - The North Carolina Clean Energy Plan encourages and supports the growth of renewable energy in North Carolina. This commitment is a crucial driver for the modernization of the state's power grid that will in turn make the integration of renewables more efficient and effective. Data from the U.S. Department of Energy's Wind Energy Technologies Office (WETO) on the technical resource potential suggests that more than 2,000 gigawatts (GW) could be accessed in state and federal waters along the coasts of the United States and the Great Lakes. Since 2004, \$177 billion has been invested in U.S. large scale wind projects. As more states such as North Carolina recognize the opportunities that offshore wind provides copper is proud to play a key role in the expansion of the industries capacity. Offshore wind farms require more MW on average accounting for up to 82% of copper usage. The main system breakdown of copper content in wind turbines account for 53% in cable and wiring, with the remaining 43% percent in the turbines and transformers. The inherent resistance to corrosion, strength, and relaxation resistance of copper particularly in offshore wind has proven to be an asset to the longevity of the infrastructure including the connectors and transformers.

Investments in the solar market have seen a major upswing as the cost to install solar dropped by more than 70% over the last decade, which has increased the annual installed capacity of solar power. Solar was the third-largest renewable energy source in the United States power sector with an estimated 10,864,545 of U.S. shipments of photovoltaic modules in 2017. According to Solar Energy Industries Association 2018 study the top states using solar energy are California, North Carolina, Arizona, Nevada and Florida. Copper's electrical and thermal conductivity and high resistance to both atmospheric and aqueous corrosion makes it so valuable in solar energy systems. Solar power systems can contain approximately 5.5 tons of copper per MW. Copper is in the heat exchangers of solar thermal units as well as in the wiring and cabling that transmit the electricity in photovoltaic solar cells. It is projected that 262 GW of new solar installations between 2018 and 2027 in North America will require 1.9 billion lbs. of copper.



Grid Modernization - CDA commends the NCDEQ's recognition that investments in grid modernization and renewable energy technologies will benefit its residents and further establish North Carolina as a leader in clean energy generation and clean energy job security. A secure grid starts with copper. Copper is a key component in underground electrical transmission systems it contributes to the reliability and resiliency of the grid during cybersecurity threats and naturally occurring disruptive events. The efficacy of these technologies is largely determined by the materials used. This requires investing in materials with high conductivity and performance attributes which is where copper has repeatedly proven and continues to be a solution when it comes to powering electrical infrastructure from generation – distribution- and transmission. Current flows easily through copper thanks to its small electrical resistance, without much loss of energy further elevating the importance of energy efficiency.

Underground cabling is the key to creating less visual and environmental impact and has lower transmission losses; can absorb emergency power loads; has lower maintenance costs; can be engineered to emit a lower magnetic field than an overhead line and require a narrower band of land to install. Furthermore, undergrounding would reduce the vulnerability of cyber assaults, and intrusions as well as enhanced protection from natural disasters, including fires, high winds, floods, and other extreme storms. Copper's role within the context of grid infrastructure modernization will continue to increase as new assets are approved by the regulatory authorities, constructed, and come online. As one of the few materials that can repeatedly be recycled 100 percent without a loss in performance, we are proud to contribute to the advancement of an efficient and reliable electrical infrastructure.

Conclusion - While Copper is not immediately thought of as a major energy industry stakeholder, its superior conductivity, durability and reliability are critical components for increasing the energy efficiency, security, and resiliency of the nation's energy infrastructure. CDA supports North Carolina's commitment to the modernization of energy infrastructure through the Clean Energy Plan as it strides to become a leader in clean energy much like its neighboring states. Investments in grid modernization are essential to drive efficiency and keep electricity affordable, reliable, and secure in we commend North Carolina for recognizing this.

Sincerely,

Zolaikha Strong  
 Director -Energy Policy & Electrical Markets  
 Copper Development Association  
 zolaikha.strong@copperalliance.us  
 (202) 558-7625 - Office

I do not think the report takes seriously the amount of methane release some of the proposals will result in. We cannot look simply at carbon dioxide emissions. The continued plans for the Atlantic Coast pipeline and dependence on fracking for a future solution is short-sighted.

Craig Schaub

I want to commend many of the recommendations in the report, especially including those from historically marginalized communities in decisions about siting of future utility facilities, the attention to affordability of electric power, the apprenticeship program, and the development of long-term jobs with sustaining wages for families. I applaud attention to community solar, leasing programs for solar, and microgrids as well as consideration of the costs and benefits of electric-based transportation systems.

Craig Schaub

Furthermore, the wood pellet industry in our state cannot offer us sustainability as our trees are so vital to our future ability to sequester carbon.

Craig Schaub

I am Dallas Caudle, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some of the reason why Nuclear Energy is part of the solution to a clean energy future.

Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).

The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.

Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.

Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.

Dallas Caudle (Duke Energy)

I'm glad to see careful thought being given to how the NC energy sector needs transition so that it optimally supports total human flourishing for this and future generations. However, I'm very disappointed by the omission of discussion about the carbon-free benefits of nuclear energy.

The text of page 18 of the draft plan calls out Environment and Carbon Reduction, Affordability, and Reliability as the three most important values to participants. NC's existing nuclear plants have strong alignment under each of these values, providing clean, carbon-free electricity affordably and reliability. They should be featured as an important keystone of NC's energy plan going forward. This is crucial.

Daniel Lewis

Thank you for your time.

I am Darlene Wallace, I work for Duke Energy and I live in NC. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future. 1. Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars); 2. The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%; 3. Our nuclear group employed about 5,000 Duke Energy workers across the Carolina's, with additional contract workers supporting refueling outages and major project work throughout the year; 4. Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.	Darlene Wallace
I am concerned that the Plan does not mention the clear-cutting of forests to create wood pellets which are then burnt and produce more greenhouse gasses. This practice defeats the goal of reducing our carbon footprint as well as destroying our forests. This issue needs to be addressed in the DEQ plan.	David Ames
Methane is the second most important anthropogenic GHG. According to the IPCC 2013 report, approximately 1/4 to 1/3 of all warming is due to methane. Methane emissions must be as tightly controlled and reduced as CO2 emissions if we are to limit the impacts of global warming/climate change. The draft NC Clean energy plan does not address reducing methane emissions - that must be changed immediately. We must implement reduction of methane emissions as much and as quickly as CO2. Suspend all new/current pipeline construction projects including ACP and any future pipelines. Build no new natural gas fired power plants except those needed for direct replacement of closing coal fired plants. End the use of factory farms for chicken and pork production.	David Anderson
Wood pellets have not been conclusively shown to be correctly classified as a "clean energy" source. The harvesting and replacement of old growth forest can result in "hidden" co2 emissions due to soil loss and the destruction of the undergrowth. The delay in co2 uptake by seedings, compared to the burning in a very short amount of time of mature trees many decades or centuries old, results in co2 emissions that can take many decades to centuries to come back into balance. Other atmospheric emissions of heavy metals are also harmful. Wood pellet production should not be expanded until the science can firmly establish the long term effects. A moratorium on this industry seems to be a prudent move.	David Anderson
As an outdoor enthusiast looking forward for the future of our country and for for the state of North Carolina, I believe the value of nuclear energy is a great asset for clean energy generation. Nuclear is part of the solution for a nuclear energy future and we need to start including it to NC clean energy plan. <u>It's safe, reliable, efficient, and carbon free!</u>	David Barrientos
I fully support any initiatives the state would undertake to support clean transportation. This includes public charging stations (and enforcement of parking restrictions), electric car fleet purchases, non emission public transit systems, and any other option we can to help residents transition to clean transportation.	David Earnhardt
We have to make up a ton of ground as the human race to start to bend the curve of climate change back into equilibrium. The state can take the lead for the rest of the 21st century in that effort, or bury our heads in the sand. I'd rather we get the jobs, reduced storm damage, and clean air that will result in our investment in greenhouse gas emissions reduction, and will vote for whichever candidate has this strategy as a plank in their election platform.	David Earnhardt
There is more than enough solar generation capacity on the homes of this state to support systematic clean energy production, and a modern grid that can store that energy is critical.	David Earnhardt
Dear Sir or Madam:  Yes, please enact this critical Plan. I would like to see steps taken to increase the number of NC companies producing clean energy. Duke Energy is a monopoly in NC, and as such has limited incentives to think outside the box when it comes to clean energy. Competition from other clean energy producers in NC would lead to more efficiency and lower rates from Duke Energy. Also, to fully realize the steps of the plan, it will be necessary to get most of NC on board. This includes the NC General Assembly and the NC Utility Commission. Hopefully, the Plan was developed in consultation with the above listed groups.  Thank you so much for producing this Plan.  David Hill Graham, NC	David Hill
A Clean Energy Plan must stop the building of infrastructure for fracking and use of methane. Methane is 80-100X as potent as carbon dioxide as a <u>greenhouse gas.</u>	David Kirsh
Nuclear Power is the clean green energy and is a very important part of a diversified energy mix for the US. Nuclear power generates electricity when the wind isn't blowing, the sun isn't shining or when the water isn't flowing. It would be completely ignorant not to recognize the importance and contributions of nuclear power and the amount of electricity it puts on the grid!	David Lloyd
Your initiative to "Reduce the energy burden of low income customers" sounds like a subsidy, and a subsidy has never helped solve a problem. You'll make them more dependent on the government than they already are, and you'll remove their initiative to try and learn how to control costs or educate themselves on energy management. The cost will be paid by the rest of us, and in fact, with all of your key policy recommendations you'll eliminate one of the most powerful economic tools we have available - safe, reliable and affordable energy.	Davis Montgomery
IT has come to my attention that the representatives North Carolina has began to think seriously about the future of this state. As such, I have decided to read over the prep plans 1st objective, Utility incentives and comprehensive system planning. After reading this I've come up with a couple of ideas that we could ad to the draft to increase the chances of the order passing. Adding performance based incentives as well as investing into transport productivity will help boost	Dawson Leonard

Calling this the "Clean energy" bill strongly suggests that every existing source of energy that we are now using, in contrast to what is being proposed, is significantly dirtier. Before our state jumps on a hugely emotional political bandwagon, we must be basing such an impactful policy on strict measures for what constitutes clean energy and exactly how much cleaner what is being proposed than existing sources. I don't really see such a simple and verifiable measure in this plan.	Deborah Hill
I am Dhiren Pandya, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future. <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> </ul>	dhiren pandya
The wood pellet industry is bad for NC. Governor Cooper must put a stop to the expanding wood pellet industry. I call on the Governor to develop and conduct a North Carolina study to assess the cumulative impact of the industrial-scale wood pellet industry on forests, the climate, communities, and the economy. Until that study is complete, there must be an immediate moratorium on any expansion of the industrial-scale wood pellet industry in North Carolina.	Donell Kerns
After having read this entire report, and having served on the Nicholas School of the Environment's Energy Efficiency Task Force, I appreciate many of the analyses and recommendations; HOWEVER, it is suspicious that this report does not address the forestry clear-cutting that is happening to support the European wood pellet industry. In the past few years, while traveling in Switzerland and Austria, I have admired their beautiful and pristine forests although I noted that local stores would sell wood-pellet burning stoves and imported wood pellets. I was shocked to find that the Swiss and Austrians are actually preserving their own forests through strict regulation while importing NC-produced wood pellets. When I traveled to Bertie County and visited a wood pellet factory, I realized that European companies were employing Bertie laborers to harvest timber and process it into pellets for export to Austria and Switzerland BECAUSE these countries were smart enough to save their own forests and destroy North Carolina's. Isn't that ridiculous? Why don't we disallow this arrangement and save money by retraining Bertie workers for better jobs? Why isn't our "environmentally-friendly" Governor working to rectify this situation?	Doug Dickerson
Why do you pretend that methane is not contributing to climate change? If we proceed to allow Duke Energy to make huge investments in dirty fracked gas, we will be undercutting meaningful emissions reductions in other areas for decades to come.	Doug H Swaim
Please add a provision that supports community solar.	Doug H Swaim
Your silence on the negative effects of biomass generation and the wood pellet industry in NC is deafening! The idea that wood-pellet power generation is carbon neutral (as the EU has labeled it in recent years) is ludicrous.	Doug H Swaim

Enviva advocates for the inclusion of biomass technology in the North Carolina Clean Energy Plan in order to strategically and effectively meet the challenges for renewable energy in the state. In response to category 2 - comprehensive utility systems planning - biomass has several key advantages for meeting this goal.

Grid stability is paramount to utility systems planning. Solar and wind technologies are vitally important to the renewable energy transition, but their volatility poses challenges for grid stability and reliability. Groups like the Clean Air Task Force note that even with the most idealistic predictions for battery storage, wind and solar technologies fall short of being able to provide continuous energy supply to customers at scale. Biomass is a dispatchable renewable energy solution that can provide baseload energy supply when the sun doesn't shine and the wind doesn't blow. Indeed, biomass is a natural complement to wind and solar technologies, acting as a multiplier for deployment of solar and wind technologies. As we've seen with customers in the UK, increasing the use of biomass to provide national baseload power has enabled a significant increase in the deployment of solar and wind capabilities. In the year 2017, the 5.3% year-on-year growth of biomass in the UK coincided with a 26.1% year-on-year growth in solar, wind and hydro technology (1). At the same time, these customers are significantly reducing their use of coal. Drax Power, a leading UK utility, reduced their combustion of fossil fuels by a third between 2017 and 2018 through the use of sustainably sourced biomass as drop-in alternative to coal (2). The state's plan to retire coal steam power facilities in North Carolina is absolutely aligned with recommendations from the UN IPCC, but there is a significantly greater opportunity for carbon savings through biomass conversion. Instead of waiting for assets to retire over the next twenty years, sustainable biomass can significantly reduce emissions today. And we know that these reductions are immediate because this material comes from sustainably managed working forests whose carbon stocks are increasing (see below). Even with natural gas conversion included in the retirement scheme, biomass is still a better conversion plan. Biomass is a renewable low carbon solution that removes long-term dependence on a second fossil fuel. As we'll discuss more in depth in later categories, biomass cofiring for these facilities allows for the benefits of stable, dispatchable energy supply with significant carbon reductions and affordability while waiting for these facilities to retire.

North Carolina already recognizes the importance of biomass technology in the state's Renewable Energy Portfolio Standard. Biomass is a qualifying technology for meeting the renewable energy generation goals laid out in the standard and utilities are making use of this technology. Duke Energy currently purchases 300MW of electricity from biomass energy producers. In the state of North Carolina, today there is over 90 MW of wood derived energy generation (3). We praise the state's inclusion of biomass in its REPS and we encourage frameworks that support biomass deployment, enabling utilities to reduce reliance on coal while continuing to provide stable, reliable, dispatchable energy. Looking to success from deployment in biomass energy in other countries, we advocate for extensive regulatory support of biomass at the state level. In the case of Sweden and Finland, the two countries were able to reach their 2020 renewable energy targets well ahead of their targeted timeframe by leveraging local biomass resources for energy generation (4). Through carbon pricing that is aligned with biomass carbon accounting and/or tax incentives, these countries have been leaders in the renewable energy transition. North Carolina has a similar opportunity.

References:

1. <https://www.carbonbrief.org/six-charts-show-mixed-progress-for-uk-renewables>
2. <https://www.drax.com/sustainability/environment/>
3. <https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/2.-Energy-Resources-draft-8.22.19.pdf>
4. <https://pdfs.semanticscholar.org/8d5d/4467ae4255652f4db0d3c60ff7b8f7cd7881.pdf>

Dr. Jennifer Jenkins,  
VP & Chief  
Sustainability  
Officer, Enviva

NC Clean Energy Plan

- Need map of Renewable Energy potential for NC (Solar, Wind, Methane, Geothermal, Biomass)
- Show up to date cost comparisons
- Show future cost trends RE going down (this is what fossil/fission plants must compete with.
- Show the cost of importing coal, petroleum products, natural gas, uranium based electricity (fossil and fissionable sources not found in NC
- Show up to date data and future trends for energy storage- pumped hydro (currently used for nuclear plants over production at night), stored heat, kinetic energy in the ocean or on mountains
- need graph of DC power for buildings for digital appliances (nearly everything in a modern office that uses a outlet transformer)
- NO Vision
- need all Renewable Energy by 2030
- 50% solar, 45% wind, 5% other
- promote efficiency
- encourage energy storage
- promote net zero energy building by 2030
- need policy for independent power producers
- encourage ethanol production from industrial sweet potatoes and imported grain
- resulting in distillate grains (a healthier feed)
- promote community Renewable Energy
- promote emergency back up Renewable power at emergency shelters (schools and government buildings)
- develop economic policy to encourage industry and manufacturing for Solar & Wind, Geothermal, Hydro.
- develop economic policy to encourage industry and manufacturing for Balance of systems: inverters/converters, controllers, Batteries, Battery Management Systems generators/motors
- Get ahead of the curve encouraging training, testing and repair

Dr. John Hannon Martin

Appalachian State University, Thomas Edison State University

1801 Highview St.

Burlington, NC 27215

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Dr. John Hannon  
Martin

<p>I am a life long North Carolinian. I am glad NC is addressing a Clean Energy Plan. Our current plan does not address the critical need to stop deforestation to support the wood pellet industry. This is bad for our environment, our health and our climate. Also it is vital to address methane emissions which affect our health and climate more than CO2. Lastly we need to stop supporting the climate destroying/ potential ground water destroying gas infrastructure and source as a viable fuel for the future. Please support the health and well being of our State and all North Carolinians. Thank you.</p>	<p>Dr. Pamela J. Culp, MD</p>
<p>The underlying issue with the outlined plan is that a massive shift to RE will take place. Although efforts to harden the grid are underway, current technologies to manage a large shift to volatile RE does not currently exist. Battery technology capable of stabilizing the grid in off-peak demands are also not economically feasible. All of this raises the need to explore options to maintain our largest existing source of clean energy, the five nuclear reactors currently operating. These facilities provide over 5000MW of capacity, At roughly 95% capacity factors. Far surpassing an RE or even NGCC plants. Given this, the snug of providing suitable credits acknowledging these plants as safe, reliable generation stations places their operators in a position to make business decisions in the future that could jeopardize their longevity. For example, refer to the effects of similar growth of RE in the North East, and the effects on their Nuclear operators. These plants being shutdown lower grid reliability, while increasing consumer costs. North Carolina should not follow in the footsteps, and should rather consider following the efforts of other states to recognize Nuclear power for what it is: safe, reliable, and most importantly a clean energy source for our future.</p>	<p>Dustin Martin</p>
<p>Near-zero marginal cost of generation - More should be said about the increasing penetration wind and solar which will bring about fundamental change in basic utility economics when the marginal cost of generation nears zero. Much of what we currently know about utility operations, and consumer behavior gets turned on its head.</p> <p>Natural Monopoly – I would have expected to see more discussion of the bounds of the natural monopoly of the electric utility. The development of low-capex generation, validates the move many states have made to disaggregate vertically integrated utilities and move generation to a competitive market. The concept of a natural monopoly still applies to the wires business, but I saw little discussion of this in the CEP</p> <p>Grid Edge Competition – The CEP highlights the development of demand flexibility and talks about technology (e.g. smart homes) along with the changing role of consumers and of the utilities, but there was little discussion of the emergence of firms providing energy related services. The analogy I would make is to apps in the smart phone market. There are smart phones, consumers and network operators, AND THEN there are a multitude of apps providers. I would expect to see the same sort of development in a 21st century energy market, with a slew of new players offering innovative energy related services.</p>	<p>Ecoplexus, John Morrison</p>
<p>The fifth "WHEREAS" in the Executive Order is demonstrably false, thus undermining the entire stated justification for North Carolina's Clean Energy Plan. There have not been "more frequent and intense hurricanes, flooding, extreme temperatures, droughts" so it is not possible that their "effects...have already impacted and will continue to impact North Carolina's economy".</p> <p>The sixth "WHEREAS" is true, but is not a new phenomenon and therefore is not the result of climate change.</p> <p>The local, regional, national and global effects of successful execution of the actions outlined would be statistically insignificant and unmeasurable, though their costs to North Carolina citizens/taxpayers would be both significant and measurable. The costs of this exercise in "virtue signaling" will definitely "impact North Carolina's economy".</p>	<p>Ed Reid</p>
<p>I am Eirik Holter, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolinas. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future:</p> <ul style="list-style-type: none"> <li>-Our Nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide ( as much as is released from 10 million passengers cars).</li> <li>-The fleet provided almost half of our Carolina's customers electricity ( more than 72 billion kilowatt-hours) and achieved a capacity factor of 93%, marking the 20th consecutive year a Nuclear capacity factor greater than 90%.</li> <li>-Our Nuclear group employed about 5000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>-Our Nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, school supplies, and Christmas gifts well as their time with community organizations</li> </ul>	<p>Eirik Holter (Duke Energy)</p>
<p>My main concern is the rapidly expanding NC wood pellet industry. We are cutting down our beautiful forests that are an important climate solution in that they absorb the CO2 that humans emit not to mention destroying important wildlife habitats. The plan does not count the enormous emissions from logging, processing and burning the wood pellets which is another big issue. And my other important concern is the plan does not address the methane And my other important concern is the plan does not address the methane which we all know is much, much more potent than CO2. It will be spewing from Duke Energy's fracked gas expansion or the emissions associated with it. And again, we it would be destroying very important and critical wildlife habitats.</p>	<p>Eli Celli</p>
<p>I would encourage the state to look into incentivizing clean energy storage for homeowners to install.</p> <p>Many of my neighbors in my HOA are purchasing noisy diesel or gas generators to ensure their whole home can be run by generator in case of power failure during a storm. It would be much better to encourage the transition to clean energy by incentivizing the purchase of back up batteries, such as installing powerwalls, or enabling vehicle to grid charging that could then help stabilize the grid. The alternative is for everyone to risk CO exposure and or additional pollution generated by the back up generators, and increasing costs of purchasing and maintaining that equipment at every home over the long term.</p>	<p>Elizabeth Adams</p>

<p>Not only is it important for North Carolina to progress in clean energy to lower greenhouse gas emissions, our state should also consider investing in carbon capture. This does not have to be through carbon removal technology (though the state should consider this method). Carbon capture can be achieved simply by planting trees and plants in a sustainable manner. If our state sets limits on deforestation, and sets aside land for planting trees, North Carolina could easily get ahead on regulating the carbon in our atmosphere. As a suggestion, NC parks could play a big role in planting trees to <u>capture carbon</u>.</p>	Elizabeth Fleming
<p>One of the greatest steps that can be taken in electrifying transportation in North Carolina is beginning the switch to electric school buses as soon as possible. This change will grant green transportation to NC students, and may also encourage parents and their kids to take greater notice of the need for carbon-free energy and transportation. The more North Carolinians are aware of the rate at which we must switch to clean energy, the faster <u>change will happen</u>.</p>	Elizabeth Fleming
<p>It is essential for our country and planet to meet carbon emission limits, and it is becoming increasingly clear that the current presidential administration will not implement a national clean energy plan to regulate and phase out carbon emissions. Change must happen by state if our country is to properly combat climate change. If this incredible plan is passed, North Carolina will become a leader in green energy, and hopefully other <u>states will follow in our footsteps</u>.</p>	Elizabeth Fleming
<p>I'm excited to see these ambitious and positive goals and I look forward to seeing them implemented. However, it would be wise to include measures <u>that meaningfully address methane emissions and the expansion of the wood pellet industry</u>.</p>	Elizabeth Houghton
<p>UNC's coal powered plant must be shut down. UNC must clean up their coal ash dump under the Chapel Hill Police station.</p>	Elizabeth O'Nan
<p>I write as a voter and taxpayer in North Carolina in support of this effort to move our state forward in addressing climate change, finite resources, water and air pollution by finding green, equitable solutions to our energy problems. The plan doesn't really go far enough in many ways, but it's a strong move forward and has my full support. Many thanks to the Governor and others for taking this bold step. Elizabeth Searles-Bohs Durham, NC</p>	Elizabeth Searles-Bohs
<p>This plan includes implementing electric cars, which have several advantages and disadvantages. While electric cars are a more climate-friendly alternative than gas cars, they have a long way to come before they will be as reliable and practical as gas cars. First of all, the way we gain electricity to power electric cars must be renewable. If this energy is not from renewable sources, there would be no use in switching to electric cars at all. Second, most electric cars do not have the battery capacity to travel long distances the way that gas cars can. The average distance an electric car can go on a single charge is 100 miles. The average gas car can go about 400 miles on 1 tank of gas. It is much harder to find a charging station for an electric car than a gas station. If we were to encourage the use of electric cars, there would need to be many more charging stations. In conclusion, electric cars have a long way to go before they will be as practical as gas cars, and some may think that these disadvantages outweigh the advantages.</p>	Ella Gragg
<p>The continuation of pipelines of fracked gas is likely to increase emissions of methane into the air worsening the atmosphere more than previously <u>believed. Do not support fracking and pipeline moving of gas via ACP or MVP.</u></p>	Emily Keel
<p>The encouragement of Enviva's wood pellet company tearing down any trees in our state is just deplorable. We must be planting and not destroying <u>trees and to ship them to Europe to burn just is an affront to all logic and reason. Do not permit this to continue</u></p>	Emily Keel
<p>North Carolina can achieve greater reductions in the power sector. We urge that the final Plan call for a firm 70% reduction from the power sector by 2030. The Plan should also reduce electric sector emissions to zero by 2050 rather than merely "working towards" that goal. We urge NCDEQ to develop a plan outlining how each retiring coal plant can be replaced by clean energy rather than natural gas plants. As it weighs the cost of proposed new generation facilities, the NC Utilities Commission should factor in a carbon price that it derives, not one supplied by regulated entities. The Clean Energy Plan should be implemented with a special focus on equity to ensure that all North Carolinians benefit from the transition to clean <u>energy</u>.</p>	Emily Reeve
<p>This is a pretty good plan however I do not see the urgency conveyed which is necessary for a just transition. The lack of mention of stopping gas expansion is concerning both from an emissions standpoint and an environmental justice standpoint. It is vital that no new gas plants are allowed and <u>that existing plants have plans for phase out</u>.</p>	Emmy Grace
<p>It is imperative that forests are protected. Forests harbor co2 emissions which will aid co2 reduction goals if not logged. The wood pellet industry is detrimental to achieving a just transition.  Methane emissions need to be addressed as well. I'm disappointed that it's not in the current proposal. Its potency is greatly concerning so efforts to curb methane emissions should be in the plan.</p>	Emmy Grace
<p>One item I would add to the plan is the benefit of maintaining operation of North Carolina's nuclear power plants as contributors to grid stability and carbon free emissions. I read the draft Clean Energy Plan and Executive Order 80. As a full-time worker in the State of North Carolina, I applaud actions to reduce emissions and protect the environment.  Several states have had high performing nuclear plants shut down for purely economic reasons. The very low cost of natural gas has made nuclear non-competitive in some cases. Solar, wind, and other green energies are only competitive due to subsidies they receive from tax payers. While natural gas has its place in the energy mix, the importance of nuclear power as a nearly carbon free, base load power source providing grid stability cannot be <u>ignored. Thank You. Eric Lampe</u></p>	Eric Lampe
<p>This is so important and needs everyone's attention. That's all.</p>	Evelyn Hemedinger

