NC Environmental Stewardship Initiative

2020 Annual Report

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Executive Summary

The N.C. Department of Environmental Quality's Environmental Stewardship Initiative (ESI) is a voluntary program that assists and encourages facilities to use pollution prevention, sustainable practices, and innovation to meet and go beyond regulatory requirements. The ESI takes a unique approach to supplement regulation by providing a voluntary, systematic, and holistic approach to environmental management.

Reduced impacts and cost savings reported by members demonstrate significant results and improvements to the environment, economy, and health of the citizens in North Carolina. The ESI program assists members in addressing environmental challenges through partnerships as well as a comprehensive and innovative voluntary approach that benefits the environment and supports continued economic growth.

This approach combines recognition with assistance, training, mentoring and networking platforms. The three-tiered membership structure of Environmental Partners, Rising Environmental Stewards and Environmental Stewards allows participation from a variety of organizations. The Partner level is the entry level of the program and helps organizations set environmental goals and/or develop an Environmental Management System (EMS) while higher tiers require organizations to be models of stewardship, as well as provide mentoring and educational resources to others in the program. In 2020, the ESI had 191 member sites in 62 North Carolina counties as shown in Figure 1 below.

2020 ESI Participants

- Partners (151)
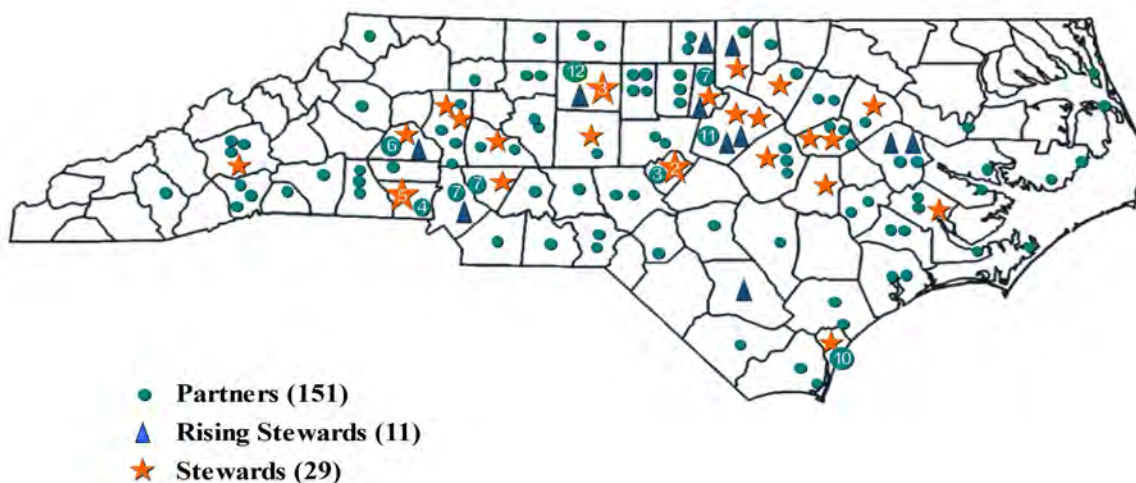- Rising Stewards (11)
- Stewards (29)

Figure 1: Map of 2020 ESI Participants

The ESI is open to any entity in North Carolina that commits to improving and reporting on its environmental impact. See the Membership section on page 18 of this report for more information on eligibility and the three tiers of the program. ESI members commit to developing and sustaining an environmental management system and/or setting measurable environmental goals that lead to continual improvement and stewardship. In 2020, ESI members set 267 goals covering multi-media, regulated and non-regulated environmental impacts, including energy and water conservation. Seventy-eight members reported progress toward these specific goals.† For 2020, ESI members reported the following positive environmental impacts as shown in Table 1.

Table 1: 2020 ESI Members' Reported Results

2020 ESI MEMBERS' REPORTED RESULTS			
REDUCTIONS	Air Emissions	498	Tons
	Greenhouse Gas Emissions*	22,320	Metric Tons CO_2e
	Hazardous waste	723	Tons
	Landfilled waste	32,268	Tons
	Energy	8,203,092	MMBtu
	Water Use	1,290,141,538	Gallons
	Material Consumption	600	Tons
	Wastewater Pollutants	6,730	Tons
	Wastewater Volume	1,029,291,748	Gallons
REUSE	Biomass Recovery**	86,620	Tons
	Total Recycled Volume	341,881	Tons
TOTAL COST SAVINGS $ 7,193,816			

*Indirect not reported in energy reductions

**Category created for compost/mulch related goals

†Partners may apply to the program as a multi-site facility, which allows a collection of sites to submit a single annual report. New members must be in the program for at least one year prior to having their results included in the overall totals. Members are also allowed to request to be put on-hold for one-year (non-consecutive) increments. Therefore, the total number of members reporting may be less than the total membership number.

