North Carolina

Climate Change Interagency Council

Executive Order No. 80: NC's Commitment to Address Climate Change and Transition to a Clean Energy Economy

8th Meeting

February 24, 2021

Virtual Meeting

Meeting Agenda & Objectives

1. **Welcome and Introductions** — **10:00-10:05**
   - Opening remarks and Meeting Objectives (Sushma Masemore, DEQ)
   - Introductions (Council Executive Designees)

2. **Transportation** (Jeremy Tarr, Governor's Office) — **10:05-11:05**
   - TCI Update (James Bradbury, Georgetown Climate Center)
   - State Motor Fleet Update (Mark Edwards and Robert Riddle, DOA)
   - ZEV Plan implementation (Heather J. Hildebrandt, DOT)
   - Medium and Heavy-Duty ZEV MOU (Mike Abraczinskas, DEQ)

3. **Clean Energy Plan Recommendation B-1** — **11:05-11:35**
   - North Carolina Energy Regulatory Process 2020 Report (Sushma Masemore, DEQ and Jessica Shipley, Regulatory Assistance Project)

4. **Clean Energy Plan Recommendation A-1**
   - North Carolina Power Sector Carbon Policies: An Analysis of CEP Recommendation A-1 (Kate Konschnik, Duke University Nicholas Institute for Environmental Policy Solutions) — **11:35-12:00**

5. **Public engagement** — **12:00-12:30**
   Individuals and organizations may provide input to cabinet agencies on their implementation of the EO. Oral presentations will be limited to 2 minutes.

Council Designee Introductions

Transportation

TCI Update

James Bradbury, Georgetown Climate Center

Transportation & Climate Initiative

A Presentation to the:

North Carolina Climate Change Interagency Council

February 24, 2021

James Bradbury
Mitigation Program Director, GCC

TRANSPORTATION & CLIMATE INITIATIVE
Of the Northeast and Mid-Atlantic States

GEORGETOWN CLIMATE CENTER

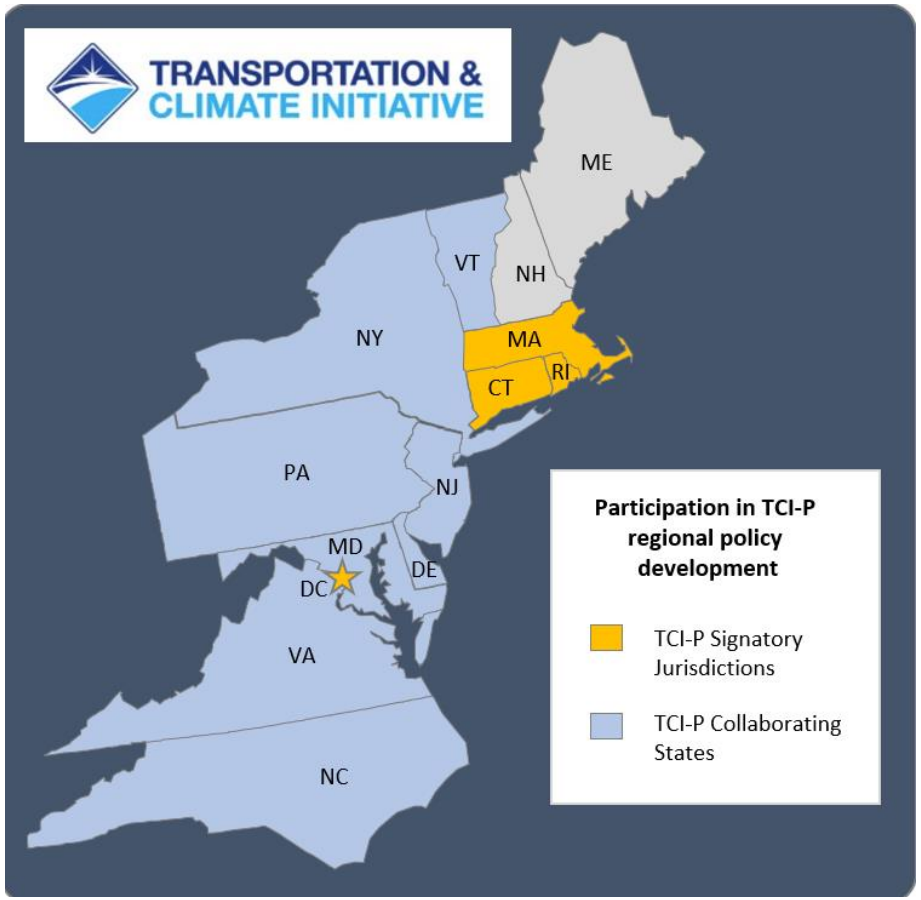
TCI : A Regional Approach

The Transportation and Climate Initiative (TCI) is a regional collaboration of Northeast, Mid-Atlantic, and Southeast jurisdictions.

December 2018: Nine States and D.C. announced their intent to design a regional approach to cap greenhouse gas pollution from transportation

December 2020: Rhode Island, Massachusetts, Connecticut, D.C. are First to Sign MOU to Launch TCI-P

In an accompanying statement, eight other Northeast, Mid-Atlantic, and Southeast states signaled that they will continue to work on the development of the details of the regional program



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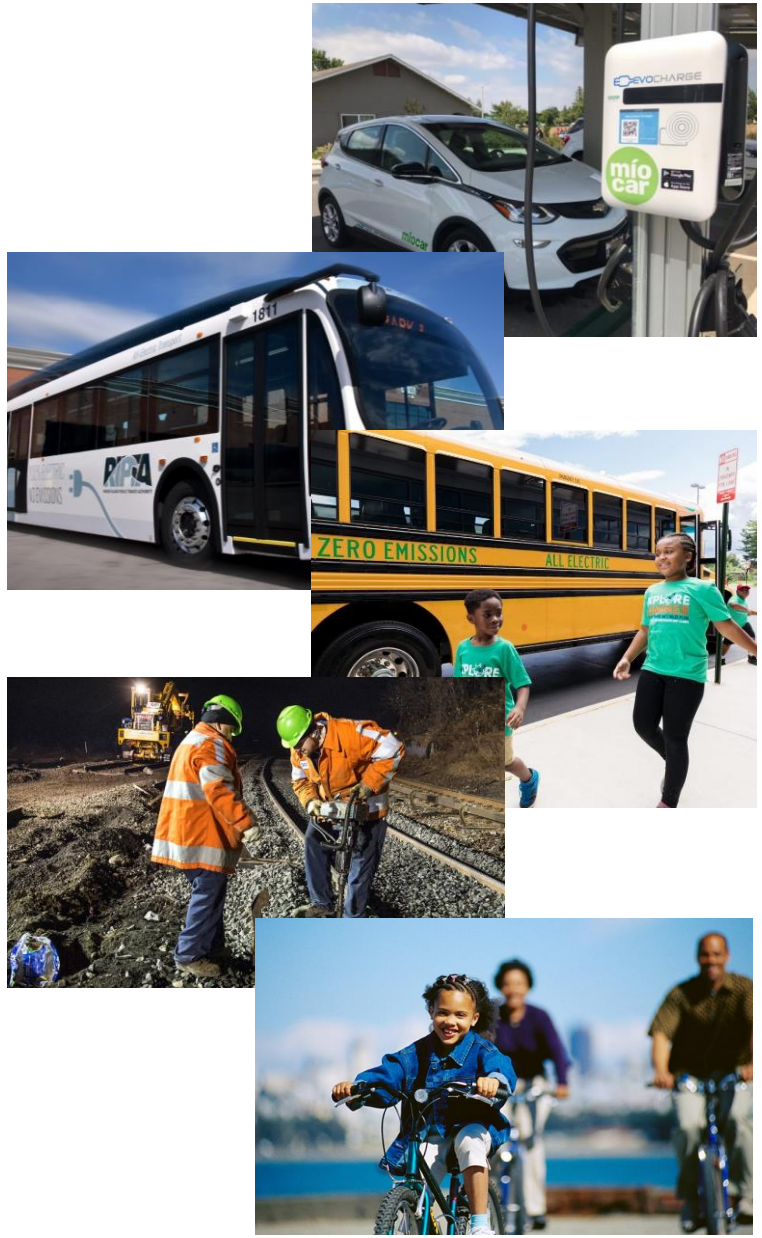
TCI Program Goals

- Reduce CO_2 emissions from transportation
- Improve air quality and public health, increase resilience to the impacts of climate change, and provide more affordable access to clean transportation choices
- Promote local economic opportunity and create high quality jobs
- Maximize the efficiency of the multijurisdictional program to ensure greater benefits
- Advance equity for communities overburdened by pollution and underserved by the transportation system



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Source: TCI-P MOU, Dec. 2020
(https://www.transportationandclimate.org/sites/default/files/TCI%20MOU%2012.2020.pdf)

How Will this Cap and Invest Program Work?

- TCI-P reduces carbon dioxide (CO_2) emissions from diesel and gasoline sold in participating jurisdictions
- This is achieved by **capping** and reducing total emissions from these fuels and selling "allowances" to regulated fuel suppliers
- Proceeds from the sale of these allowances are used to **invest** in low-carbon transportation strategies that give communities, workers and businesses additional clean, safe and affordable options for getting from point A to point B

*The **cap** and the **invest** parts of the program*

both act to reduce emissions

- Emissions Reporting begins in 2022, the cap goes into effect in 2023
- *Each jurisdiction decides how to invest its share of the proceeds*

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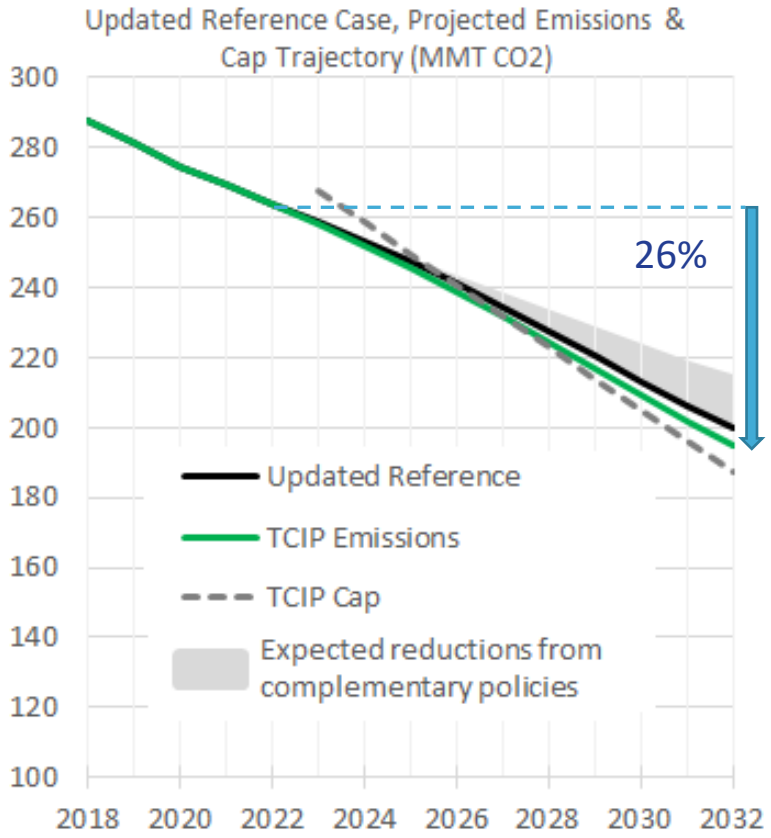
Projected TCI-P Emission Reductions

- Establishes a cap on carbon pollution from on-road transportation that declines over time.

- The TCI-P cap, working with clean transportation investments and complementary policies are projected to reduce emissions by at least 26 percent in participating jurisdictions, from 2022 to 2032.



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Source: TCI-P modeling & analysis, Dec. 2020
(https://www.transportationandclimate.org/sites/default/files/TCI-P_modeling-summary_12-21-2020.pdf)

Modeling Investments in Clean Transportation

- $2 billion in annual investments

(would be ~$300 million for NC)

- By 2032, this could result in additional sales of:
  - 24,000 electric transit & school buses
  - 23,300 electric trucks

Illustrative investment portfolio (annual)

	**$550 million**	Electric cars, light trucks and vans
	**$425 million**	Low & zero-emission buses and trucks
	**$330 million**	Transit expansion and upkeep
	**$250 million**	Pedestrian and bike safety, ride sharing
	**$150 million**	System efficiency
	**$150 million**	Indirect/ Other

** Assumes 13 TCI jurisdictions participate (from VA to ME)*

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Source: TCI Investment Strategy Tool (https://www.transportationandclimate.org/sites/default/files/TCI%20Invest-Tool-Documentation_09212020_final.pdf)

Economic Benefits are Modest and Net Positive

- Program projected to have a positive impact on the economy in all scenarios modeled.
- GDP, income, and jobs are projected to be greater than business as usual in 2032 and substantially net positive over the 2022-2040 timeframe.
- Significant progress towards achieving climate goals by reducing carbon and other pollution from transportation at modest cost and net benefit to the economy.