<p>I am Garrett Watts and I live in North Carolina. The following comments and opinions are my own and not that of any other company or organization.</p> <p>In the proposed NC Clean Energy Plan, I noticed that nuclear energy was not a major component of the plan and wanted to emphasize the importance that nuclear power plays in the green energy mix for the state. The nuclear plants in North Carolina have served as base load generation sites for decades while doing so reliably with no green house or CO2 emissions. I believe nuclear energy should be a major focal point in the green energy plan while solar and wind playing a minor role in the energy mix due to their variability. Please continue to utilize nuclear power in North Carolina so our grid can stay reliable and electric costs can continue to stay affordable.</p> <p>I also want to emphasize the importance of coal and natural gas and believe they should continue to be utilized in order to keep energy costs low while maintaining grid reliability.</p>	Garrett Watts
<p>This is a very good document. If implemented it will greatly help NC move to a low carbon future.</p> <p>However, I do not see where it addresses the need to reduce methane and other GHG emissions. For example, there are very significant methane leaks at well heads, in pipelines and power plants. Since methane is a 25 to 80 times stronger GHG than CO2, methane emissions must be controlled to control climate change.</p> <p>Duke Energy is planning to expand its use of fracked gas. The document needs to call for ending that expansion. If it continues, we will find it difficult to meet real GHG reductions when methane is included in the calculations.</p>	Gary Keith Smith
<p>The plan should include a timeline for NC to become carbon neutral by 2050 as requested by the IPCC</p>	Gary Keith Smith
<p>Section C-1 calls for "increased customer access to their usage data and sources of energy." This is a terrific goal. At the moment, when a customer installs solar on their home or business, Duke Energy REMOVES all electronic "customer access to their usage data and sources of energy." This greatly <u>de-incentivises customer interest in solar. This must change.</u></p>	Gary Keith Smith
<p>I love the proposal in G-3. "Expand energy efficiency and renewable energy programs specifically targeted at underserved markets and low-income communities" including "The NC Weatherization Assistance Program (NC WAP) in partnership with multiple NC utilities is developing a limited community solar pilot for low income households. As discussed in the previous section, community solar allows customers that cannot install solar on their property to benefit from solar energy. Low income households have historically had little or no direct access to solar in NC. This new community solar pilot will give low income households an option to use solar energy to further reduce energy burdens for 15 years or more in addition to having their homes weatherized." These communities must not be left behind as we move to a carbon free future.</p>	Gary Keith Smith
<p>The document says very little about 3rd party providers of electricity. This competitive environment could bring rapid, broader access to clean energy to NC residents</p>	Gary Keith Smith
<p>I believe that the state should look into investing or researching more the possibility of increasing power generation through nuclear means.</p> <p>Nuclear power has provided North Carolina with clean, safe reliable power for over 30 years providing over 50% of all power used. We should be thankful for its presence for having such a clean environment and should push further into investing into a nuclear energy future in the state along with other renewable energy sources.</p>	GASTON E PINTOS
<p>Thank you for this plan that provides much needed guidance for our future with our planet's atmosphere.</p> <p>Earth's biosphere is also directly threatened by human activity, and I would like to include 2 suggestions for addressing this related and even more dire situation.</p> <p>Wood pellet manufacturing must be regulated to restrict harvesting except in cases where the wood is cut already, in other words clean-up wood from forestry operations. Wood pellets destroy forests, and we need to preserve forests (see the World Scientists Warnings to Humanity; many other references can be provided). Wood pellets are also a greenhouse gas issue/clean energy, and fit squarely within this plan. The issue should be addressed or the plan is incomplete.</p> <p>Second, for inclusion in the plan or for consideration for further action: We must set aside a substantial portion of land and water for preservation of native ecosystems. Top ecologists, for example E.O. Wilson and James Watson of Australia, have calculated with robust methods that about half of Earth's surface needs to remain in native ecosystems in order to stave off environmental collapse. In North Carolina, this goal can be approached by a strengthened water resources effort combined with conservation of special ecosystems; hunting, foraging, and trapping lands, which were recently promoted by a constitutional amendment and need much added support to fulfill the promise of the amendment; and reform of land taxes to encourage private land banking as ecological preserves without the need to harvest wood at intervals, and with easier transition in terms of harmonization of requirements from PUV forestry to the wildlife conservation land tax program.</p> <p>Thanks for your work to preserve North Carolina.</p> <p>Longleaf Pine Blessings,</p> <p>George Pauly, ggpauly@gmail.com, rockspringbranch.org</p>	George Pauly

While I am happy to see the start of a comprehensive plan to get NC to 100% renewable energy this plan fails to address methane emissions and only counting carbon dioxide. We need to end fracked gas as a source of energy as it spews an alarming amount of methane into the atmosphere. Not to mention the dangers of fracking itself.	Georgette Sordellini
The ACP and all pipelines needs to be taken into account when comparing costs between gas and solar	Georgette Sordellini
There needs to be more specifics on how electricity will be more affordable for low income customers, what does this look like? How is low income defined here?  Historically marginalized people have been left out of the conversations around decisions of where facilities are located, usually lower income folks have this burden. There needs to be an extremely clear path to how these folks can be involved.	Georgette Sordellini
The draft doesn't adequately address fracked gas infrastructure like the Atlantic Coast Pipeline, the Mountain Valley Pipeline, and the proposed LNG storage plant in Robeson County. All of these things contribute to climate change; none of them should be built. Methane extraction and emissions from the energy section are the most dangerous drivers of warming. Fortunately, they are also some of the most easily addressed: DON'T CONTINUE BUILDING THEM. This plan needs to prioritize strong action to stop methane leaks into the atmosphere.	Greg Yost
Clean renewable energy is not just wind and solar, but only these two sources are the only two expanded upon in the CEP.	Gus Simmons, P.E.
3. There is insufficient reference to Renewable Natural Gas (RNG) in the plan – How can you have a Clean Energy Plan that does not mention RNG? SEE BELOW FOR FULL COMMENTS OF ITEM #3 4. Of great concern regarding the recommendations in the CEP is that it mentions revising the Renewable Energy Portfolio Standard (REPS) set-asides created in 2007. SEE BELOW FOR FULL COMMENTS OF ITEM #4  What does this have to do with customer access to clean energy? Everything. Many of the farmers have a vast supply of organic waste, but are in rural, underdeveloped areas, which are economically depressed, without access to clean energy, and are often far from interconnection points. They have wastes to make biogas, however in order to reach a connection, much infrastructure is required, and they do not have the means to afford it. Accessibility to clean energy should be for all people.	Gus Simmons, P.E.



After review of the Clean Energy Plan, I would like to offer the following comments, which I believe are critical to the NC State Energy Plan. While the Clean Energy Plan (CEP) draft is thorough in some areas, a more comprehensive approach would be to include references to renewable energy, with specific sections or portions of the plan addressing the potential and the role of biomass, biogas, and renewable natural gas in our state's energy future. I will address each point individually, but do not think that a Clean Energy Plan in our state can be complete, much less exhaustive, without mentioning the current Renewable Energy Portfolio Standard, describing the importance of the agricultural sector to future energy generation (explained in more detail in my subsequent comments), and the state's potential to produce its own energy through and from its vast agricultural resources. Without inclusion of these factors, the CEP would be narrowly focused on solar and wind electricity generation. North Carolina is recognized nationally as having the 3rd richest biogas resources in the Country; a relative ranking that we do not receive for any other energy resource, comparatively. Yet, North Carolina continues to overlook the value of this resource (through exclusion from plans such as the CEP) and the incredible potential for our state's economy from capitalizing on the technological advancement and beneficial use in the marketplace of this clean energy resource. Prior to giving my suggested edits, I am providing background information based on facts and reports submitted by government, all of which affect the North Carolina Clean Energy Plan. The reports described below, all preceding the CEP, more thoroughly describe the potential of our state's bioenergy resources to provide long term reductions in greenhouse gas emissions, to reduce fossil fuel usage and reliance on this imported fuel resource, increase our energy independence, and bolster climate change resilience.

1. Previous reports mentioning the importance of biogas and biomass are:

In August of 2013, the National Renewable Energy Laboratory (NREL), a national laboratory of the US Department of Energy, did a complete analysis of each state, projecting the biogas potential from organic waste, which included wastewater treatment plants, landfills, animal manures and food waste. (<https://www.nrel.gov/docs/fy140sti/60178.pdf>) North Carolina was determined to have the third richest biogas resources of all states in the U.S., only after California and Texas. The greatest source of potential biogas was from agriculture, specifically animal manures, with some wastes from wastewater treatment plants, landfill gas, and other organics.

Subsequent to that report the EPA, Department of Energy and US Department of Agriculture concluded the Biogas Opportunities Roadmap [http://www.usda.gov/oce/reports/energy/Biogas\\_Opportunities\\_Roadmap\\_8-1-14.pdf](http://www.usda.gov/oce/reports/energy/Biogas_Opportunities_Roadmap_8-1-14.pdf) in 2014, subtitled "Voluntary Actions to Reduce Methane Emissions and Increase Energy Independence." The report confirmed that "biogas systems have the potential to capture methane that would escape into the atmosphere and utilize it to create energy (e.g. electricity, heat, vehicle fuel.)"

Noted benefits of Biogas systems are "that they provide economics, energy, and environmental benefits for farms, businesses and communities...they enable the capture of use of methane while also addressing waste management and nutrient recovery needs." In other words, the report provided data and facts on how organic feedstocks in each state could be used in biogas systems to generate renewable energy, simultaneously advancing the manner in which organic wastes are managed. Stimulating advancements in the ways in which North Carolina manages its organic residues and wastes has long been a goal of our State, and coupling an energy offtake with other materials recovery efforts provides the stimulus needed to make this happen. In this regard, North Carolina should take steps to promote the advancement of bioenergy and biogas systems so that advanced organics management becomes more economically attractive, rather than ignore the potential by excluding from the CEP.

In a similar manner, the North Carolina Biomass Roadmap ([http://www.cleanenergy.org/wp-content/uploads/NC\\_Biomass\\_Roadmap.pdf](http://www.cleanenergy.org/wp-content/uploads/NC_Biomass_Roadmap.pdf)) assessed the energy opportunity for North Carolina stemming from biomass resources, defined as "any organic matter that is available on a renewable or recurring basis, including agricultural crops and trees, wood and wood wastes and residues, plants (including aquatic plants), grasses, residues, fibers,

The CEP also does not mention the biomass and bioenergy projects that are operating or under development in our State to explain the progress accomplished to date. I am concerned that highlighting the progress accomplished relative to other renewable energy sources, such as solar and wind, without describing the other resources such as bioenergy, results in an incomplete and inadequate view of North Carolina's energy resources.

Additional comments offered to aid in the construct of a final plan.

It is understood that prior to publishing a final CEP, there will be an intensive quality review of the document. However, in an effort to support this activity, I offer the following constructive comments:

Pg 10: Extra space before N.C., third paragraph

Pg 12: innovative technologies ADD: such as biogas and biomass

Pg 17: Clean energy – include biomass and biogas

C-1 Provide access to rural areas so that agricultural communities have the ability to connect to the grid

Pg 19: innovative renewable energy technology solutions such as biogas and biomass

Pg 19: newbusiness (add space) createsworkforce (add space) Justly transition (add space)

Catalyzes – ADD: decreases reliance on fossil fuels

Decision makers should use these strategies

Page 22: Goals accelerate ADD: and incentivize

Agriculture sector also has GHG reduction goals

Pg 23: conduct a comprehensive study ADD: such as wind energy, biomass, biogas

Pg 26: Eliminate this whole D-5 section, "with zero emitting resource targets without carve-outs for specific resources," this is not for the Clean Energy Plan to decide, this policy is already enacted, and projects have moved forward which is increasing economics for farmers, solving waste management problems, and generating renewable energy.

F-2: Off-shore wind projects have not been approved, and it does not seem appropriate for the Clean Energy Plan to decide.

Pg 29: L-2 Cost Benefit Analysis - Why just electrification, why not add CNG and RNG?

Pg 33: Since 2017 the goals for biomass have changed – insert biogas projects Charts seem already outdated check renewable projects

(The report is very focused on solar energy, does not focus on what is happening in renewable energy, or the progress that is taking place. See projects mentioned in comments.

Gus Simmons, P.E.

Pg 37: Generate alternative energy techniques such as utility scale solar, wind ADD: biogas and biomass

Pg 38: The graph speaks to only solar and wind, what about hydro and bioenergy? Duke University did a study on this for agricultural wastes.

Pg 44: CNG should be mentioned, Microgrid graph is too small to read

Pg 48: Example – include role of RNG in reducing carbon emissions – Waste Management running on RNG (largest natural gas fleet in country), UPS – whole fleet is moving toward alternative fuel

Pg 49: What about renewable energy generated from NC farms? Several projects underway, or accomplished. The agricultural industry (Smithfield

Pg 49: What about renewable energy generated from NC farms? Several projects underway, or accomplished. The agricultural industry (Smithfield Renewables) in our state, has recently set standards for Renewable Energy generation from NC reducing carbon emissions 25% by 2025, and will accomplish this by covering hog lagoons with anaerobic digesters.

Pg 50: Ag waste to energy projects. Mention exporting RNG. Also exported biomass such as wood pellets which are being exported from NC to other countries.

Pg 51: Economic impact of clean energy development in NC was listed in the American Jobs Project which pointed out bioenergy as follows:

#### Biogas Technology

**Create a North Carolina Biogas Public-Private Partnership:** Create a targeted biogas public-private partnership with the NC Bioenergy Council and the Economic Development Partnership of North Carolina to cultivate strong leadership, educate policymakers, foster strategic public-private relationships, and identify opportunities for expansion. This partnership could recruit foreign direct

investment, streamline project development, educate farmers, and create an aggregate purchasing agreement with equipment manufacturers to foster industry growth.

**Exempt Biogas Projects from Property Tax:** Provide property tax exemptions for property owners installing new biogas or waste-to-energy equipment, which could provide 15 to 20 years of abatements, giving farmers and developers the certainty they need to invest.

**Establish a Loan Program for Biogas Projects:** Create a streamlined loan program for biogas projects by issuing low-rate bonds using a guarantee under the Clean Water State Revolving Fund. The North Carolina Department of Environmental Quality could use the revenue from the bonds to establish a loan program for the biogas industry.

**Enable the Use of Performance Contracts for Biogas Fleet Vehicles:** Enable municipal governments to improve energy security, decrease fuel costs, and stimulate demand for locally sourced fuels by using biogas fleet vehicles. To streamline the retooling process, the legislature could expand energy service contracts to include public fleets.

**Create a Carbon Offset Market Aggregator:** Create carbon offset aggregators to reduce single payer cost burdens by pooling offsets from multiple projects. A private company could establish a public-private partnership with the North Carolina Cooperative Extension or the Natural Resources Conservation

#### Innovation Ecosystem and Access to Capital

**Enable and Promote Equity Crowdfunding:** Attract private funding for new in-state companies by creating a securities exemption for equity crowdfunding and an online portal for businesses and investors.

**Create Tax Incentives for Investment in Startups:** Reduce or eliminate capital gains taxes for investments in targeted early-stage companies, such as utility-scale battery and biogas companies.

<p>Seems odd to state many states are surpassing NC with REPS, each state has different goals, perhaps add a “for example”</p> <p>This may be a good place to add agricultural impacts of projects already generating energy. “Changing Landscape.”</p> <p>Pg. 57: Priority recommendations ADD: Process to interconnect with utilities should not be cumbersome, and efforts should be made to help support underutilized rural areas and connect them to the grid.</p> <p>Pg 78 4.2 cannot see bottom line of green rectangle</p> <p>D-1 Revisions? In one area you mentioned that HB589 was successful in generating renewable energy, this is a contradiction.</p> <p>D-4 Require Net-metering -Require Utilities to offer net metering greater access to community solar, as well as other types of renewable energy.</p> <p>D-5 Strongly oppose the wording here, by omitting the carve outs for specific resources, you discourage bioenergy innovation.</p> <p>ADD: F – 3 Require gas and electric utilities to establish an obligation or willingness for interconnections which would support greater access to rural and underutilized service areas, so customers such as farmers could utilize some of their on-farm assets. Establish ways to make pipeline interconnections easier and less time consuming.</p> <p>Pg 85: Net metering not just for solar but any renewable energy interconnection</p> <p>Pg 86: ADD: Create more incentives for renewable energy deployment in all sectors.</p> <p>Pg. 92: ADD: biogas and biomass</p> <p>Page 93: Different size print in chart</p> <p>Page 102: ‘People of color’ should be reworded to say diverse populations, or people of diversified backgrounds, which include traditionally impoverished or underserved rural areas</p> <p>Page 107: 1-1 Set decarbonization goals in policy, this is something that can be worked toward, but utilities would need to cooperate and this should include pipeline gas and electricity</p> <p>Pg. 110: Cost scenarios and modeling need to be further developed to ensure they are accurate. Again, renewable energy should include all types, not just solar and wind.</p>	
<p>Let nuclear be considered clean and reliable and supported like other clean energy</p>	<p>Gustavo torres</p>
<p>I fully support the comments made by Gus Preschle in the Winston Salem newspaper about two deficiencies in the current draft plan; the draft plan doesn't adequately address control of methane and wood pellets. Here is the text from his letter to the editor:</p> <p>Governor’s incomplete plan</p> <p>Your Aug. 27 editorial “N.C. wisely invests in renewable energy” rightly applauds Gov. Roy Cooper’s plan to increase electricity produced from renewable energy. It is bold, and it puts North Carolina in a leadership position. It deserves our support, but only after it is complete.</p> <p>There are two serious shortcomings in the draft: It neglects to decisively deal with methane emissions; the main focus is on carbon dioxide. Harmful methane is leaking at climate-damaging rates from fracking operations, from the wells to the power plants. Power companies are heavily investing our money in gas infrastructure. If Duke Energy builds new gas plants, pipelines and storage facilities, North Carolina may appear to have met its carbon dioxide goals, but it may be game over for the climate. Also, according to Forbes, gas plants built now will be “junk assets” as renewable energy and storage prices continue to drop. We will foot the multi-billion dollar bill for this avoidable waste.</p> <p>The plan also fails to address clear-cutting of our forests to produce wood pellets, which are being burned in Europe. Healthy forests are important because they absorb the CO2 that humans pump into the atmosphere. Cooper continues to support gas infrastructure like the Atlantic Coast Pipeline and the wood pellet industry.</p> <p>Call on the Department of Environmental Quality and the governor to attack the climate crisis head on. We cannot afford the human suffering and economic waste associated with increasing temperatures, rising seas, tragic storms and raging wildfires.</p> <p>Gus Preschle</p>	<p>Harvey Richmond</p>
<p>I urge the DEQ to include as an option to be considered to have all new homes be required to have demand side management control on their AC system which is only used for brief periods on peak hot days in the summer. I lived for 25 years in Cary and rarely heard about the option of having this feature on my central AC in return for a small rebate on my power bill. When I moved to Apex last year to a new home I found out that every new home in Apex has this installed. When I checked with neighbors in my new neighborhood, only 1 person out of about 10 that I asked had any idea that their systems included this feature. If we all participated, we could significantly reduce the peak load and this would save consumers money and reduce the need for costly gas peaking plants.</p>	<p>Harvey Richmond</p>
<p>Nuclear generation is clean energy and NC has 5 nuclear reactors generating clean, carbon free energy, and this isn’t reflected proportionally in the Clean Energy Plan. The clean energy plan should identify tax incentives for nuclear generation as is offered to renewables, especially given nuclear is carbon free.</p>	<p>Heather Szeus</p>

<p>Section 2.3 of the detail draft points out, "Local governments are motivated to reduce their carbon emissions because they see how infrastructure is suffering from being repeatedly battered and flooded during hurricanes. They see how poor air and water quality is triggering health conditions." One of the best ways to help simultaneously reduce carbon emissions and increase carbon sequestration is to keep forests standing and eliminate logging for biomass in North Carolina. The CEP also states that 20% of the consensus concern focuses on the environment and carbon reduction. By all means, make it clear in the plan that: 1) industrial biomass is not considered a form of clean, renewable energy, and is neither economically viable nor environmentally just; and 2) forest protection will be given priority over future innovative clean energy technology, as forests have the inherent ability to absorb and store carbon, reduce flooding, and provide clean air, water, habitat for wildlife and recreation for communities. Furthermore, the CEP needs to address the emissions from logging, which is expanding due to the wood pellet industry in North Carolina, and make a plan to simultaneously reduce logging and create incentives for keeping private forests intact.</p>	<p>Holly Paar</p>
<p>This report portrays serious denial by DEQ, and the authors for this draft report, about the impact of rapidly increasing use of gas produced through hydraulic fracturing on our greenhouse gas emissions. As methane is at least 86 times as powerful a greenhouse gas as carbon dioxide, the failure to more than mention (once, on page 114) rapid infrastructure and power plant construction, associated with significant methane emissions as a major contributor to climate change. I am aware of many organizations and individuals who commented at listening and stakeholder sessions about this fact, yet, there is a complete absence of any policy proposal to avoid unnecessary infrastructure and investment that will cancel out much of the progress that CO2 emissions reductions will achieve.</p> <p>The Atlantic Coast Pipeline has been a waste of investment that could have been used for efficiency and renewable investments, accompanied by landowner disruption, environmental damage and false promises of economic development and jobs, when it's clear that Duke and Dominion economic interests on behalf of their shareholders were the principle reason to invest the capital to provide a high rate of return at ratepayer expense for construction of this pipeline.</p> <p>This summer, a study of projected methane emissions if the ACP were in operation, based on routine operations, upstream emissions from extraction operations, a statistically defensible accident rate, based on Pipeline and Hazardous Substances Administration data, as well as downstream emissions, has estimated a substantial increase in methane emissions and possibly an increase of over 13% increase in EPA estimated climate forcing contributions by natural gas systems in the US. (Report available on request from Hope Taylor, Clean Water for North Carolina, hop@cwfn.org.</p>	<p>Hope Taylor</p>
<p>Methane is a potent greenhouse gas that is not adequately addressed in this plan. If our goal is to prevent a climate crisis rather than to just pretend we are accomplishing something, we must stop the release of methane. We must also take advantage of our forests for carbon storage. Stop clear cutting our forests to fuel Europe.</p>	<p>Irene Rusnak</p>
<p>I am J. Levi and the opinions I offer are my own. I live in North Carolina and most importantly I am a proponent for the value of safe, efficient, clean, carbon free nuclear energy in the Carolinas.</p> <p>Here are some reasons why Duke Energy's nuclear energy is part of the solution to a clean energy future:</p> <p>Duke Energy's nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</p> <p>Duke Energy's fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</p> <p>Duke Energy's nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</p> <p>Duke Energy's nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</p> <p>Thank you</p>	<p>J. Levi</p>
<p>I am pleased to see NC developing a clean energy plan. With the realities of climate change, reducing greenhouse gas generation is a challenge that must be met with conviction. In perusing the clean energy plan draft, I was struck by the difference in discussion between renewable sources (e.g. solar and wind) and that of nuclear energy. Both sources offer carbon-emission free electricity, and nuclear offers it dependably and whenever needed. From a grid resiliency and flexibility perspective, nuclear energy offers the dependable baseload generation that the other clear sources cannot match. It is my opinion that nuclear energy should be recognized as a key technology in a clean, robust, dependable, energy portfolio for the state.</p> <p>The nuclear fleet in NC remains the largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</p> <p>Nuclear provides almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</p> <p>Nuclear energy means good, high paying jobs. Nuclear employs about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year. Many nuclear energy jobs are some of the best one can find in the state without a college degree.</p> <p>It is vital that the North Carolina Clean Energy Plan include nuclear as it is the cornerstone of clean energy in the Carolinas. Look at the state of Washington's clean energy plan as an example.</p> <p>Thank you, Jack Lemmer</p>	<p>Jack Lemmer</p>

<p>In this public document I agree with multiple things, but also have disagreements. I do believe we need to find better ways to reduce energy usage. Electric cars sounds great, however there are some flaws. Electric cars must be charged and regularly checked. You must charge your car batteries through a source of energy. Our electricity is from coal and other non-renewable resources, therefore the electricity we put in our car, is actually not much better. If the public was to have electric vehicles, we would have to install public energy sources in parking lots. I believe our first priority needs to be finding new ways to promote renewable energy in homes and in local areas on a micro grid. Then we can focus on transportation and vehicles. Once our power sources are from renewable resources, everything we need to power will also be electrified and energy efficient.</p>	<p>Jackson Crump</p>
<p>Why doesn't NC lead the nation in producing and working with a combination of solar panels on houses along with solar paint &amp; glass and not clutter our farming fields with panels. Wind power could be produced and concentrated in specified, less desirable areas around the State. This is obviously the industry of the near future; NC should gladly put forth the effort to do the production here. Let's get goin'!</p>	<p>James &amp; Leslea (2) Kunz</p>
<p>I would like to urge DEQ to change the Clean Energy Plan to not support fracking for gas or wood pellets for biofuels. Fracked gas is not clean energy! It leaks methane at a high level--a very potent climate warming gas--and it pollutes ground water and creates toxic sites. Wood pellet production is very destructive to our North Carolina forests and has been shown to exacerbate greenhouse gases and, when burned, to lead to local air pollution/health problems. These two energy sources are NOT CLEAN and should not be included in a Clean Energy Plan. To include these in a Clean Energy Plan is cynical and a PR stunt whereas we desperately need real change! Thanks for accepting this comment. JC Garbutt Pittsboro, NC</p>	<p>James Garbutt</p>
<p>This Plan does not adequately address the problem of greenhouse gas increases through release of methane and the burning of wood pellets. This Plan accounts only for release of CO2 in fracked gas and does not consider the significant negative effects of release of methane! This Plan needs to cease expansion of gas fracturing operations with a goal of total cessation in very near future. This Plan does not account for the scientific fact that wood pellet burning for energy is more air polluting than burning of fossil fuels. Allowing expansion of forest clear-cutting and selective forest cutting for the wood pellet industry (Enviva is the main industry operating in North Carolina and the Southeast) must be stopped immediately. Not only is this industry eliminating thousands of acres of carbon absorbing forests here in our own state, this "false green environmental resource" is being transported out of North Carolina to serve the air polluting energy producing operations of Great Britain, Europe and beyond. An immediate Wood Pellet Production Moratorium should be included in this Plan. The positive alternative for North Carolina is more rapid development of alternative energy sources such as solar and wind facilities, which also will provide more jobs for our citizens than does the current "old way" of energy production.</p>	<p>James Moore (UNC-CH)</p>
<p>I am James Sparano, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean carbon free Nuclear Energy in the Carolinas. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future. Our nuclear fleet is our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars). The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%. Our Nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year. Our nuclear teammates support communities where they work and live through donations, including clothing, personal care items, bikes, toys, school supplies, as well as their time with community organizations.</p>	<p>James P Sparano</p>
<p>Read the plan and have a suggestion, study results of similar plans in Germany and Australia. It fails to recognize that agribusiness and tourism are the <u>two largest businesses sectors in this state and there is a renewable portfolio standard that is totally ignored.</u></p>	<p>James Patterson</p>
<p>Nuclear power needs to be a part of the future of any energy plan, especially for a clean energy plan.</p>	<p>James Reed</p>
<p>Please support and strengthen all clean energy initiatives that decrease our reliance on fossil fuels. Please also severely limit, or eliminate, environmentally harmful fracking and wood pellet industries in NC and create measures that address or harness methane releasing activities. Thank you.</p>	<p>James Robert DeGrave</p>
<p>WHY SHOULD NC AND THE US BE SO FAR BEHIND CHINA WITH ITS RAPID PLAN FOR RENEWAL ENERGIES.</p>	<p>James S Teague</p>
<p>A truly clean energy plan would address the devastating impacts of the wood pellet industry, as well as methane emissions. These must be addressed in order to help NC actually stop contributing to a worsening climate.</p>	<p>Jamie Hancock</p>