2020 Annual Report

2019 ESI Annual Conference

With the goal of supporting and encouraging superior environmental performance from North Carolina's industry, business, and organizations, the ESI assists members in implementing environmental management systems (EMS) and making progress on environmental goals. The ESI helps organizations share ideas and has developed an atmosphere of collaboration while fostering a culture of continual improvement.

The typical regulatory approach to environmental management is necessary and has led to significant improvements. However, it is not practical or fiscally possible for North Carolina to regulate all pollution and consumption of natural resources. The ESI was established to help organizations reduce their environmental impacts beyond measures required by any permit or rule in a way that will minimize or prevent negative environmental impacts, conserve natural resources, enhance the environment, encourage community involvement, and provide long-term economic benefits.

Each organization within the ESI has committed to report annually on its progress toward its environmental goals. This annual report summarizes the self-reported annual data collected by the ESI members in 2020. Starting in 2005, members began to include cost savings from implementing environmental improvements in their reporting. Reporting on greenhouse gas (GHG) emission reductions was first included in 2008. A new category was created in 2010 for biomass recovery to capture activities related to composting and mulching as a means of beneficial reuse by diverting organic waste from landfills. In 2012, the ESI was opened to organizations not regulated through North Carolina Department of Environmental Quality (DEQ) issued permits to increase the program's reach and build a larger network

of organizations working together to make North Carolina a model of environmental stewardship. The annual report form was updated for the 2016 reporting year, allowing members to provide additional reduction data that may not have been directly tied to a site's environmental goals. An example of when this could occur would be if a site replaces a piece of equipment with a more efficient version but does not have an energy reduction goal; however, they are tracking their energy usage data for other management reasons and choose to report that data. Facilities were also allowed to report in either fiscal year or calendar year spans to ease the capture of data. It was requested that sites remain consistent from that point forward in the timeframe reported.


2019 ESI Annual Conference

Program Achievements

Membership Growth

ESI membership has grown almost eight-fold from its original membership of 24 member sites in 2002 to 191 member sites in 2020. In 2004, a middle tier – the Rising Steward level – of membership was added (Figure 3).

Figure 2: ESI Member Employment

Number of Employees per ESI Member 2020

- 1-100 — 43%
- 101-500 — 20%
- 501-1000 — 17%
- 1001-5000 — 19%
- 5001+ — 1%
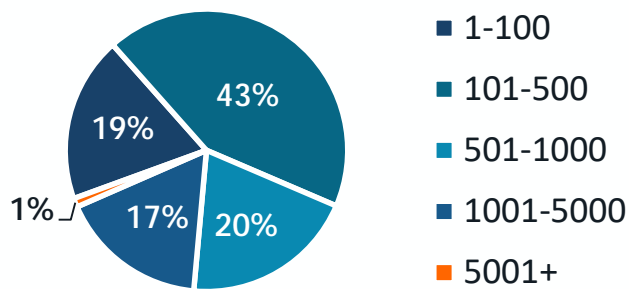
Beginning in 2005, Partner applicants were allowed to submit one application for multiple sites. Facilities of all sizes participate – the smallest having three employees and the largest employing more than 19,000 (Figure 2). Fifty-seven member sites were registered to the ISO 14001:2015 international standard by third-party auditors, and seven have been deemed functionally equivalent to that same standard by ESI staff.

In 2020, four member sites closed or are in the process of closing, and therefore, did not report. One member site was removed from the program for failure to submit the required ESI annual report. Six members asked to be put on hold for a year due to reporting challenges associated with COVID-19. In 2020, nine new sites joined the ESI (Table 2).