** Modeling estimated potential benefits if all TCI jurisdictions – from Virginia to Maine – participate*

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Source: TCI-P modeling & analysis, Dec. 2020
(https://www.transportationandclimate.org/sites/default/files/TCI-P_modeling-summary_12-21-2020.pdf)

Public Health Benefits from Improved Air Quality & Increased Physical Activity

If all 13 jurisdictions participate,* estimated annual benefits in 2032 are:

- Up to $3.2 Billion in total Public Health Improvements
- 320 premature deaths avoided, and
- Over 11,000 fewer childhood asthma cases and exacerbations

**Includes all TCI jurisdictions from Virginia to Maine (not North Carolina)*

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Source: Transportation, Equity, Climate and Health (TRECH) Project, an independent multi-university research initiative led by the Harvard T.H. Chan School of Public Health. (https://www.hsph.harvard.edu/c-change/news/trechstudy/)

Equity is Central to TCI-P Implementation

- **Dedicated Investments:** a minimum of 35% of each state's proceeds to ensure that underserved and overburdened communities benefit equitably
- **Equitable Processes:** ensure communities can provide meaningful input to decision making, including through equity advisory bodies (next slide)
- **Transparency:** annually assess and report on equity impacts of the program. Monitor air quality in communities overburdened by air pollution
- **Complementary Policies:** additional policies to achieve emissions reductions, particularly in overburdened and underserved communities (e.g., clean car and clean truck standards).

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Source: TCI-P MOU, Dec. 2020 (https://www.transportationandclimate.org/sites/default/files/TCI%20MOU%2012.2020.pdf)

Each Jurisdiction Establishes Equity Advisory Bodies

- Made up of diverse stakeholder groups, with a majority represented by overburdened and underserved communities, to advise on TCI-P decision-making:
  - Define underserved and overburdened communities
  - Recommend equitable investments and complementary policies
  - Develop metrics for evaluating program benefits

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Source: TCI-P MOU, Dec. 2020 (https://www.transportationandclimate.org/sites/default/files/TCI%20MOU%2012.2020.pdf)

TCI can be part of a comprehensive climate response

A variety of strategies are needed to reduce carbon emissions and air pollution from transportation

- Federal policies & programs
  - Emissions and efficiency standards for vehicles
  - Funding for transit and air quality improvement projects
- State policies & programs
  - Clean car and truck standards
  - Investments in clean transportation:
    - transit
    - incentives for clean vehicles
- What is the role of TCI-P?
  - TCI caps climate pollution region-wide and enables targeted investments and incentives to promote public benefits where they are most needed

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Ongoing Opportunities for Public Input

TCI-P is committed to public engagement so communities can provide meaningful input into decision making processes

Regional processes

- Draft Model Rule (to be published March 1)
- Program review every few years

State-specific processes

- Establishing and supporting Equity Advisory Bodies
- State legislative processes, as needed
- State rulemaking processes
- Planning for investments
- Annual reports on program effectiveness

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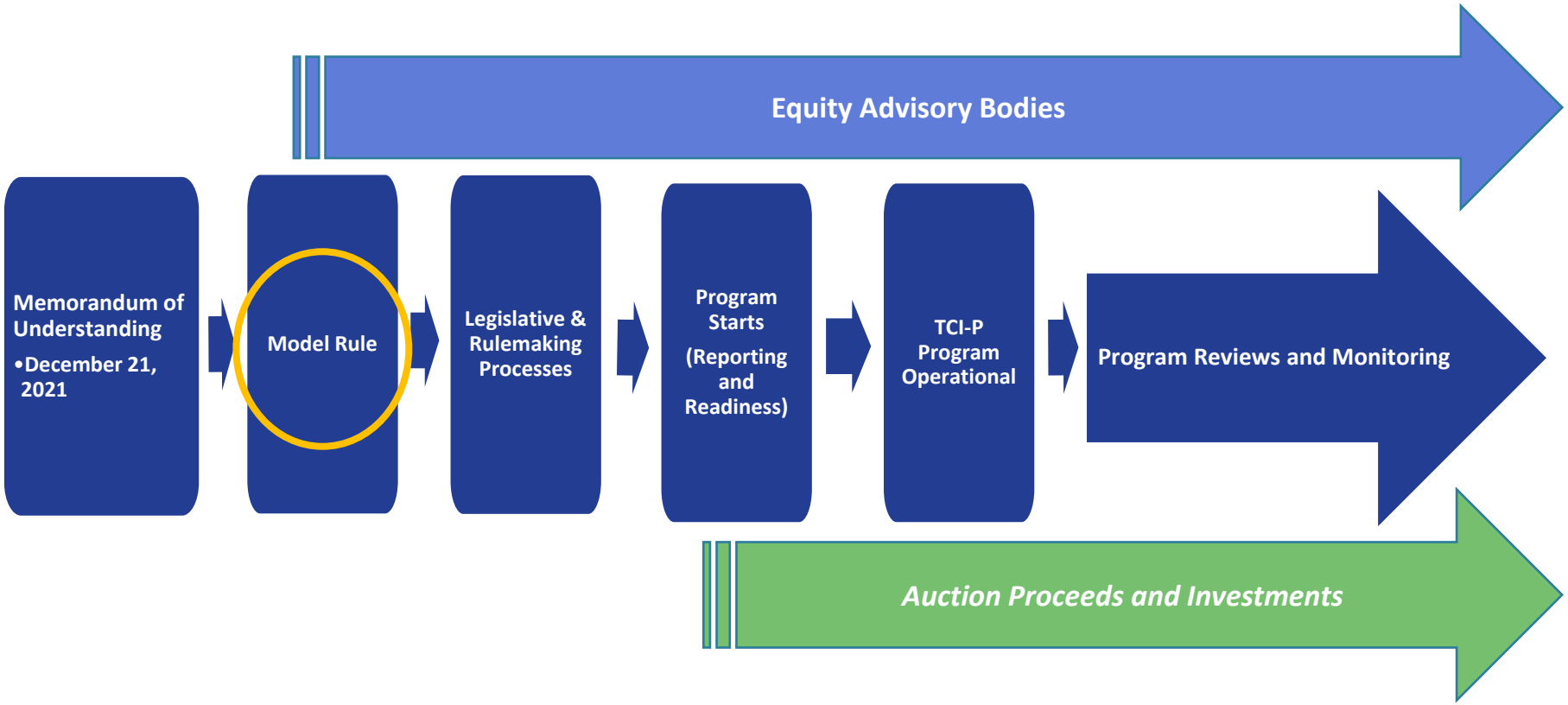
Where Are We In the Process?



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Of the Northeast and Mid-Atlantic States

State Motor Fleet Update

Mark Edwards and Robert Riddle, DOA

North Carolina

Motor Fleet ZEV Plan Update EO80

NC Department of Administration

October 1, 2020

NC DOA
Department of Administration

NC Climate Change Interagency Council

February 24, 2021

Motor Fleet Management ZEV & Hybrid Vehicles
Timeline

YEAR	DESCRIPTION	TOTAL NUMBER OF ZEV & HYBRID VEHICLES
2016	First ZEV added to the state fleet	**1**
2018	Governor Cooper established EO80	**9**
2019	MFM ZEV Plan Created	**15** ZEV and hybrid vehicles
2020	First annual MFM ZEV Plan Update	**35** electric vehicles in the state fleet (25 assigned, 5 additional hybrid vehicles)

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Department of Administration

MFM ZEV & Hybrid Vehicle Assignments by Agency *As of February 2021*

VehicleYear/Make	VehicleModel	AgencyName	Status
2020 Chev	Bolt		New
2020 Chev	Bolt		New
2020 Chev	Bolt		New
2020 Chev	Bolt		New
2014 Nissan	Leaf FWD		Available
2014 Nissan	Leaf FWD		Available
2015 Nissan	Leaf FWD		Available
2020 Chev	Bolt		Available
2020 Chev	Bolt		Reserved
2014 Nissan	Leaf FWD	DHHS Blind Services	Assigned
2014 Nissan	Leaf FWD	UNV UNC-Asheville	Assigned
2014 Nissan	Leaf FWD	UNV NC State University	Assigned
2014 Nissan	Leaf FWD	DHHS Central Administration	Assigned
2014 Nissan	Leaf FWD	UNV UNC-Charlotte	Assigned
2015 Nissan	Leaf FWD	DHHS Health Benefit	Assigned
2015 Nissan	Leaf FWD	UNV UNC-Charlotte	Assigned
2015 Nissan	Leaf FWD	UNV UNC-Chapel Hill	Assigned
2015 Nissan	Leaf FWD	UNV UNC-Chapel Hill	Assigned
2015 Nissan	Leaf FWD	UNV Fayetteville State U	Assigned
2020 Chev	Bolt	DHHS Child Development	Assigned
2020 Chev	Bolt	Dept Of Natural & Cultural Resources	Assigned
2020 Chev	Bolt	Dept Of Public Safety	Assigned
2020 Chev	Bolt	UNV Appalachian State U	Assigned
2020 Chev	Bolt	Dept Of Natural & Cultural Resources	Assigned
2020 Chev	Bolt	Dept Of Public Safety	Assigned
2020 Chev	Bolt	Dept Of Public Safety	Assigned
2020 Chev	Bolt	Dept Of Public Safety	Assigned
2020 Chev	Bolt	UNV Appalachian State U	Assigned
2020 Chev	Bolt	Dept Of Public Safety	Assigned
2020 Chev	Bolt	Dept Of Public Safety	Assigned
2020 Chev	Bolt	UNV Appalachian State U	Assigned
2020 Chev	Bolt	Dept Of Public Safety	Assigned
2020 Chev	Bolt	UNV Appalachian State U	Assigned
2020 Chev	Bolt	UNV UNC-Asheville	Assigned
2020 Chev	Bolt	UNV UNC-Asheville	Assigned
		Hybrid	
2019 Chev	Volt AWD	UNV UNC-Charlotte	Assigned
2019 Chev	Volt AWD	UNV UNC-Charlotte	Assigned
2019 Chev	Volt AWD	Dept Of Environmental Quality	Assigned
2019 Chev	Volt AWD	UNV Appalachian State U	Assigned

EV Suitability Assessment

- MFM has ensured telematics is on every state vehicle, allowing data-informed decisions and mileage tracking to determine vehicles best suitable for ZEV replacement.
- The 2019 EV Suitability Assessment (ezEVSA) was provided to MFM by Sawatch Labs and identified 572 vehicles suitable for ZEV replacement.
- The Sawatch Labs scoring analysis of approximately 2,500 MFM vehicles is shared with agency fleet coordinators and is used as a basis to recommend EV replacement.
- A new Sawatch Labs analysis of telematic data related to the entire 7,000+ vehicle fleet will be available in 2021. The analysis will inform infrastructure recommendations, as well as additional vehicles suitable for ZEV replacement.

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SAWATCH

Charging Solutions

- **There is a critical need to invest in charging infrastructure where vehicles frequently drive and park overnight.**
- MFM installed two Phase 2 chargers and four Phase 1 chargers at the Blue Ridge Rd. facility.
- MFM worked with ChargePoint and WEX fuel cards to allow state-owned ZEVs to charge at over 790+ ChargePoint locations across NC.
- ChargePoint fuel cards were issued to MFM ZEV drivers for remote charging purposes.
- State Construction is seeking funding to centralize the process for purchasing and installing charging infrastructure.

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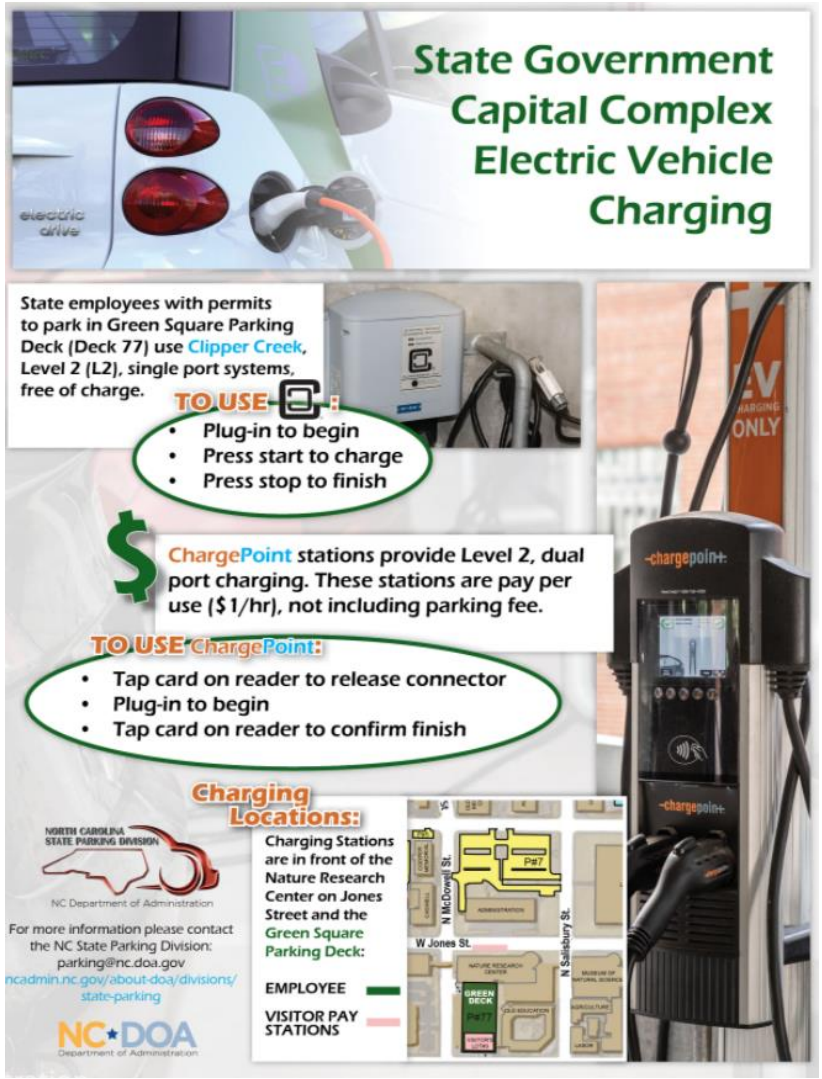
Educational Outreach