<p>Methane is far worse than CO2, yet your plan does not call for a complete end to fracking, gas pipelines, etc -- all of which leak methane. I urge you to strengthen this plan by not relying on this particular energy source which directly and dangerously contributes to our climate crisis. We should not be investing in gas infrastructure. We have but 10 years, and this plan needs to reflect that.</p> <p>Further, the cutting of our forests in order to manufacture pellets for what is falsely being touted as renewable energy is not a clean energy-- AND we need those trees to absorb our carbon. This too should be eliminated in NC.</p> <p>Taking an aggressive approach to the climate crisis is not only the right and only just solution, but it will pay back dividends in jobs, innovation, pride and healthy communities. Be BOLD. LEAD.</p> <p>Thank you. Janet Loew</p>	<p>Janet Loew</p>
<p>I am Jason Lanier and I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolinas. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> <li>•Much of the cost of solar energy goes equipment that is made from content sourced from foreign countries. Nuclear energy helps keep our customers dollars spent locally.</li> </ul> <p>My opinion is my own and not that of Duke Energy.</p>	<p>Jason Lanier</p>
<p>I work for Duke Energy and I live in North Carolina with many of my extended family members. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in our state. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>- Our Nuclear fleet remained our largest source of carbon free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than a 10 million passenger cars).</li> <li>- The fleet provided almost half of our Carolinas' customers electricity, and achieved a capacity factor of 93%, marking the 20th consecutive year with a Nuclear capacity factor greater than 90%.</li> <li>- Our Nuclear group employed 5000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>- Our teammates supported communities where they work and live through donations, including coats, backpacks, personal care items, bikes, as well as their time with community organizations.</li> </ul>	<p>Jean Yount</p>
<p>Public Comments NC Clean Energy Plan September 9, 2019</p> <p>North Carolina has taken a leadership role in climate protection by proposing key policy changes in its Clean Energy Plan. Taking critical policy steps towards achieving long-term climate goals by reducing carbon emissions, investing in energy efficient state building codes, renewable energy programs and solar incentives, an updated electric grid and storage capacity, and making energy costs affordable for low-income residents is forward thinking. A shift to renewable energy resources in wind and solar energy development will bring better jobs, and a cleaner, healthier and sustainable environment for us all.</p> <p>To strengthen the Clean Energy Plan, two areas not addressed should be included: the clear cutting of our forestland to meet the woody biomass energy demand in foreign markets, and the harmful emission of methane from fracked gas processed and transported via pipeline infrastructure. I recommend an in-depth methane analysis of fracked gas be conducted for its entire life cycle: emissions released from drilling and processing operations and during transmission to end-use. Although released in smaller volumes and shorter-lived than carbon dioxide, methane gas is many times more potent as a greenhouse gas contributing to climate change. This is particularly important with the rollback of the methane capture standards for new oil and natural gas drilling operations and infrastructure.</p> <p>We face an uncertain future if GHG emissions continue at the current rate or begin to accelerate even more. There can be no denial that bold climate crisis action is urgently needed. To build real climate resilience we cannot afford to be complacent. Successful climate planning involves the will and a strong commitment to make the right regulatory changes for our future needs happen now.</p> <p>Thank you for addressing climate change and offering the opportunity to submit public comments on the NC Clean Energy Plan.</p>	<p>Jeannie Ambrose</p>
<p>Hey, nuclear is over 30% of NC's energy generation and over 70% of the total generated by clean energy sources.</p>	<p>Jeff abbott</p>

Please consider reducing or completely halting fracking activities to reduce methane emissions into the atmosphere.	Jenna K Waggoner
Please: Need to regulate Methane, the super-heater of environment, from multiple sources including reliance on "fracking" gas. Do not support timbering for wood pellets, as burning wood is not an environmentally wise choice. Regulate the private fo- profit Duke Energy as their monopoly status gives them too much control over our economic and clean energy future.	Jennifer E. Miller
The state clean energy plan leaves out the impacts of the proposed Atlantic Coast Pipeline. This proposed project would cost customers increased rates and great negative health impacts. We need a plan that stops the ACP from coming through NC.	Jennifer Eison
Please consider the climate crisis when reviewing this plan. As is, the plan fails to address methane emissions, doesn't address Duke Energy's massive expansion into fracked gas infrastructure, and does not stop Enviva's forest and climate destroying wood pellet operation. We are on the brink of climate chaos- please revise the clean energy plan to confront this emergency at the scale it demands!	Jillian Hanson
Gas is an economic disaster. Renewables create more jobs than gas and , according to Forbes, gas plants built now will be "junk assets" as renewable and storage prices drop.	Jillian Riley
The plan would not stop the ongoing clear-cutting of North Carolina forests to produce wood pellets to be burned in Europe, despite the fact that intact forests are an important climate solution, helping to absorb the CO2 that humans emit.	Jillian Riley
With a stated desire to address climate change and emission concerns, the policy should consider current solutions for carbon sequestration that could offset emissions while efforts to curb emissions are put into action. The ability to effect change is immediate and funds could be wisely allocated to act as a "first step" that can happen tomorrow. I would encourage your team to review carbon sequestration methods that involve compost (and the data supporting a simple and clean application that provides more benefits than simply reversing climate change (although that's a pretty good one!) Thank you. Admittedly, Atlas Organics would be pleased to help!!	Jim Davis
As a state with so much Clean Energy already being generated by Nuclear Power I was surprised to see that there was no mention of these benefits as part of the draft plan. Nuclear power should be the foundation for any Clean Energy Plan in North Carolina!	Jim Racioppo
<p>Nuclear must be a cornerstone of carbon reduction policy according to the MIT study on carbon reduction. The MIT study concluded that not only can we not close current nuclear but we must find a way to build new nuclear to halt global warming through carbon reduction. The current fleet of nuclear in the Carolinas has provided exceptional benefits already as outlined below.</p> <p>The Carolinas nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</p> <p>The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</p> <p>The nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</p> <p>Nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</p> <p>Please ensure Nuclear remains a focus for the Carolinas Clean Energy plan. Here are some articles to increase your understanding of the benefits of Nuclear.</p> <p><a href="https://www.scottmadden.com/insight/spinning-our-wheels/">https://www.scottmadden.com/insight/spinning-our-wheels/</a></p> <p><a href="https://www.forbes.com/sites/michaelshellenberger/2019/03/11/it-sounds-crazy-but-fukushima-chernobyl-and-three-mile-island-show-why-nuclear-">https://www.forbes.com/sites/michaelshellenberger/2019/03/11/it-sounds-crazy-but-fukushima-chernobyl-and-three-mile-island-show-why-nuclear-</a></p>	John Capps
<p>Hello. The draft copy of the NC Clean Energy Plan reads like a College level Senior project. 'Require Utilities to do this'; 'Engage Companies to come up with new plans'; 'Force Legislature to come up with this'.....I am a Duke Employee, and I can tell you that this Utility is well aware of the needs of what lies ahead. we are in tuned with how Electricity is made, distributed and used. In your draft report, you barely mention Nuclear as part of your study. You assume that the solution is going to depend on Legislation that doesn't exist yet, and you are relying on the general public NOT concerned about anything but Low Carbon and renewable resources. When it comes down to it, it is COST. Plain and simple. How much is it going to cost the general public and if it is 'free' or cheap, who is going to pay for it. What you don't factor into your report, is the upfront costs, which is always going to be the item that continues to push back on the delivery of these 'new ideas'. How much is it going to cost us NOW? Do we go broke or increase the cost of living of every citizen in leaps and bounds solely to promise a better more economical future.</p> <p>You want to talk low carbon and modernization of the grid and increased efficiency, then you have to consider Nuclear as the lowest carbon footprint, and new Nuclear technologies being developed throughout the country to make more efficient and cheaper nuclear plants. You want to build Turbines out in the Atlantic off of the North Carolina and Virginia coast, then you have got to consider the effect of Hurricanes, which are increasing in ferocity every year. I did not see anything in your report on the effects of Global Warming. You completely ignored its effect. You want to add Solar to each person's home, then someone has to pay for the new technology, and your HB 589, or other 'rebate' type bills have to consider that the money has to come from somewhere. You cant just give a Home owner some rebate money to stem off the Millions/Billions of \$\$ to develop the research. The investors in the new technologies are looking for a Return on Investment. Where is that coming from. They wont wait 10-20 years for that ROI. Who is going to pay for it the government?...Which means it gets fed back to the citizens in some other form. So eventually they pay for it anyway.</p> <p>No, I am sorry. This was a Senior project, which got ahead of itself and your report has all this high level techno-jargon, that the everyday citizen will not understand except for the bottom line: What is it going to cost me? You offer studies and data based on government subsidies that no longer exist or are going to go away. Nuclear &amp; Solar &amp; Efficiency is the future for more Power, better distribution and low-carbon footprint.</p>	John Cavallaro



<p>My wife and I have recently installed a full house solar system. In general, we produce excess electricity each day which is transferred to the Duke Energy grid. I am considering the purchase of a Ford F-150 EV once it becomes available. A full sized pickup is essential for my work as an environmental scientist. We believe Gov. Cooper's EV plan will be significantly enhanced by linking EV usage with the electric grid through use of Vehicle to Grid (V2G) chargers. In other words, the plan should require the local electric utility to facilitate the rapid incorporation of V2G chargers into their system. This will help in several ways, including 1) reducing the need for electric peaking facilities, such as gas powered peaking facilities, which produce greenhouse gasses, 2) reducing the need for significant additional utility battery storage, since EVs connected to V2G chargers act as standby electricity sources for utilities, 3) adding incentives for families to invest in EVs by having their electric utility pay them for use of some of their stored electricity during electric peak use times, and 4) providing North Carolina families a way to keep their houses running on electricity during blackout periods without the need to buy battery backup (e.g., Tesla batteries) or gas powered generators.</p>	<p>John M. Alderman</p>
<p>There is nothing in the plan to address the expansion of the wood pellet industry or to stop the clear-cutting of North Carolina forests to be burned for energy in Europe.</p> <p>Governor Cooper must put a stop to the expanding wood pellet industry. I call on the Governor to develop and conduct a North Carolina study to assess the cumulative impact of the industrial-scale wood pellet industry on forests, the climate, communities, and the economy. Until that study is complete, there must be an immediate moratorium on any expansion of the industrial-scale wood pellet industry in North Carolina.</p> <p>The plan also completely fails to address methane emissions. The emission figures in the plan are for carbon dioxide only. But super-potent methane is spewing into the atmosphere at an alarming rate from fracking operations, all the way from the well head to the power plant.</p> <p>A truly clean energy plan for North Carolina must address the wood pellet industry and methane emissions. If gas and wood pellets continue, North Carolina will keep making climate change worse, not better.</p>	<p>John Wiles</p>
<p>Hello, I appreciate the transition to a clean energy plan. I was surprised that your plan does not discuss the carbon-free the carbon-free benefits of nuclear energy. As a nuclear engineer, I firmly believe that nuclear is a valuable asset in our fight for carbon-free, clean energy sources. Nuclear is safe, efficient, and economical. Nuclear energy also brings thousands of high paying jobs to the area. I believe that it is vital to include nuclear energy as part of your clean energy plan and urge you to reconsider.</p> <p>Thank you for your time, Jonathan Hackelton</p>	<p>Jonathan Hackelton</p>
<p>Recently, Gov. Cooper and the NC Department of Environmental Quality released a draft version of the North Carolina Clean Energy Plan. However, the draft plan does not include mention of nuclear energy as a means of reducing carbon emissions in the state despite its role as North Carolina's largest source of carbon-free energy. In fact, the word "nuclear" is only mentioned THREE times throughout the whole report. In contrast, "wind" is mentioned 63 times and "solar" mentioned over 100 times.</p> <p>The numbers don't lie though, North Carolina's three facilities generate more than 31 percent of the state's electricity and provide 77% of the state's carbon-free electricity. Demand for energy is expected to grow in North Carolina and across the United States, as much as 28 percent by 2040. In order to meet future electricity demands, the U.S. (including North Carolina) will need to embrace a broad portfolio of American-produced energy solutions, and nuclear energy must be a part of that mix.</p>	<p>Jonathan Turner</p>
<p>Having read Governor Cooper's Clean Energy Plan I am highly in favor of it's methodology of creation of the plan, it's reasoned and measured approach for action and it's forward-looking approach to solving our future energy needs. In light of the scientific data from many sources of man's impact on our environment and climate change, this plan goes far to address these concerns.</p> <p>What is not included in the plan are the topics of methane pollution into our atmosphere from fracked-gas production and distribution and the loss of forests resulting from wood-pellet production.</p> <p>Fracked-gas now and never will be a source of clean energy. Please note on page 37 of The Plan under section 2.1 that " By 2024, Wood-Mackenzie predicts that wind energy will still cost less than new combined-cycle natural-gas facilities on an LCOE basis in 20 states, with this figure growing to 28 states by 2027. " Clearly renewable wind energy is the much smarter path to the future.</p> <p>As Duke Energy and Dominion Energy are teaming up to transport fracked gas from West Virginia through environmentally-sensitive areas of Virginia and North Carolina with the Atlantic Coast Pipeline it seems a folly to proceed on many levels.</p> <p>In summary I would urge that these two topics be included in North Carolina's Clean Energy Plan and that The Plan be implemented as immediately. Time is running out! Thanks for allowing me to have input.</p>	<p>Joseph Caughlan</p>
<p>To whom it may concern,</p> <p>The NC Clean Energy Plan scarcely mentions nuclear energy except to describe our current "traditional" electric generation by fuel source. Adopting a clean energy future is exceptionally exciting but it is only a viable option if nuclear power does a significant amount of the baseload heavy lifting. Nuclear is unique in that it is always on and not subject to environmental conditions (e.g. unlike wind / solar), the fuel is on-site making fuel delivery interruptions unlikely (e.g. unlike coal barges blocked on during inclement weather), and carbon neutral (e.g. unlike natural gas).</p> <p>In the interest of full disclosure, I am a resident in South Carolina who works for Duke Energy at a nuclear station. That said, I am expressing my opinion as a former resident of Charlotte and my opinion is solely my own.</p> <p>I appreciate your time.</p> <p>Joe Yanes</p>	<p>Joseph Yanes</p>

What about nuclear energy? Nuclear energy has its place in "clean" energy production. You can only rely on wind turbines and solar panels for when there is wind and sun. There needs to be a place for a clean work horse when those options are not available.	Josh Dills (NCSU)
Please consider the huge positive role nuclear energy plays in producing carbon-free electricity. I'm an environmentalist and also a huge fan of nuclear power. Our society has become dependent on large amounts of baseload power, which nuclear has been providing safely for decades here in the USA.	Josh Riley
I own a substantial number of shares of Duke Energy. Last year, the CEO, Mrs. Lynn Good, made well over \$10,000,000. Also, our annual dividend will be over \$3 per share. Meanwhile, hard working NC farmers and small business owners along the ocean are losing money due to larger and more violent storms like Hurricane Dorian. We Duke shareholders will be okay if our company needs to reduce the dividend to pay for nuclear, solar, and/or wind energy projects.	Joshua Keagle
Support for wood pellet industry will result in clear cutting of NC forests, which will worsen climate change. Support for Atlantic Coast Pipeline also not going to help the problem. Please reconsider your support for these two issues.	Julia Thorp
Nuclear energy should be more affordable and available. Nuclear energy in its uniqueness, provides no emissions, no effects to the climate, clean, dependable, and continuous source of energy. If we choose to take the Solar route, then it should be more accessible and affordable to Customers, however, panels should be placed on customers' roofs. Clearing fields of trees to create solar farms do not help clean the environment. Trees clean the air, feed the rivers and lakes, and provide clean breathable air. Solar panels on fields reduce or eliminate clean air and warm the air that may contribute to higher temperatures. Natural Gas, to obtain it may contribute to soil damage from fracking, destruction of wild life and natural resources, and dangerous to individuals.	Julio Martinez-Llanos
Through Duke Energy, nuclear energy has provided our Carolinas customers extraordinary value for nearly 50 years, and will continue to provide it into the future. For example, in 2018: <ul style="list-style-type: none"> <li>• The Duke nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>• The fleet provided almost half of Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> </ul> Level the playing field! Eliminate special subsidies and programs for Wind and Solar.	Karen Acken
I am Karen Renee Stone Baker, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future. <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> </ul>	Karen Baker
Thank you for the Clean Energy Plan. I endorse the ambitious goals to decarbonize our energy economy. However, there are a number of issues that need to be addressed in a Clean Energy Plan. Two of the biggest threats to the environment in NC are the wood pellet industry and the need to limit methane production, particularly in the fracking industry, and they are not addressed in the Plan.  Governor Cooper needs to immediately impose a moratorium on the expansion of the wood pellet industry and establish a study of the cumulative impact of this industry on the forests, climate, health and environment in North Carolina. Only once such a study is done will we have the information needed to address the wood pellet industry.  The Plan needs to include goals for reducing methane emissions, as well as carbon dioxide emissions. Thank you.	Karen Mallam
I am also concerned that the plan does not address Duke Energy's continuing expansion of methane producing infrastructure in the state, including the disastrous impacts that will occur from the proposed construction of the Atlantic Coast Pipeline. The governor and DEQ have been provided recent documentation that justifies revoking the water permit and stopping the pipeline. The benefits from the governor's clean energy plan will be negated by the methane produced from the ACP. This fact alone justifies serious consideration of a policy reversal that would bring about the end of the ACP and the associated infrastructure that is being constructed to operate with the ACP	Kay Reibold
I am deeply concerned that the plan does not address the dangers of the ever expanding wood pellet industry in NC. I believe the governor should put a stop on further wood pellet production in the state. This industry has proven to be harmful to humans, animals and the environment.	Kay Reibold
I have worked in nuclear power for 36 years with CP&L, Progress Energy and now Duke Energy. Nuclear energy deserves full recognition for the clean carbon-free highly reliable energy source that it is. We have become highly efficient over the years achieving capacity factors exceeding 90%. We are the most reliable base load green energy source available.	Keith Butner
Re: Clean Energy Plan - must include reduction in wood pellet production and the related deforestation of NC, and reduction in methane in the atmosphere.	Keith Johnson
I am Kenneth Williams and I work for Duke Energy. I live in North Carolina and I am a proponent for the value of safe efficient, clean, carbon Nuclear Energy in the Carolina's. Our nuclear fleet is the largest source of carbon free generation avoiding the release of million tons of carbon dioxide (10 million passenger cars). Our nuclear group employs about 5,000 Duke energy workers across the Carolinas and contract workers who support outages and major work projects throughout the year. Our nuclear group is involved in the local community where we work and live.	Kenneth L Williams

<p>The draft of the new DEQ Clean Energy Plan for North Carolina is a positive step forward. HOWEVER, it fails to include action to reduce greenhouse gas emissions caused by burning of wood pellets and release of methane gas.</p> <p>This Plan does not recognize scientific studies that prove greater carbon greenhouse effects are produced by the burning of wood pellets than by the burning of fossil fuels. Falsely named "green coal" wood pellets, are produced by the massive wood chipping Enviva industry operations that are eliminating thousands of acres of carbon absorbing forests here in North Carolina.</p> <p>This exploited natural forest resource is being transported out of North Carolina to serve the polluting energy producing wood pellet burning in Great Britain, Europe and beyond. An immediate Moratorium on expansion of clear-cutting and selective forest-thinning for wood pellet production should be clearly defined in this Plan with a cessation of this harmful operation in the very near future.</p> <p>This Plan accounts only for the release of CO2 in fracked gas operations; it does not consider the significant air polluting effects of release of methane gas from fracking operations. This Plan needs to contain a description of actions for ceasing expansion of fracked gas operations in North Carolina, with an in-the-near-future goal of total cessation of this activity.</p> <p>North Carolina should move forward as the nation's leader in development of alternative energy resources of solar and wind and increase the state's</p>	Kenneth Moore
<p>I am a believer in nuclear power because I care about the environment and am concerned about climate change. It is unfortunate that your Clean Energy Plan does not recognize the carbon-free benefits of nuclear energy. All carbon-free, clean energy sources need to be utilized if we are serious about curbing emissions. This means including nuclear, as well as hydro, geothermal, solar, and wind.</p> <p>The nuclear fleet in North Carolina remains the largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars). Nuclear provides almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours). In addition, nuclear energy stimulates good, high paying jobs in the region. Nuclear employs about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</p> <p>Environmental experts have agreed that it is vital for nuclear to be included in any credible plans to reach meaningful future climate targets. Therefore, it is essential that the North Carolina Clean Energy Plan include significant levels of generation with nuclear power.</p> <p>Thank you for your consideration of these comments.</p> <p>Kenny Church</p>	Kenny Church
<p>I am deeply concerned that this plan does NOT address methane emissions from fracked gas operations. Any clean energy plan MUST include the phaseout of fracking, as we know that super-potent methane is spewing into the atmosphere at an alarming rate from fracking operations, all the way from the well head to the power plant.</p> <p>Additionally, there is nothing in the plan that stops the ongoing clear-cutting of North Carolina forests to produce wood pellets to be burned in Europe, despite the fact that intact forests are an important climate solution in that they absorb the CO2 that humans emit. Nor does DEQ count the enormous emissions from logging, processing and burning the wood pellets. Phasing out the wood pellet industry operations MUST be included in a responsible clean energy plan.</p>	Keval Kaur Khalsa
<p>The success of a clean energy plan depends on it being fully and rapidly implemented. The Governor and DEQ must push the legislature to pass the laws recommended by the plan. They must push the Utilities Commission to begin regulating Duke Energy according to the recommendations in the plan.</p>	Keval Kaur Khalsa
<p>I commend the Governor and DEQ on developing this plan. I want to emphasize a serious concern, however, which is that the wood pellet industry is causing serious damage both to forests and to climate conditions. You should add a section to the plan that addresses this matter.</p>	Kevin C Foy
<p>I am Kevin Riley. I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolinas. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> </ul>	Kevin Riley

<p>One part of the NC's Clean Energy future has to be homeowners' roof-mounted photovoltaic systems. Currently under Duke Energy's plan, homeowners have a DISincentive to provide power. They pay for the PV array and installation; they pay a monthly fee to be connected to the grid; and they receive no compensation -- NONE -- for the electricity that they provide to Duke's grid and Duke sells to their customers for a profit.</p> <p>This is theft.</p> <p>Furthermore,, I understand that Duke takes credit for the solar arrays (that homeowners have installed at their own expense) to fulfill their mandate under the Renewable Energy Portfolio Standards legislation.</p> <p>If homeowners were fairly compensated and if Duke didn't take credit for this renewable energy, we would have a much cleaner energy future in North Carolina as more folks would be willing to make the investment in PV and Duke would provide additional renewable energy to fulfill their REPS mandate.</p>	<p>Kim Carlyle</p>
<p>The Duke Energy "net metering" plan is weighted heavily in favor of the power company at the expense of the homeowners who have installed photovoltaic systems and are supplying electricity to the Duke's grid.</p> <p>Each month, Duke records kWh usage and kWh delivered to the grid for each power-generating homeowner and carries forward the surplus (delivered over used) for each homeowner's account. Each year in June, Duke resets their counters to zero and begins the process again. So, each year we provide energy to Duke's power grid, they sell it to others, and we receive no compensation. (for me personally, it's more 1,000 kWh.) And for the privilege of being connected to the grid, we each pay Duke \$15.05 each month.</p> <p>Additionally, my understanding is that Duke Energy takes credit for the solar arrays we have installed at our own expense to fulfill their mandate under the Renewable Energy Portfolio Standards legislation.</p> <p>We are being ripped off. THIS IS THEFT! And Duke is benefitting from our investment.</p> <p>If Duke Energy could be made to fairly compensate homeowners, it would provide an incentive for others to install clean PV energy for their homes. And if Duke didn't take REPS credit for our investments, they would have to make their own renewable energy investments to meet their mandate.</p> <p>Please fix the "net-metering" system so that North Carolina will have more clean energy in its future.</p>	<p>Kim Carlyle</p>
<p>The Governor should rescind his support for the Atlantic Coast Pipeline and the expansion of Enviva. Both will only contribute to global warming and poisoning of our waters, destruction of our forests and impact on poor communities.</p>	<p>Kim E. Koo MD</p>
<p>It is about time we all start to realize that the Global Environmental Crisis is the most Important problem facing humanity in the 21st Century, and those in power need to be accountable.</p>	<p>Kim E. Koo MD</p>

<p>I am excited to see work being done to promote, plan for, and make a reality out of "Clean Energy." It's not easy to be "clean" and I am not a foreigner to the challenges associated with long-term planning for our energy needs, so I applaud anyone who takes a stab at coming up with a plan.</p> <p>I noticed in your plan, there is no mention of how nuclear energy plays a role in the future of our state's energy. I found it odd that the only place it was mentioned was in the section where the current electricity generation sources are laid out. Considering that it is a third of the pie of our current generation sources, for it to not be addressed at all anywhere else in the plan seemed like a glaring omission, and one that I sense was made purposefully, though for what purpose? I am not sure.</p> <p>Based on my experience, the goals you put forth and their corresponding timeline seem to assume the continued (and renewed) operation of the existing nuclear plants in North Carolina. If this is an incorrect assumption, I believe this should be clearly stated in the plan. If my assumption is correct, then this should also be explicitly outlined in the plan. A true and comprehensive plan cannot use omission for the sake of convenience.</p> <p>The reality is that nuclear energy would greatly aide North Carolina to enter into carbon-free electricity generation, and I would argue that it is necessary for the realistic accomplishment of that goal. It currently makes up over 70% of North Carolina's carbon-free energy. With 5 nuclear reactors operating in this state, it is NOT realistic that solar, offshore wind, biomass, and the rest mentioned here would easily take over this 70%.</p> <p>Additionally, the nuclear reactors operating here have shown to generate some of the most reliable energy to the grid. It runs almost 24/7, unless it is not safe to be operating, in which case they are taken offline until they can be brought back up. A great example of this is what the Brunswick Nuclear Plant is doing with Hurricane Dorian. These plants are run almost all the time and they are done so safely, as the safety records of the plants in NC would reflect.</p> <p>In addition to their reliability, which the Clean Energy Plan quotes as being an important quality for electricity generation by all involved parties, the nuclear plants in NC have operated for many years and the path to continue operating is clear. The cost of operating is well understood and predicted and the cost of end-of-life decommissioning has been acquired through rates for all of its life. Our nuclear plants do not leave us at a risk for unexpectedly increased rates or misunderstood budgets. This is more of a risk with new nuclear technologies and of course is also a risk with any new renewable technologies as well. All new technologies have a cost risk.</p> <p>Lastly, the nuclear plants in NC benefit the communities they are a part of. They offer safe working conditions, much safer and suffering significantly less injuries than other industrial environments. They offer these safe working conditions, along with great pay, to people in their communities of varying income-levels, varying race and ethnicities, and varying educational backgrounds. Many people who do not have a college degree, with some training, are able to have high-paying respectable jobs at the nuclear plants. All over the country, you'll find the nuclear plants benefit the communities around them.</p> <p>I additionally, would love to see the inclusion of new nuclear technologies in this plan. Research into new nuclear technologies during the next 30 years can set the stage for a future which is effortlessly carbon-free. New nuclear technologies offer an enormous amount in terms of flexibility for the grid (often compensating for a less-predictable solar and wind), safety (being designed with passive safety measures), and the possibility of leading and setting the standards for the world in the realm of new-nuclear. The United States, and North Carolina could definitely lead the way in this, can be the technical expertise and eye for the rest of the world in its operation of nuclear power generation sources, and it can do so in a world where our nuclear technology is designed and focused on safety and flexibility, instead of the development of weaponry and proliferation. I worry our country will miss out on this opportunity and what I would consider a great responsibility.</p> <p>If you've gotten this far, I greatly appreciate you having read my thoughts. I am obviously an advocate for nuclear energy, but I am also one for solar and wind, specifically offshore wind. I recognize the need for many sources of energy generation because the reality is that every energy source comes with a cost. Whether that cost looks like a land footprint, noise pollution, or the use of special materials, nothing is free, and we should always be aware of that reality when we switch on the lights at the homes we are so blessed to have.</p>	<p>Kristie Soliman</p>
<p>The incentive structure guiding investor owned utilities (Duke Energy) needs to be drastically changed in order to align with the environmental goals set forth by the Clean Energy Plan and the PUBLIC INTEREST. Investments in outdated infrastructure such as gas fired power plants and fracked gas pipelines such as the Atlantic Coast Pipeline should NOT be incentivized.</p>	<p>Kyle Cornish</p>
<p>This plan does not mention the impact of methane emissions as a greenhouse gas. Methane is an extremely potent greenhouse gas that needs to be counted and managed in a similar way to carbon dioxide within the framework of this plan. This would include calling to end Duke Energy's expansion of fracked gas infrastructure and pipelines.</p>	<p>Kyle Cornish</p>
<p>This plan must be fully and RAPIDLY implemented with due diligence given to EQUITY and JUSTICE. The governor and DEQ must push the legislature to pass the recommendations in this plan and push the utilities commission to regulate Duke Energy more heavily and in line with the recommendations in the plan.</p>	<p>Kyle Cornish</p>