Figure 3: ESI Membership Growth, 2002-2020

ESI Members

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Stewards	1	2	5	6	6	8	9	14	14	16	17	20	21	23	23	29	29	30	29
Rising Stewards	0	0	8	9	13	14	16	12	14	13	15	14	14	14	14	11	12	12	11
Partner Sites	23	39	45	57	81	84	92	91	95	99	97	100	106	97	101	149	149	145	151
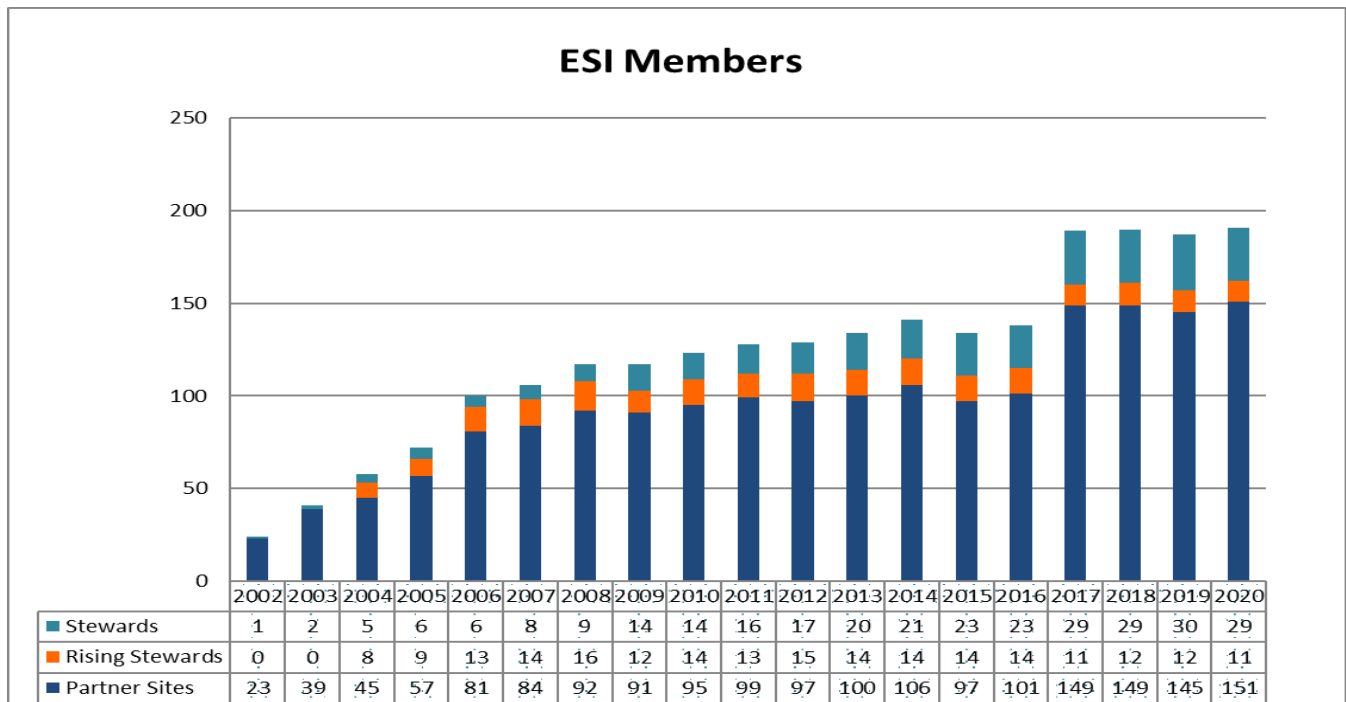
2020 New ESI Members

Facility Name	ESI Level	Year Joined	City	County
Alphagary	P	2020	Pineville	Mecklenburg
Best Diamond Packaging, LLC	P	2020	Kinston	Lenoir
CommScope Inc. Catawba	P	2020	Catawba	Catawba
CommScope Inc. Claremont	P	2020	Claremont	Catawba
Novartis Gene Therapies	P	2020	Durham	Durham
TC Transcontinental Thomasville	P	2020	Thomasville	Davidson
The Hempville	P	2020	Siler City	Chatham
Unilever	P	2020	Raeford	Hoke
Zero Waste Recycling, LLC	P	2020	Charlotte	Mecklenburg

Member Goals

In 2020, ESI members reported on 267 goals that covered both regulated and non-regulated environmental impacts. As shown in Figure 4, the greatest number of goals set in 2020 were related to energy use reductions.

Figure 4: 2020 ESI Member Goals

2020 ESI Member Goals

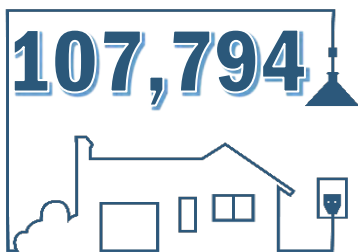| Goal	Number of goals
Energy Use Reductions	60
Water Use Reductions	51
Solid Waste Reductions	35
EMS/ Planning	20
Greenhouse Gas Reductions	15
Compliance/ Conformance Improvement	12
Material Consumption Reductions	10
Zero Waste to Landfill	9
Air Pollution Reductions	9
Wastewater/Stormwater Pollutant...	9
Increasing Recycling	7
Other	6
Hazardous Waste Reductions	5
Habitat/ Wildlife Improvements	5
Reduce Waste to Energy (WTE)	5
Renewable Energy	4
Increasing Biomass Usage	3
Wastewater Volume Reductions	2

Member Results

ESI members are required to report on performance toward environmental goals and reductions in environmental impacts. While there are 191 sites in the program, there are 11 multi-site members that account for 112 sites reporting. New members must be in the program for at least one year prior to having their results included in the annual report. Therefore, 78 members reported progress toward these goals, resulting in environmental impact reductions and cost savings shown in Tables 3 through 6 below. All data are self-reported by member facilities and not verified by the DEQ. While reductions are only counted in the first year of their occurrence, most are permanent reductions.

Table 3: Total Cost Savings from Member Reported Environmental Projects

Year	Total Cost Savings
2004	NA
2005	$12,721,772
2006	$10,393,930
2007	$2,961,039
2008	$4,523,391
2009	$3,070,439
2010	$3,270,504
2011	$13,292,968
2012	$5,262,972
2013	$836,537
2014	$2,188,478
2015	$2,626,307
2016	$8,221,015
2017	$8,178,746
2018	$6,717,739
2019	$11,331,947
2020	$7,193,816
Totals	**$102,791,600**

ESI members saved enough money on 2020 environmental projects to pay the salary of 240 people earning $30,000 per year.