- The DOA MFM webpage includes resources critical for widespread adoption of ZEVs:
  - Vehicle Infrastructure and Charging Stations Request Portal
  - State Government Capital Complex Electric Vehicle Charing Information and Resources (ChargePoint)
  - EO80 and electrification updates are shared through DOA's social media channels, department wide newsletters, and directly with agency fleet coordinators and agency heads



Next Steps

- Communicate results of the 2021 Sawatch Labs analysis to Agency partners
- Continue to monitor Agency vehicle requests and identify when a ZEV is suitable
- Advocate for funding to address critical infrastructure needs
- Respond to setbacks related to COVID-19 and its adverse effects on receipt supported agencies, budgets, and businesses sustainability overall

NC DOA
Department of Administration

Contact Information

- Robert Riddle, Director, Motor Fleet Management, NC Department of Administration, Robert.riddle@doa.nc.gov
- Mark Edwards, Acting Secretary, NC Department of Administration, mark.edwards@doa.nc.gov

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Department of Administration

ZEV Plan Implementation

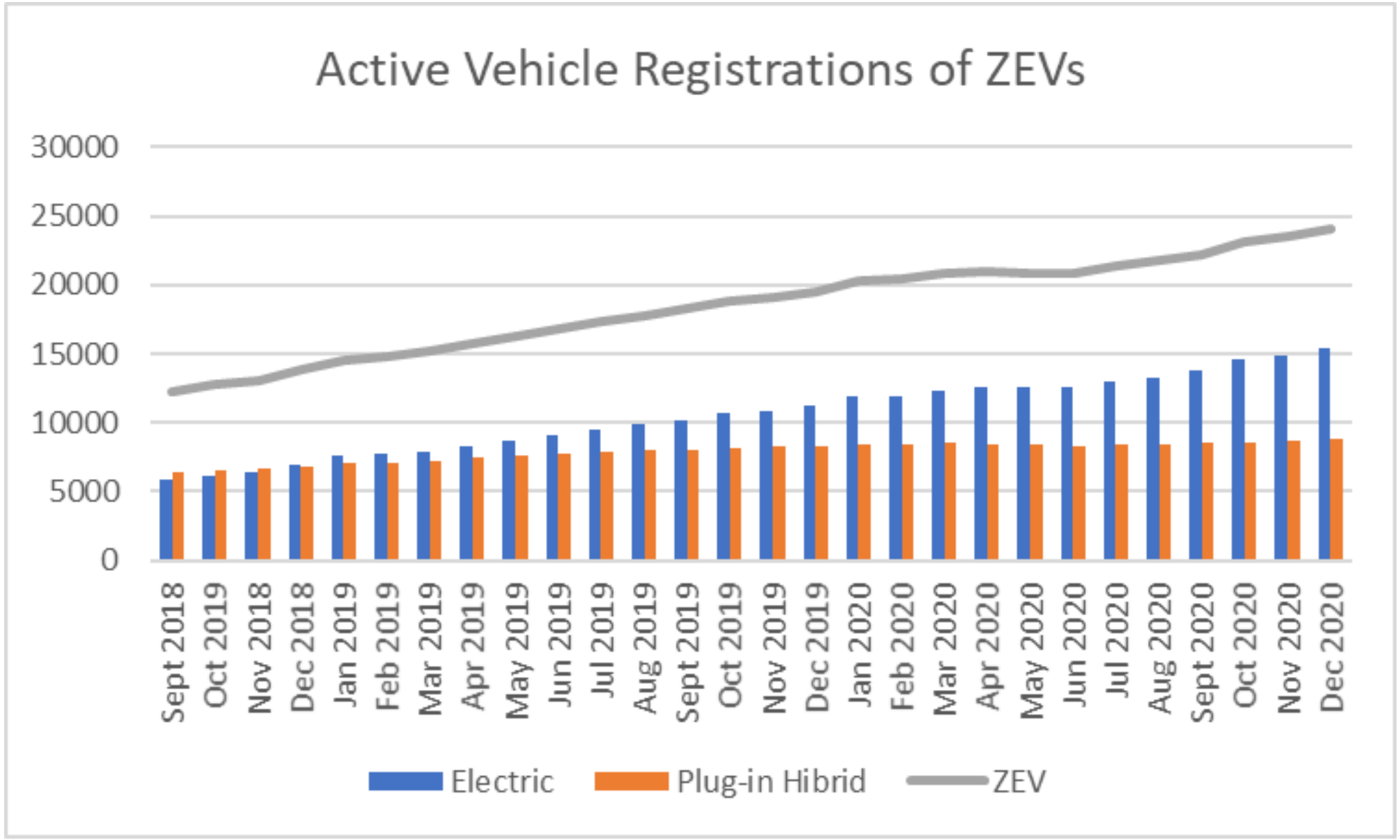
Heather J. Hildebrandt, DOT

NORTH CAROLINA
Department of Transportation

North Carolina ZEV Plan Update

Heather Hildebrandt

February 24, 2021


Active Vehicle Registrations of ZEVs
30000
25000
20000
15000
10000
5000
0
Sept 2018
Oct 2019
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 2019
Apr 2019
May 2019
Jun 2019
Jul 2019
Aug 2019
Sept 2019
Oct 2019
Nov 2019
Dec 2019
Jan 2020
Feb 2020
Mar 2020
Apr 2020
May 2020
Jun 2020
Jul 2020
Aug 2020
Sept 2020
Oct 2020
Nov 2020
Dec 2020
Electric
Plug-in Hibrid
ZEV

NC ZEV Plan Action Areas

Education

*Comprehensive marketing and education campaign

*Ride & Drive events

*Total cost of ownership

*Intergovernmental information sharing

*EV owner testimonial

*EV technology exhibits

*K-12 EV campaign

*Posted Registration Data

Convenience

*Fast Charging Infrastructure

*Workplace Charging

*Rest Area charging

*Retail charging

*Consistent signage

*Charging for on-street parking

*Wayfinding App

Affordability

*Credits/Rebates

*Green vehicle loans w/credit unions

*Dealership incentives

*Fleet incentives

*Reduced home charging rates

*Fleet & bus infrastructure grants

Policy

*Pursue a regional electric vehicle initiative

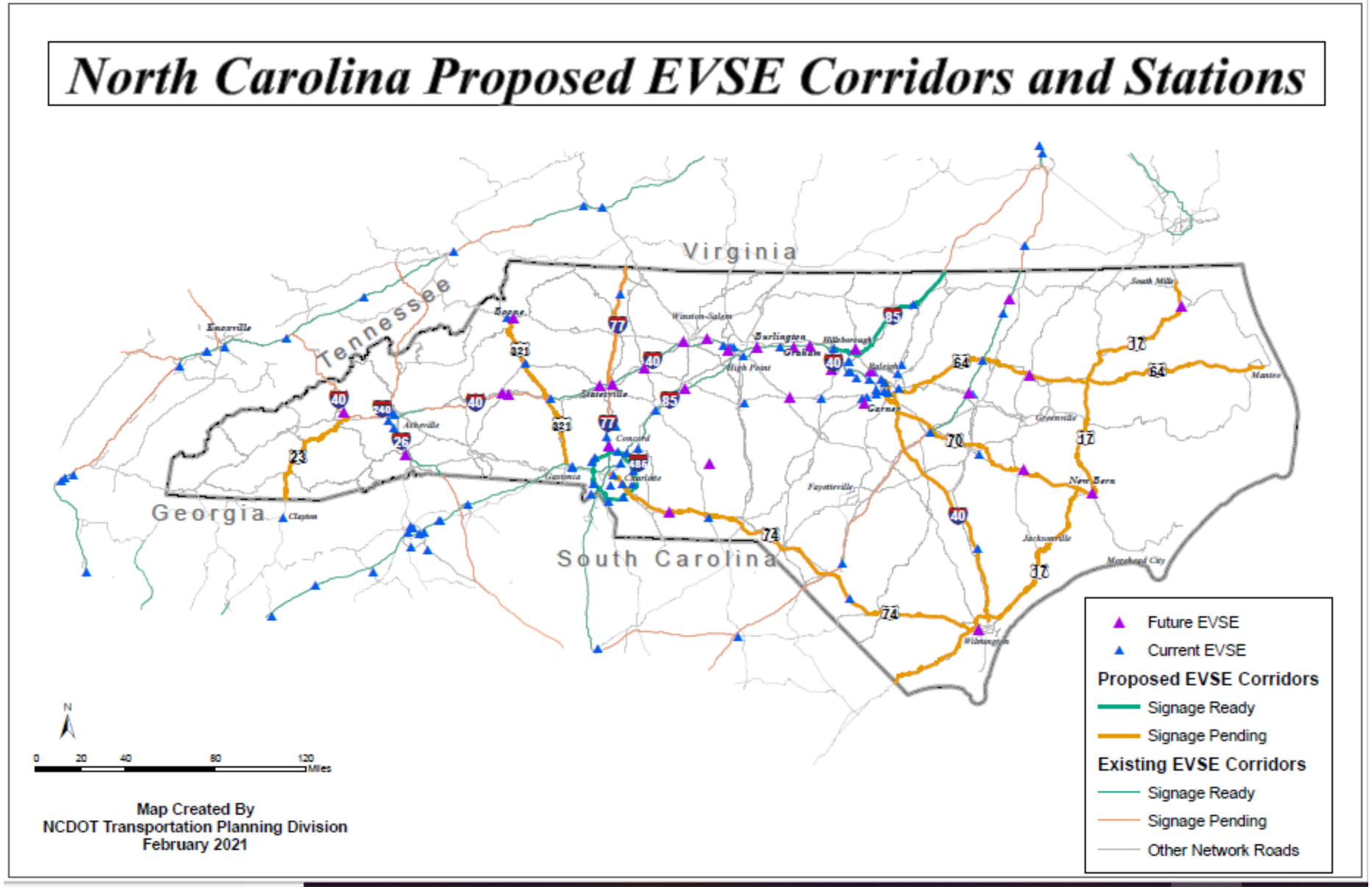
*Investigate ZEV MOU signed by other states and other collaboratives

*Participate in Medium- and Heavy-Duty MOU

*Identify opportunities for EV adoption in zoning and building codes

*EV registration fees

*EV Fleet certifications


North Carolina Proposed EVSE Corridors and Stations
Virginia
Tennessee
Georgia
South Carolina
Future EVSE
Current EVSE
Proposed EVSE Corridors
Signage Ready
Signage Pending
Existing EVSE Corridors
Signage Ready
Signage Pending
Other Network Roads
N
0 20 40 80 120
Miles
Map Created By
NCDOT Transportation Planning Division
February 2021

EVSE Signage

- NCDOT allows for EVSE highway signage through the LOGO signing program to restaurants and lodging establishments

Exit 99, US-64 W

Transit Electrification

- Webinar for transit systems
  - Shared current NC deployment
  - Options for smaller systems
- Volkswagen Settlement Funds
- CMAQ
  - 24 eligible counties

Multi-State Initiatives

- Medium- and Heavy-Duty MOU
- I-40 Alternative Fuel Corridor Deployment Plan
  - NC, TN and AR
- SE EV Corridor Council
  - Corridor Signage
  - Coordination of infrastructure

Contact Information

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Statewide Initiatives Supervisor

NC DOT

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Medium and Heavy-Duty ZEV MOU

Mike Abraczinskas, DEQ

NORTH CAROLINA
Department of Environmental Quality

Medium + Heavy Duty Zero Emission Vehicles Briefing

NC Climate Change Interagency Council Meeting

February 24, 2021

Division of Air Quality
Mike Abraczinskas, Director

Initiatives to Stimulate Adoption of ZEVs

- Executive Order 80
- Diesel Emission Reduction Act (DERA)
- Volkswagen (VW) Settlement
- Medium- and Heavy-Duty (MHD) Zero Emission Vehicle (ZEV) Memorandum of Understanding (MOU)

MHD ZEV Projects in NC

Diesel Emission Reduction Act (DERA)

DERA Projects	Town of Cary	City of Wilmington	City of Charlotte
Vehicle being replaced (transit bus, school bus, etc)	Refuse Truck	Refuse Truck	Transit Bus
Infrastructure included	Yes	Yes	No
Total cost of project	$560,834.05	$601,302.05	$867,127.00
DERA funding provided	$252,375.32	$270,585.92	$390,207.00
Location	Cary	Wilmington	Charlotte
Urban or Rural	Urban	Urban	Urban