<p>Thank you for transitioning to a Clean Energy Plan. However, I am disappointed that nuclear energy is not recognized as a carbon-free, clean energy source. Without nuclear power, utilities would be required to replace the energy with a base load carbon emitting technology like natural gas combined cycle generation or steam boilers fired with coal.</p> <p>Nuclear energy provides half of the Carolinas with electricity at an incredible capacity factor. It is also reliable through the most severe storms when energy is vital for survival or recovery efforts.</p> <p>Nuclear energy is also a source for many high paying and safe jobs for our communities. Duke Energy's nuclear department employs 5,000 workers and many contract workers for refueling outages that occur every two years.</p>	Kyle Hemker
<p>What does "access" mean? Are you aiming to make things affordable for lower income people? Everyone has access to everything that is legal in the state. Does this mean we are going to raise taxes on our tax payers to pay for everyone's electric bill? Continuing to add taxes on the upper and middle classes is unsustainable and we should look at other options like helping with energy efficiencies. This goal of providing power to our lowered income citizens doesn't fit with this clean energy policy.</p>	Kyle Kelly
<p>This plan is mostly silent on nuclear energy being a clean energy source to help decarbonize generation. I agree with expanding solar installations, hydro power and wind but there is no thought of baseload power. In my opinion the fastest and most effective way to affect greenhouse gases is to have a mix of renewable power with nuclear providing the foundation. Batteries will help leveling the power surges but having batteries on that type of scale doesn't seem feasible. Nuclear power can allow us to deploy what batteries are developed in an efficient manner. The world's lithium supply can't support batteries on a scale large enough to support the grid. Please add nuclear power as another clean energy source that can help accomplish these goals.</p>	Kyle Kelly
<p>Hello, Please add additional information on the contribution of Nuclear to the report. Thanks, Mrs. Clark</p>	Lakisha Clark (Duke Energy)
<p>I attended your meeting in Winston Salem this summer and was impressed with the work done and the effect that this plan, if quickly implemented, will reduce CO2 emissions in the electricity sector by an impressive amount. I am concerned by the failure to address methane emission from fracked gas and the failure to address the clear-cutting of forests to create pellets (intact forests absorb CO2). If fracked gas and wood pellet plants are not stopped, then the work to reduce CO2 emissions in this plan will not be enough to change the effect of emissions as the methane from fracked gas has more detrimental effects that are not being factored into the calculations. It is a very contradictory message - people are very excited and supportive of this current administration and plan, however confused that important pieces are being left out. It raises the question of how much of plan is for show and what is real? It looks as if the companies are being protected at the expense of the people. Stopping fracked gas, coal, and wood pellet will help with climate change and also provide more jobs (renewable sector) and healthy living for the people of this state. Please take real steps to avert the effects of the changing climate by including the shifting away from these energy sources in your plans and actions. Thank you.</p>	LAUREN NYLAND
<p>1. For this plan to be successful, it needs to be fully and quickly implemented. Legislature must pass laws recommended by the plan. The Utilities Commission must begin regulating Duke according to the recommendations in the plan. My town has a plan to combat climate change. There are areas that we would like to enact, but require state legislation. Please do this work at the state, legislative level quickly, so we can more easily do our local work. 2. Treat this like the emergency it is. In emergency, funds are diverted and allocated. We act like this is a state of emergency for the next few years and put money and resources toward enacting these changes, even over other items. Look for non-essential items that can be delayed - for example, road widening and traffic circles. Thank you.</p>	LAUREN NYLAND
<p>This plan needs to address the clear-cutting of NC forests and Methane emissions!</p>	Leah Fagan
<p>The DEQ plan ignores methane and wood pellet manufacture. These omissions constitute an obscenity against the public interest.</p>	Leo Briere
<p>If one of the goals of this plan is to increase the use of clean energy technologies, nuclear energy has to be considered as a primary generation source. There is a proven track record of safe operations with our state's nuclear plants. They also have consistently achieved high capacity factors, &gt; 90% (over 20 years), Nuclear is also the state's largest source of carbon free generation and not subsidized like renewables. The plants are major economic engines for the state, employing thousands of workers and a major part of the tax base.</p>	Lewis Spragins
<p>Nuclear generation needs to be added to the clean energy plan. Nuclear emits ZERO carbon into the atmosphere. Nuclear cannot be ignored, it's always on and always available. It's a 90+ capacity factor EVERY year. It's reliability and cleanliness cannot be ignored. There are many plants in N.C. which help to provide energy to the many residents of N.C.</p>	Lindsey
<p>Thank you for your consideration!</p>	
<p>This issue is important to me, as I've been studying food waste for several years. Reducing food waste in landfills reduces greenhouse gases. I'm surprised to see that waste-to-energy solutions were not included. What about incentives to turning our hog waste lagoons into energy producers? <u>Collection of food waste for anaerobic digestion?</u></p>	Lisa Johnson
<p>I live in North Carolina and I am a proponent for the value of safe, efficient, clean, carbon free nuclear energy in the Carolinas. Our nuclear fleet provides almost half of the Carolinas electricity. As such, the nuclear fleet is the largest source of carbon free electricity generation. I believe that nuclear energy should be explicitly included, and even be the main pillar, in our plan to power the Carolinas with clean energy.</p>	Lois Arasim
<p>I am against any utility tools and incentives.</p>	Louis Harmati
<p>I am against adding any more alternative energy like solar or wind.</p>	Louis Harmati
<p>Please leave the grid the way it is. North Carolina added 30% alternative energy, and we received only higher utility bills but no clean air.</p>	Louis Harmati

I wish to leave a comment on Governor Cooper's Clean Energy Plan. There is much in the plan to please North Carolinians concerned about the environment and global warming, especially the support for solar power. However the plan does not address the danger to the planet posed by the methane emissions, a byproduct of our increased reliance on natural gas. Methane actually burns hotter than CO2, warming the planet on steroids, according to Scientific American. North Carolina's reliance on fracking and the infrastructure to transport and support it, including pipelines, will result in more methane spewed into the atmosphere,

Nor does the plan address the damage done by the proposed clear cutting of our forests to make wood pellets to be sent abroad. In a time of global warming, we especially need our forests to absorb CO2.

I ask Governor Cooper and the DEQ to address the issues of methane emissions and the destruction of forests as part of any effective clean energy plan.

Thank you very much

Lynnl Kohn

There can be no just transition without the free, prior, and informed consent of communities impacted by energy proposals as our State transitions to clean energy. Evidence submitted now clearly indicates that that the Atlantic Coast Pipeline misinformed and misrepresented its plans described in its 401 application. The ACP failed to inform the NC DEQ and the public of its comprehensive plans, particularly in Robeson County, and the full impact of its existing projects in Robeson County when combined with all of its new projects that are directly related to the ACP. The ACP also segmented out two pipelines in its 401 application that will carry gas beyond its alleged terminus in Pembroke, NC. The ACP gas will be carried in a recently constructed pipeline to its Smith Energy Center in Hamlet, NC and into South Carolina.

The Santee Cooper 2019 Business Plan released today on September 9, 2019 references plans to use ACP gas and to use Transco Gas if the ACP is "cancelled or indefinitely delayed" (Santee Cooper 2019 Business Forecast, September 9, 2019, p. 20). This position was also documented in the article today in the Charleston Post and Courier. In relation to Santee Cooper's plans to construct more natural gas facilities, the Post and Courier article states: "The gas plants may also rely on the Atlantic Coast Pipeline, a massive interstate pipeline that is being built from West Virginia into North Carolina" [https://www.postandcourier.com/business/santee-cooper-board-approves-new-new-energy-plan-drops-cost/article\\_0b1c36ac-d319-11e9-b55e-eb5699cf3dd4.html?fbclid=IwAR3qu9es9Vbl2qqOSF7TSututfoOplsZ8yeVCBRlxzrUNk5JUZeS7Gn1hig](https://www.postandcourier.com/business/santee-cooper-board-approves-new-new-energy-plan-drops-cost/article_0b1c36ac-d319-11e9-b55e-eb5699cf3dd4.html?fbclid=IwAR3qu9es9Vbl2qqOSF7TSututfoOplsZ8yeVCBRlxzrUNk5JUZeS7Gn1hig)

The Petition to Revoke the ACP Permit filed with the NC DEQ by the NC Climate Solutions Coalition and Friends of the Earth documents both of these segmented pipelines that are actually a part of the original plans of the ACP that were excluded from its 401 Application. There can be no just transition to clean energy unless the ACP 401 Permit is revoked and if the ACP decides to reapply, to insure that they not only fully inform NCDEQ and the public of all of its plans and cumulative impact in Robeson County, but also all of its plans and cumulative impact related to its two other Metering and Regulating Stations planned to take ACP gas to other projects in Cumberland and Johnston County, including projects related in additional counties in the region.

Mac Legerton

Furthermore, the just transition to clean energy requires the NC DEQ to recognize that Transco has publicly stated that it can provide all the gas needed to serve both North and South Carolina. With this recognition, there is no need for the Atlantic Coast Pipeline or the Mountain Valley Pipeline to meet North Carolina's energy needs. Such a burden imposed by the ACP and MVP would be unjustly born by NC ratepayers. There can be no just transition to clean energy in NC unless the ACP 401 Permit is revoked and the MVP 401 permit is denied. On the national level, the EPA and the Trump Administration seeks to take the power and authority of NC and all states to protect the water quality of within its own state boundaries, removing the power of states to utilize the 401 permit to ultimately deny gas pipelines on the grounds of their harm and cumulative impact on water quality. The NC DEQ and the NC Department of Justice must utilize all resources to protect our State's authority to set and determine water quality standards and regulations and enforce them, insuring a just transition to clean energy that denies all new proposals to expand fossil fuel infrastructure based on the very principles and practices of just transition as is being promoted in this Clean Energy Plan.

Finally, a just transition requires the NC DEQ to recognize the conditions have totally changed since the ACP filed its application for a 401 permit. Renewable energy sources combined with battery storage are now competitive with the cost of developing all fossil fuel-based projects, particularly unneeded and unnecessary natural gas pipelines and new Liquid Natural Gas facilities as the one rapidly being constructed now in Robeson County without any major permit or major regulatory power over it. This total change in environmental and economic conditions, including the massive rise in cost of the ACP, make the revocation of the ACP permit necessary if the NC DEQ is serious about its stated commitment to a just transition to clean energy.

<p>The draft Clean Energy Plan completely neglects to acknowledge and recognize that natural gas is 90% methane which is a carbon (CH4) and the most harmful green house gas to be emitted over the next 20 years due to its power to contain heat in the atmosphere, even moreso than coal during our most critical years ahead. Duke Energy plans to significantly expand natural gas use in NC between now and 2030, utilizing gas from the proposed Atlantic Coast Pipeline as the base of mass expansion of greenhouse gas emissions. The carbon-based greenhouse gases emitted by the ACP will significantly expand greenhouse gas emissions in NC in spite of all the carbon reductions purported in the draft Clean Energy Plan. This denial of the massive rise in carbon emissions in NC as a result of the Atlantic Coast Pipeline by both Duke Energy and our State opens both agents to claims of "greenwashing".</p> <p>The massive expanse of carbon-based, methane/natural gas emissions in the "Elephant in the Clean Energy Room" in the Suites of Duke Energy and the Streets of North Carolina. This neglect and denial of this reality in the Clean Energy Plan is disrespectful and an insult to the intelligence of the public that is informed by all responsible science on carbon-based emissions from natural gas expansion. There is no responsible scientist that now claims that either natural gas or fracking are bridge fuels to clean energy. Such a claim is similar to an addicts claiming that they are reducing their addiction by transitioning from marijuana to cocaine, LSD, or heroine.</p> <p>Present energy policy promoted by Duke Energy and the NC Department of Environmental Quality is an example of the "tail wagging the dog". The recent petition filed to revoke the ACP permit by the NC Climate Solutions Coalition and Friends of the earth provides a positive way that within NC Clean Energy Policy, the "dog can wag its own tail". The revocation of the ACP permit is the only way that NC can even begin to transition to 100% clean energy and have any change of lowering carbon emissions at all, either by 2030 or 2050. Such a goal is not only way beyond reach if the ACP is constructed, it is impossible.</p> <p>It is time for political and regulatory decisions regarding state energy policy in our state to responsibly promote carbon reduction and a realistic transition to clean energy by continuing to utilize gas provided by Transco while weaning our way off of all natural gas based on the stated timeline within the Draft Clean Energy Plan. As we all know, Transco has publicly stated that it can provide all the natural gas needed by both North and South Carolina. We all know what we must all do together. Let's join together as need be and together tame the Methane Elephant in the Room, turn it around, and slowly lead it out of the back door from which it came. We all realize that this is the only way to manifest our unity that we all know is <u>already within us all and walk together into the carbon-free, renewable, clean energy future that awaits us.</u></p>	Mac Legerton
<p>Although the plan comprehensively addresses the need for reduction in carbon dioxide emissions, it entirely ignores the huge climate impact derived from methane - a greenhouse gas 80-100x more potent than CO2. Fracked gas is spewing methane into the air at a terrifying rate, and the mass animal agriculture industry is another leading cause for our methane emissions. Both need to be curtailed. Without addressing the serious need for reduction of methane emissions, our focus on carbon dioxide emissions simply won't be enough in the face of the climate crisis we are currently facing.</p>	Madeline Parker
<p>Governor Cooper must put a stop to the expanding wood pellet industry. Dirty and destructive industries like the wood pellet industry and fracked gas are expanding in our state.</p> <p>Right now, North Carolinians are experiencing serious threats from the climate crisis. Rising temperatures that make this summer one of the hottest on record, as well as extreme weather like Hurricane Florence, are just two examples of climate impacts that threaten North Carolinians' health, safety, and way of life. Many North Carolinians take the climate crisis seriously. If our state truly intends to move the needle on climate change, our leaders must acknowledge and address all of the industries that are contributing to the crisis.</p> <p>Biomass and fracked gas are making the climate crisis worse, not better. We cannot reach our climate goals if our leaders continue to allow the expansion of these dirty projects. There is nothing in the plan to address the expansion of the wood pellet industry or to stop the clear-cutting of North Carolina forests to be burned for energy in Europe. The plan also completely fails to address methane emissions. The emission figures in the plan are for carbon dioxide only. But super-potent methane is spewing into the atmosphere at an alarming rate from fracking operations, all the way from the well head to the power plant.</p> <p>North Carolina is a truly special place to call home. From the mountains to the coast, the people and land are worth protecting now and for generations to come. A truly clean energy plan for North Carolina must address the wood pellet industry and methane emissions. If gas and wood pellets continue, North Carolina will keep making climate change worse, not better.</p> <p>Time and again, Governor Cooper has been a climate champion for NC. Therefore, I call on the Governor to develop and conduct a North Carolina study to assess the cumulative impact of the industrial-scale wood pellet industry on forests, the climate, communities, and the economy. <u>Until that study is complete, there must be an immediate moratorium on any expansion of the industrial-scale wood pellet industry in North Carolina.</u></p>	mae basye
<p>Proposed Atlantic Coast Pipeline's annual emissions of ~68 million metric tons would amount to the equivalent of 20 coal-fired power plants, or 14 million additional cars on the road. Based on a News &amp; Observer article, Cooper's announcement means he's looking to cut roughly 23 million metric tons (another 15% off 2005 levels of ~152 million metric tons), so ACP would shatter that commitment (or make it much more difficult to meet). ACP goes through three states, so it's perhaps not totally fair to assign it all to NC. But almost any way you slice it, the numbers look terrible for Cooper. Even just taking one-third of the ACP emissions (~23 million metric tons, since there are three states) would mean that ACP adds almost exactly as many annual emissions as he's trying to cut.</p> <p>DATA: <a href="http://priceofoil.org/2017/02/15/atlantic-coast-pipeline-greenhouse-gas-emissions-briefing">http://priceofoil.org/2017/02/15/atlantic-coast-pipeline-greenhouse-gas-emissions-briefing</a></p>	Maple M.A. Osterbrink
<p>Nuclear energy is a clean, carbon-free, source of electricity. As such, nuclear energy should be considered as a clean source of energy. This is self-evident. Thank you. Mark Handrick</p>	Mark Handrick



<p>I am Mark McNeely. I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> </ul>	<p>Mark McNeely (Duke Energy)</p>
<p>I would like to start by saying thank you for working towards a clean energy future. As an electrical engineer working in the utilities I wanted to provide some input regarding your plan. I main flaw with your plan is to not include Nuclear Power as your base load. Nuclear power is a carbon-free source of energy, always on and always reliable (365 days/nights); which makes it the only carbon-free energy source capable of this. Also, nuclear energy means good, high paying jobs. It is vital that the North Carolina Clean Energy Plan includes nuclear energy as it is the cornerstone of clean energy. Use the state of Washington's clean energy plan as an example.</p> <p>Thank you for your time.</p> <p><u>Martin Isoler</u></p>	<p>Martin Isoler</p>
<p>Please reconsider adding nuclear generation to the Clean Energy Plan. It emits zero carbon into the atmosphere. As you know, NC is home to several nuclear units providing quality jobs to area residents. I am a nuclear engineer and strongly believe in the value of nuclear. In addition to being carbon-free, it provides over 90% capacity factor year after year.</p> <p><u>Thank you for your consideration.</u></p>	<p>Maryanne Stasko</p>
<p>If the purpose of the policy is to create carbon free energy at economical prices, then existing nuclear plants must be included in the mix. A significant portion of the Carolinas' energy needs are already carbon free. Any plan to incentivize carbon free generation needs to include all technologies to <u>ensure grid resiliency and cost efficiency while meeting steep carbon reduction goals.</u></p>	<p>Matt McLean</p>
<p>There is nothing in the plan to address the expansion of the wood pellet industry or to stop the clear-cutting of North Carolina forests to be burned for energy in Europe.</p> <p>Governor Cooper must put a stop to the expanding wood pellet industry. I call on the Governor to develop and conduct a North Carolina study to assess the cumulative impact of the industrial-scale wood pellet industry on forests, the climate, communities, and the economy. Until that study is complete, there must be an immediate moratorium on any expansion of the industrial-scale wood pellet industry in North Carolina.</p> <p>The plan also completely fails to address methane emissions. The emission figures in the plan are for carbon dioxide only. But super-potent methane is spewing into the atmosphere at an alarming rate from fracking operations, all the way from the well head to the power plant.</p> <p>A truly clean energy plan for North Carolina must address the wood pellet industry and methane emissions. If gas and wood pellets continue, North Carolina will keep making climate change worse, not better.</p>	<p>Meg Trepp</p>
<p>The energy plan should be written in a way that credit and acknowledgement of nuclear energy is obvious. Nuclear energy provides great benefit to the Carolinas, and is already acknowledged as contributing 33% to the energy portfolio. Nuclear is safe, clean, and reliable. Nuclear energy is a green <u>and renewable energy source and should be advertised as such.</u></p>	<p>Megan Watkins</p>
<p>Hi,</p> <p>I work for duke energy and i live in NC. i work in the nuclear dept and have for nearly 40 yrs. i've seen how duke operates their nuclear plants and the efforts made to ensure safe, clean operation. i certainly am a proponent for safe, clean, efficient carbon-free energy, very much including nuclear--in the Carolinas, and in general. a few points to consider:</p> <ul style="list-style-type: none"> <li>- duke provided nearly half of the carolinas' customers electricity (&gt; 72 billion kw-hrs) and maintained a capacity factor of 93%.....note this is two decades w/ a nuclear capacity &gt; 90%.</li> <li>- the company's nuclear fleet remained our largest source of carbon free generation.</li> <li>- the nuclear fleet employs around 5000 workers across the Carolinas, plus contract workers.</li> <li>- also worth noting, my nuclear teammates supported communities where they work and live...via donations (\$ and personal items) as well as time w/ various organizations, volunteering at schools to help educate on nuclear, etc.</li> </ul> <p>thank you for considering adding nuclear to the current draft clean energy plan,</p>	<p>Michael Elder (Duke Energy)</p>

To Whom It May Concern:

Mission:data Coalition ([www.missiondata.io](http://www.missiondata.io)) is a national non-profit coalition of technology companies delivering data-enabled energy management services. We are pleased to provide these comments to the draft Clean Energy Plan. Mission:data was founded six years ago to advocate for consumers' rights to access, use and share energy information collected about them by utilities. Mission:data and our members – 35 companies who provide over \$1.0 billion per year in energy efficiency, demand response and distributed energy resource (DER) business across North America – advance “data access” policies in states across the country. Empowering customers to easily access energy-related applications from third parties is essential to cost-effectively reducing energy consumption and saving money. We are the primary advocate of Green Button Connect My Data (“GBC”) nationwide, a standard developed by industry and government stakeholders to facilitate permission-based customer sharing of energy usage information with third parties. To date, five (5) leading states, representing over 36 million electric meters, have adopted Green Button Connect. These states include California, Colorado, Illinois, New York and Texas.

As a general matter, Mission:data strongly supports the Clean Energy Plan. However, we believe there are several improvements with regard to energy data access that are necessary for customers to fully realize the benefits of “smart grid” investments such as advanced metering. Mission:data also believes that our recommendations below will support economic development in North Carolina by eliminating data-related costs and barriers to energy management firms who wish to do business in the state.

Recommendation #1: Focus on standardized, electronic access to data for customer-authorized third parties, rather than access only for customers. Goal C-1 would evaluate grid modernization proposals on the basis of whether they support “increasing access to data can provide customers with the granular information they need to make more informed decisions about their energy consumption and supply” (p. 75). Similarly, Goal K-2 states, “Enable access to customer data through new functionality such as ‘download my data’ for electric utilities” (p. 125). While Mission:data supports these goals, it is important to recognize that most customers – even “energy geeks” – are not likely to access their raw data very frequently because it’s difficult to make meaning of it. In the same way that customers are not likely to pore over their raw blood test results, customers will naturally seek advice from experts – doctors or, in this case, energy management services – to interpret the usage data on their behalf. Therefore, while it is important for customers to be able to access their own usage information on the utility’s website, we do not have high expectations for the data being widely used by customers themselves. Indeed, statistics from other jurisdictions indicate that the number of customers using utility websites and viewing or downloading their own usage information is low (for example, ConEd of New York stated that only 0.18% of customers logged into the utility website to view their “usage/analytics” page, according to an April 30, 2018 report). Instead, the much more likely route by which customers will manage their energy consumption is by engaging with online tools or smartphone apps provided by third parties. A customer will hear about a service that is of interest, begin using it, and then the service will help facilitate submission of the authorization form to the utility. For these reasons, we strongly encourage North Carolina to emphasize third party data access when authorized by customers, rather than merely customers having access to data themselves.

Recommendation #2: Emphasize data portability of all types of customer data, not merely energy usage data. There is no doubt that advanced metering data – particularly electrical or natural gas readings at, say, 15-minute intervals – is particularly helpful for conservation purposes. Analyzing AMI data with outdoor temperature and humidity data allow consumers or their authorized third parties to assess energy used for heating and cooling homes and buildings, to benchmark such usage against other buildings and suggest tailored recommendations for improvement. The potential for innovative energy-saving applications is significant: In one example from California, smartphone apps with permission-

Michael Murray

based access to customer usage data have turned household energy conservation into a game, giving users points for saving energy at peak times. This strategy is proving effective throughout the state, particularly among low-income households, as 100,000 residences are contributing over 200 megawatts of demand response from innovative engagement strategies.

However, while it is understandable to focus on energy usage data (kilowatt-hours of electricity and therms of natural gas), Mission:data strongly encourages North Carolina to include all pieces of information that utilities hold about consumers. This includes customer data such as name, address, phone number, etc. Address information may be particularly important in the case of multi-site commercial customers because a third party energy manager serving that customer needs to match up the consumption readings with specific sites. It also includes billing data – all information contained on bills, such as what rate the customer is on, billing cycle dates, account number, meter number, volumetric charges, distribution charges, taxes and fees. Today, many multifamily properties and commercial buildings use third parties to manage billing and data collection on their behalf. Many large businesses need to report annual energy, water and greenhouse gas emissions to investors. It is very expensive to collect this information manually for dozens or hundreds of sites across the country, and so a standards-based electronic interface for customer-authorized third parties to billing information would save considerable expense.

**Recommendation #3: Support access to real-time energy usage data.**

Also important is real-time information gathered from advanced meters and transmitted to an on-premise device. This is known as the Home Area Network (HAN), and virtually every smart meter manufactured today has HAN capability. While the utility will not collect data via the HAN, we believe it is the utility's responsibility to provide an easy-to-use, web-based method for consumers to connect or "pair" any HAN device of their choosing with the meter. This enables real-time energy management applications to exist, such as smartphone apps that help consumers interactively identify the "energy hogs" in their house, and demand response applications where immediate feedback about electricity curtailment is needed. Most states with AMI offer HAN capability using secure, industry-standard wireless communications protocol known as Zigbee. Unfortunately, to date Duke Energy has only permitted small pilots of HAN devices in North Carolina. Duke Energy only allows customers to connect HAN devices that are provided by Duke and not other manufacturers, limiting customer choice and inhibiting innovation. The Clean Energy Plan should call for all utilities with advanced meters to support HAN connectivity to any Zigbee-compatible device so that customers can take advantage of advanced metering.

In conclusion, Mission:data encourages North Carolina to support simple, streamlined and standardized third party access to customer energy data with customer authorization. In addition to providing customers with energy-saving benefits, such policies support economic development in North Carolina. Rather than import energy management products from other states, North Carolina has an opportunity to support local entrepreneurs and innovators in this exciting new industry.

Thank you for the opportunity to provide comment.