Table 4: Energy and Air Emission Reductions 2004-2020

Year	Energy Reductions (MMBtu)	GHG Emission Reductions * (Metric Tons CO$_2$e)	Air Emission Reductions** (Tons)
2004	11,736	NA	297
2005	48,451	NA	208
2006	123,821	NA	232
2007	28,527,501	9,370	243
2008	9,196,666	5,466	29
2009	1,549,175	64,224	155
2010	598,591	1,444	46
2011	1,626,534	18,677	4
2012	547,878	1,277	13
2013	8,643,348	2,041	73
2014	79,175	11,136	112
2015	22,289,629	818	76
2016	295,075	3,562	2,973
2017	1,093,033	2,546	1,694
2018	3,065,511	30,616	2,595
2019	847,583	24,190	247
2020	8,203,092	22,321	498
Total	**86,741,763**	**197,687**	**9,496**

*Indirect not reported in energy reductions

**Not including Greenhouse Gas (GHG) emission reductions

107,794

Number of North Carolina homes that could be powered for a year by ESI member energy savings in 2020.

Reducing energy usage, water usage and solid waste generation were the most common reduction goals of ESI members in 2020. Goals related to compliance, improvement/implementation in EMS, material consumption reductions, zero-waste-to-landfill, recycling, wildlife habitat improvements, hazardous waste reductions, air pollution reductions, and a variety of other environmental topics were also reported.

- Sixty goals related to reducing consumption of energy (natural gas, fuel oil and electricity) as well as fuel used in vehicle fleets (gasoline and diesel) were reported. In total, members reduced their usage by more than eight million MMBtus (million British Thermal Units, or BTUs). Most of these reductions came from reductions in natural gas and electricity usage in 2020. Some of these reductions occurred due to COVID-19 production shifts; however some members ramped up during this period as well. LED lighting projects, process efficiency improvements including implementation of variable speed/frequency drives as well as boiler, chiller, HVAC, roof replacements, and compressed air projects all contributed to the energy reductions.

Replacement of older equipment with more efficient devices and software programming/upgrades was credited with efficiency increases which either reduced the overall energy needed or kept demand steady during production changes. Multiple sites also had employee educational campaigns. In addition, at least one site completed an energy assessment to identify opportunities for improvement. One was certified to Energy Star while another site met the Green Globes certification similar to LEED silver. Additionally, replacement of gas- or diesel-fueled vehicles with hybrid and fully electric vehicles, and the generation or purchasing of renewable energy were reported to reduce associated CO_2e emissions.

Table 5: Water and Wastewater Reductions 2004-2020

Year	Water Use Reductions (Gallons)	Wastewater Volume Reductions (Gallons)	Wastewater Pollutant Reductions (Tons)
2004	369,529,216	NA	379
2005	54,201,286	85,566,162	527
2006	591,356,273	106,092,200	400
2007	83,929,264	881,690	0.02
2008	183,587,248	202,701	105
2009	1,444,617,822	18,304,480	138
2010	41,895,325	20,449,660	4
2011	347,399,898	5,904,175	7,210
2012	455,656,908	10,862,255	230
2013	547,725,143	16,252	3,616
2014	2,105,928,788	7,381,860	11,139
2015	2,439,754,313	1,690,643	3,530
2016	1,239,254,545	230,263,919	806
2017	1,038,806,743	490,620,971	6,783
2018	2,091,856,088	1,840,602,313	109,134
2019	1,052,916,723	3,632,451,983	399,871
2020	1,290,141,538	1,032,478,100	6,777
Totals	**15,378,557,123**	**7,484,039,364**	**550,649**

ESI members saved enough water in 2020 to fill almost

58,643

average-sized swimming pools!

- Fifty-one goals related to water usage were reported with reductions of more than 1.2 billion gallons of water used. More than 77 percent of the water saved by members in 2020 came from a member that installed a new cooling tower in 2019 to eliminate once through non-contact cooling water, and 2020 was the first full year of operation of that new equipment. Other reductions were attributed to a lower number of on-site employees; improvements in maintenance; new chillers and other equipment replacement; implementation of closed-loop cooling systems and other water reuse projects; elimination of inefficient equipment; reductions in potable water used for landscape irrigation; and employee education campaigns.

- Thirty-five goals related to solid waste reduction were accomplished in 2020. Seven related to recycling, and 10 related to material consumption goals with a reduction of more than 32,000 tons of waste going to landfill and almost 342,000 tons of material being recycled. Nine sites also indicated having active zero-waste-to-landfill (ZWTL) goals with others indicating that they had achieved ZWTL status without an associated goal. Some of the reductions can be attributed to a production reduction during the pandemic. However, other sites took advantage of downtime to clean out inventory and storage areas which increased waste and recycling. Process improvements, packaging changes, and educational efforts also contributed to the solid waste reductions.