VW Settlement

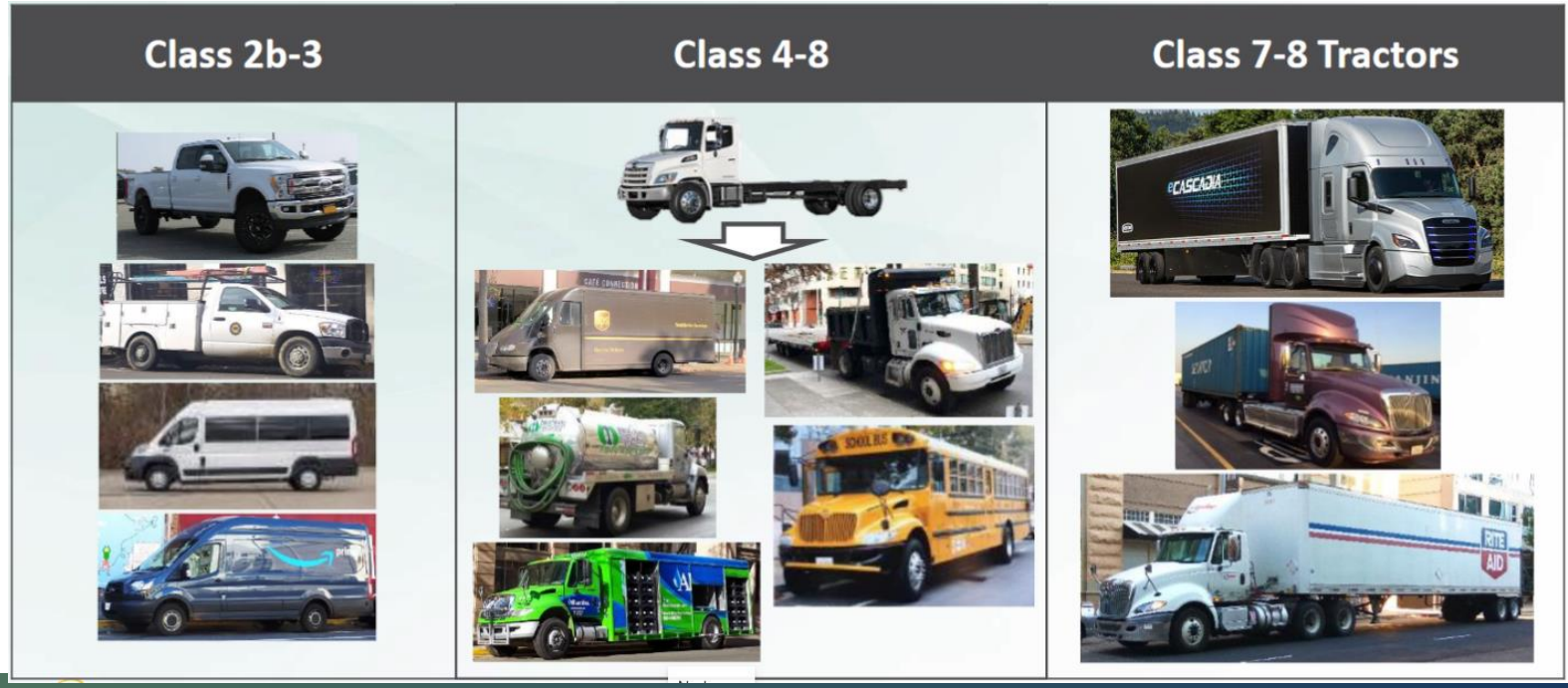
MHD ZEV Projects in NC

	Organization Name	County	Funding Amount	County Classification
School Bus	Department of Public Instruction	Transylvania	372,270.00	Rural
	Department of Public Instruction	Cabarrus	360,999.00	Urban
	Department of Public Instruction	Rowan	368,564.00	Urban
	Department of Public Instruction	Randolph	277,963.00	Rural
	Department of Public Instruction	New Hanover	369,325.00	Urban
	Eastern Band of Cherokee Indians	Swain	402,810.00	Rural
Transit Bus	Durham	Durham	$428,066.00	Urban
	Greensboro	Guilford	$501,838.77	Urban
	Salisbury	Rowan	$426,502.25	Urban
	Salisbury	Rowan	$392,269.25	Urban
	Chapel Hill	Orange	$485,000.00	Urban
	Raleigh	Wake	$397,200.73	Urban
	Boone-Appalachian State	Watauga	$1,001,500.00	Rural
	Fayetteville	Cumberland	$127,750.00	Urban
	Fayetteville	Cumberland	$127,750.00	Urban
	TOTALs		$6,039,808.00	

Truck Classifications

- Vehicle classes are based on gross vehicle weight rating (GVWR).
- Class 2 is subdivided into:
  - Class 2a vehicles with a GVWR of 6,001-8,500 lbs.; and
  - Class 2b vehicles with a GVWR of 8,501-10,000 lbs.
- MHDVs consist of classes 2b-8.

Source: U.S. Department of Energy



MHD ZEV MOU

July 14, 2020

- 15 states and the District of Columbia signed a joint memorandum of understanding (MOU)
- NC DAQ involved Sept 2020

Action

- Advance and accelerate the market for electric medium-and heavy-duty vehicles, including large pickup trucks and vans, delivery trucks, box trucks, school and transit buses, and long-haul delivery trucks (big-rigs)

Goals

- 100 percent of all new medium-and heavy-duty vehicle sales be zero emission vehicles by 2050 interim target of 30 percent zero-emission vehicle sales by 2030
- Drastically reduce greenhouse gas emissions from MHD ZEV

Health benefits

- Especially for communities burdened with higher levels of air pollution and heavy truck traffic

MULTI-STATE MEDIUM- AND HEAVY-DUTY ZERO EMISSION VEHICLE

MEMORANDUM OF UNDERSTANDING

WHEREAS, the Signatory States and the District of Columbia[1] recognize the importance of state leadership and coordinated state action to ensure national progress in the effort to reduce greenhouse gas (GHG) emissions and stabilize global warming;

WHEREAS, the Signatory States have statutory obligations or otherwise seek to significantly reduce statewide GHG emissions by 2050, consistent with science-based targets;

WHEREAS, transportation is now the nation's largest source of GHG emissions, and, after light-duty vehicles, medium- and heavy-duty trucks are the next largest source of transportation sector GHG emissions;

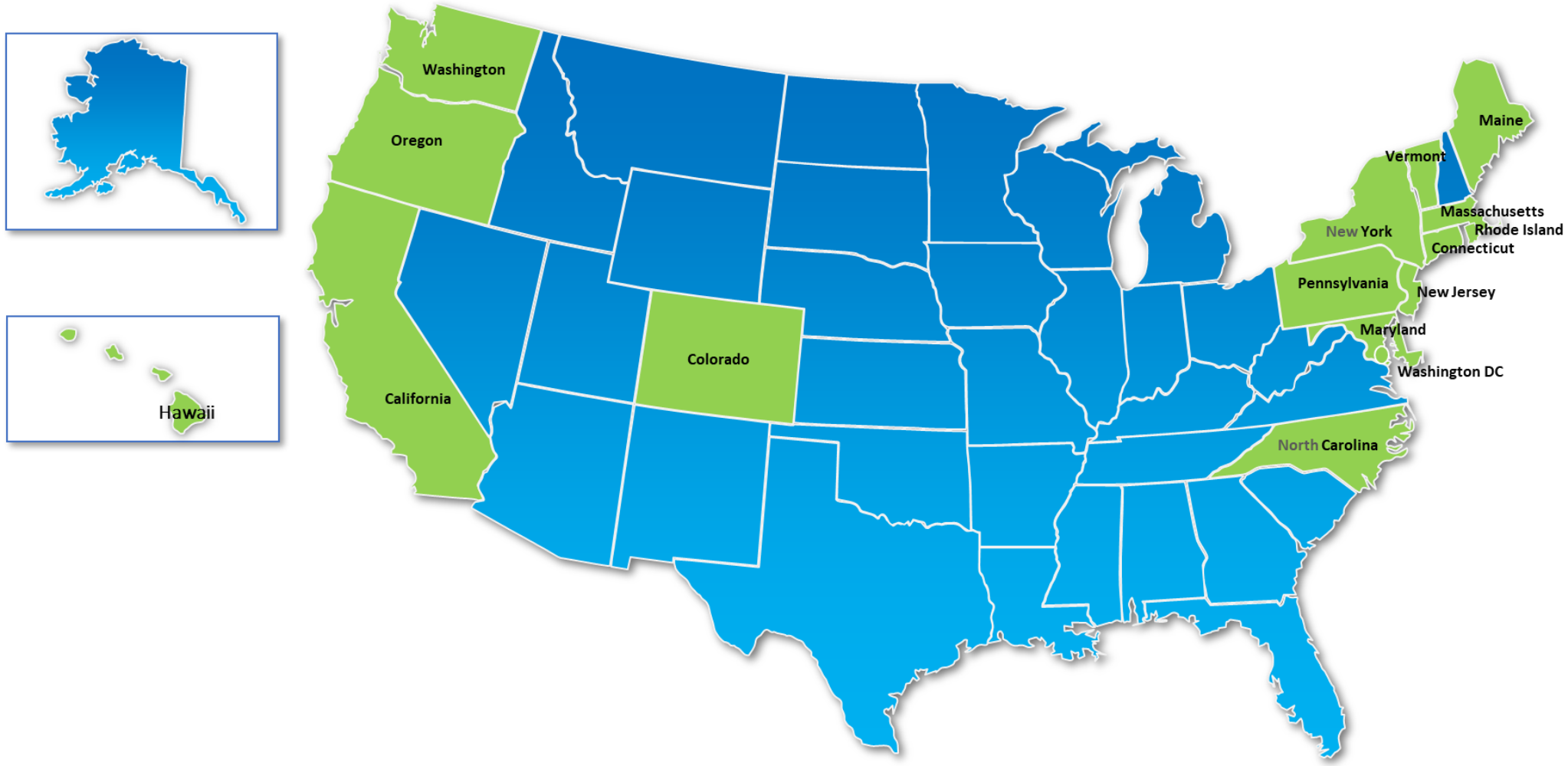
WHEREAS, the Signatory States have a statutory obligation to provide their citizens with air quality that complies with national health-based air quality standards, which are required to be protective of health and the environment with an adequate margin of safety;

WHEREAS, fossil fuel related emissions from medium- and heavy-duty vehicles (MHDVs) are a major source of nitrogen oxides (NOx), particulate matter, and toxic air emissions, which are preventing many densely populated areas from achieving compliance with federal ambient air quality standards;

WHEREAS, emissions from MHDVs are a widely acknowledged, but unaddressed,

NORTH CAROLINA Department of Environmental Quality

MHD ZEV MOU cont.



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MHD ZEV Action Plan

- **Action Plan:**
  - **Task Force will develop a multi-state action plan to identify barriers and propose solutions to support widespread electrification of medium- and heavy-duty vehicles**
- **Focus on Disadvantaged Communities**
  - **Share equitably in the benefits of truck and bus electrification**
  - **Provide meaningful opportunities to provide input**
  - **Meet community needs**
  - **Build long-term relationships**
- **Measurable Sales of MHD ZEVs**
- **Public Fleet Purchases and Fueling Stations**
- **Inter-agency Cooperation within States**
- **Partnerships with Key Stakeholders**

EXAMPLES for Action Plan:

- **Financial vehicle and infrastructure incentives;**
- **Non-financial vehicle and infrastructure incentives;**
- **Actions to encourage public transit and public fleet ZEV MHD development;**
- **Effective infrastructure deployment strategies;**
- **Funding sources and innovative financing models to support incentives and other market-enabling programs;**
- **Leveraging environmental and air quality benefits associated with adoption of the California Advanced Clean Trucks rule under Section 177 of the Clean Air Act;**
- **Coordinated outreach and education to public and private MHDV fleet managers;**
- **Utility actions to promote zero emission MHDVs, such as electric distribution system planning, beneficial rate design and investment in "make-ready" charging infrastructure;**
- **Measures to foster electric truck use in densely populated areas;**
- **Addressing vehicle weight restrictions that are barriers to zero emission MHDV deployment;**
- **Uniform standards and data collection requirements; and**
- **Any other initiative the Task Force deems appropriate.**

Steps to Date

- Bimonthly calls with Task Force
  - Stakeholder engagement will be an important part of this program:
    - Technology
    - EJ Groups
    - Utilities
    - Environmental Groups
    - Fleet Owners

Examples of Industries Adopting MHD ZEVs

Potential Barriers to Adoption

- MONEY
- Agency capacity
- Infrastructure
  - Not at the same level as light-duty vehicles
  - Existing areas to build up / out
- Utility capacity
- Vehicle availability in the state
- Capital costs for fleets
- Maintenance and support capacity

Vision for Moving Forward

- Identify and establish open two-way communication
- Share the latest information on medium- and heavy-duty ZEVs
- Establish structured and unstructured opportunities to provide input
- Garner input on how Action Plan strategies can align with and support stated goals of EJ communities
- Facilitate an ongoing and constructive dialogue
- Build long-term relationships with EJ advocates and community groups
- Foster community participation in clean transportation planning and decision-making

Advancing the MHD ZEV MOU Initiative:
Consultation with DEQ's EJ and Equity Advisory Board

- What are the most important transportation needs, improvements and priorities for EJ communities in NC?
- Do you see specific benefits or concerns regarding this project?
- Is there additional information you would like to have about health, safety or other impacts related to this project while considering these questions?
- What are the best ways in which to share this information and engage with communities?
- Please let us know if you would be interested and available to be a Point of Contact for NC. Or if you have anyone else you would recommend we bring into this effort, please let us know.