Respectfully submitted,  
 Michael Murray, President  
 Mission:data Coalition  
 1752 NW Market St #1513  
 Seattle, WA 98107  
 (510) 910-2281 (phone)

I appreciate several aspects of the Clean Energy Plan, but I'm deeply concerned about the fact that it does not address the wood pellet industry or methane. A true clean energy plan must address those contributors to climate change. If the use of gas and wood pellets continues, our state will not <u>be helping to reverse climate change and the resulting climate crisis.</u>	Michelle Blumenthal
The plan does nothing to address methane emissions. A plan that does not consider methane is one that will fail at being a steward of the environment and instead be a plan that contributes to the destruction of it.	Mike Capobianco
There must be no more clear cutting of forests to produce wood pellets. Forests are perhaps the best guard against the human contribution to climate change and act quite literally as lungs for the planet. You cannot be outraged about the state of the Amazon rain-forest while continuing to clear cut forests here at home.	Mike Capobianco
It is impossible that this plan is bereft of any mention of nuclear energy. Nuclear is the only carbon free source of power that is on 24/7. There is no carbon free bridge between completely renewable energy and our current state with the sole exception of nuclear energy. This is a grave oversight.	Mike Classe

<p>Hello,</p> <p>My name is Mike Hershkowitz, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are 4 great reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>• Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>• The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>• Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>• Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> </ul> <p>Nuclear power should be included in the NC Clean Energy Plan yet it is noticeably absent. Please reconsider this position.</p> <p>Regards, Mike Hershkowitz</p>	Mike Hershkowitz
<p>It is vitally important that we minimize green house gas emissions and keep our environment as clean as possible to minimize human contributions to global warming while still providing reliable, economical electricity for North Carolina. This has to be a mix of clean energy sources such as Nuclear, Solar, Wind and Hydro along with the cleanest possible fossil fuel mixes. Please do whatever you can to keep our electricity as clean and reliable as possible.</p>	Mike Sawaya
<p>the EE apprenticeship program is a great idea. the industry needs the skilled labor, and there appears to be too much emphasis on college degrees.</p>	Mike Welker
<p>Please recognize that nuclear energy is also clean energy. The reliability and stability of this clean source has helped by reducing emissions by coal and gas for a number of years, and should be a significant part of our future.</p> <p>I am an employee of Duke Energy, but the opinions expressed here are my own. i grew up in the Anthracite Coal Region in PA, and saw the damage coal production has on the environment years after it is mined. I decided then that nuclear energy is a cleaner form of energy generation and got a degree in nuclear engineering. Over many years in the industry , i am convinced that nuclear energy generation is reliable, clean, and efficient method. The recognition that carbon emissions from fossil plants have contributed to our global warming has reinforced my belief.</p>	Mike Welker
<p>I agree that we need to move away from carbon producing energy generation. There may be a way in the future to economically burn coal without releasing carbon, but do not forget the other environmental damage caused by coal including fouling our streams and rivers. Frac-ing has dropped gas prices, but do we really understand the risk to out aquifers?</p> <p>While I understand the advantages of wind and solar, there are costs associated with large solar and wind farms based on the energy density per acre. Nuclear energy must play a key role in minimizing carbon production. It is a proven technology with years of experience in operating a safe source of energy. New nuclear technologies are also being developed which can also play a role in a carbon -free future, and these should also be explored.</p>	Mike Welker
<p>This report lacks considering and utilizing the most obvious clean, abundant, and reliable energy source - NUCLEAR. Nuclear generation already provides half of the power required by the Carolinas, and does so without weather considerations, storage problems, or grid support issues of solar and wind. Nuclear provides the required VAR (reactive power) requirements of the grid and supplies power at all times, not just when the sun shines or when the wind blows. Another issue with solar power is it provides power precisely when the grid needs it the least (mid-day). Highest power requirements are in the mornings and evenings. Nuclear also has the capability for 'stored' power during off peak times combined with hydro (pumped storage during off-peak) to later be released during peak power needs. Hydro also being a clean energy source with no carbon emissions foot-print. I think it's ridiculous the report hardly mentions Nuclear, which has been a safe, reliable, cost-effective, GREEN power supplier of the Carolinas far longer than the fad of green energy has even been considered. Wake up to Nuclear! The "no-brainer" clean energy!</p>	Mitzi Archambo
<p>I am Molly Malloy, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future in my personal opinion:</p> <p>Nuclear Energy is my company's largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars). On top of that Nuclear provides almost half of the electricity in the Carolinas. Wind and solar are not currently capable of providing this kind of consistently reliable output.</p> <p>My coworkers and I are active members of our community. We support our communities through volunteerism, donations and participation in community organizations.</p>	Molly Malloy

<p>I am Nancy Dismukes, I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <p>Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</p> <p>The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</p> <p>Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</p> <p>Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</p>	Nancy Dismukes
<p>Current "tools" are completely biased toward Duke Energy's monopoly. This is why we are getting nowhere fast.</p>	Nancy LaPlaca
<p>WHY DON'T WE HAVE HEARINGS ON IRPs? This is awful -- i.e. hard to believe. I tell folks in other states that NC hasn't had a hearing on an IRP in 10 years and they are stunned. WHY? BEcause Duke Energy can't justify its bad decisions, and with no hearings, there IS NO OPPORTUNITY TO CALL THEM OUT.</p>	Nancy LaPlaca
<p>If customers actually had access to clean energy -- i.e. Duke Energy did NOT have a monopoly that prevents us from acting -- NC would be much further along on clean energy goals. Duke Energy's \$80 million per year spend to influence politics is killing our children's future. (Example: Dorian) Duke Energy plans to INCREASE natural gas power plants, even though methane is 86 times WORSE for the climate than coal. Hello? Duke's decarbonization rate is a pathetic 1% per year. Let's ask the folks on the Outer Banks, in Wilmington and other coastal towns what they think about that.</p>	Nancy LaPlaca
<p>Energy efficiency should be the first priority for our state to address its current and future carbon reduction goals. Energy efficiency is oftentimes the least cost option but continues to be overlooked in favor of more generation, even from clean sources, which would not be needed if energy efficiency were properly prioritized in the state.</p>	NC Building Performance Association, Ryan Miller
<p>All of these recommendations should be prioritized as energy efficiency is the least-cost resource for achieving our state's clean energy goals and contributes a wealth of additional environmental, economic and workforce benefits to the state.</p>	NC Building Performance Association, Ryan Miller
<p>Commercial PACE is currently disallowed because of opposition from the Treasurer's office. The Governor's office and NCDEQ should work with the Treasurer's office to resolve these issues. NCBPA has led advocacy efforts on this since 2017 and a draft bill still waits to be heard in Senate rules. A summary of the status of C-PACE in North Carolina is available here: <a href="http://buildingnc.org/get-involved/policy/cpace/">http://buildingnc.org/get-involved/policy/cpace/</a>.</p>	NC Building Performance Association, Ryan Miller
<p>Legislation signed into law by the Governor in June -- HB675 -- requires a new cost-benefit analysis methodology to be developed and implemented for all future (and past, going back to January 1 of 2018) energy code changes. This methodology should incorporate energy and non-energy benefits (NEBs) such as improved health, safety, durability, value and occupant productivity. Doing so will allow regulated utilities to also incorporate NEBs into <u>their energy efficiency programs, making the measures delivered more valuable</u></p>	NC Building Performance Association, Ryan Miller
<p>A formal Energy Efficiency Apprenticeship program would be very helpful for training and educating our future workforce.</p>	NC Building Performance Association, Ryan Miller

Submitted by Gayle Goldsmith Tuch  
Chair of North Carolina Climate Solutions Coalition  
Master of Environmental Science  
Juris Doctorate  
Master of Environmental Law

It is important to thank all of those employed with the State who have been working diligently on Executive Order 80's North Carolina Clean Energy Plan (hereinafter referred to as "the Plan"), as well as those individuals who attended meetings and voiced what they believe, in their opinions, professional or otherwise, as to measures that need to be taken immediately to reduce greenhouse gases in order to avert a climate catastrophe.

As discussed in the Plan, the electric grid must be upgraded. With the demand for electricity being flat, and with technology to reduce the demand further, either through energy efficiency or clean renewable energy, the Plan can aggressively reduce greenhouse gases in the atmosphere. As a whole, the intention of the plan is to be commended. However, there needs to be significant edits and additions to the Plan if it is to accomplish these goals.

The Plan refers to "clean" energy, but there is no definition of clean energy in the plan. In fact, there should be reference to "clean renewable energy". Note that NO fossil fuel energy production is "clean". Also note that not all renewable energy is clean either. Therefore, "clean renewable" energy must be addressed in the Plan.

While the plan will result in reductions of carbon dioxide (CO2) emissions, increases of other greenhouse gases, particularly, methane (CH4) will defeat the entire purpose of the Plan. As all experts know, methane is much more concentrated of a greenhouse gas than carbon dioxide, a significant amount of which comes from natural gas and factory farming of animals.

The construction and/or planning of the Atlantic Coast Pipeline, the Mountain Valley Pipeline and the Liquefied Natural Gas facilities with a situs in Robeson County, and any others under consideration now or in the future MUST be swiftly and decidedly halted. This is not just a climate issue, it is an environmental justice and energy justice issue. In addition, power companies are heavily investing in gas infrastructure with coal plants being transitioned to gas plants, claiming to be cleaner than coal. As Duke Energy transitions away from coal power plants to new gas plants, pipelines and storage facilities, North Carolina may meet its goals to reduce carbon dioxide emissions; however, this will not decrease greenhouse gases in the atmosphere. In fact, with construction of additional gas infrastructure, our state will be locked into carbon emissions for generations. Meanwhile, this will stymie investment in renewable energy technologies which are now less costly than the outdated fossil fuel infrastructure, especially if you include the pollution and other externalities of fossil fuel energy. Technology of renewable energy storage (batteries) is increasing, thus being financially competitive as their prices decrease.

Animal Agriculture and Intensive Animal Farming emit an enormous amount of methane gas. Studies show a minimum of 18% up to a maximum of 51% of all greenhouse gas emissions come from animal agriculture/farming.

The plan also fails to address the wood pellet industry. Enviva, which was founded in 2004, claims that they "wanted to develop a cleaner fuel than energy alternative to fossil fuels" (see their website). However, the company is clear-cutting North Carolina forests to produce wood pellets, which are being shipped to Europe and burned there. Just because the pellets are being burned in Europe, does not reduce their greenhouse gas emissions, it merely moves them from North Carolina. In addition, Enviva claims that they purchase carbon offsets to reduce their greenhouse gas emissions, but this is mainly in purchasing replanting projects. Note that this is greenwashing. Seedlings and small trees do not sequester carbon, like old growth or more mature forests. Healthy forests are important because they absorb the CO2.

All of the above must be considered if the Department of Environmental Quality is sincere in its plan to reduce greenhouse gases in the atmosphere. North Carolina has the potential to become a leading state in the nation on the reduction of its greenhouse gases emissions. This draft plan is a start, but to leave out other greenhouse gas emissions will defeat the purpose of this work. We all must take responsibility for what we humans are doing to our generation, our children's generations, biodiversity of species, planet, etc.

Thank you for considering the above points.

NC Climate  
Solutions Coalition,  
Gayle Goldsmith  
Tuch

Gov. Cooper, DEQ, others interested in NC Clean Energy Plan

There are many good reasons to prepare a Clean Energy Plan and our Governor Roy Cooper deserves a lot of credit for his efforts to try to do the right things to help move our State in the right direction during these difficult times. Parts of the North Carolina Clean Energy Plan DRAFT sound like they were written by the electric power industry. It also needs a little cleaning up in grammar and punctuation. However, the thing that is most lacking in this draft report is the necessary urgency and critical importance of addressing the important issues of climate change. This report must begin the task of confronting the critical climate issues --- it does not do that!

I have tried to go through the first segment (three pages entitled "The Energy Revolution in Process." Suggestions to update these three pages are attached as "Tracking Changes" so the original is shown with suggestions and the accepted document is also attached. A quick read of parts of the NC Clean Energy Plan and the Part 5 document on science and modeling tells me that this document could use a good critical reading before it is printed. Maybe I am being too critical for the document that you want, but I would really like to see this document become a powerful document for action to improve our global climate. I am probably more critical than most reviewers would be – I have been Chairman of the advisory committee for more than 50 graduate degrees (MS and PhD) in the general area of Atmospheric Physics. My degrees (BS 62, MS 64, PhD 66) are in Physics from NCSU. I have been back on the NCSU faculty for about ten years – after careers at AFCRL and Penn State Univ. If you want to see examples of my papers and other work, I have begun preparing a personal website that contains more than half of my papers written with my colleagues and students. It is accessible at, [crphilbrick.org](http://crphilbrick.org)

I have never taught a formal university class in climate change, but I do teach a six-class Climate Change class (non-credit) for OLLI once each year. However, I became concerned about our climate since about 1990 and can see the problems and have measured many properties and processes. We really need to become much more serious in working to limit the greenhouse effect from our atmosphere before the run-away effect goes beyond our ability to stop it with any actions we could take!

Prof. Russell Philbrick

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NCSU, Prof. C.  
Russell Philbrick

### The Energy Revolution in Process

The energy sector is undergoing a technology revolution across the United States and is transforming the electricity system as we know it, because of our realization that burning fossil fuels for transportation and energy are the primary factors in causing climate change. Since the rapid adoption of cell phones, personal computers, internet-based products, smart phones, and TVs, this digital age is creating advances in energy information devices, consumer products, and control technologies used to manage and operate the electric grid. Similar advancements are also occurring in energy generation, delivery, and storage systems, leading to declining costs and increased usage at rates unseen in the industry's history. Together, this transformation is enabling power generation assets and the electric grid to operate in a more efficient and closely coordinated manner. States are recognizing that the market forces which are driving this transformation come with many benefits, but also raise challenges and concerns.

North Carolina is experiencing a power sector revolution which includes: (1) widespread utility-scale solar installations, (2) unprecedented demand for rooftop solar, (3) beginnings of electrified transportation, (4) smart thermostats, (5) emergence of microgrids, (6) a broad mix of energy efficiency (EE) and demand response technologies. Advanced digital metering of sensors applied across the supply chain with communications networks to allow better connected systems. These factors will permit big data with analytics to inform energy development and to create a more diverse mix of resources to serve a variety of consumer needs. Additionally, end-users are demanding more energy choices, so companies are exploring innovative models to produce energy in ways that address the challenges of climate change and pollution. These goals must be balanced with the energy needs of frontline communities through affordable access as we transition to the new energy economy.

North Carolina's power system is evolving from one reliant on large-scale power plants to a bi-directional, distributed, and connected systems. The resulting system will increase the diversity of participating customers, the size of distributed energy resources (DERs), the number of connected digital devices and the frequency of communications. As new technologies are being adopted quickly, the change brings compelling opportunities as well as concerns and challenges that policymakers will need to address in the coming years. All of us have been too slow in recognizing that we have created a condition that is becoming critical as we approach a point of no return for a runaway greenhouse – humans cannot survive in a Venus-like greenhouse environment. The technical choices to help create a clean energy environment are becoming available and we must more rapidly adopt them.

North Carolina regulators and policy makers will need to adapt to a market in flux and make informed decisions regarding traditional systems on the cusp of obsolescence. Our leaders will also be called upon to create a regulatory framework, incentives, and environment that guides the market and optimizes the possibilities offered by the industry in transition. As North Carolina makes capital investment decisions for future capacity expansions, it will be important to encourage the systems that are most cost-effective yet maintain affordability, reliability, equity, grid efficiency, sustainability, and economic viability for all.

NORTH CAROLINA CLEAN ENERGY PLAN: SUMMARY DRAFT page 10

North Carolina's electric grid is more than one-hundred years old. It has transitioned from providing low-wattage electricity to a few incandescent lights for streets, homes and businesses to a complex system of power generation, transmission, and distribution systems delivering thousands of megawatts of electricity throughout the state. Today, our electric grid serves over ten million residents through three investor owned companies (Duke Energy Carolinas (DEC), Duke Energy Progress (DEP), and Dominion Energy (DE)), 26 not-for-profit cooperatives serving members in 93 of the State's 100 counties, and more than 70 municipally owned utilities. The electric grid has been the engine of our economy throughout the 20th century; however, according to the U.S. Department of Energy, "the grid we have today does not have the attributes necessary to meet the demands of the 21st century and beyond."



21st century and beyond.”

NCSU, Prof. C.  
Russell Philbrick

Today, the demand for electricity remains flat, with 2017 electricity consumption reported at about 90 percent of the 2009 peak due to investments in EE (example, LED bulbs) and customer-sited distributed generation systems. The North Carolina Utilities Commission (NCUC) reported that between 2016 and 2017, electricity sales from the State’s three investor owned utilities declined by 2.7 percent while the growth rate of new customers increased by 0.34 – 1.57 percent. 1 An increasing number of customers are generating their own power, technologies are being introduced at a rapid pace, and societal priorities have emerged about addressing, mitigating and adapting to the effects of climate change. A modern grid must meet these demands by assuring that North Carolina has the capability to provide the supplemental power needed during those periods when solar and wind power production sources are not available. Individuals and small grid electrical providers will depend on the large grid providers to supplement their production and stored energy when the weather and cyclic nature intervene. Environmental policies and a strong history of public and private cooperation, North Carolina are positioned as a frontrunner in the clean energy economy space. Today, we have the highest concentration of smart grid companies in the world, are second in the nation for installed solar capacity, and are home to nearly a thousand clean energy companies in North Carolina. To carry out the most important task of providing clean energy, all coal-fired power generation should be shutdown as rapidly as possible. The clean energy of solar and wind production should be rapidly expanded, while all fossil fuel generation is reduced to providing the necessary energy when the weather limits our green energy generation. New technologies and opportunities continue to offer an avenue for creating additional jobs, help North Carolina be globally competitive in the new economy, and provide a primary contribution of green energy sources to meet the challenges of climate change.

The rapidly changing market is disrupting the current design of the electricity system and the regulatory processes. It is also placing increasing demands on electric utilities beyond the traditional charge of maintaining safe and reliable operation. North Carolina regulators are already considering the significant shift in generation resources set to come online soon. The Annual Energy Outlook (AEO) for 2019 forecasts that nationally, many  
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existing coal plants and some natural gas plants will retire by 2025. Regulatory actions taken by several states in recent months and data from several studies indicate that this trend is occurring faster than anticipated and scientific understanding of the climate requires us to make even a faster response. In addition, a March 2019 report from Energy Innovation and Vibrant Clean Energy concludes that the U.S. has now reached the coal cost crossover point, where fast-falling wind and solar prices make operating 74 percent of all existing coal generation plants more expensive than building new local renewable energy with an immediate savings to customers. In the Southeast, all coal plants were found to be substantially at risk to replacement by local solar by 2025, with North Carolina found to be the state with the highest risk. Nearby, both Georgia state regulators and the TVA have recently announced retirement of uneconomical coal units and natural gas-fired combustion turbines in their states.

In this critical time to greatly reduce our greenhouse emissions and grow our green energy solutions, also the opportunity to save money is now available. The utilities, regulators, policymakers, and other stakeholders are urged by industry experts to take a critical look at plants operating in their jurisdiction and the sources that will replace them. North Carolina will need to design policies that provide certainty in the marketplace with enough flexibility to support innovation and creativity. New technologies will lead to cost savings for customers; incentives and rate structures should reward efforts to reduce atmospheric pollution and provide clean energy for our future on Earth. The importance of our efforts to reduce our emission from fossil fuel emissions is critical and should not be regulated by entirely by cost considerations. We must move as rapidly as we reasonably can to reduce our hydrocarbon emissions and encourage other states and countries by our concerted actions.

<p>Responses to public comments on certain aspects of the Greenhouse Gas Inventory are insufficient and need to be addressed. Specifically, decisions on how fugitive methane emissions are treated don't align with best available science, which has evolved since the draft and response were published. For example, the 1.7% fugitive CH4 emission rate from the Littlefield (2017) study used in DEQ's GHG inventory has been superseded by newer research. At this time, the most conservative, robust estimate is probably Alvarez et al. 2018 (DOI: 10.1126/science.aar7204), which finds an average bottom-up estimate of 2.3% (with a 95% CI of 2.0% - 2.7%). Unlike past inventories (e.g., Littlefield), their estimate accounts for abnormal operating conditions not typically reported to EPA. DEQ may also want to consider the implications of known self-reporting underestimates in its decision to use a lower-than-default emissions rate for compressor stations (i.e., 500 instead of 983.66). Alvarez et al. discuss this. Howarth continues to publish much higher fugitive CH4 emissions rates (DOI: 10.5194/bg-16-3033-2019).</p> <p>In DEQ's response to GHG Inventory comments, the agency says it will continue to study how best to incorporate upstream (i.e., out-of-state) emissions. I would counter that we already have all of the information needed to apportion upstream emissions to NC consumption with upper and lower bounds. The time is ripe to go ahead and do this, and it's important to start with realistic fugitive CH4 estimates. If the GHG budget ignores upstream emissions, then DEQ's response that the exact fugitive emissions rate won't have a big impact on the overall budget is probably correct. But we should see the math when upstream emissions are included.</p> <p>Finally, I note that in its "Systems Transitions" chapter, the latest IPCC report on 1.5 degrees of global warming notes that new natural gas power generation should be deployed in tandem with carbon sequestering technologies.</p> <p>I'm happy to advise on these topics.</p> <p>Sincerely,</p> <p>Ryan E. Emanuel, Ph.D.</p>	<p>NCSU, Ryan E. Emanuel</p>
<p>Catastrophic climate change caused by man made CO2 emissions is a fraud. According to scientists CO2 has been much higher in earths past history as have global temperatures. The scientific data shows a reduction in hurricanes, forest fires, tornadoes, droughts etc over the past decades as CO2 has gone up. If you really cared about the environment and people you would stop promoting windmills and solar panels which have been shown to be very damaging to the environment over their life cycle. If you really cared about the environment and people you would promote nuclear energy which has a proven track record of safety both in terms of deaths and environmental damage. It's not even close. Those who promote wind and solar do so from an emotional level and not based on any factual, scientific data.</p>	<p>Neal Konneker</p>
<p>Please promote nuclear power. You don't even have to promote it, if you would just stop regulating it to death it would probably succeed on it's own merits both economically and environmentally. Please stop subsidizing wind and solar. I do not appreciate paying taxes to support wind and solar, that are shown to be more dangerous and less environmentally friendly than nuclear. Nuclear power technology is making huge strides technologically and doesn't produce any CO2 at all.</p>	<p>Neal Konneker</p>
<p>I work for Duke Energy and live in North Carolina. I am a proponent for the value of safe, efficient, clean, carbon free nuclear energy. Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon dioxide as is released from more than 10 million passenger cars). The Duke Energy nuclear fleet provided almost half of our Carolina's customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a capacity factor greater than 90%. I firmly believe nuclear energy should be part of a solution to a clear energy future.</p>	<p>Neil Archambo (Duke Energy)</p>

Can human activity change the course of climate change? How much evidence do we have to support the billions of Euros and dollars being spent to chase the concept that we can alter the course of climate change.

A quote from CBC's Rex Murphy "Climate science has shown to be, in part, a sub-branch of climate politics. It is a situation intolerable even to serious minds that are on side with Global warming". Clive Crook wrote in Atlantic magazine about a 2009 scandal as follows: "the stink of intellectual corruption is overpowering. Climate science needs its own reset button."

In 2009 a review of climate information that was a basis of the current climate change documentation showed many discrepancies. The investigation has been dubbed Climategate. The Climategate emails, originating from the Climatic Research Unit at the University of East Anglia, showed how all the data centers worldwide, including NOAA and NASA, conspired in the manipulation of global temperature records to suggest that temperatures in the 20th century rose faster than they actually did.[22] As scientific data began showing a downtrend after 2001, the Climategate emails show a criminal intent to create fraudulent data, and defraud the public of massive amounts of money with a cap and trade scheme as part of a Global Warming movement.

The Climategate scandal that erupted in 2009 revealed that corruption of climate science is a worldwide problem and is not confined to just Britain's CRU climate research center. This should be seen not primarily as a set-back, but as an opportunity to cleanse scientific method, to take science away from politics. Climate science should embody guaranteed neutrality, openness, real in vigorous debate; and away from the lobbyists. Read the e-mails, you'll never think of climate science quite the same way again.[25][26]

The following is a summary of various conferences and scientific panels looking into climate change and the influence of man-made climate change. Their references are imbedded into the report and are linked to URLs as you pass over the information. Almost all of this information is blocked from getting into the national news outlets.

On 25 July 2019 at a conference held at the Trump International Hotel in Washington, D.C., Frank Lasee, the president of The Heartland Institute, (Frank Lasee ) explained, "ICCC13 demonstrated that the Climate Delusion is not based on sound science or economics. It is wasting trillions of dollars and threatening our way of life, while propping up the drive for world socialism. " The Climate Delusion, relying on bad science and misguided economics, is damaging America and threatening the world. We do not deny that we are in a period of global warming. But there is no scientific consensus, about human responsibility for climate change.

In another panel Dr. Lehr (Dr. Jay Lehr is Senior Policy Advisor to International Climate Science Coalition (ICSC.) focused on the real drivers of the climate scare— attempts by the left to impose world socialism and put society under ever more government control. Dr. Lehr demonstrated the Climate Delusion by listing twelve variables that, while crucially important to any calculation of projected Earth temperatures, are not well understood by scientist.

In a presentation Climate Change Reconsidered II: Fossil Fuels, the latest volume of peer-reviewed research by the Nongovernmental International Panel on Climate Change (NIPCC) showed again that climate change is not anthropogenic and that the data in many reports is manipulated. The report focused on climate modeling vs. observed temperature data, and the sun's dominant influence on climate change.

Dr. Nir J. Shaviv of the Hebrew University of Jerusalem in another report explained "There are no arguments proving that warming is mostly human".

Dr. Roy W. Spencer of the University of Alabama in Huntsville described how poorly computer models correlate with real climate change and concluded that there is no climate crisis or climate emergency. "Even if observed warming is due to increasing CO2(carbon dioxide), it's too weak to notice in a lifetime".

Kevin Dayaratna of the Heritage Foundation offered a simple explanation of the various mathematical models used to determine the costs to society of eliminating fossil fuels. No matter how he sliced it, the results are draconian. Dr. Ben Zycher, resident scholar of the American Enterprise Institute, and Dr. Roger Bezdek described the absurdity of attempting to shift away from fossil fuels to unstable so-called renewable energy.

Dr. Craig Idso, Dr. Patrick Michaels, and Anthony Watts reports show the doctored data promoted by NASA and NOAA in another scientific panel and conference. They all showed that when the initial data did not support the Climate Delusion, alarmists found ways to convince people that the data needed to be adjusted. Dr Idso focused on the data that does indeed prove that CO2 is the lifeblood of all vegetation, with plant growth always increasing with increasing levels of the gas proving with data and diagrams that increasing CO2 is not damaging the planet and its inhabitants, but instead is yielding huge benefits for life on Earth. They collectively emphasized that at the time of World War II, CO2 levels [about 300 parts per million (ppm)] were too close to plant starvation, which occurs with less than 150 ppm of CO2. Satellite photographs showed major greening of nearly every continent in the past 40 years. It seems the real-world benefits of increasing CO2 fly in the face of the propaganda produced by the United Nations and associated organizations that benefit by trying to increase the size of government in response to fraudulent fears.

The paper "Winning Public Policy Options," by Douglas Pollock from the University of Chile shows efforts to warn institutions about the unnecessary harm that fighting climate change is causing. This has resulted in his views being banned in Chile and throughout Latin America. Pollock explained what has been happening in Chile as a cautionary tale about what can happen in North America if it follows their disastrous devotion to green energy. The wind and solar sources Chile has brought online recently "have meant an average cost at least much higher than those of traditional sources,"

HadCRUT4 is the primary dataset used by the Intergovernmental Panel on Climate Change (IPCC) to make its dramatic claims about "man-made global warming". It is used to justify its demands for trillions of dollars to be spent on "combating climate change" and as the basis for the Paris Climate Accord. But according to a groundbreaking analysis by Australian researcher John McLean, it's far too sloppy to be taken seriously "Governments have had 15 years to check the data on which they've been spending billions of dollars and they haven't done so once." McLean in his research learned the global warming scare was effectively the creation of just 53 people. He reached this figure by analyzing the IPCC's 2007 Assessment Report, which, according to the IPCC, represented a "consensus" of the views of "2500 climate scientists.