Table 6: Solid and Hazardous Waste Reductions, Material Consumption Reductions and Beneficial Use Totals 2004-2020

Year	Hazardous Waste Reductions (Tons)	Landfilled Waste Reductions (Tons)	Material Consumption Reductions (Tons)	Total Biosolids Volume (Gallons)	Total Biomass Recovered* (Tons)	Total Recycled Volume (Tons)
2004	12	997	509	NA	NA	10,015
2005	119	82,453	37,728	7,208,691	NA	8,047
2006	405	59,441	973	2,720,350	NA	12,594
2007	13	205,169	60	18,410,000	NA	23,986
2008	200	737	2,136	Not Reported	2,783	4,777
2009	10	4,072	639	Not Reported	258,635	34,233
2010	6	10,245	1,792	Not Reported	333,375	36,667
2011	15	3,755	115	Not Reported	346,437	29,901
2012	4	3,071	665	Not Reported	2,959	33,837
2013	37	1,605	24	Not Reported	3,122	46,350
2014	1,538	11,505	23,073	Not Reported	17	32,158
2015	284	42,737	589	Not Reported	54,360	42,150
2016	314	2,535	376	Not Reported	93,888	159,194
2017	105	350,911	356	Not Reported	95,625	97,774
2018	30	3,430,522	515	Not Reported	89,607	329,229
2019	158	988	1,749	Not Reported	77,939	189,404
2020	723	32,268	600	Not Reported	86,620	341,881
Totals	**3,974**	**4,243,013**	**71,900**	**28,339,041**	**1,445,367**	**1,432,198**

*Category created for compost/mulch related goals

Facilities also reported reductions in hazardous waste generation, emitted air pollutants including greenhouse gases, and wastewater volume and pollutant discharges in 2020.

- Five goals were reported on hazardous waste reductions that prevented the generation of 723 tons of hazardous waste. Reclassification of some materials as non-hazardous by finding recycling options, efficiency improvements, and improved use of paint all contributed to these reductions. Three sites indicated that they were able to move from large to small or very small generators of hazardous waste.
- Twenty-six facilities reported wastewater discharge volume reductions for more than one billion gallons. However, only two facilities reported goals to reduce wastewater discharges from production efficiency improvements via quality improvements and water reuse strategies. Therefore, it is assumed most wastewater reductions are related to reported water use reductions.
- Members reported more than 6,700 tons of wastewater and stormwater pollutant reductions mainly chemical oxygen demand and total suspended solids. Actions included upgrading wastewater treatment equipment at three industrial facilities and performing stormwater best management practices and maintenance to reduce leaks and improve efficiencies. Most reductions achieved were not related to specific water or wastewater goals set by ESI members.
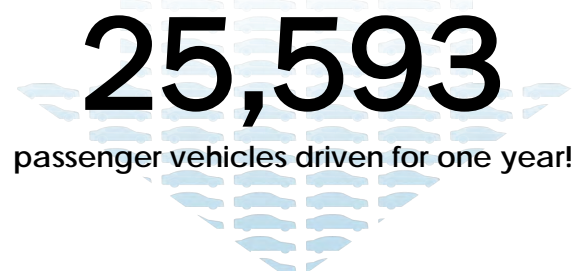- Members implemented nine goals related to air pollutant emissions, not including GHG emissions, that resulted in reductions of almost 500 tons. These included almost 195 tons of volatile organic compounds from coating and solvent operation efficiency improvements.
- Members noted 15 goals specific to GHG emission reductions not associated with energy reductions resulting in over 22,000 metric tons of CO_2e emissions. Additional information on GHG emissions can be found in the next section.
- In 2020, members reported on 12 goals related to environmental compliance and 20 goals related to EMS development/improvement.
- Members also reported on goals related to wildlife and habitat improvements, reduction of waste sent for energy production while maintaining ZWTL, and other environmentally related goals specific to individual sites.

Greenhouse Gas Reductions

ESI members' energy reductions can be converted to GHG reductions to show a direct positive effect on the environment from their efforts to reduce their impacts. Table 7 and Figure 5 provide a summary of reductions in energy use and the subsequent metric tons of carbon dioxide prevented from entering the atmosphere. Results also include the GHG reductions that members reported to ESI separately from energy reductions. The Simplified Greenhouse Gas Calculator tool provided by the U.S. Environmental Protection Agency's Center for Corporate