Contact information

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Clean Energy Plan Recommendation B-1

Sushma Masemore, DEQ; and Jessica Shipley, Regulatory Assistance Project

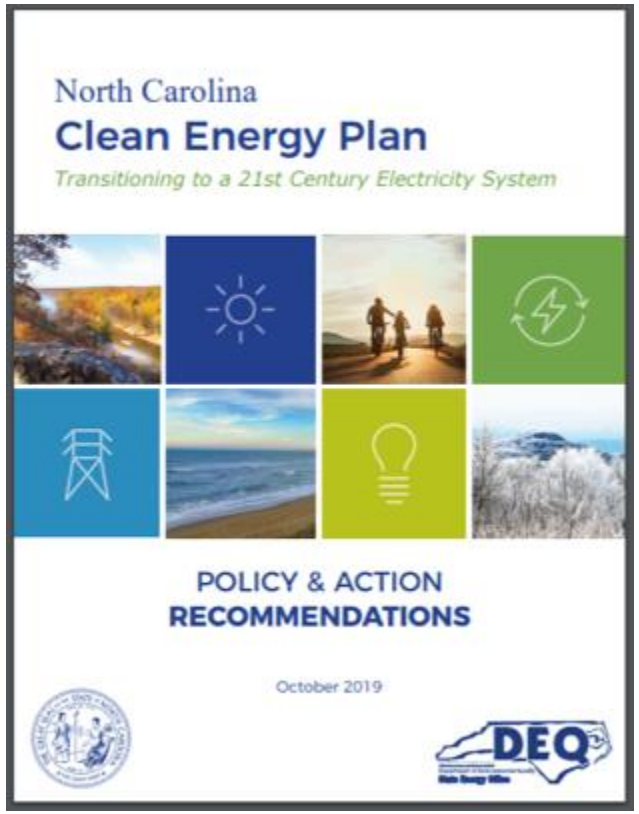
Clean Energy Plan Recommendation B-1

NC Energy Regulatory Process

Sushma Masemore, DEQ

Jessica Shipley, RAP

North Carolina Clean Energy Plan



https://deq.nc.gov/energy-climate/climate-change/nc-climate-change-interagency-council/climate-change-clean-energy-16

Goals

1. Reduce power sector greenhouse gas emissions by 70% below 2005 levels by 2030 and attain carbon neutrality by 2050.
2. Foster long-term energy affordability and price stability for North Carolina's residents and businesses by modernizing regulatory and planning processes.
3. Accelerate clean energy innovation, development, and deployment to create economic opportunities for both rural and urban areas of the state.

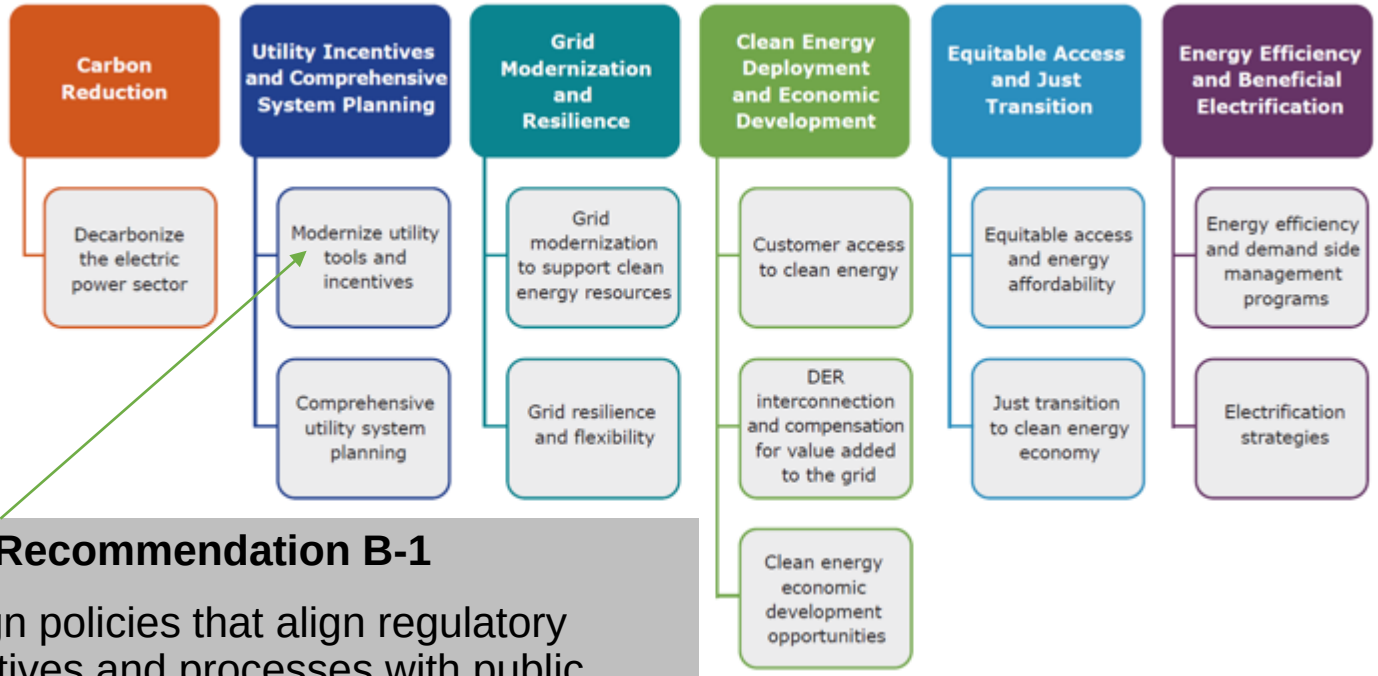
Key Recommendation

- To successfully transition to a clean energy future, North Carolina must establish a 21st century regulatory model that incentivizes business decisions that benefit both the utilities and the public in creating an energy system that is clean, affordable, reliable, and equitable

Core Values to Uphold

- Significant and timely decline in greenhouse gas emissions
- Affordable electricity rates
- Grid reliability
- Expanded clean energy resources and job growth
- Equity and environmental justice considerations

Clean Energy Plan Recommendation Areas



CEP Recommendation B-1

- Design policies that align regulatory incentives and processes with public policy goals, customer expectations, utility needs, and technology innovation.
- DEQ launched stakeholder process in February 2020.

Overview of NC Energy Regulatory Process (NERP)

Purpose

Produce recommendations for policy and regulatory changes that can be delivered by the participants to the NC General Assembly, NC Governor, NC Utilities Commission, and other entities as appropriate.

These may take the form of issues briefs or policy proposals developed during the process.

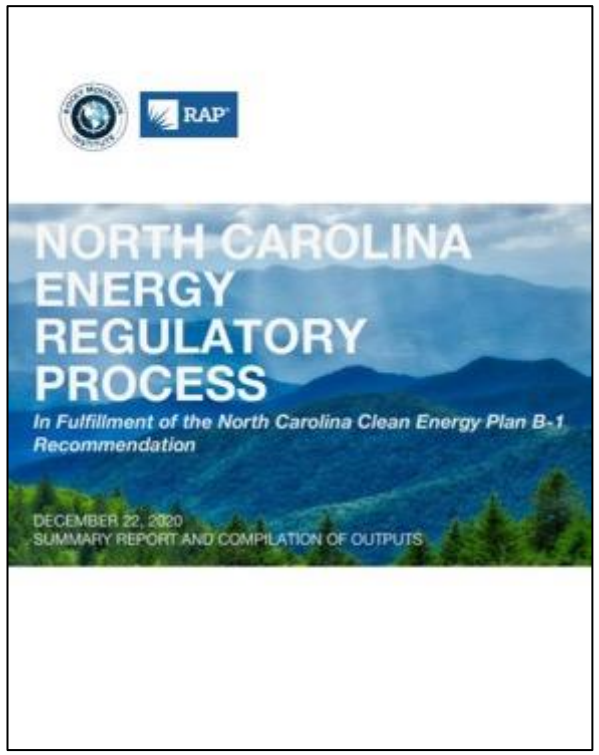
Objectives

1. Build expertise and trust among NC energy stakeholders through shared principles, foundation setting, education and identification of priority action areas
2. Examine alternatives to the traditional utility regulatory model and incentives, carbon reduction policies, and as needed, energy market reforms identified by stakeholder group
3. Produce specific policy proposals that participants can work to implement

NERP Stakeholders

- State Government
- Regulated Utilities
- Munis and Co-ops
- Local Government
- Customer Representatives
- Industry
- Clean Energy Industry
- Environmental NGOs
- Environmental Justice
- Universities

NERP 2020 Report



Full Report

https://deq.nc.gov/cep-nerp

Package submitted to the Governor, Leaders of the NCGA, and Chair of the Utilities Commission

PERFORMANCE BASED REGULATION STUDY GROUP WORK PRODUCTS

WHOLESALE ELECTRICITY MARKETS STUDY GROUP WORK PRODUCTS

SECURITIZATION STUDY GROUP WORK PRODUCTS

COMPETITIVE PROCUREMENT STUDY GROUP WORK PRODUCTS

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Wholesale Market Study Group Chair		
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Asset Retirement Study Group Co-Chairs		
David Rogers	Sierra Club	david.rogers@sierraclub.org
Tobin Freid	Durham County	tfreid@dconc.gov
Competitive Procurement Study Group Co-Chairs		
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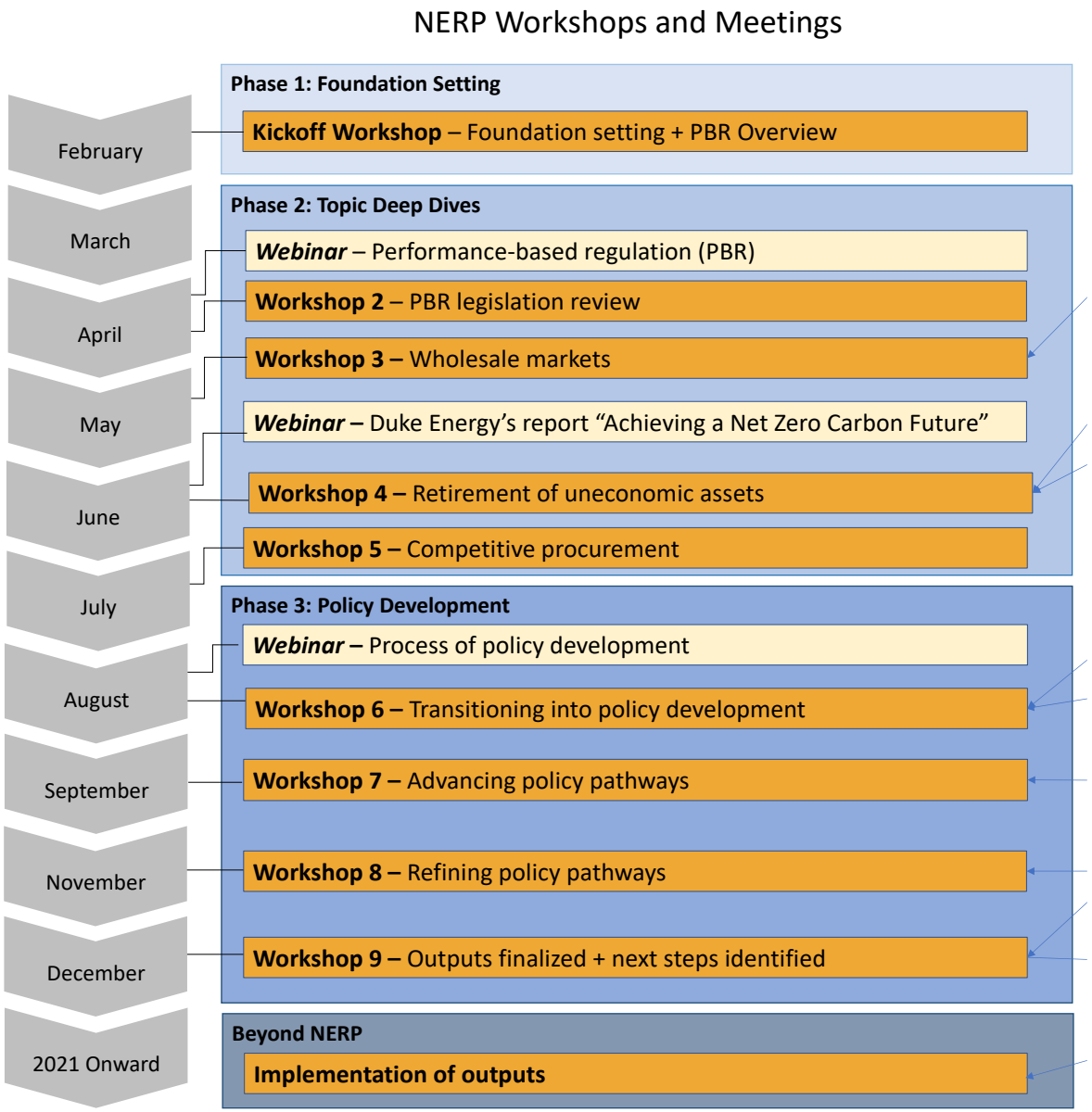
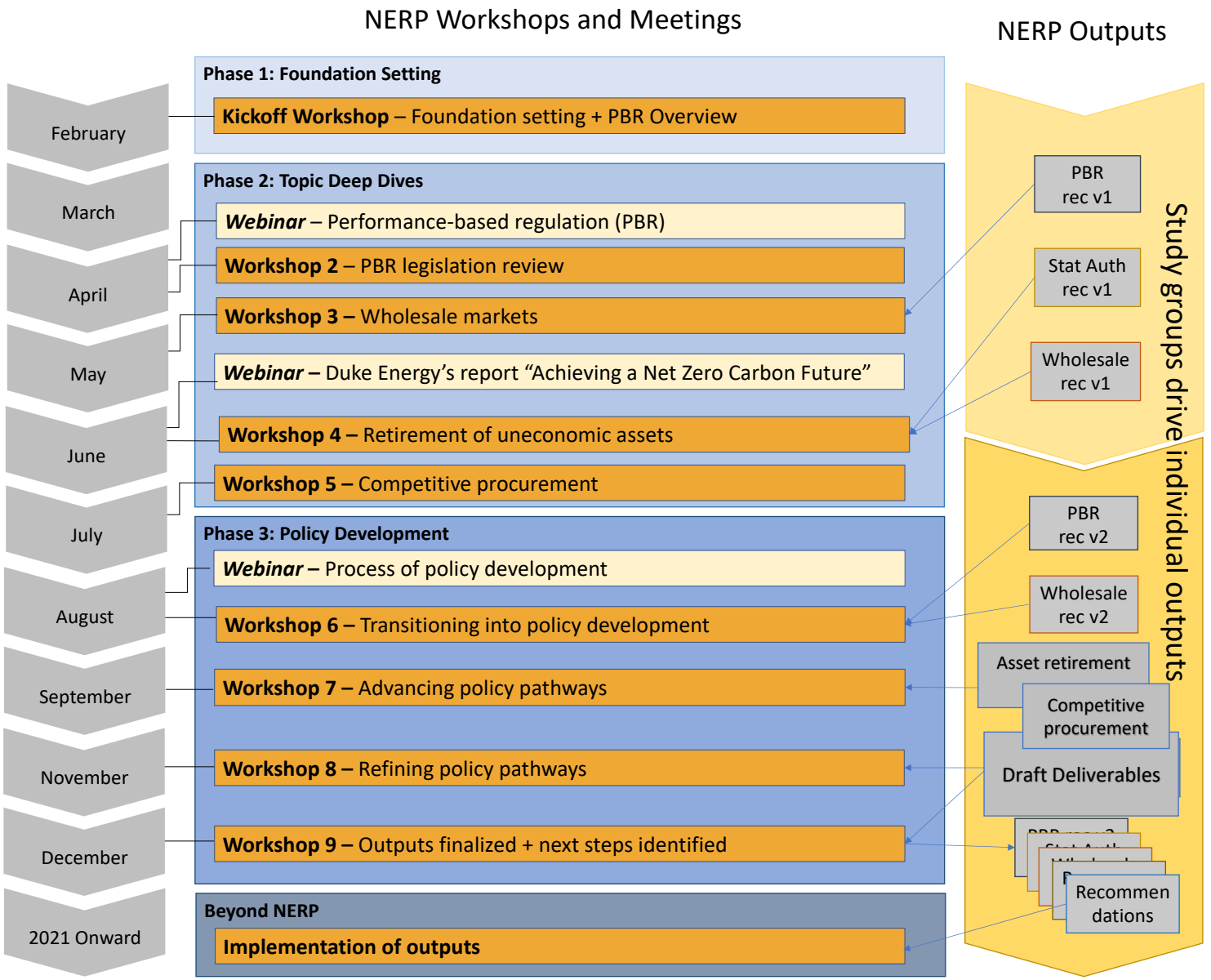
NERP Process Timeline