There are now two petitions launched by CEI. The first was for the Environmental Protection Agency (EPA) to re-open the CO2 Endangerment Finding. The second petition was asking NASA to withdraw the misguided statements on their web site about 97% of scientists agreeing with the so-called global warming consensus. If there is nothing to hide, why is there so much push back to implement the study which was proposed back in February and not yet implanted?

Nicholas De  
Gennaro PhD PE

<p>Considering what goes into developing a wind turbine or a solar farm, it is clear that they are not really green and never economical without the government paying most of the bill. Dr. Ben Zycher, resident scholar of the American Enterprise Institute, and Dr. Roger Bezdek emphasized that "Clean" power is not clean." It requires huge land or sea use and creates "heavy-metal pollution, noise, flicker effects, solar panel waste, wildlife destruction." Building one 5 MW wind turbine requires 900 tons of steel, 2,500 tons of concrete and 45 tons of plastic. Many dream of powering society entirely with wind and solar farms combined with massive batteries. Realizing this dream would require the biggest expansion in mining the world has seen and would produce huge quantities of waste.</p> <p>"Renewable energy" is a misnomer. Wind and solar machines and batteries are built from nonrenewable materials and they wear out. Old equipment must be decommissioned, generating millions of tons of waste. The International Renewable Energy Agency calculates that renewable goals for 2050 consistent with the Paris Accords will result in disposal constituting more than double the tonnage of all today's global plastic waste. Consider some other sobering numbers: A single electric-car battery weighs about 1,000 pounds. Fabricating one requires digging up, moving and processing more than 500,000 pounds of raw materials somewhere on the planet. What is the alternative? Use gasoline and extract one-tenth as much total tonnage to deliver the same number of vehicle-miles over the battery's seven-year life.</p> <p>When electricity comes from wind or solar collectors, every unit of energy produced, or mile traveled, requires far more materials and land than fossil fuels. That physical reality is literally visible: A wind or solar farm stretching to the horizon can be replaced by a handful of gas-fired turbines, each no bigger than a tractor-trailer. It's debatable whether some "renewables" even produce net energy. The amount of energy used in the mining, manufacturing, research and development, transport, installation, maintenance, grid connection, and disposal of wind turbines and solar panels may be more than they ever produce. Claims to the contrary often do not take all the energy inputs into account.</p> <p>Renewables have been described as a laundering scheme: dirty energy goes in, clean energy comes out The waste is simply incredible. What's more there is some evidence that petro-tyrants such as Vladimir Putin finance green activist groups in Europe and the US, just to get uninformed people to buy into the green idea and delude them into the idea that by building wind farms will generate 'clean' energy. The motive is obvious, getting the free world to become less energy efficient. To abandon petroleum resources will give those who do not go that direction the upper hand in the future. The above begs the question: If wind energy reduces CO2 by so very little/kWh, or not at all, or increases it, and requires so much capital/MW to implement, and produces energy at such a high cost/kWh, and has such huge adverse impacts on quality of life (noise and infrasound, visuals, social unrest, psychological), property values and the environment, why is the free world , making ourselves even less efficient relative to our competitors by this lemming-like pursuit of expensive wind energy?</p> <p>In the US much of the information discussed in this paper is slowly leaking but maybe not as fast as the green energy lobby moving their agenda forward. So as time goes on more open information may slow down the process of offshore wind implementation even as the apparent price offshore wind energy is coming down but may not stop it. In the EU, the system is committed and will be difficult to reverse because of the huge capital expense invested. The US though has a good chance not to engage in such inefficiency. The US is one of the last hold outs in the free world trying to be efficient with energy use. Hopefully the US holds out long enough for the truth to be revealed about climate change, including the real cost to the environment and economy to implement inefficient energy sources.</p>	<p>Nicholas De Gennaro PhD PE</p>
<p>Thank you for allowing the citizens of NC to participate in this process. Customer access to clean, affordable energy should be a right. While the transition to such resources is not without controversy, it is vital that ALL people be able to have the assurance that they can support their families and rely on affordable sources of renewable energy to do so. Our planet suffers from the harmful effects of human and natural activity. The least our state can do is to provide options, incentive, and access to clean energy.</p>	<p>Nicole Gaines</p>
<p>A Just transition to clean energy simply means that regardless of race, gender, caste, nationality or other designation, North Carolina's Clean Energy plan is affordable and works for everyone equitably. The poor should be able to access resources and rely on the fact that the costs of providing energy to their homes should not exceed 5% of their income in total. A just transition allows for choice. A just transition does not accommodate monopolistic behavior from the utility industry that favors the wealthy and/or company shareholder before the welfare of the people. A just transition is not based on an extraction economy. It is one of equity, equality, share vision, and community.</p>	<p>Nicole Gaines</p>
<p>The NCDEQ and the Governor of NC are standard bearers for ushering in a clean economy. We look to those in NC government to enforce and regulate our transition to focus on strong economic development. We should work with our community colleges with intention to help develop a workforce prepared for the next millennia. There are institutions of higher learning in all of NC's 100 counties. The clean energy economy should be an integral part of education and workforce development. Jobs in this sector are the promise to the future,</p>	<p>Nicole Gaines</p>
<p>The plan is a good step in the direction, but does not address methane emissions from fracking, or curtail new gas plants.</p>	<p>Nik Gupta</p>
<p>Did not mention any efforts to help residents of manufactured housing address energy cost.</p>	<p>Nik Gupta</p>
<p>The state should have plans to electrify the fleet of state vehicles or electrify city busses.</p>	<p>Nik Gupta</p>
<p>This would help eliminate the amount of carbon emissions. Clean energy is the way to saving the earth.</p>	<p>Nikki Nguyen</p>
<p>Please consider regulation on fracked gas pipelines usage/building in our state, as well as regulations on the wood pellet industry, both excessive polluters which are detrimental to our citizens as well as increasing the impact on global warming. We have been complacent too long, now we are in the crosshairs of destroying ourselves and our planet. We don't deserve to be another disaster like the Bahamas, Puerto Rico, the Camp fire, etc.</p> <p>Thank your u</p>	<p>Nita Dukes</p>

The Nuclear Energy Institute appreciates the opportunity to provide comments on the Draft North Carolina Clean Energy Plan drafted by the Department of Environmental Quality. States that take a long-term perspective of their own energy future are to be commended but plans, such as North Carolina's, that do not recognize their largest source of clean generation cannot provide reliable vision for the state clean energy future. The draft report makes clear that reducing carbon emissions is a key priority for North Carolina. Indeed, including "clean" in the title of plan is an unambiguous statement of what the state intends to value as it charts its path forward. The state's nuclear power plants are vital to realizing the vision put forward but the plan's failure to recognize this is a gross oversight that undermines the credibility of the document as a long-term guide to the future.

Nuclear energy is the foundation of North Carolina's clean energy future. Nuclear energy is by far the largest source of carbon-free generation in North Carolina, producing 77 percent of North Carolina's carbon-free electricity. The state is served by five nuclear units located at three sites. These plants generated 42 million megawatt-hours of electricity in 2018, almost one-third of the state's electricity production.

The draft plan includes strong goals for carbon emission reductions that will place it among the leaders in addressing climate change. The plan presents a target to reduce power sector greenhouse gas emissions between 60 and 70 percent below 2005 levels by 2030 and to drive towards zero emissions by 2050. Achieving these ambitions will require building upon nuclear's carbon-free generation.

Given the centrality of nuclear energy to any realistic and affordable pathway for North Carolina to achieve its carbon emission goals, it is inexplicable that the draft plan does not discuss nuclear energy at all. This baffling oversight will be detrimental to the long-term success of the strategy. Creating an expectation that nuclear is somehow peripheral to North Carolina's ambitions to reduce carbon emissions runs a risk that this technology will be taken for granted and even overlooked in the planning processes that would need to continue to invest in their long-term operation. The plan should explicitly discuss the role of nuclear energy in creating a low-carbon future for North Carolina, with a particular focus on the need to preserve the operating nuclear plants well into the future by supporting the opportunity for a subsequent license renewal that will create an option that could allow the units to run safely into the 2030s and beyond.

To be clear, North Carolina will not be able to meet its goals without building upon its largest source of non-emitting generation. Meeting the 2050 target driving towards zero power sector emissions will require adding around 80 million megawatt-hours of additional carbon-free electricity above what the state currently generates, assuming electricity demand does not grow. If the state's nuclear plants were lost, the requirement for new non-emitting generation now exceeds 120 million megawatt-hours. For comparison, North Carolina produced 7.5 million megawatt-hours of solar and wind electricity in 2018. Relying solely on solar and wind to meet North Carolina's electricity needs will be prohibitively expensive while undermining the reliability of grid. North Carolina's economy needs energy that is reliable, affordable and clean to thrive in the 21st century. North Carolina's nuclear plants provide this winning combination.

There is no reason to develop a strategy that puts all of the state's clean energy eggs in one renewable basket. Solar and wind need not bear the entire burden of transitioning to a clean energy future. Nuclear energy can continue to provide carbon-free electricity all day, every day to work with solar and wind in a portfolio of non-emitting technologies.

North Carolina is well-positioned to build upon its carbon-free nuclear generation to achieve the goals set forward in this draft plan. Policies that value nuclear's attributes will provide the economic signals that these plants should be retained. The draft plan includes a promising approach to recognize

nuclear energy's potential role in the state. Pathway D-5 discusses the potential for updating the state's Renewable Energy and Energy Efficiency Portfolio Standard (REPS) to better match the long-term goals put forward in the plan. This is a potentially valuable tool but it must be inclusive of all carbon-free technologies to be truly effective. If the policy were limited to only a small set of eligible technologies then those carbon-free sources that are not deemed eligible, potentially including nuclear energy, will be left with fewer and fewer hours of they day when they could produce electricity that is valued by the grid. As this portion of the market continues to shrink, nuclear plants would be forced to close.

The draft plan discusses more fruitful approaches to expanding the deployment of carbon-free generation in North Carolina. The most efficient way to reduce emissions is to equally value all carbon-free electricity, regardless of the manner in which it is produced. A policy that creates zero-emission resource targets focuses the policy incentives on the core problem – reducing carbon emissions – allowing the market to create the best portfolio of technologies to meet the challenge. Such an approach would be similar to policies enacted in Washington, New Mexico, Colorado, New York, and California that have set aggressive carbon reduction goals and created a framework that would allow all non-emitting technologies – including nuclear, solar and wind – to contribute towards reaching the target. North Carolina should adopt a framework that enables the most pathways for success to minimize the cost to consumers as the power sector is reshaped to meet the needs of the state.

Nuclear Energy Institute, Matthew Crozat

The first step in securing nuclear energy's role in meeting North Carolina's goal to reduce power sector emissions is to preserve the long-term operation of the plants providing over three-fourths of the state's carbon-free power. Nuclear units receive licenses from the Nuclear Regulatory Commission to ensure they will continue to operate safely. All plants begin with a 40 year license and almost every unit in the U.S. – including those in North Carolina – have received a license renewal that have allowed them to operate for an additional 20 years. For this nuclear foundation to continue towards mid-century, the plants will need to receive a subsequent license renewal (SLR) to operate. An SLR will only be granted if the units can demonstrate that they are well-maintained and being operated safely. North Carolina should encourage the continued capital investments in these nuclear units that will enable them to make any component upgrades or other improvements that will be necessary to receive an SLR.

North Carolina should directly consider the role of nuclear energy as it contemplates other changes to its energy system. Pathway A-3 of the draft Clean Energy Plan calls for a study to evaluate the cost and benefits of restructuring the electricity sector to incorporate greater competition. As part of undertaking such a study, the assessment should specifically examine the fate of nuclear plants in these markets. Wholesale electricity markets have traditionally been designed to only focus on short-term costs. In this framework, the non-emitting attribute of nuclear energy is not valued and many plants have faced closure. State governments have responded in many cases. New York, Illinois, Connecticut, New Jersey and Ohio have all enacted policies that value nuclear attributes, including the creation of zero-emission credits, that have enables plants to remain in operation. As North Carolina evaluates restructuring possibilities, it must take great care to resolve how markets that built around marginal cost can also create the incentives to achieve the clean energy goals described in this plan.

In taking action to ensure nuclear energy remains part of the portfolio to reduce carbon emissions, North Carolina will be heeding the counsel of a broad range of experts that have called attention to nuclear's vital role in this journey. The Intergovernmental Panel and Climate Change, the International Energy Agency, the World Resources Institute, the Center for Climate and Energy Solutions, and the Union of Concerned Scientists are among the groups that have called for the need to include nuclear energy as a component of an effective carbon reduction strategy (see attached).

We were pleased to see that the draft plan places significant emphasis on family-wage jobs and community development. The five nuclear reactors in North Carolina directly employ nearly 3,000 people. These nuclear jobs require specialized skills and receive higher salaries than comparable industries. Unlike many jobs in the renewable energy sector, jobs at nuclear power plants last for decades. These are the types of jobs North Carolina should seek to retain and expand in the final plan.

In addition to jobs at the state's nuclear plants, North Carolina benefits tremendously from the presence of General Electric-Hitachi's nuclear energy headquarters and operations in Wilmington. GE-H employs thousands of North Carolinians in nuclear plant design and service, nuclear fuel fabrication, and a variety of other nuclear-related businesses. GE-H is also developing the BWR X-300, a next-generation small modular nuclear reactor that holds great promise for meeting the expanded global demand for carbon-free, dispatchable electricity. We hope the next draft of the plan will not overlook the thousands of North Carolina citizens who contribute to the largest source of carbon-free generation in the state and in the nation.

North Carolina's Clean Energy Plan is an opportunity to establish a vision of what the state's energy future should look like and the pathways to realize that vision. A plan that includes nuclear energy will allow the state to build upon a carbon-free foundation that will work with other emission-free technologies including solar and wind energy. Nuclear energy is a vital part of North Carolina's clean energy future and a plan that embraces its role will put the state on a pathway towards successfully achieving its goals.

Please include the cost of constructing the Atlantic Coast Pipeline in the cost comparison between solar and other renewables and fossil fuels/traditional energy sources. It is extremely misleading and dishonest that the cost of the equipment is not included to the detriment of solar and other renewables the North Carolinians want and need.

Olivia August

There is no mention of the impact of methane, especially as a byproduct of natural gas use/production/transportation despite the fact that without reducing the amount of methane we are producing ASAP we will not be able to avert the most devastating impacts of climate crisis.

Olivia August

There needs to be a commitment not only to the electrification of transportation but the the development of better public transportation options. This is important as both a general movement toward clean energy but also as a part of a just transition.

Olivia August

North Carolinians are sick of having no choices and being subject to the economic desires of a huge corporation. We want access to community solar options.

Olivia August

This plan has good points but what is the implementation plan and how can North Carolinians trust that this plan will be implemented without a clearly defined plan to do so?

Olivia August

<p>I agree with the goals laid out in this public document. It contains many good ideas, however the implementation process should be better clarified. The idea is one thing, but putting it into action is another. I believe customer access to clean energy will be crucial to enacting this plan. Allowing for consumers to afford and use green energy will make more people in favor of this plan. This can happen by increasing funding towards clean energy. Enacting financial plans and creating things like a "green bank" to catalyze this process will help make this happen. Tax incentives might also foster support for this document. The economy and economic growth is important for our state, and converting to green energy might help this. Although clean energy can be expensive, typically once an initial cost is paid up front, little cost is required past that point. For example, solar and wind power create virtually free energy post-construction. Also, in the future as non-renewable energy becomes more and more scarce, it will get more expensive. Because of these reasons, conversion to green energy is necessary not only for the earth but for the economy. By implementing this plan in a way that makes clean energy accessible for the majority of people, many benefits will result.</p>	Owen Streppa
<p>emissions; and provide important diversity to our nation's fuel mix. Not to mention the role they play in keeping the grid reliable. On top of environmental benefits, nuclear plants provide hundreds of thousands of jobs and contribute more than \$60 billion to our national GDP. Compared to other non-emitting sources, nuclear energy facilities are relatively compact. The amount of electricity produced by a multi-reactor nuclear power plant would require about 45 square miles of photovoltaic solar? panels or about 260 square miles of wind turbines. But nuclear plants are facing unprecedented challenges related to competitive markets that don't adequately compensate them for their unique contributions to our energy mix. As states are working on plans to help preserve baseload nuclear plants, I encourage you to support nuclear energy by talking to your colleagues about the benefits of nuclear and supporting legislative proposals that protect existing plants. We need our elected officials to support solutions that will keep safe and reliable nuclear power plants working for all of us.</p>	Perla V Valdes Torrico
<p>We must have a truly energy efficient future. This means stopping climate disruption now. Stop burning coal, wood and biomass. Do not build any more gas pipelines. Stop all leaks (of methane). Refine motor fuels a much cleaner and transition to all electric vehicles. Use 100% natural and renewable energy by 2030. Do total environmental analysis for all projects. This means all costs and benefits to society, not only \$ to investors.</p>	Philip J Bisesi PE
<p>In your list of green energy options for North Carolina you overlooked the most green of all, Nuclear. Nuclear energy is the ultimate green energy source. All sources of energy generation create waste from the process or impact the environment in a negative way. However with nuclear, all waste generated is contained and stored on site until it is safe to release to the environment. I recommend for a complete green energy plan you add the best source of green energy to the list. Nuclear power.</p>	Randal Atkins
<p>The new NC parameters for Climate Change need to cut NC's reliance and use of fracked natural gas and wood pellet production. These destroy our water and forests when we obviously can provide all our energy needs and then some through wind turbines (in our mountain and coastal areas; they get plenty of wind) and solar panels in our sunny middle. We are lucky to have an abundance of wind and sun in our state so let's put it to use!</p>	Rebecca Slaughter
<p>I have read the entire plan. I think it was well thought out and I like how input was gotten from so many of the different stakeholders. If executed as outlined it will go a long way to lowering NC's carbon footprint. It seems to me to be just and equitable for all citizens. If well managed then electric rates should continue to stay low.</p> <p>Upon reflection, I would hope that the role of the NCUC charter gets expanded to include the role of getting NC to a net zero economy by 2050.</p> <p>I would like the plan to include a requirement that there be an online way for citizens to monitor the total state power generation and GHG production over time by all energy generation resources, public and private.</p>	Richard Burgess
<p>I am an employee of Duke Energy. These comments are my own. Nuclear energy is the largest source of carbon-free generation that is sustainable. Nuclear personnel have provided continuous support to the surrounding communities by donating goods, time, and services with various community organizations. Almost half of the electricity supplied to the Carolinas is currently supplied with nuclear energy while maintaining a capacity factor that has been greater than 90 percent. Nuclear energy is and should always be considered an important factor in North Carolina's clean energy plan.</p>	Richard Honeycutt
<p>As a life-long resident of N.C., I applaud the state for looking to the future and ensuring future generations can enjoy a healthy environment. However, I am disappointed the clean energy plan does not recognize the benefits nuclear energy has provided our state for nearly 50 years. These benefits include reliable electricity, carbon-free generation and thousands of jobs (as well as significant taxes paid at the state and local levels).</p> <p>A clean energy plan without the inclusion of nuclear energy is incomplete. While I support all generation sources, as each has pros and cons, if we truly want to ensure a clean energy future for many generations, nuclear power must be included and strongly supported. Our modern conveniences require large amounts of energy and we need to make sure nuclear power is seen as an asset for our state, both now and in the future, as we all expect our electricity to be accessible at the flip of a switch.</p> <p>Electricity is no longer a luxury - it is a necessity. While renewable energy is important, it is not as reliable as nuclear power and never will be. And, I want my electricity to be clean and available all day, every day - not just when the sun shines and the wind blows!</p> <p>Thank you for reconsidering nuclear's role in the clean energy plan and strongly showing your support for the great asset it is within our state.</p>	Rita Sipe
<p>Any thing like wind or solar which requires a subsidy is counter productive. Climate change and global warming is a myth!!!!</p>	Robert A. Settineri

<p>I am Robert Boyer, and I work for Duke Energy and I live in North Carolina. Most importantly, I am a proponent for the value of safe, efficient, clean, carbon-free Nuclear Energy in the Carolinas. Here are a couple reasons why Nuclear Energy is part of the solution to a clean energy future:</p> <ul style="list-style-type: none"> <li>• Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>• The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> </ul>	Robert Boyer (Duke Energy)
<p>I am 100% for moving to a clean everything energy plan. There should also be plenty of incentives for the public to switch over to clean and energy efficient products. It shouldn't be dictated by the energy company.</p>	Robert J Tucker
<p>Nuclear Power should be considered as a leading source of clean energy. It operates 24/7 and has no greenhouse gas emissions.</p>	Robert Norville
<p>Nuclear energy is the best solution for a strong grid that is environmentally friendly and clean.</p>	Robert Rishel
<p>Nuclear energy has no greenhouse gas. Why is it not included.</p>	Robert Rishel
<p>Getting a plan in-place is essential and this plan is a start. What about including methane emissions in the assessment and plan? What about restricting unnecessary pipelines? Let's stop shipping our forests to Europe as wood pellets, this isn't good business even if a few people will make money doing it.</p>	Robert Weickert
<p>Carbon free energy needs to be accomplished using small modular nuclear facilities. Solar and wind alternatives are not the answer since they don't provide the required capacity and litter the landscape with ugly components. In addition, solar cells are made from toxic materials which need to be disposed of after failure or end-of-life. Nuclear had provided carbon free energy for many years and currently contributes to over 30% of the energy needs in North Carolina. We should not be fooled by uninformed politicians who gain by promoting technology that does not provide the carbon-free goal that we all want for our state.</p>	Ron Staskel
<p>Green energy is healthy and without harmful byproducts. Wind, sun, hydrogen and water are natural and pure. Wind farms can be placed on mountain tops and off our coast. We can put solar plans on top of buildings, homes and in fields. Solar farms are popping up across the country and provide energy. Hydrogen engines have only one byproduct, that is water. The only reason the GOP hates green energy is because they can not tax it nor make money off of it, the way they do crude oil, natural gas and coal. We must stand up and demand change. One loud voice to protect our environment for our children, grandchildren and those generations yet to come. Thank you</p>	RoseMaria Strates Root
<p>The United States of America and even North Carolina is experiencing climate, air quality changes, and erratic weather. I believe this is because of an increase in the usage of coal and other fossil fuels. I believe if North Carolina and other states switched over to micro grids gradually we could slow down climate change significantly. Micro grids could be placed in all 100 counties of North Carolina in case of a blackout in the state. These micro grids should still be connected to a main grid. This also cuts down carbon emissions from coal plants. People will lose jobs but more jobs will open up for the positions of installing these micro grids, repairing the grids if damaged, and recycling old parts for these grids. I also believe a feature that should come with the micro grids is a smart feature. The "smart" feature should start back up automatically after a power outage rather than the traditional manual start up. Also micro grids should shut down automatically if a problem were to occur instead of burning out the providers computers and causing damage. I also believe with the smart features there should be a limit switch to cut down on usage of technology. A couple of examples of places that have micro grids are, Fort Bragg, North Carolina, Beach Cities Micro Grid Project, San Diego California, and Perfect Power at Illinois Institute of Technology, Chicago Illinois.</p>	Ryan Caldwell
<p>I work for Duke Energy and I live in North Carolina. These opinions are my own.</p> <p>I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>• Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>• The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>• Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>• Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as</li> </ul>	Ryan Welch



On behalf of the Southern Alliance for Clean Energy (SACE), we thank you for considering these comments and recommendations regarding North Carolina's draft Clean Energy Plan. We see this plan as a critical step in successfully implementing Governor Cooper's Executive Order 80 in order to boost the state's commitment to clean energy, grow the state's economy, and protect North Carolinians' public health and environment by taking action on climate change.

We applaud the year-long efforts of staff at the Department of Environmental Quality (DEQ) to host listening sessions, solicit and analyze feedback, and craft this draft plan as a means to successfully implement Executive Order 80, and we hope you will consider our comments in finalizing a bold, comprehensive strategy.

#### Utility-Led Energy Efficiency

North Carolina has a strong foundation on which to build, owing to its supportive regulatory and legislative policies, utility management leadership, and robust stakeholder engagement. Due in part to North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard (REPS) law and the resulting pro-efficiency rules and practices at the North Carolina Utility Commission (NCUC), Duke Energy became the first utility in the Southeast to achieve 1% annual energy savings. It offers a broad mix of programs and includes a commitment to serving low-income customers. With respect to utility-led energy efficiency programs, there remains room for improvement by, both in bringing the savings performance of other electric utilities up to levels already achieved by Duke and by setting forth higher specific energy efficiency resource standard targets going forward.

Duke Energy's leadership can be attributed in part to the strong financial incentives authorized by the NCUC and state law that encourages Duke Energy to forgo building and operating power plants in favor of investment in their demand side management (DSM) and energy efficiency (EE) programs. At a reasonable cost, Duke Energy has emerged as the leading utility in the Southeast: in 2018, Duke Energy Carolinas (DEC) delivered 811 gigawatt-hours ("GWh") of efficiency savings at the meter, equivalent to 1.05% of the previous year's retail sales. However, much more can be done to encourage the state's utilities to capture all available cost-effective DSM and EE.

For example, Duke Energy Progress (DEP) has not kept up with its DEC sibling, having achieved 2017 energy savings equivalent to 0.79% of prior year retail sales. And for its part, DEC projects a decline in savings of more than 150 GWh in 2020, with a corresponding drop in the percentage of prior year retail sales to 0.84%. Further, both DEC and DEP rely too heavily on short-lived measures, rather than those that deliver longer-term savings.

One constraint on the overall level of savings is the increasing opt-out by the largest utility customers. State law authorizes companies that plan to achieve energy efficiency on their own to "opt out" of paying for and participating in the state's energy efficiency programs. Even though they do not pay for or directly receive financial benefits, these companies do benefit from the programs, since they help Duke Energy avoid peak use of power plants and avoid the need to construct more costly power plants.

Notably, large customers who opt out are not required to present any evidence that they are also investing in energy efficiency other than a statement to that effect. The opt-out law should be revised to require more substantial evidence, and to require those programs that clearly benefit all customers to be paid for by all customers to a reasonable extent - particularly demand response programs.

There is also room for improvement related to incorporation of energy efficiency and demand response in integrated resource planning (IRP). As discussed in more detail below, the North Carolina Utilities Commission recently issued an order directing Duke to take specific steps to ensure demand

discussed in more detail below, the North Carolina Utilities Commission recently issued an order directing Duke to take specific steps to ensure demand side resources are more fully evaluated in IRP planning. We recommend that these requirements be reflected in the Clean Energy Plan and encourage the administration to continue working with the Commission to ensure the requirements are upheld, particularly as they relate to EO80.

Another key area of reform is in the support of delivering energy efficiency to low-income populations. These programs are challenging because low-income customers typically lack the ability to invest the up-front costs needed to achieve long-term cost-effective savings. Many low-income customers participate in Duke Energy's residential energy efficiency programs, both the income-qualified programs as well as the other programs. A key emerging theme is close coordination between Duke Energy and the state's weatherization assistance program in terms of funding and project completion. This coordination is needed because low-income residences often need health and safety upgrades prior to upgrading the home for energy efficiency. Greater investment in weatherization programs by the state, and encouragement to other utilities to provide similar complementary programs, could substantially alleviate energy bill burdens felt by many of the state's low-income residents.

We support the creation of an Energy Efficiency Advisory Council and strongly encourage the administration to require that a significant number of participating members have specific knowledge and experience related to the promotion and successful deployment of energy efficiency.