In 2020 ESI members reduced greenhouse gas emissions equivalent to more than

25,593

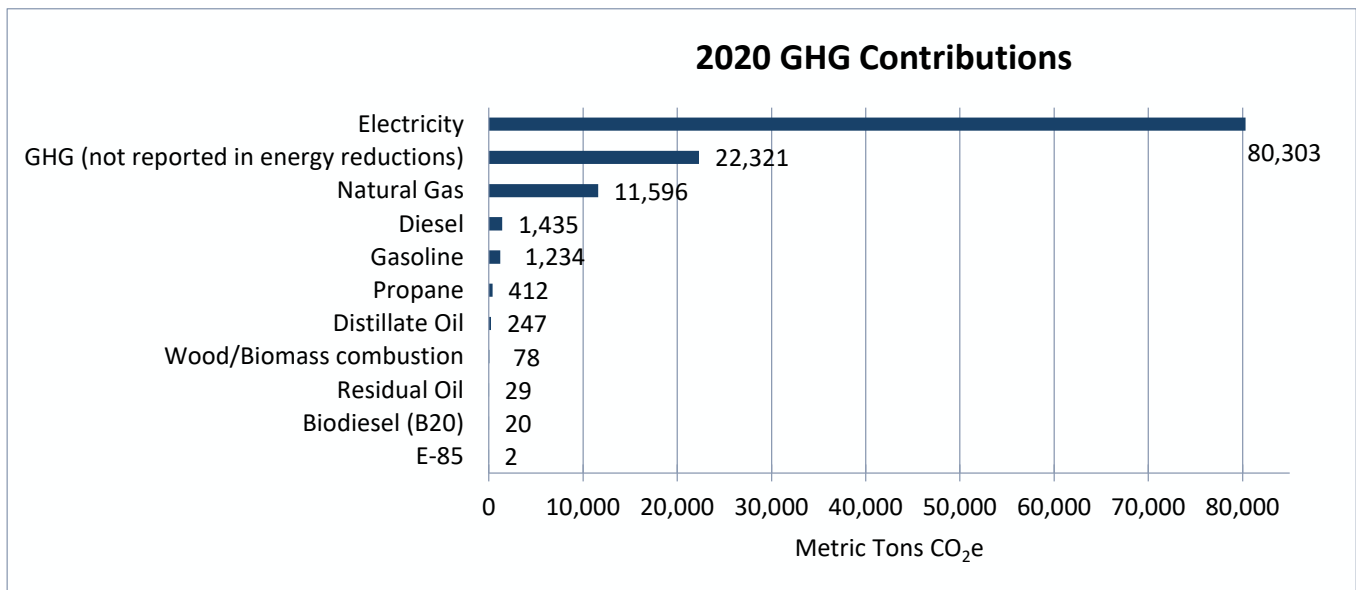passenger vehicles driven for one year!

Climate Leadership program was used to convert the reported electricity and combustion fuel values to metric tons of carbon dioxide equivalent (CO_2e). This tool can be found on the EPA website.

Table 7: 2020 Reported Greenhouse Gas Emission Reductions

	MMBtus	Metric tons CO_2e
E-85 gasoline	172	2
Biodiesel (B20)	313	20
Residual Oil	385	29
Wood/Biomass	62,301	78
Distillate Oil	3332	247
Propane	6640	412
Gasoline	18,277	1234
Diesel	19,258	1435
Natural Gas	7,265,381	11,596
GHG (not reported in energy reductions)	NA	22,321
Electricity	889,334	80,303
Total Energy	**8,265,393**	**117,678**

Figure 5: 2020 Greenhouse Gas Emission Reductions by Energy Source in Metric Tons CO_2e

2020 GHG Contributions

- Electricity: 80,303
- GHG (not reported in energy reductions): 22,321
- Natural Gas: 11,596
- Diesel: 1,435
- Gasoline: 1,234
- Propane: 412
- Distillate Oil: 247
- Wood/Biomass combustion: 78
- Residual Oil: 29
- Biodiesel (B20): 20
- E-85: 2