NERP Process Timeline



NERP Process Timeline



NERP Guiding Outcomes

Outcome Category	Outcome
Improve customer value	Affordability and bill stability
	Reliability
	Customer choice of energy sources and programs
	Customer equity
Improve utility regulation	Regulatory incentives aligned with cost control and policy goals
	Administrative efficiency
Improve environmental quality	Integration of DERs
	Carbon neutral by 2050
Conduct a quality stakeholder process	Inclusive
	Results oriented

NERP Guiding Outcomes – Top Priorities Identified by Participants

Outcome Category	Outcome
Improve customer value	Affordability and bill stability
	Reliability
	Customer choice of energy sources and programs
	Customer equity
Improve utility regulation	Regulatory incentives aligned with cost control and policy goals
	Administrative efficiency
Improve environmental quality	Integration of DERs
	Carbon neutral by 2050
Conduct a quality stakeholder process	Inclusive
	Results oriented

NERP “Study Group” Focus Areas – Building Recommendations for NC

- Performance Based Regulation
- Wholesale Market Reform
- Asset Retirement / Securitization
- Competitive Procurement

NERP "Study Group" Focus Areas – Building Recommendations for NC

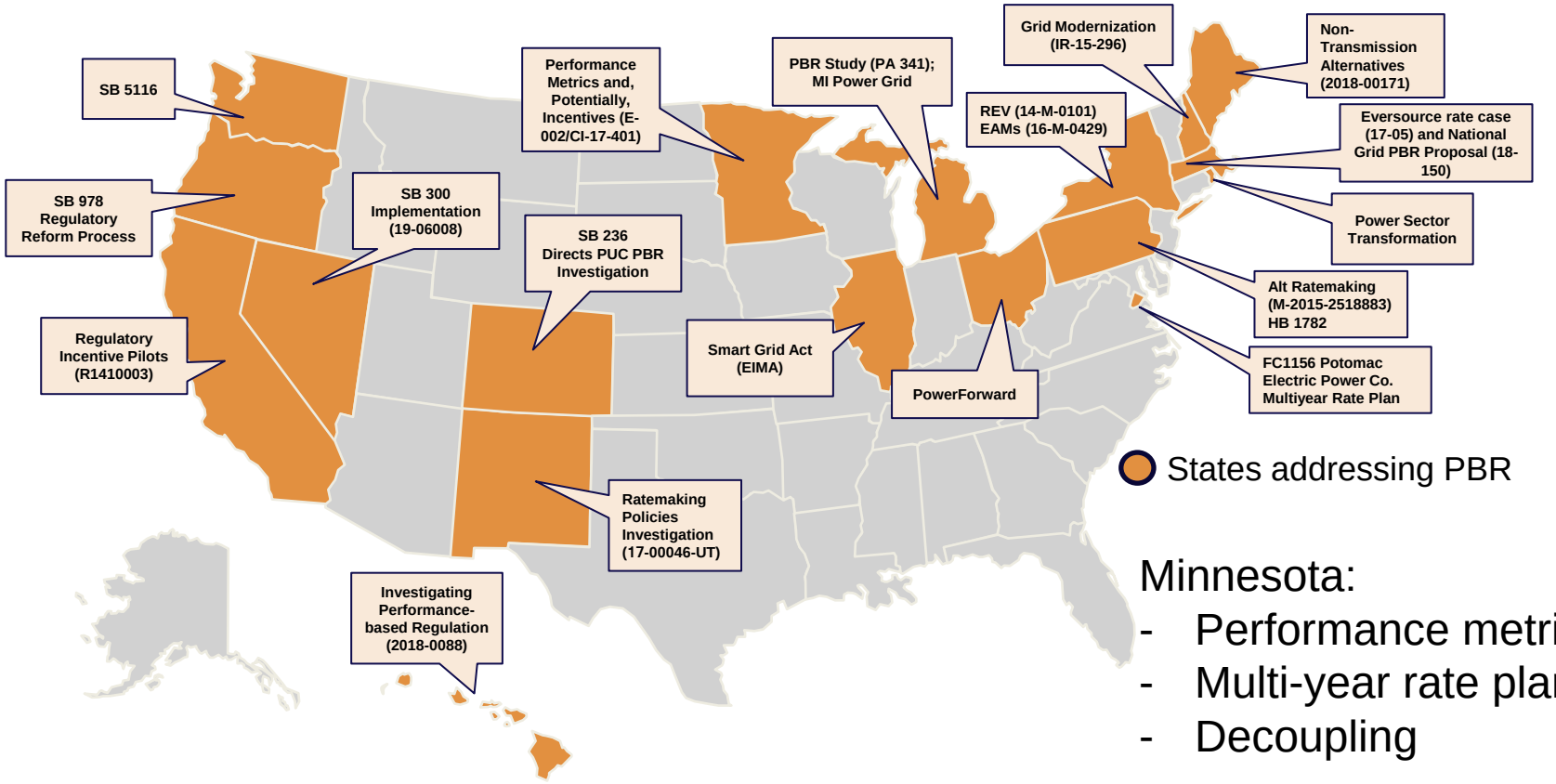
Performance Based Regulation	• Lay a foundation to align regulatory incentives with societal goals • Create specific incentives for desired outcomes
Wholesale Market Reform	• Promote increased competition, reduced cost, and GHG emission reductions
Asset Retirement / Securitization	• Provide a mechanism to retire existing coal units while saving customers money and investing in communities
Competitive Procurement	• Ensure new procured resources are least cost

NERP High level findings: PBR

- NCGA direct NCUC to undertake PBR
- NCUC may be able to do some elements of PBR already
- NC should create create an integrated PBR framework including:

Revenue decoupling • Targets throughput incentive (kWh sold) • Breaks link between utility revenue and amount of energy sold to customers • Removes utility disincentive to invest in things that decrease sales	**Performance incentive mechanisms (PIMs)** to motivate utility performance in critical areas • Peak demand reduction • Renewable energy, DER, and storage • Energy efficiency • Low income affordability • Carbon emissions • Transportation electrification
Implemented via **multi-year rate plan** (e.g., 3-5 years "stay out") to motivate cost savings and reduce regulatory lag; include earnings sharing mechanism	

PBR Around the Country



Source: AEE's PowerSuite, November 2020

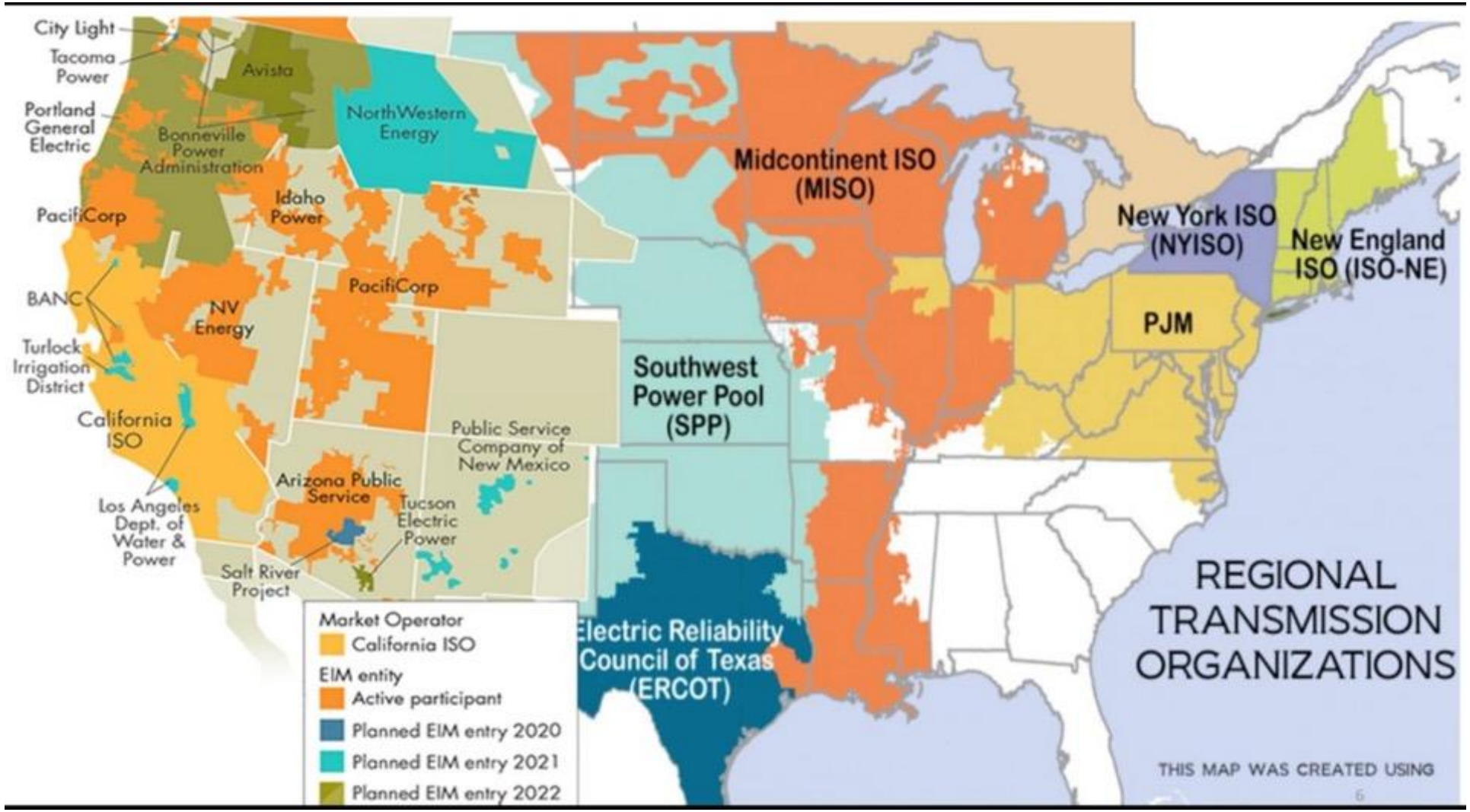
Minnesota:
- Performance metrics adopted
- Multi-year rate plan
- Decoupling

Hawaii:
- New performance metrics
- Multi-year rate plan
- Decoupling

NERP High level findings: Wholesale Markets

- A study should be conducted to determine the magnitude of potential benefits/costs of forming a “Carolinas RTO”
- Joining PJM market may not be the best path forward to support NC stated energy goals, including cost, emissions impact, and energy equity
- A comparative investigation into Energy Imbalance Markets and the proposed SEEM concept is timely
- A “markets” study in the State requires NCGA direction

Wholesale Electricity Markets



NERP High level findings: Asset Retirement/Securitization

- Uneconomic coal assets are likely operating in North Carolina
- Incentives are not aligned to encourage these assets to be retired as quickly as possible
- Securitization is one tool for addressing this issue, and has potential upsides that other asset retirement tools do not
- Need legislative action to expand available uses of securitization to include asset retirement

Securitization for Asset Retirement

Since 1997 Utility Securitization Laws: 25 States + DC + Puerto Rico
Only 10 Active and Can Issue Now, 5 Considering Legislation, 4 New in 2019

Securitization Has Resulted in Much ***Lower Revenue Requirements*** and ***Large Savings in Today's Dollars (NPV) for Ratepayers***

DUKE ENERGY.