#### Energy Efficiency and Natural Gas

One consequence of electric utility energy efficiency programs is that it becomes less costly to use electricity as compared to alternatives, notably natural gas. State law constrains the activities of electric utilities to avoid using ratepayer funding to drive fuel switching away from natural gas. When enacted, this was a reasonable policy to police the use of ratepayer funds to leverage market competition. However, this policy is incompatible with the objectives of the draft Clean Energy Plan: if we are to reduce North Carolina's carbon emissions substantially, it will require cost-effective steps to beneficially electrify the state and reduce the dependence on gas (and coal) in many applications.

The excessive impact of this program is clear - currently it is affecting the approval of the proposed residential new construction energy efficiency program by DEC. SACE has spoken to low-income housing providers such as Habitat for Humanity who find they are able to build more efficient homes in DEP territory than in DEC territory, because DEP does offer a residential new construction program.

Recently, however, DEC has attempted to withdraw its proposed residential new construction program because the natural gas utilities are concerned about perceived fuel switching issues. Even though this program focuses on residences that have yet to be built, and therefore do not have any preexisting fuel source to "switch" from, DEC was persuaded in confidential conversations with natural gas utilities to abandon this program.

While we agree that ratepayer funds should not be leveraged by electric utilities to build market share, to the extent that those funds are serving an authorized public purpose in a cost-effective manner, then market share concerns should be overridden.

#### Energy Efficiency Resource Standard and a Statewide Energy Efficiency Program Administration

We support the proposed EERS in the draft clean energy plan, but believe it should be made more ambitious. Currently Duke Energy is far exceeding the proposal in the plan, and we recommend that the proposed EERS be gradually increased to a level at least similar to Duke's current efficiency performance. The exact level should take into consideration how large customer opt-outs are being treated; for example, opt-out customer savings could count towards fulfillment of the EERS if they were properly accounted for.

We also support the idea of giving the NCUC greater authority to verify savings and enforce compliance with the EERS by municipal and electric cooperative utilities. This approach works well in other states, such as Minnesota, where robust achievements have been documented.

One challenge to high levels of energy efficiency savings, particularly for smaller utilities, is the so-called spillover effect. When a utility offers a discount on energy efficient products, such as light bulbs, appliances, or other equipment, it needs to ensure that the discount benefits its own customers for the most part. While this is relatively easy for Duke Energy, which serves the vast majority of customers in many areas of the state, it can be harder for a smaller electric cooperative or municipal utility.

For this reason, it may make sense for North Carolina to establish a statewide energy efficiency program administrator for certain market transformation programs. The Northwest Energy Efficiency Alliance operates this type of program, achieving market transformation savings for the region and divides the cost and benefit proportionately among all of its utility funders. For example, such a program could work “upstream” with HVAC system distributors to offer an incentive for high efficiency heat pumps regardless of installation location. This would simplify the incentive offering and eliminate the hassle of HVAC installers being required to verify a customer’s utility prior to generating a quote. Similarly, the state’s weatherization assistance program (discussed above) could coordinate directly with a statewide energy efficiency program administrator to cost-effectively encourage local agencies to expand the level of services both geographically and in terms of scale. Having such a program directly engaged statewide would also facilitate the development of workforce training programs to address geographic gaps in skills.

#### Restructuring the Electric Market

The study of retail electric choice should address issues related to retail net metering and energy efficiency. Typically, full retail electric choice states must adopt specific policies to continue offering retail net metering and energy efficiency. Net metering is not consistent with “pure” retail electric markets because it is a form of rate regulation, which is typically prohibited in a retail electric market. Similarly, retail electric providers are not often required to support energy efficiency programs, although distribution electric utilities are often directed to take this role. It would be pertinent to have the proposed Energy Efficiency Advisory Council (EEAC) have input into any study of increasing competition here in North Carolina.

The goals related to energy efficiency and customer access to clean energy would need to be clearly addressed in developing any retail electric choice study so that any retail electric choice proposal does not hamper these goals.

#### Electric Vehicle Charging Infrastructure

The draft plan’s consideration of electric transportation is “focused on how the utility sector can best integrate and encourage the adoption of electric vehicles and how the state can play a leadership role in accelerating transportation electrification.” However, the recommendation for rate design pilots (L-1) will mainly result in better integrating electric vehicles to the grid. (One exception is that if the plan were to call for reform of the EVSE demand charge tariff to encourage fast charger deployment, this could immediately spark further private investment in fast chargers.) The call for a study (L-2) will not encourage or accelerate transportation electrification.

SACE submitted comments to the NC Zero Emission Vehicle (ZEV) Plan. Those comments serve as SACE’s comprehensive response to the transportation electrification needs, opportunities, and challenges that should be addressed to reach Executive Order 80’s goals and beyond. SACE recognizes that a successful ZEV Plan will advance the goals of the Clean Energy Plan. Hence, in addition to the more detailed recommendations

recognizes that a successful ZEV Plan will advance the goals of the Clean Energy Plan. Hence, In addition to the more detailed recommendations submitted in response to the draft NC ZEV, the state should consider the following recommendations in the NC Clean Energy Plan:

**Rate Design Reform for EV Chargers:** Initiate an EV infrastructure cost of service analysis and develop an electric vehicle infrastructure benefit-cost analysis methodology. The analysis and methodology should be designed to support cost recovery and rate design for NC Utilities Commission approval of EV charging infrastructure investments and expenditures. The resulting electric rate changes, including rate designs for EV charging stations, should fairly address utility revenue requirements and provide clear and consistent billing requirements. The goal should be to ensure that rates collect sufficient revenues to encourage EV charger deployment and that the rate designs do not impede EV charger deployment.

Accordingly, the plan should include a recommendation for the Governor’s office to work with stakeholders, leveraging information emerging from Duke Energy’s pilot program, to develop proposed rules and practices for Duke Energy and other utilities to employ in making these investments beyond the pilot program. Many of these rules and practices will require the approval of the NCUC.

**Equitable Charging Station Deployment:** Investigate the private and public obstacles to installing EV charging infrastructure in low and moderate-income communities, including both single-family neighborhoods that lack off-street parking and multifamily properties. Lack of access to home charging is a significant barrier to adoption. Solving this issue for single-family homes that lack off-street parking and multi-family properties may require changes to state statutes, local policies such as zoning, right-of-way requirements, street, and public utility maintenance practices, tree ordinances, etc.

Also, rural communities should not be allowed to become ‘EV charging deserts.’ The state should ensure that charging infrastructure deployment, especially direct current fast chargers (DCFC), connects all North Carolina communities from the mountains to the sea.

**ZEV State Memorandum of Understanding (MOU):** Convene relevant stakeholders to access the consumer, economic, and environmental benefits derived from signing onto the ZEV State MOU as a core strategy. States that sign onto the ZEV MOU agree to adopt California’s clean air standards that require automakers provide consumers with access to all EV makes and models. Consumers in non-ZEV MOU states have limited EV access. Consumer access is critical to achieving 80K registered ZEVs in NC by 2025, and to leveraging transportation electrification to meet the Clean Energy Plan’s goals.

**EV Make-Ready State Building Code:** Update building code to require new builds be prepared to support ZEV charging infrastructure. This code update can look to Atlanta, GA’s recent ordinance (17-0-1654) that requires 20 percent of the spaces in all new commercial and multifamily parking structures be ZEV ready; it also requires that all new development of residential homes be equipped with the infrastructure needed to install EV charging stations, such as conduit, wiring, and electrical capacity.

**Electrify the State of North Carolina’s Fleet:** Mandate that state-owned vehicles with a use case that aligns with available ZEVs are replaced with a ZEV alternative. Enhance the traditional replacement schedule for fleet vehicles to allow for continuous updates based on continuously improving the cost-effectiveness of switching to ZEV models, and the continually growing availability of new types of ZEVs (SUVs, pickup trucks, heavy equipment, etc.).

**Utility and State-Supported On-Bill Financing and On-Bill Repayment Programs:** Convene relevant stakeholders to perform a cost/benefit analysis, identify the regulatory and policy barriers, and propose the necessary regulatory and policy reforms to allow ZEV on-bill programs in NC.

SACE, Jennifer  
Rennicks

effectiveness of switching to ZEV models, and the continually growing availability of new types of ZEVs (SUVs, pickup trucks, heavy equipment, etc.).

Utility and State-Supported On-Bill Financing and On-Bill Repayment Programs: Convene relevant stakeholders to perform a cost/benefit analysis, identify the regulatory and policy barriers, and propose the necessary regulatory and policy reforms to allow ZEV on-bill programs in NC.

NC's dealership licensing law: Address the limitations on the consumer electric vehicle marketplace due to NC dealership licensing laws by advocating for reconsideration of HB617 to update NC's dealership licensing law.

State and local permitting: Investigate whether there is a need for simplified state or local permitting for installation of EV charging infrastructure. Most distribution system or power delivery infrastructure upgrades are either (a) exclusively the utility's responsibility, (b) part of a substantial property redevelopment project, or (c) merely major maintenance for existing systems. EV charging infrastructure projects are unusual in that they may require permits due to the scale of the project, but are not associated with any other activity on the property. As such, there may be an opportunity to reduce costs by working with the appropriate authorities to simplify permitting requirements.

Administrative Reforms: Concerning public authorities, such as municipal governments, school districts, and transit authorities, existing accounting rules may inhibit investment in electric vehicles. For example, accounting rules for school bus transportation programs might include fuel costs as allowed charges, but exclude power bills from some or all charging stations, which would create problems during budget and audit processes. Identifying the specific operational practices that need to be changed for public fleet operators to adopt EVs would assist those agencies with achieving cost-effective fleet transformations.

#### Wind Resources

In recent NCUC proceedings (notably the IRP proceedings), Duke Energy has emphasized that for a variety of reasons, including growing solar deployment, it has a greater concern with winter peak demand. Wind resources, both in-state and imported from the Great Plains, would be well matched to winter peak demand, typically exhibiting very high on-peak capacity factors during winter peak demand periods.

While the offshore wind elements of the plan are commendable, the near-term opportunities to acquire in-state or imported wind are substantial. The main barrier to in-state wind is the uncertainty surrounding the legal interpretation of North Carolina's ridge law. Although numerous people involved in the drafting of the ridge law represent that utility-scale wind turbines were intended to be exempt from the law, the financial risk in developing such a project to the point where it might be challenged is considerable. To address this barrier, a legislative clarification to provide the opportunity for environmentally-sensitive wind development would be helpful.

The main barrier to imported wind is the cost and availability of transmission pathways to connect wind from the Great Plains to North Carolina. For example, Duke Energy studied the import of 500 MW of wind from the Clean Line Plains & Eastern transmission project, which is proceeding in a more limited manner than first envisioned. To address this barrier, Duke Energy should be encouraged to attempt to procure cost-effective wind resources and to identify specific infrastructure or policy changes that would need to be made either in-state, in other states, or by federal regulatory authorities.

#### Carbon Pricing

While it is true that DEC and DEP have evaluated resource portfolios using a carbon price in their IRPs, in the past this activity has had very little meaningful impact. Fortunately, the NC Utilities Commission ordered Duke Energy to conduct more extensive evaluations of carbon reduction strategies in its Integrated Resource Plan.

Key elements of the NCUC order include:

- in its 2020 IRPs, Duke Energy must consider the cost-effectiveness of early retirement for each and every coal plant. Duke Energy has generally not allowed its IRP model to optimize or accelerate the retirement of coal or gas plants. When Duke does construct a model to evaluate the retirement of a

- allowed its IRP model to optimize or accelerate the retirement of coal or gas plants. When Duke does construct a model to evaluate the retirement of a specific plant, it has considered carbon pricing in comparing some existing assets to the assumed replacement technology, but it also considers no carbon pricing scenarios and has generally proceeded only in cases where the no carbon pricing scenarios also indicate cost-effective retirement.
- By November 4th, Duke Energy must submit updated modeling that includes evaluation of the attainment of Duke’s most current emission reduction goals, the carbon reduction goals in the NC DEQ draft Clean Energy Plan, and a comparison of the utility’s current CO2 emission reduction plans to the Executive Order No. 80 goals.
- By November 4th, Duke Energy must further analyze battery storage.
- In its 2020 IRPs, explicitly include assessments of all resources - including purchased power, energy efficiency, and other resources that Duke had been overlooking or constraining in past IRP analyses. In the past, for example, Duke Energy has not used its IRP model to determine how much energy efficiency investment to make. Furthermore, Duke Energy has generally not allowed its IRP model to consider or select the option to construct renewable energy resources to offset coal or gas fuel use. In limited circumstances, the model was technically allowed to select renewable resources in competition with natural gas resources, but other constraints set by Duke in its planning model made such outcomes improbable.

While Duke Energy’s just-filed 2019 IRP update includes a further shift towards gas, beginning with its November 4th filing, it appears likely that more expansive consideration of carbon reduction strategies will be a part of the IRP proceedings.

These are issues that we at the Southern Alliance for Clean Energy have studied and critiqued as intervenors in every Duke Energy IRP for a decade. We are eager to assist NC DEQ in further evaluating Duke’s forthcoming filings and identifying specific recommendations to improve the IRP process and lay the groundwork for effective carbon pricing. For example, one issue that is not addressed in the NCUC order is Duke Energy’s approach to natural gas pipeline investments. Duke has not used its IRP model to evaluate those investment choices

A related issue is that Duke Energy does not dispatch its plants using a carbon price, resulting in more carbon-intensive operations in practice than the model predicts. Duke Energy could assess a carbon price on its fleet internally, and utilize the revenues to fund its energy efficiency program. This would increase the fuel cost rider but decrease the energy efficiency rider, resulting in little actual cost impact to customers while reducing emissions to some extent.

#### Consideration of Upstream Methane Emissions

While the draft Clean Energy Plan doesn’t explicitly consider out-of-state emissions in its scope, this should be considered. In-state demand for natural gas is directly related to upstream (production) and midstream (collection and transmission) methane. As North Carolina policy drives down natural gas demand, associated methane emissions will also fall in rough proportion.

Even though gas emits about half the CO2 per MWh generated than coal, the process of drilling for and delivering gas to the region causes extremely high methane emissions, primarily due to leaks in the gas production process. New estimates suggest that roughly 2.4% of gas is lost through leaks. Duke Energy, for example, burned approximately 194 billion cubic feet of natural gas to serve its North Carolina customers in 2017, resulting in about 11 million tons of CO2 emissions. However, taking into consideration the 2.4% leak rate, that fuel consumption is also associated with about 3.4 million tons of CO2-equivalent emissions of methane, or a 31% increase in the climate impact of natural gas due to those leaks.

While North Carolina cannot directly regulate those upstream methane emissions, there are two actions that the state could take to indirectly drive down methane emissions. First, these upstream emissions can be taken into account when setting policies. For example, utilities or regulators could assign a higher carbon price for natural gas to account for the associated upstream methane emission leaks. This approach could be incorporated into the draft plan’s recommended carbon pricing model.

Second, the state could revise utility fuel procurement policy to establish a preference for sourcing from low leak natural gas producers. Industry has established voluntary methane reduction programs, such as the ONE Future Coalition. The Coalition is a group of natural gas companies working together to voluntarily reduce methane emissions across the natural gas supply chain, with a goal to lower emissions to 1% by 2025. If such a program included verifiable measurement of methane emission rates, the state could allow utilities to pay a higher price for natural gas fuel sourced from companies that met such a standard. This approach could be recommended to the NC Utilities Commission as an additional potential action.

We note that these two approaches would be duplicative if they were both pursued. The higher price for low-emission sourced natural gas would be considered in resource planning models and dispatch decisions. A modification to any carbon price mechanism would not be as helpful in appropriately reflecting the climate impact of methane if a fuel cost impact of lower emission sourced natural gas were allowed by the NC Utilities Commission.

#### Miscellaneous Comments

The draft plan’s reference to the Tennessee Valley Authority’s 2019 IRP as one of the “groundbreaking announcements” is not merited by the content of that IRP (p. 34). TVA is in the process of dismantling its energy efficiency programs, having cut the budget by 50% in the past year. Its call for “up to

Nuclear is the largest source of clean energy today. Nuclear should receive the same benefits as other clean energy sources. Solar - what are going to do with used solar panels which contain heavy metals. There is no technology to date. What if it is raining and the wind isn’t blowing. Nuclear is ON 24 hrs/day.

Sam Ballard

Planting Perennial grasses helps to reduce soil respiration- an incentive could be made to help increase planting these grasses that have long and deep roots which store more carbon.. we need to stop planting annuals and start encouraging perennials!

Sara Brendel (UNCA)

A truly clean energy plan for NC must address the wood pellet industry and methane emissions. If gas and wood pellets continue, NC will keep making climate change worse, not better.

Sara Brendel (UNCA)

While there are some good aspects to the current plan, it MUST include a plan for slowing Duke Energy's expansion of natural gas fracking, in order to slow or eliminate the release of too much methane. It MUST also include a plan to stop the clear-cutting of NC forests to produce wood pellets to be exported to Europe.	Sarah Bickley
Include nuclear in the plan.	Sarah Coady
The draft plan states that DEQ is directed to collaborate with stakeholders to support the emergence of clean transportation solutions. Yet this plan fails to even mention one of the most important forms of clean transportation: non-motorized transportation.  A quick search of this document shows that there is no mention of walking or bicycling as forms of clean transportation. If North Carolina wants to transition to a clean energy economy, we must encourage alternative forms of transportation. Yes, those alternatives should include electric vehicles, but they also need to include non-motorized transportation.  The bike and pedestrian world is already witnessing its own electrification movement; e-bikes like Citrix Cycles have been immensely popular in Raleigh and other cities. Many residents who don't own bicycles suddenly have a new way to get around that is fast, affordable, and environmentally friendly. In fact, the emergence and public acceptance of electric bikes is moving at a much faster pace than that of electric vehicles.  The NC Clean Energy Plan needs to prioritize non-motorized forms of transportation. It is a huge oversight not to acknowledge and promote biking and walking as clean forms of transportation.	Sarah Sanford, North Carolina Coordinator, East Coast Greenway Alliance
My family and friends strongly support Gov. Cooper's call to decrease greenhouse gases with all available options!	Sean Nelligan
K1 - Establishing an advisory body, such as the proposed EEAC, to oversee and ensure the continued relevance of energy efficiency within North Carolina's Clean Energy future will benefit all utility billpayers, as well as taxpayers. As part of its effort to grow energy savings to more than one percent of annual sales, the Arkansas PSC ordered the creation of the Parties Working Collaboratively to address a variety of issues associated with that achievement. Initially formed to establish evaluation, measurement and verification protocols for utility energy efficiency programs, the group has matured and gained the confidence of the PSC to tackle all aspects of energy efficiency programming in the state. Critical to its success is a group charter which establishes expectations for conduct, approaches to decision-making and other fundamental group dynamics. An account of the group's history and conduct can be found in a paper authored by the Independent Evaluation Monitor: <a href="http://www.johnsonconsults.com/presentations/IEPPEC%202014%20All%20Together%20Now%20AR.pdf">http://www.johnsonconsults.com/presentations/IEPPEC%202014%20All%20Together%20Now%20AR.pdf</a>	SEEA, Cyrus Bhedwar
D2 - Tariffed on-bill programs are among the most effective and proven means of reaching underserved customer classes in North Carolina, including low-income customers and renters. In Arkansas, the Energy Office, rather than the legislature, established a loss reserve to accelerate the development of tariffed on-bill programs by utilities. It is worth noting that Pay As You Save (PAYS) includes a series of protections for both customers and utilities; many utilities have found that licensing the PAYS program, rather than designing a program on their own, has reduced administrative burden and improved program results.	SEEA, Cyrus Bhedwar
Address equitable access and energy affordability As a starting point to address energy inequity, North Carolina could establish and maintain an energy burden map to inform decision making and educate policy makers.  G3 - Consider integrating energy efficiency in related sectors including healthcare and disaster rebuilding. Pilot programs in other parts of the country, including Memphis, TN are seeking to leverage Medicaid funding to fund energy efficiency retrofits to reduce the occurrence of chronic asthma. Additionally North Carolina can ensure it is fully leveraging requirements in Community Development Block Grant - Disaster Recovery funding to ensure that housing that is rebuilt incorporates energy efficiency and other green building standards. Additional guidance can be found in US HUD's Disaster Recovery Green Housing Development Guide: <a href="https://www.hudexchange.info/resource/4091/disaster-recovery-green-housing-development-guide/">https://www.hudexchange.info/resource/4091/disaster-recovery-green-housing-development-guide/</a>	SEEA, Cyrus Bhedwar
B2 - In addition to material referenced in the Clean Energy Plan, SEEA would commend the work that Arkansas has and continues to do to align its cost-effectiveness testing regime with the principles articulated in the National Standard Practice Manual, ensuring that cost-effectiveness testing meets state policy goals.  These principles include:  - Value energy efficiency as a resource - Design cost-effectiveness testing to reflect the jurisdiction's policy goals - Account for all relevant, substantive impacts, even if they are hard to quantify. - Ensure that whenever costs are included, appropriate benefits are also included. - Include the costs and benefits over the life of the measures being evaluated, rather than an arbitrary timeframe - Allow for transparency in the evaluation of cost-effectiveness.  More information can be found in the NSPM Case Study found here: <a href="https://nationalefficiencyscreening.org/resources/case-studies/">https://nationalefficiencyscreening.org/resources/case-studies/</a>  Undertaking a similar process in NC would ensure that cost-effectiveness tests are aligned with the goals and priorities of Executive Order 80, in	SEEA, Cyrus Bhedwar
The green house gas emission reduction is a good start, but not enough by 2030 to keep our emissions below the point of no return. We need to do better, and set an example.	Shannon Lloyd

<p>The recent Clean Energy Plan has some good aspects to it but it FAILS to mention that nothing is being addressed in regard to METHANE which is very dangerous and unaccounted for by duke in it's blind dash to provide more and more fracking of natural gas instead of alternative energy solutions.</p> <p>- the stopping of clear cutting our forests to send wood pellets to Europe is also missing in the plan, despite the fact that intact forests are an important climate solution in that they absorb the CO2 that humans emit. Nor does DEQ count the enormous emissions from logging, processing and burning the wood pellets.</p> <p>- addressing these issues NOW is very important to helping solve our climate crisis.</p> <p>Thank you.</p>	Shaun P Murphy
<p>Just want to thank you for transitioning to a Clean Energy Plan. I have worked for Duke Energy for 36+ years and I care greatly about the environment and communities in which I live. I was very disappointed that your plan didn't recognize the awesome carbon-free benefits of nuclear energy. If we are truly serious about curbing emissions, the benefits of nuclear MUST be considered. The nuclear fleet in North Carolina is the largest source of carbon-free energy generation. It provides nearly half of our Carolinas' customers and recently achieved a capacity factor of 93%. This marked the 20th consecutive year with capacity factors greater than 90%!!</p> <p>In addition, nuclear energy also means great, high paying jobs. I am thankful to have been an employee for going on 37 years and thankful for all the benefits it has provided for my family. Duke Energy - Nuclear employs ~5,000 workers across the Carolinas. It also additionally supports refueling outages and ongoing major projects with contract worker jobs as well.</p> <p>Please revisit the North Carolina Energy Plan and include nuclear - it is truly the cornerstone of clean energy for the Carolinas.</p> <p>Thank you very much for your time and consideration,</p>	Sheila Rogers (Duke Energy)
<p>Suggestion to bring back mandatory vehicle emissions inspections in all counties.</p>	Sheila Seymour
<p>Very little mentioned about EE financing sources. Sources of financing is THE main barrier for EE deployment.</p>	Siemens, Tim Gasper
<p>No mention of Performance Contracting as tool to deliver EE process AND financing to both public &amp; private especially cash-poor Agencies, UNC's, K12s, Cites &amp; Counties, Community Colleges, Hospitals and Private Higher Education. Advocacy for PC needs to be included in this plan.</p>	Siemens, Tim Gasper
<p>This is all a liberal joke. Wind/solar energy is a fools concept.</p>	Skinner Chalk
<p>I'm upset that this plan doesn't address the expansion of the wood pellet industry in our state. Why do companies like Enviva get a free pass in addressing the climate impacts we can control in the state? I'd really like to see some clear and definitive restriction on the rapidly expanding and <u>worrisome wood pellet industry</u>.</p>	Spencer Ware
<p>The wood pellet industry is robbing our states of forests and trees we need to stay a healthy environmentally friendly state. This can affect our tourism industry. There is no need to send our trees to Europe to be burned. Obviously, they have already used most of there resources in this manner, and there is no need for us to waste ours. I call on the Governor to develop and conduct a North Carolina study to assess the cumulative impact of the industrial-scale wood pellet industry on forests, the climate, communities, and the economy. Until that study is complete, there must be an immediate moratorium on any expansion of the industrial-scale wood pellet industry in North Carolina.</p> <p>What about methane emissions? Remember that community in California that had to evacuate their homes because of the well that was spewing deadly methane? Methane also contributes to climate change and must be monitored at all entry and exit points.</p> <p>Our climate change crisis is not a hoax and must be addressed by our leaders.</p>	Stanley Hix



<p>feedback-NC-plan-draft Search: H2@Scale and H2@Rail (US DOE, US DOT)</p> <p>Although virtually every advanced nation in the world is rapidly transitioning to the international hydrogen economy and since one of the largest climate change mitigation projects on earth is NC's hydrail transition led by Appalachian State University and the Mooresville Chamber (search "mooresville hydrail initiative"; iLint stan; "hydrail"), there is not a single mention of hydrogen and only one reference to fuel cells in the document.</p> <p>There are, however, 28 references to batteries, which create rate base cost but, in so doing, also introduce life cycle environmental problems while leaving transport indefinitely in the carbon domain (diesel and gasoline).</p> <p>Fuel cell trucks, switching locomotives, light rail vehicles, materials handling equipment, marine vessels and even cars will soon allow NC's nuclear, wind, solar and hydroelectric grid sources to supplant carbon fuels shipped into NC and retain vast revenues now paid out-of-State. NCDOT is in contact with the UK's hydrail conversion. For half a decade, UNC Charlotte has worked with the University of Birmingham's hydrail HydroFlex train developers (search: bcrre uncc) .</p> <p>Until NC introduced hydrail, 1880s wayside railway electrification's exorbitant capital and maintenance expense forced the continuation of diesel as the only affordable option for most passenger rail corridors. Surely correcting that, globally, merits at least a reference,</p> <p>Today the biggest railway equipment manufacturers in the world (China Railway Rolling-stock Corporation, Siemens, Alstom, Stadler, JR East, and others) are all building wireless hydrail electrified railway vehicles or have announced they are about to, letting grid power supplant carbon fuel.</p> <p>Since hydrogen fuel cell technology is the primary, accepted, long-term means for integrating interruptible renewable energy sources into the grid, and especially for electrifying mobility, its omission—and the emphasis on batteries—is remarkable.</p>	Stan Thompson
<p>I and my entire family are opposed to fracking. We exist on well water. There is no room for error in terms of poisoning our environment. Most people's largest asset is their home. Destroy their water supply and you destroy them economically. We should invest in clean energy instead!</p>	Stephanie Benson
<p>Now is the time to take every environmentally conscious action possible. Governor Cooper must put a stop to the expanding wood pellet industry. I call on the Governor to develop and conduct a North Carolina study to assess the cumulative impact of the industrial-scale wood pellet industry on forests, the climate, communities, and the economy. Until that study is complete, there must be an immediate moratorium on any expansion of the <u>industrial-scale wood pellet industry in North Carolina</u>.</p>	Stephanie Biziewski
<p>I support Governor Cooper's clean energy plan! Thank you, Gov. Cooper- we are rooting for you and for our state to come along progressively!</p>	Stephanie Crawford
<p>Hi, I've been driving a 2013 Leaf for six years. It is a great car, but the state of NC seems to actively discourage EVs by the excessive tax on it. I understand money needs to be raised for roads, but can this fee be related to the actual amount of miles driven, rather than a flat fee? Lots of EV drivers live in urban areas and only put a small amount of miles on their car each year. The \$160 fee is excessive, roughly equivalent to the amount of money I spend on electricity every year for the vehicle.</p> <p>Also, I support the idea of placing EV chargers at public rest stops along the highway. The state should charge for this and recoup their cost of the electricity, or even make a modest profit. Traveling across the state by EV now is very difficult, and many of the chargers are far off the highway, making them very inconvenient for cross state travel.</p> <p>I appreciate the ability to make a public comment on this topic and the state's willingness to work towards a greener future!</p>	Stephen Hren
<p>We need more focus on methane gas emissions from natural gas pipelines.</p>	Steve Bird
<p>We also need to make sure that biomass (burning wood pellets) is not classified as "clean" energy.</p> <p>Also, I was able to get solar panels installed on my home because of state tax incentives that have now been phased out. We need to encourage more <u>small scale consumer solar power generation with state incentives AND net metering</u>.</p>	Steve Bird
<p>Nuclear energy should be included in the clean energy plan. Given the large amount of power generated by a single nuclear plant, the environmental foot print preserves North Carolina's excellent outdoor activity areas. Not to mention the large number of high paying jobs that are associated with the <u>technology</u>.</p>	Steve Evans
<p>we have to have clean energy now and NC is perfect for both wind and solar!!Stop Duke Power from blocking large scale efforts to do this. Break up Duke Power's monopoly!</p>	Steve Mayberry