Metric Tons CO_2e

Cost Savings

Almost $7.2 million in cost savings were reported by ESI members from their 2020 environmental projects. ESI does not require cost savings to be reported; therefore, only a fraction of realized cost savings are reported by members. Most savings were noted by 15 facilities through energy reductions. Savings were also reported from water and solid waste reduction projects as well as recycling rebates. One facility reported cost savings on an air emissions goal. Figure 6 shows the breakdown of cost savings by goal type.
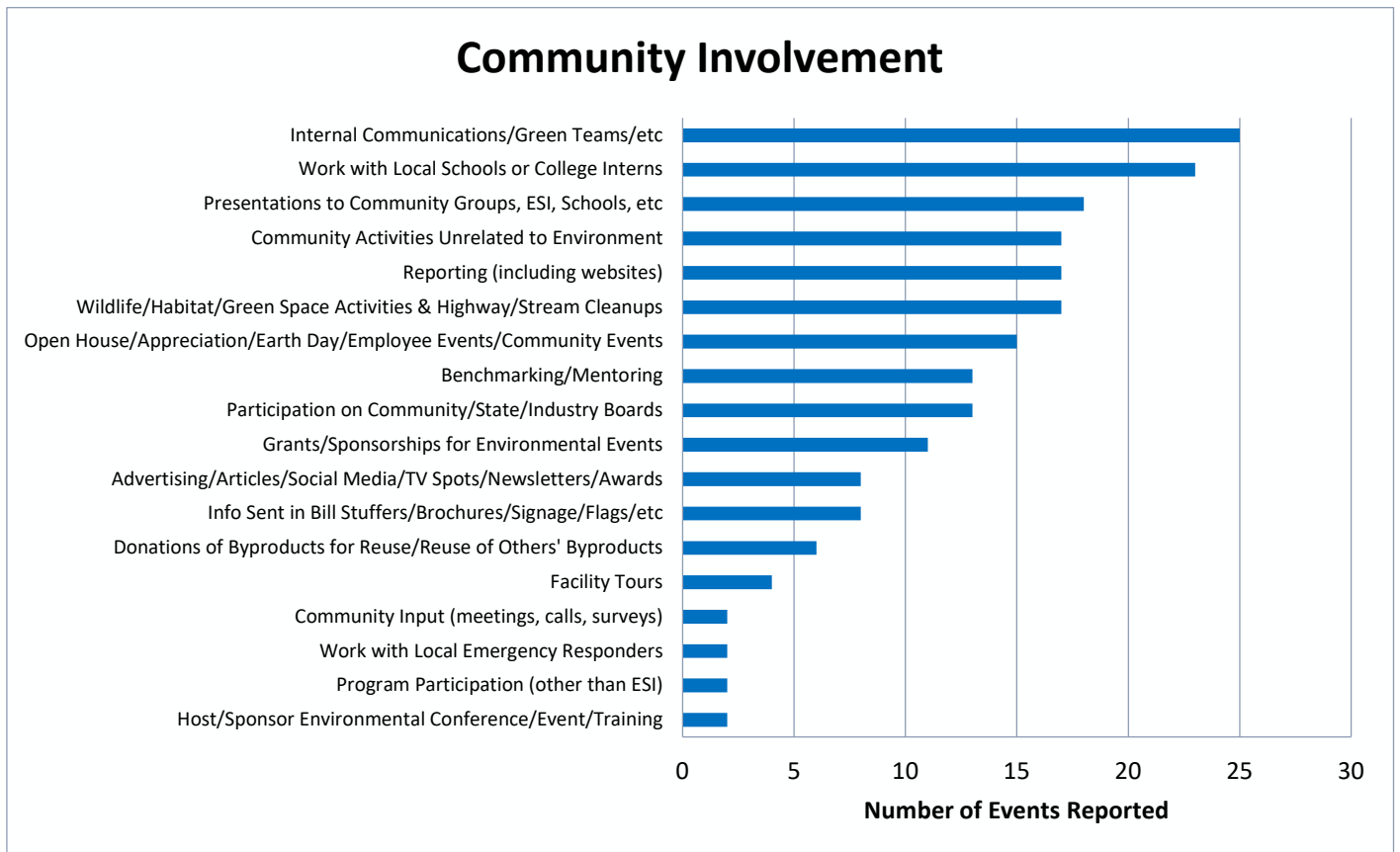
Cost Savings by Goal Type

Goal Type	Value
Energy Usage Reduction	$6,381,656
Water Usage Reductions	$431,452
Waste Reduction/Recycling Totals	$363,208
Air Emission Reductions	$17,500

Dollars Saved/Earned
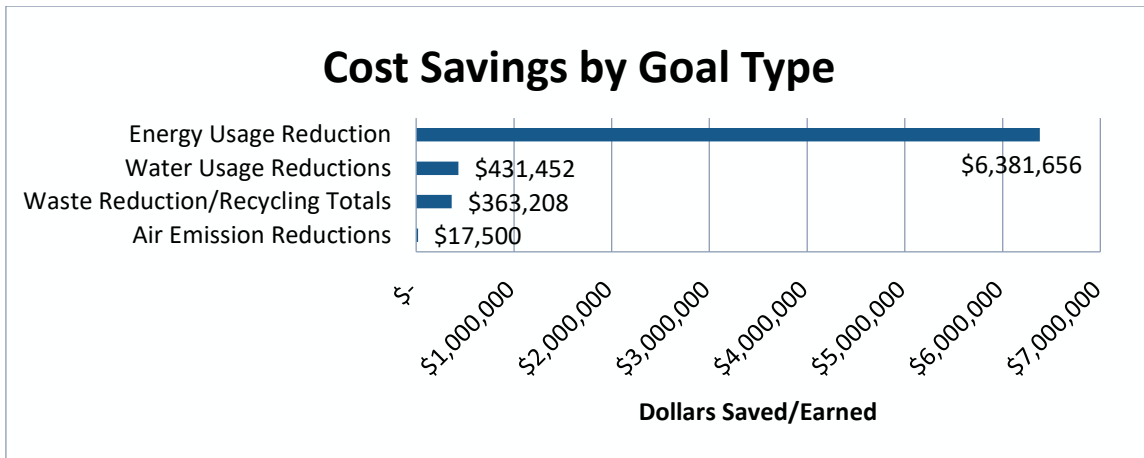
Community Involvement

In addition to reporting on goals, ESI members also submit information on their environmental involvement in the community. ESI Steward members are required to communicate with their communities regarding their environmental performance. Although only ESI Stewards are required to report these activities, other members may choose to report their activities as well. For 2020, even during the pandemic, 203 activities were reported by 43 members (23 Stewards and 20 other members). Figure 7 provides a summary of these activities.