Duke Energy Florida (FL) 2016
- ✓ $1.294 billion in unrecovered depreciation of a closed/early retired nuclear plant.
- ✓ $680 million NPV Savings

Consumers Energy
Count on Us®

Consumers Energy (MI) 2014
- ✓ $389.6 million unrecovered depreciation of 950 MW of coal-fired capacity retired 2016.
- ✓ $135 million NPV Savings

PotomacEdison
A FirstEnergy Company
MonPower
A FirstEnergy Company

Allegheny Energy (Monongahela & Potomac Edison) (WV) 2007,09
- ✓ $543 million in pollution control equipment and upgrades.
- ✓ $130 million NPV Savings

Source for graphics: Joseph Fichera, Saber Partners LLC, Presentation to NARUC Electricity Committee, May 2019

Securitization for Asset Retirement

Comparison of Selected Securitization Statutes

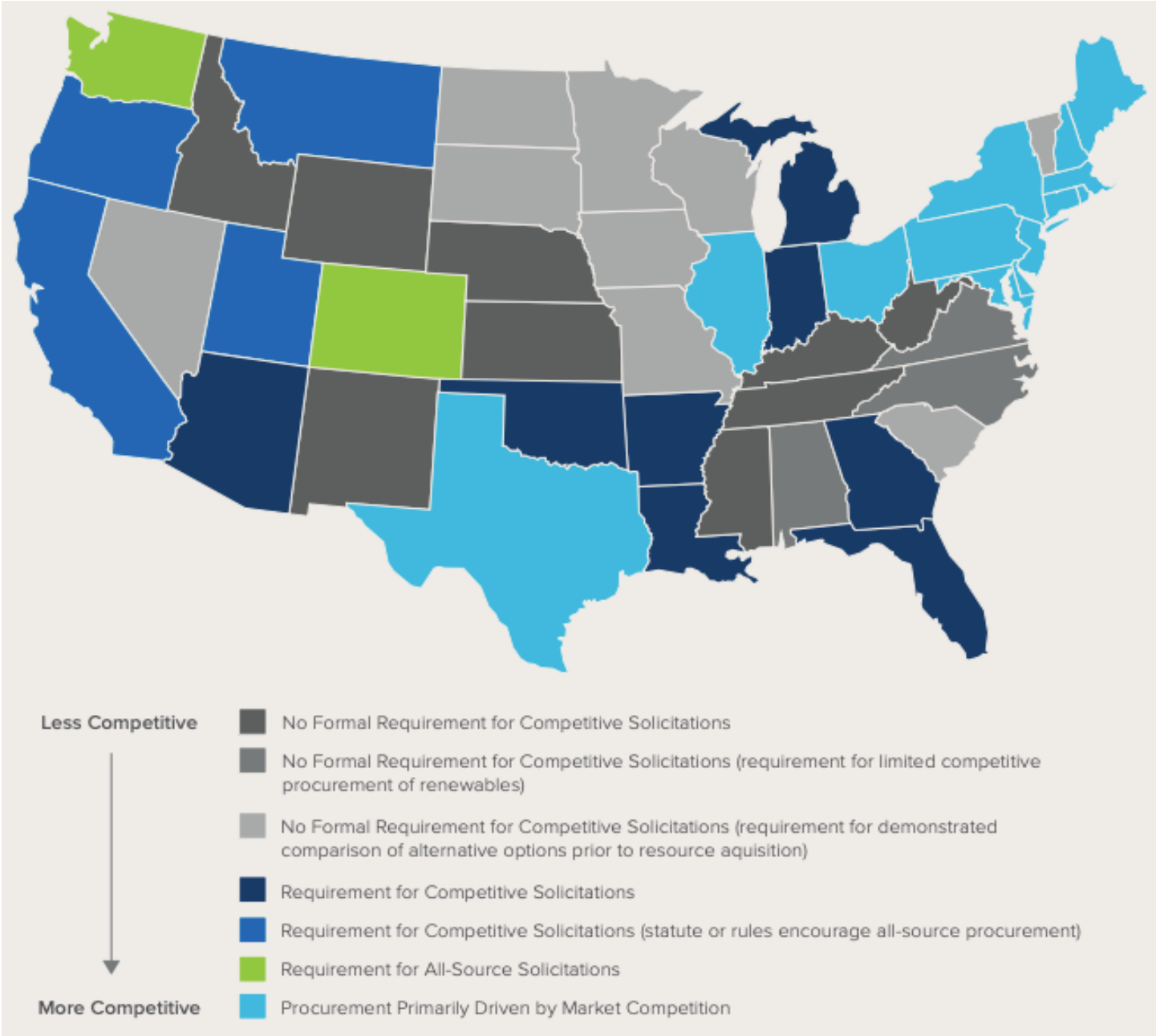
State	Specified Bond Uses				Utility	Regulator
	Storm Costs	*Plant Retirement*	Retire Debt/Equity	*Transition Assistance*	Reinvestment Options	*Strength of PUC Role*
North Carolina	X					medium
Colorado		X		X	X	strong
Montana		X			X	strong
New Mexico		X		X	X	weak
Michigan		X	X			weak

Source: NERP Study Group Work Product

NERP High level findings: Competitive Procurement

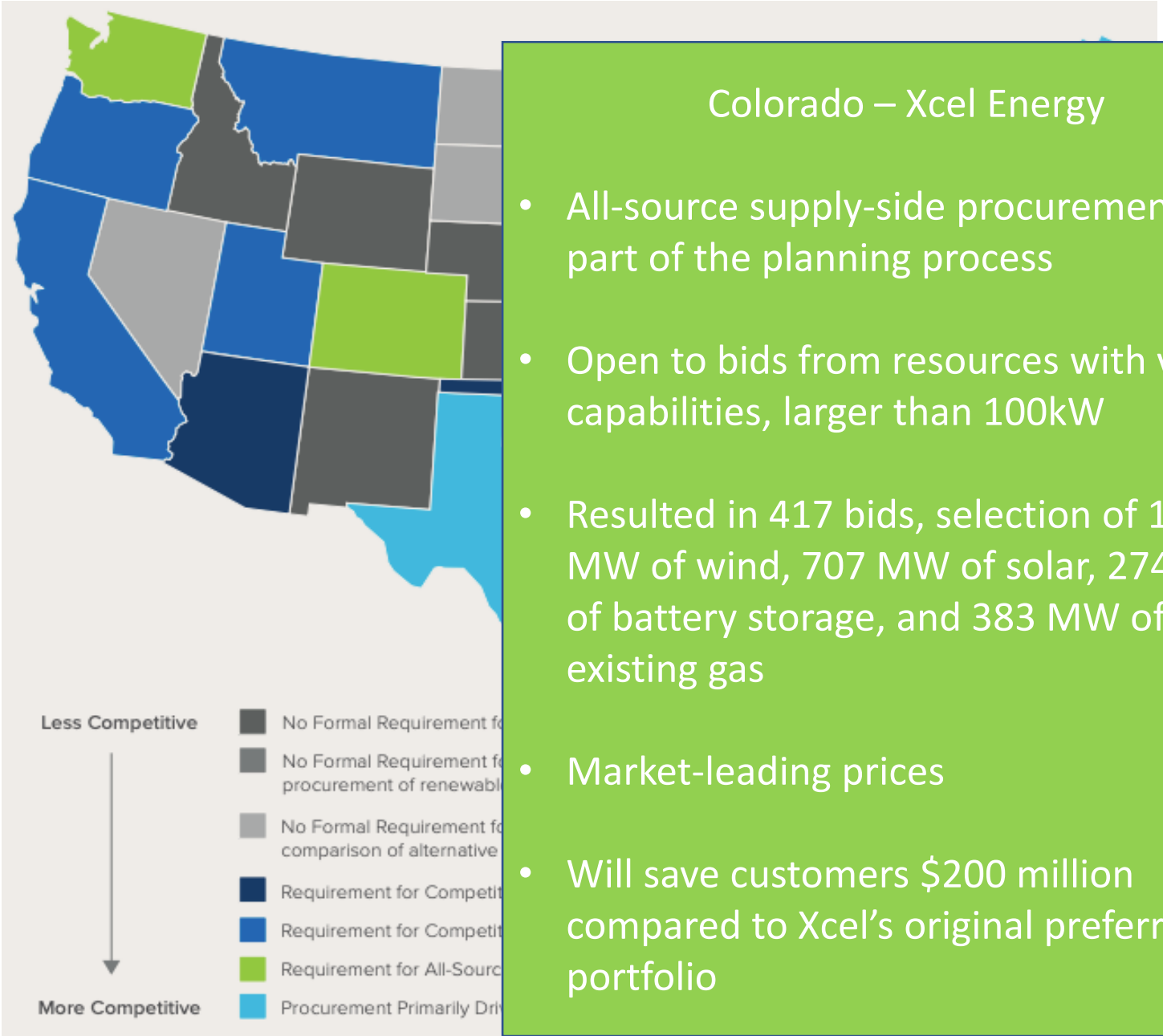
- Competitive solicitations should be utilized to meet identified energy and capacity needs
- NCGA or NCUC could expand the use of competitive solicitations
- Competitive solicitation has many design considerations that the NCUC would determine including the scope (what resources can compete) and whether/how utilities can participate and bid

Competitive procurement



Source: Lauren Shwisberg, Mark Dyson, Grant Glazer, Carl Linvill, and Megan Anderson, How to Build Clean Energy Portfolios: A Practical Guide to Next-Generation Procurement Practices, RMI, 2020

Competitive procurement



Colorado – Xcel Energy

- All-source supply-side procurement as part of the planning process
- Open to bids from resources with various capabilities, larger than 100kW
- Resulted in 417 bids, selection of 1131 MW of wind, 707 MW of solar, 274 MW of battery storage, and 383 MW of existing gas
- Market-leading prices
- Will save customers $200 million compared to Xcel's original preferred portfolio

	Options Discussed in NERP					
Outcome	**Securitization**	**Competitive procurement of resources**	**Performance Incentives**	**Wholesale market reform**	**Multi-year rate plans**	**Decoupling**
Affordability and bill stability	✓	✓	✓			
Reliability			✓	✓		
Customer choice of energy sources and programs				✓		
Customer equity			✓			
Regulatory incentives aligned with cost control and policy goals	✓	✓	✓	✓	✓	✓
Administrative efficiency					✓	
Integration of DERs			✓			✓
Carbon neutral by 2050	✓	✓	✓	✓		✓

NERP Outputs

NERP Final Report written by facilitators and technical advisors (RAP and RMI) to consolidate and record solutions discussed in NERP including areas needing attention by other entities

Performance-based Regulation

- **Guidance document** to describe key findings and decision options for future NCUC deliberation
- **Draft legislative language** to require NCUC adoption of PBR guidance and rules
- **Summary fact sheet** to communicate key PBR ideas and opportunity to general audience and decision makers
- **Case studies** illustrating how PBR tools have been discussed and implemented in Minnesota and decoupling for gas utilities

Asset retirement for uneconomic coal

- **Draft legislative language** to expand securitization use beyond storm recovery for retirement of uneconomic assets
- **Analysis** that evaluates options for accelerated retirement
- **Statute comparison** of securitization language from other states
- **Fact sheet** to communicate the opportunity of securitization to NC decision makers

Wholesale Market Reform

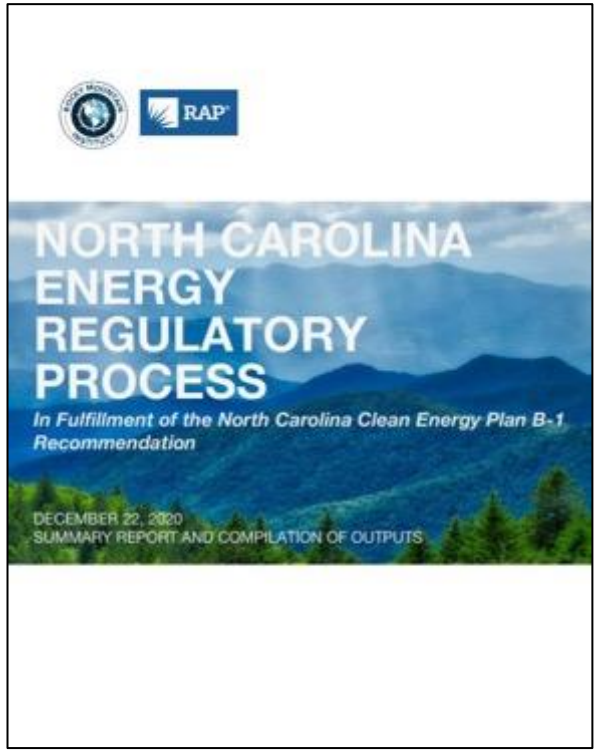
- **Study Proposal** for NC detailing rationale and key elements of various wholesale reform opportunities
- **Draft legislative language** to require a study
- **Fact sheets** to provide greater detail into specific reforms proposed

Competitive procurement

- **Straw proposal to NCGA** for broad-based competitive procurement
- **Case studies** of Colorado's experience with competitive procurement and the Virginia Clean Economy Act

All NERP outputs were written by the participants except for the Summary Report

NERP 2020 Report



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Jack Jirak	Duke Energy	jack.jirak@duke-energy.com

Next Steps

- NCGA – stakeholder process continues, energy bills expected (Spring 2021)
- Roadmap of Energy Policy Options to the Governor
  - Synthesis of A-1 and B-1 options that meet the CEP goals and deliver CEP core values
  - Presents menu of options for Executive action by the Governor
  - Identifies complementary and stand-alone utility regulatory and legislative options
  - Targeting mid April delivery

Thank You

Questions?