<p>There is nothing in the plan to address the expansion of the wood pellet industry or to stop the clear-cutting of North Carolina forests to be burned for energy in Europe.</p> <p>Governor Cooper must put a stop to the expanding wood pellet industry. I call on the Governor to develop and conduct a North Carolina study to assess the cumulative impact of the industrial-scale wood pellet industry on forests, the climate, communities, and the economy. Until that study is complete, there must be an immediate moratorium on any expansion of the industrial-scale wood pellet industry in North Carolina.</p> <p>Urban forests are also a major component in the fight against climate change. Trees sequester carbon, absorb storm-water runoff, reduce heat, decrease noise, and improve the mental health of those fortunate enough to have trees in their community. Plus, of course, trees provide homes and food for birds and other wildlife.</p> <p>Another good way to support the health of trees in our communities is to establish a communal fund for tree maintenance and care, because people who don't have money often don't have options for tree care because they're too costly. First responders at the Fire and Police departments and other emergency resources, tools to address matters of life and death, are funded through taxes, and this should be too. Many people cut down trees or let them fall because they don't have funds or cannot care for them themselves. So they can't help but let them get unhealthy or beyond the point at which maintenance and trimming will help. Instead the trees become a risk because people have to either wait til the tree falls on their house and claim it on insurance, and some less fortunate people end up injured or dead because the tree falls on them.</p> <p>And if North Carolina is really serious about addressing climate change within its own powers, there should be a regulation ensuring that any new construction in the state that removes trees will also be required to replace them nearby.</p> <p>As a state we need to implement rules to stop using styrofoam and single-use plastics. This is horrible for our water globally. This is an example of the massive cultural shift we need to make to hold off climate change and stop destroying ecosystems across the planet.</p> <p>The plan also completely fails to address methane emissions. The emission figures in the plan are for carbon dioxide only. But super-potent methane is spewing into the atmosphere at an alarming rate from fracking operations, all the way from the well head to the power plant.</p> <p>Finally we need to follow the example of countries like India and eliminate the use of inefficient, dangerous, and wasteful suspended power lines, in addition to going completely to solar and wind energy. The amount of money going to these sustainable, renewable energy sources is far too low especially when compared to the amount going to the fossil fuel industry.</p> <p>A truly clean energy plan for North Carolina must address the wood pellet industry, methane emissions, single-use plastics, styrofoam, full funding of statewide tree and forest wellbeing, a real commitment to solar and wind power, and eliminating dangerous, outdated, and wasteful electrical poles. If these changes aren't made and quickly, North Carolina will keep making climate change worse, not better.</p> <p>Thank you for taking the time to read this. Steve</p>	Steven Palmer
<p>This plan does not address the fact that Nuclear Energy is a Clean Energy source that is a very important, reliable, base load energy source. Nuclear needs to be in the for-front of any Clean Energy plan and not left out. I only found three mentions of Nuclear, all in sections 1.1. Without Nuclear Power Plants providing the base load, the introduction of renewable sources will be impossible. Renewables, although good, can not support the demands like nuclear can. Also renewables have down times (i.e. cloudy days, nights, no wind, etc.). Nuclear has to be available to pick up these short falls of renewables.</p>	Steven Steele
<p>Thank you for the diligent work you have done in crafting this plan. As an opponent of fracked gas, I urge you to not consider this energy option. There are too many dangers associated with it, not to mention the uglification of our land. If you travel by plane and look out the window you will see how vast the fracking network is and how rapidly it has spread, like a cancer, across the United States. Otherwise, your plan looks pretty good.</p>	Sue-Anne Solem
<p>Dear DEQ and Governor Cooper,</p> <p>Implement this plan! Stop supporting climate-destroying fracked gas infrastructure and the forest-destroying wood pellet industry: If gas and wood pellets continue, North Carolina will keep making climate change worse, not better.</p>	Susan Sunflower
<p>Begin to roll out a plan that does not negatively impact low income families.</p>	Sydney Phillips
<p>Priority! NC should be taking the lead for the rest of the country.</p>	Sydney Phillips
<p>Companies should be encouraged to lead the way. Clean companies should be encouraged to come to NC with support of the state. LEAD THE WAY!!!</p>	Sydney Phillips
<p>I think that for any clean energy implementation to be sustainable, it has to be affordable to everyone and you'll need the support of all North Carolinians so this communal support overrides the monetary and political influence of the coal and electric company industries. Visit all communities throughout the state and ask what they think would be beneficial to them and how they think that having affordable clean energy will benefit their lives. Don't make assumptions for them and what they need, take the time to speak with them it'll be worth it.</p>	Teresita Maxey
<p>Create intensives that are economically appropriate, one size does not fit all communities and their economic resources.</p>	Teresita Maxey

<p>Research clean energy systems in European countries, particularly Sweden, Denmark and Germany. It would be nice to have someone come up with a way we can use hog refuse as a renewal energy.</p> <p>In Sweden less than 1% of household waste goes to landfills. <a href="https://www.nytimes.com/2018/09/21/climate/sweden-garbage-used-for-fuel.html">https://www.nytimes.com/2018/09/21/climate/sweden-garbage-used-for-fuel.html</a>  In Denmark 30% of the country's energy is from renewal sources. <a href="https://denmark.dk/innovation-and-design/clean-energy">https://denmark.dk/innovation-and-design/clean-energy</a>  In Germany about 65% of their energy comes from renewal sources. <a href="https://e360.yale.edu/digest/renewables-generated-a-record-65-percent-of-germanys-electricity-last-wee">https://e360.yale.edu/digest/renewables-generated-a-record-65-percent-of-germanys-electricity-last-wee</a></p>	Teresita Maxey
<p>I commend Governor Cooper for his bold plan to address climate change and I encourage the wholesale adoption of the plan as soon as possible. There are two areas where the plan can and should be improved. First, the regulation of methane from the natural gas industry must be addressed. Natural gas is no longer needed as a bridge fuel. We have the technology to move beyond natural gas to solar and wind. That must be the single-focused effort if we are to have a chance at curbing our emissions sufficiently to avoid the tipping point. Secondly, we are cutting down our forests at an alarming rate to manufacture wood pellets for Europeans to burn for fuel. Our forests are a vital natural resource that must be maintained. We cannot raise the alarm about the burning of the Amazon while we allow our own forests to be felled for a very limited fuel source. Otherwise, I applaud the plan and encourage its implementation immediately.</p>	Terri LeGrand
<p>Transportation electrification is important but not enough to move the needle. Funding for complete streets and promoting active transportation does more than the electrification of the transportation network. Investment in active transportation yields greater greenhouse gas reduction, environmental protection and improvements in quality of life. It is an offense that critical solutions as part of the NCDOT mission are absent from this work.</p>	Terry Lansdell (Bike Walk NC)
<p>I am very impressed. It is a comprehensive plan which has taken Duke Energy into account. WELL done. I hope it becomes a reality.</p>	Theresa Reilly Alsop
<p>Dear sir or madame,</p> <p>My name is Thomas Bottoms. I work for Duke Energy and I live in North Carolina. The opinions that follow are my own and do not necessarily reflect those of the company I work for. That being said, I am a huge proponent for the value of safe, efficient, clean, carbon-free nuclear energy. Here are some reasons I believe why nuclear energy absolutely must be maintained as part of our clean energy solution, moving us into the future:</p> <ol style="list-style-type: none"> <li>1 - our nuclear fleet remains our largest source of carbon-free generation, helping us to avoid dumping millions of tons of CO2 into our environment.</li> <li>2 - our nuclear fleet provided for almost half of our Carolina's customers electricity.</li> <li>3 - our nuclear fleet is highly efficient, running at a 93% capacity factor.</li> <li>4 - as I said I am a Duke Energy nuclear worker. Myself, and about 5000 coworkers, along with many contractors supporting outages and major projects, work in nuclear throughout the year. We are your neighbors. We are our own customers. And we work tirelessly to provide the Carolinas with the safe, clean electricity that is such a necessary part of all of our lives.</li> <li>5 - our nuclear teammates give back tremendously in the communities in which they live through various opportunities to give through charitable organizations, and serve through many community organizations.</li> </ol> <p>You should be supporting this endeavor, to keep nuclear as not only a viable option for clean energy, but as a vital and necessary part of the clean energy solution. Any treatment otherwise would be short-sighted and backward-thinking.</p> <p>Respectfully,  Thomas Bottoms</p>	Thomas Bottoms (Duke Energy)

<p>First, I want to acknowledge the effort to bring together a wide range of interested parties to develop this plan as well as the synthesis of large amounts of information into a coherent result in a relatively short period of time.</p> <p>I'm going to limit my comment in this category to the role of natural gas in this plan, how greenhouse gas emissions (e.g., CO2 and methane) are calculated, and the selection of GHG reporting criteria influence calculations in relation to achieving GHG emissions targets and goals. The results paint a misleadingly rosy picture which dampens the resolve for the kind of efforts North Carolina needs when contributing to solving the climate crisis.</p> <p>This plan places a large reliance on access to and burning of natural gas as a source of energy, (1) as an alternative to coal-fired energy generation which is to be phased out, and (2) due to a lower than expected (or needed) planned growth in the use of renewable energy sources such as solar and wind. Essentially, this plan follows the overall Duke Energy model, albeit with a much more aggressive transition.</p> <p>At the same time, the plan calculates NC's future greenhouse gas emissions without taking into account significant methane gas leakage that results at the points of extraction and transport. It only calculates GHG's resulting from what is burned at plant in NC. Of course, methane is much more potent GHG than CO2 and, as an aside, it can be misleading to frame everything in terms of CO2, even though they are stated as CO2 equivalents. This results in a very misleading emissions forecast, claiming that NC will achieve nearly all of what is needed to meet its state proportion of US NRCs (nationally determined contributions) as stated in the Paris Agreement (i.e., 26-28% reduction in GHGs by 2025). Of course, it is also important to keep in mind the wide gap between the stated goals of the Paris Agreement (well below 2.0 degrees C) and the result if all nations who signed on met all of their NDCs (3.5 degrees C).</p> <p>Back to why the plans calculations are misleading, we are told that accounting for methane releases at points of extraction and transport outside of NC would lead to "double-counting." Essentially, it is saying that the methane emissions at points of extraction, storage, and transport are not North Carolina's problem; they are some other states or countries problem. That seems disingenuous at best and does not capture the true costs of relying on natural gas through fracking, etc. Yes, burning natural gas may be cleaner than coal, but the processes happening before it is burned are a horrendous cost to pay... somewhere, if not here in North Carolina.</p> <p>Moreover, what if these place where fractured gas is produced decide that in fact want to reduce their own GHG footprints and they decide to end natural gas production. So much for the natural gas supply feeding NC power plants. What is the back up plan?</p> <p>Instead, why not invest in solar and wind energy right here in NC. North Carolina is supposed to be #2 or #3 in solar potential, for example. Why are we not taking advantage of this fact? Coupled with the rapid growth of battery technology, which takes away the claim "what do you do when the sun does not shine and the wind does not blow, renewables are becoming the cheapest and most reliable source of energy.</p> <p>Good to see that the state is finally seriously questioning investing in natural gas burning plants that Duke Energy wants to build, that locks NC into an energy system that is bad for the climate as well as a likely dead end technology for the next generation. This section of the plan needs to be seriously reconsidered and revised.</p>	<p>Thomas F Fletcher</p>
<p>Many climate plans set goals based on target dates such as 2025, 2030, 2050, or 2100. While it is good that these plans are recognizing the need to think in shorter time frames, rather than dates farther out like 2050 or 2100, or much larger cuts in Greenhouse Gases, an alternative approach that bases use on a carbon budget makes more predictably future projections and ties them more directly with modeled global warming projections.</p> <p>Best discussion on climate budgets I've come across comes from climate scientist, Kevin Anderson. Search Youtube for Kevin Anderson and climate and you'll find a number of recent talks where he describes how a climate budget works and is a more effective planning tool to use to really address climate change.</p>	<p>Thomas F Fletcher</p>
<p>Under the current energy utility model with Duke Energy, the system is highly centralized. Duke Energy wants to spend billions on grid modernization, but alternatively it could make more sense to decentralize the grid system to make it less brittle and more agile and responsive to system issues and varying power needs. Resilient and flexible systems have back up systems (built in redundancy) to ensure access to energy throughout as well as ability to decouple so that a problem in one part of the grid does not affect the other parts.</p> <p>Some solutions that would help with resiliency and flexibility are more significant expansion of renewable energy sources (solar and wind). Rather than put everything into large solar or wind farms, decentralize power through community energy projects and micro-grids. With battery storage technology growing by leaps and bounds (which solves the problem of periods when the sun does not shine and the wind is not blowing), decentralized storage units can be combined into power walls to balance and secure energy and then decoupled when not needed - example, the Green Mountain Utility in Vermont.</p>	<p>Thomas F Fletcher</p>
<p>In addition to things like a state renewable energy tax credit, plans should be make it easier for people of low income to quality and pay for renewable energy systems. Maybe a sliding scale of some kind. Also, funds made available for renovation and weatherization of homes of low income people to <a href="#">cut their energy bills</a>.</p>	<p>Thomas F Fletcher</p>
<p>See my comment about "Resiliency and Flexibility"</p>	<p>Thomas F Fletcher</p>
<p>Permit 3rd party sales which will open up access to solar energy systems in North Carolina, hastening the transition. We need a return to of the state renewable energy tax credit and other ways to make solar energy systems more affordable.</p>	<p>Thomas F Fletcher</p>
<p>Wood pellets and fracked gas do not give us clean, fossil free energy.</p>	<p>thomas Lux</p>

The draft plan appears to completely ignore the fact that the Carolinas have a well established network of nuclear plants that produce over 50% of the energy used in the Carolinas. Any plan should readily recognize this and do everything to support the operation of these plants and subsequent license renewal of these plants as a means of making the single biggest impact on achieving greenhouse gas emission reduction today and for years to come.	Tim Pettit
Like others who work at Duke Energy, I was recently made aware of the draft Clean Energy Plan. This prompted me to read the draft, but I want to provide a comment not so much as a Duke employee (which I am!) but as a lifelong North Carolina resident and father of three. While I understand the general stigma that nuclear power possesses in the minds of some, I'm also firmly in the corner of those who believe that curbing carbon dioxide emissions is a major priority for our generation. If this plan is going to base the very definition of clean energy on zero-emitting technologies and outline a strategy for decarbonization, then in my opinion, you have to at least recognize the operation of our existing zero-emission nuclear power plants as part of the path from where we are now to a fully carbon-free future. I'm not saying the plan must advocate for new nuclear plants (although I *do* believe that new nuclear technologies have huge potential), but I think it's in everyone's best interests to preserve and encourage continued carbon-free production from North Carolina's existing power plants!	Tom Scattergood
I believe that all land should be available within the reasonable requirements that solar farms need. I understand the concept of "economies of scale", but all projects present an opportunity for economic positivity whether it be new jobs, increase in property taxes which help the local municipality, etc. I have tried to lease my land to solar developers, but it seems the only concern right now is getting the bigger bang for their buck.	Tommy Long
I believe that nuclear energy is the best, most reliable and cleanest energy for electricity. I believe we have over-regulated nuclear to the point we have made it too expensive to build. This is a big mistake. We will regret 40-50 years from now when we have to dispose of solar panels and batteries that can no longer be used. I sincerely believe that we should be going back to nuclear--natural gas will one day be too expensive, solar is not reliable without batteries and batteries create a worse storage problem. Solar and windfarms are ruining our beautiful landscape. Reduce the regulation and build nuclear to provide the best, most reliable, cleanest energy.	Town of Wake Forest, Mayor Vivian Jones
I am Tracy Stone. I work for Duke Energy and I live in North Carolina. Most importantly I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future. <ul style="list-style-type: none"> <li>•Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much carbon as is released from more than 10 million passenger cars).</li> <li>•The fleet provided almost half of our Carolinas' customers electricity (more than 72 billion kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>•Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>•Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, bikes, as well as their time with community organizations.</li> </ul> <p>These comments above are mine alone and do not represent the comments of Duke Energy.</p>	Tracy Stone
Excerpt from a Philippines House Bill 2782. "We need to prohibit electric utilities from collecting system losses from the consumers....." <a href="http://www.congress.gov.ph/legisdocs/basic_18/HB02782.pdf">http://www.congress.gov.ph/legisdocs/basic_18/HB02782.pdf</a> <p>As we transition to clean AC electricity, with mandatory dynamic reactive power support at generators, we need to also consider the paradigm shift, of alternating current at a customers PCC with no reactive power from the grid, a new type of dynamic reactive power support, where regardless of loads with leading or lagging power factor, as having the lowest losses for the system overall.</p>	Tripp Tucker
DEQ rightly identifies the tension between the traditional model of utility regulation and the clean, decentralized, and efficient energy system that is best for all stakeholders. Vote Solar recommends that DEQ underscore the centrality of reforming the utility business model and identify part 'A' as a priority area for the entire plan. Full comments are included as an attachment.	Tyler Fitch (Vote Solar)
As of the August 25th NCUC Integrated Systems Operations Planning (ISOP) workshop with Duke Energy, utility technical experts do not expect to have comprehensive distribution operations data for several more years. This data is critical to understanding the many values that distributed energy resources provide to the grid. The value of these resources cannot be accurately quantified until this foundational data is available. Elements of sequencing should be added to the plan to ensure that deployment and evaluation decisions occur only after the best information is available. Full comments are included as an attachment.	Tyler Fitch (Vote Solar)
Vote Solar appreciates this opportunity to provide comment on the North Carolina Department of Environmental Quality's Clean Energy Plan. Vote Solar's comments in full are included here as an attachment; key conclusions are included in these comment boxes.	Tyler Fitch (Vote Solar)
Please stop the fracking industry that is destroying the environment and the climate.	unknown
Governor Cooper, Please also re-think your commitment to the natural gas industry. We are being forced to accept multi-billion dollar pipeline systems running through our backyards that will bring profit to utilities and their shareholders but will not help the average rate-payer. They will bring methane pollution to our state. And they will create a commitment to using methane as a fuel source for many years-- decades-- to come, at a time when it is vital that we reduce our dependency on fossil fuels.	unknown
if you don't have the supportive grid for clean energy, wellll.....begin now to put it in place and have Duke Power pay for it all with their monopoly ways of doing business. they need to be broken up, they have too much power over gov't. legislation.	unknown
As a young person who has had to grown up watching dire warnings come and go, I thank anyone involved who have made this step to ensure that I can live in a cleaner world.	unknown

<p>I am a contractor for Duke Energy and I live in North Carolina. I am a proponent for the value of safe, efficient, clean, carbon free Nuclear Energy in the Carolina's. Here are some reasons why Nuclear Energy is part of the solution to a clean energy future.</p> <ul style="list-style-type: none"> <li>- Our nuclear fleet remained our largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide (as much as is released from more than 10 million passenger cars).</li> <li>- The fleet provided almost half of our Carolinas' customers electricity (more than 72 million kilowatt-hours), and achieved a capacity factor of 93%, marking the 20th consecutive year with a nuclear capacity factor greater than 90%.</li> <li>- Our nuclear group employed about 5,000 Duke Energy workers across the Carolinas, with additional contract workers supporting refueling outages and major project work throughout the year.</li> <li>- Our nuclear teammates supported communities where they work and live through donations, including coats, personal care items, school supplies, bikes, as well as their time with community organizations.</li> </ul>	unknown
<p>Why would you not add Carbon free Nuclear Energy to this plan? Can we really call solar and Wind clean? Carbon free yes but not clean.</p> <p><a href="https://sciencing.com/toxic-chemicals-solar-panels-18393.html">https://sciencing.com/toxic-chemicals-solar-panels-18393.html</a></p> <p><a href="https://wattsupwiththat.com/2018/12/23/solar-panel-waste-a-disposal-problem/">https://wattsupwiththat.com/2018/12/23/solar-panel-waste-a-disposal-problem/</a></p> <p><a href="https://www.smithsonianmag.com/smart-news/how-many-birds-do-wind-turbines-really-kill-180948154/">https://www.smithsonianmag.com/smart-news/how-many-birds-do-wind-turbines-really-kill-180948154/</a></p>	unknown
<p>I appreciate the transition to a Clean Energy Plan and fully support a reduction in carbon emissions and pollution. I was very disappointed to see that the plan does not mention or recognize nuclear energy as a carbon-free source. This is something that must be resolved. If North Carolina is serious about significantly reducing carbon emissions, nuclear energy MUST be included. The nuclear fleet in NC remains to this day the largest source of carbon-free generation, avoiding the release of more than 54 million tons of carbon dioxide. One single uranium pellet contains the energy equivalent of one ton of coal, and a single reactor will contain more than 1 million uranium pellets. Nuclear provides nearly half of ALL of the Carolinas' customers electricity, so to ignore this in the plan is woefully ignorant. Additionally, nuclear energy means good, high paying jobs. Nuclear employs roughly 5,000 Duke Energy workers across the Carolinas, with additional contract workers employed to support refueling outages and major project work throughout the year. It is vital that the North Carolina Clean Energy plan include nuclear, as it is the cornerstone of clean energy in the Carolinas. As an example, please look at the Washington's clean energy plan.</p>	unknown
<p>Hi, you have a typo in the Draft there is no concerns about wind development on the coast hurting tourism its been know &amp; consistent support for decades. just state interns are easily confused the coast doesnt want oil drilling they can be mistaken for one another</p>	unknown
<p>Destroying forests by allowing the pellet industry to cut down the trees will not contribute to a necessary transition to clean energy.</p>	unknown
<p>Regarding the much needed green energy plan, it is important to immediately pass this bill. There are some failings but we can address that later. We need to focus on:</p> <ul style="list-style-type: none"> <li>reducing carbon and methane emissions;</li> <li>expanded use of solar, storage, energy efficiency, electric vehicles, offshore wind and microgrids; a holistic overhaul of the utility business model that would align Duke Energy incentives with the public interest and take social and environmental costs into account when deciding on our future electricity sources; measures to increase transparency and competition in the NC electricity sector; measures to make electricity more affordable for low-income customers and include historically marginalized people in decisions about facility siting and program implementation; and improvements to existing solar programs such as rebates, leasing and community solar.</li> </ul>	Ursula Lobacz
<p>I find it disappointing that the draft Clean Energy Plan does not include the benefits of Nuclear Energy. Nuclear Energy is clean and emission free power that NC has been reaping rewards from for decades. Many states do not have a nuclear fleet to benefit their air quality. NC is fortunate to have a large nuclear fleet. The benefits of this resource should be credited in the report and also a part of the Clean Energy Plan moving forward. With subsequent life extensions, most of the NC nuclear fleet can operate through mid-century providing stable, base-load, 24 hours, emission free generation for NC. In addition to the emission free aspects of these plants, they also provide numerous jobs and strengthen the economy of NC and their local communities. This is a win, win scenario. Solar and wind power are very important, but don't take for granted the emissions free resources that NC is fortunate enough to already have in place.</p>	Wade Richardson
<p>Your Clean Energy Plan does not support the one source of power that is 100% clean: nuclear.</p> <p>Nuclear power is safe, clean, reliable, and powerful. Nuclear plants produce zero carbon emissions, and have been proven to be the safest form of energy production.</p> <p>With today's technology, new designs are being tested and demonstrated, and are making nuclear even safer and more reliable than the plants currently in operation. It is paramount that we as a country look into nuclear as the cleanest solution to our power needs.</p> <p>I urge you to research nuclear power in the United states, it's safety record, it's carbon emission (or lack thereof), and it's reliability. Take an honest look at the benefits nuclear can provide. Look at how close-knit the nuclear industry is; how each plant shares experiences with each other, ultimately supporting one another by providing insight on equipment reliability and performance.</p>	William Lyons
<p>Although EO 80 deals mostly with reducing carbon emissions, North Carolina's Clean Energy Plan must address the immense impact that methane has on overall greenhouse gas emissions. The Clean Energy Plan should transition away from natural gas, not encourage it. Pipelines and gas-fired plants will become stranded assets as renewables become cheaper sources of energy in the future. Customers should not be stuck with these liabilities.</p>	William McNeil

<p>I applaud and encourage expanding access to solar, wind and other renewable energy by low-moderate income residents. On-bill financing and other Incentives for solar should be available to many more families.</p> <p>Models should be developed and deployed to make solar energy available to residents of rental homes and apartments.</p> <p>Energy Efficiency should be expanded in every community, with incentives for making smart improvement investments that will payoff in fewer years.</p>	<p>William McNeil</p>
<p>Utility-scale energy storage should get more emphasis. When tied to renewable facilities and a modernized grid, new generation storage systems can eliminate the need for operating older plants to meet peak demand.</p> <p>Individual or community-scale storage systems could make community solar installations more feasible.</p>	<p>William McNeil</p>
<p>North Carolina's Clean Energy Plan should not embrace the wood pellet industry for our energy needs in any way. Given their role in absorbing carbon dioxide, our forests should be managed and maintained, not exploited or exported for burning. If anything, the Clean Energy Plan should encourage <u>major reforestation, planting millions of trees as one of many drawdown strategies.</u></p>	<p>William McNeil</p>
<p>I agree with the plans that are trying to be enacted, and I agree that green energy should be a top priority. I would just like to see a full layout of how a this bill will be funded. Taxes being increased for green energy would not be ideal while tax incentives and tax relief would be a smarter choice. I also think that a timeline like stated in the goals should be highlighted and is an important part of introducing the plan.</p>	<p>William Vance Jones</p>
<p>Please oppose all proposed statutes and/or regulations regarding "clean energy"! I am a former CPA who has performed 3 feasibility studies on ethanol production and electric generation from peat. They all demonstrated total inadequacy for economic sustainability. All assumptions otherwise were based on bad data or or bad conclusions. I personally installed a solar heating system on my office building in Washington, NC in the early 1970s. It was totally inadequate and I replaced it with a water to water heat pump.</p> <p>The most cost efficient alternative to fossil fuel power generation is nuclear. I was a US Naval Officer operating with nuclear powered ships in the 1960s. They are safe and efficient and cost justified! All other, wind, solar or alternative fuel sources are not. Please do not be swayed into any current "clean air" solutions. We are being severely misled. Thanks, William M. Zachman</p>	<p>William Zachman</p>



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