Clean Energy Plan Recommendation A-1

North Carolina Power Sector Carbon Policies

An Analysis of North Carolina Clean Energy Plan Recommendation A1

NC Climate Change Interagency Council| Feb.24, 2021

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Clean Energy Plan Goals

2005	2030 Goal	2050 Goal
79.4 million metric tons of CO2 emitted	23.8 million metric tons of CO2	Carbon Neutrality[1]

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CEP Recommendation A-1

OVERVIEW OF STRATEGY AREAS & RECOMMENDATIONS

Carbon Reduction (A)

A. Decarbonize the electric power sector **Page 55**

- A-1. Deliver a report that recommends carbon-reduction policies and the specific design of such policies that best advance core values, such as GHG emission reductions, electricity affordability, and grid reliability. The report will evaluate policy designs for the following carbon reduction strategies:
    1. Accelerated coal retirements,
    2. Market-based carbon reduction program,
    3. Clean energy policies, such as an updated REPS, clean energy standard, and EERS, and
    4. A combination of these strategies.

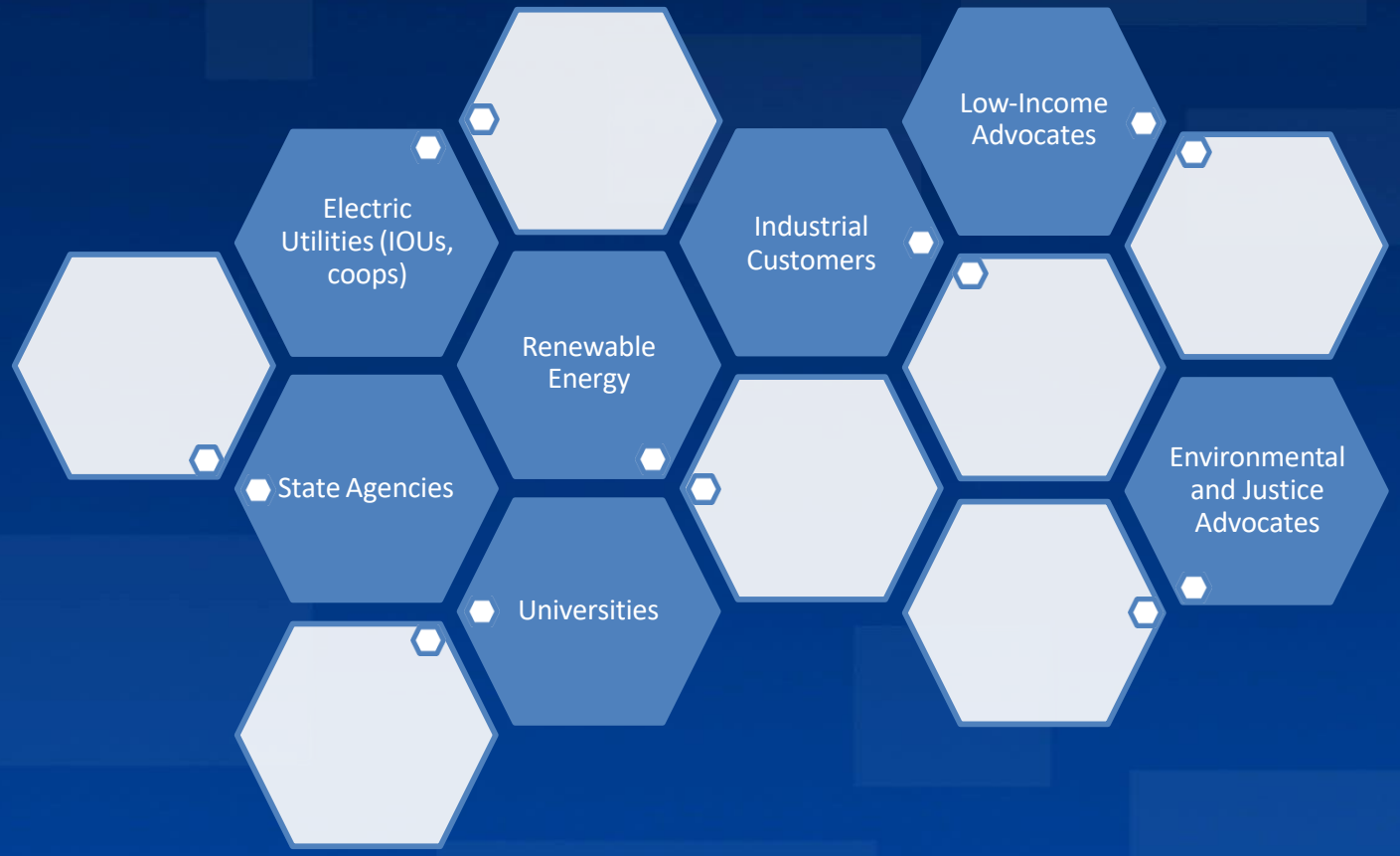
    Legislature, State Agencies, Academia

A1 Process

December 2019 to February 2021:

- Bimonthly meetings with stakeholders (~90) through fall 2020
- Policy, Technical Working Groups
- Two public forums
- Power sector modeling, economic analysis
- Interaction with parallel processes
- Stakeholder input on the draft report
- Final report: Coming soon!

Involved Sectors



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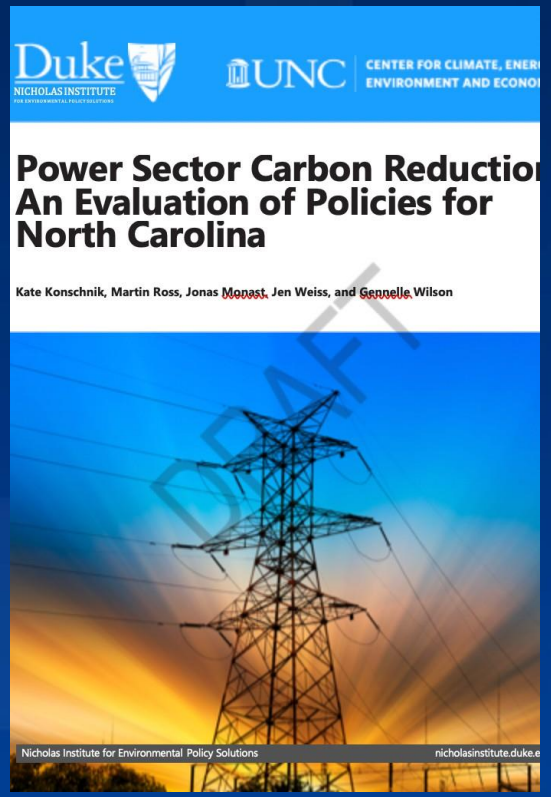
A1 Report Overview



Studies 4 policy "pathways", variations, and combinations:

1. Accelerated coal retirements.
2. Carbon "adders" on new construction, generation.
3. Declining carbon budget (RGGI).
4. Clean energy standards.

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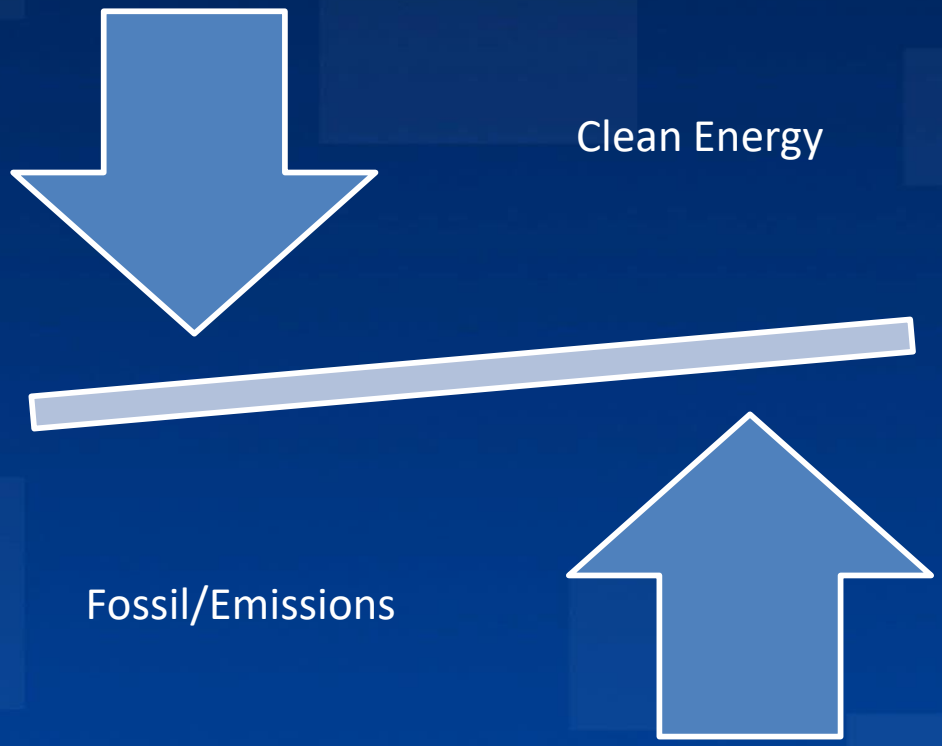
Policy Dynamics



Bases for Comparison

- In-state CO2 power sector emissions, in 2030 and over time (2023-2050);
- In-state NOx, SO2 power sector emissions, in 2030 and 2040;
- Imported CO2 emissions;
- Cost (NPV in total costs over time, and $/ton reduced);
- NC generation and capacity mix over time;
- [Subset of policies] Rate/bill changes; jobs/economic outlook.

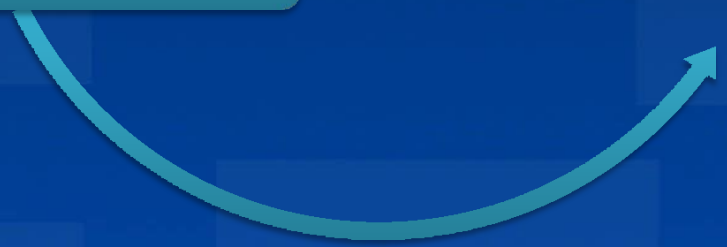
A1 Core Values

Affordability

- Manufacturing Competitiveness
- Energy Burden

Equity

- Access to Clean Energy
- Impacts to Frontline Communities
- Just Transition



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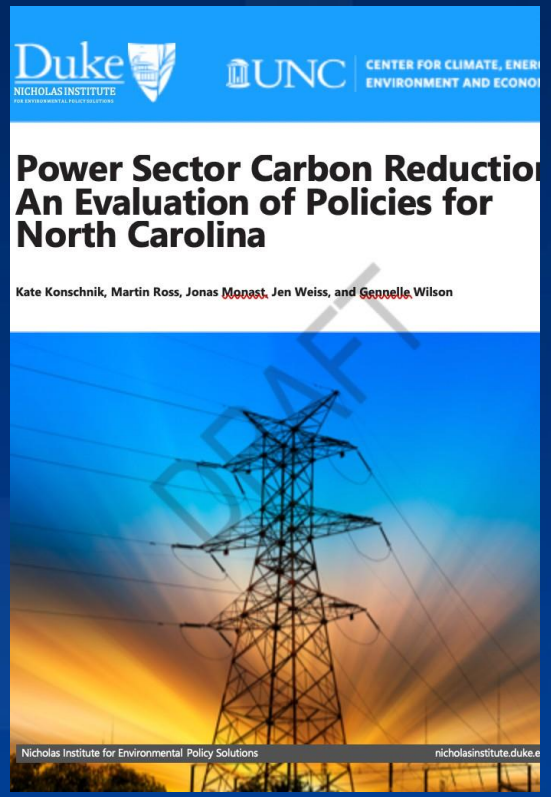
A1 Report Caveats

- Modeling did not attempt to duplicate how Duke Energy operates the grid
- Assumptions – where there was disagreement among stakeholders, did not use most optimistic views of renewables, but then ran alternative cases
- Results are directional only
- Results turn on how we defined policies; any policy can be designed to meet different goals

A1 Report Take-Aways



- System is poised for transition
- Highly responsive to modest changes in relative costs of different resources
- Policy can make a difference
- NC has cost effective options (ex. coal retirements, RGGI < 1% system cost increases)

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A1 Report Take-Aways

What might achieve the 2030 CEP target:

- Carbon Adder on Generation ($6/ton in 2023 + 7%)
- CES on retail sales (70% clean by 2030; with/without offshore wind carve-out)
- CES Combinations: Coal Retirement, RGGI (with/without wind), and Carbon Adder on Capacity or Generation

Closing Remarks

- **Agency Requests:**
  - 2020 Agency Resiliency Status Reports – Due March 1, 2021
- **Recent EO80 Reports:**
  - North Carolina Energy Regulatory Process Report (EO80, Section 4), Dec. 22, 2020, https://deq.nc.gov/cep-nerp
  - Building Energy Consumption Report (EO80, Section 8), Jan. 25, 2021, https://files.nc.gov/ncdeq/2020_DEQ_SEO_Comprehensive_Energy_Program_Report_Final_1-27-21.pdf
- Today's slides will be posted at: https://deq.nc.gov/energy-climate/climate-change/nc-climate-change-interagency-council.
- Next Council meeting tentatively scheduled for May 26, 2021

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Public Engagement

Individuals and organizations may provide input to cabinet agencies on their implementation of EO 80

(Limit: 2 minutes)