Figure 7: 2020 ESI Member Community Involvement by Event Type

Community Involvement

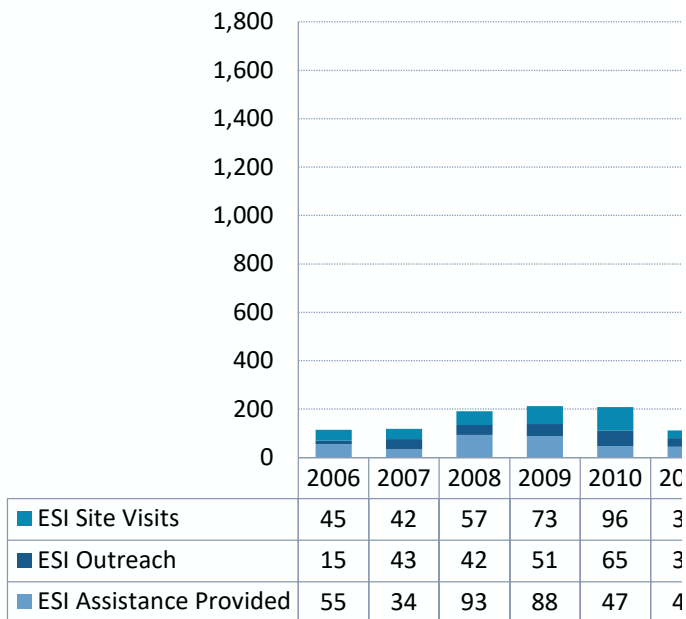| Event Type	Number of Events Reported
Internal Communications/Green Teams/etc	25
Work with Local Schools or College Interns	23
Presentations to Community Groups, ESI, Schools, etc	18
Community Activities Unrelated to Environment	17
Reporting (including websites)	17
Wildlife/Habitat/Green Space Activities & Highway/Stream Cleanups	17
Open House/Appreciation/Earth Day/Employee Events/Community Events	15
Benchmarking/Mentoring	13
Participation on Community/State/Industry Boards	13
Grants/Sponsorships for Environmental Events	11
Advertising/Articles/Social Media/TV Spots/Newsletters/Awards	8
Info Sent in Bill Stuffers/Brochures/Signage/Flags/etc	8
Donations of Byproducts for Reuse/Reuse of Others' Byproducts	6
Facility Tours	4
Community Input (meetings, calls, surveys)	2
Work with Local Emergency Responders	2
Program Participation (other than ESI)	2
Host/Sponsor Environmental Conference/Event/Training	2

Number of Events Reported

Program Updates

The ESI is administered by the DEQ Division of Environmental Assistance and Customer Service (DEACS). It operates on a limited budget that is funded by an EPA pollution prevention grant and appropriations from the N.C. General Assembly. From 2002 through 2005, 560 actions were completed by ESI staff related to EMS development and assistance. These activities included site visits, presentations, meetings, and other technical assistance. See Figure 8 below for a summary of 2006 through 2020 staff accomplishments, which includes a total of 7,277 actions. Outreach includes training classes provided by ESI staff, networking events, a member listserv, electronic newsletter, speaking engagements, booths at various events and other program marketing activities. Site visits are made specifically to ESI or potential ESI member sites. However, in 2020 due to the COVID-19 pandemic, site visits were either postponed or converted to virtual meetings. Assistance includes information provided through email and phone calls, including an electronic newsletter provided to ESI members. In 2017, the number of email contacts rose dramatically as outreach to members and others related to ESI networking events, annual conference, and newsletters were a focus area. Beginning in March of 2020, the pandemic caused a shift in ESI activities from in-person events to webinars and virtual meetings, including a conversion of the annual conference from a two-day in-person event to a four-day virtual experience.

Figure 8: ESI Actions Recorded 2006-2020

ESI Actions

	2006	2007	2008	2009	2010	20
■ ESI Site Visits	45	42	57	73	96	3
■ ESI Outreach	15	43	42	51	65	3
■ ESI Assistance Provided	55	34	93	88	47	4

In 2020 ESI staff:

- Provided on-site ISO 14001:2015 internal auditor training at Hyster-Yale Group in Greenville that was also open to other ESI members. Five members attended.
- Worked with North Carolina State University's Department of Forestry & Natural Resources Senior Capstone Class to teach about environmental management systems and the ESI program. The class was then tasked with developing an ISO 14001-based EMS for the department. ESI staff reviewed the students' developed EMS at class conclusion and provided feedback for future classes to continue EMS development. The class included about 30 students.
- Participated in an outreach event for the N.C. Aggregates Association regarding the ESI program, other DEACS technical assistance services and DEQ's Permitting Transformation Program.
- Continued DEACS' ESI outreach sessions to DEQ colleagues in the Raleigh, Fayetteville, and Washington Regional Offices. These efforts were implemented to inform DEQ regulatory program staff about ESI member efforts related to compliance and environmental performance improvement for sites in their respective regions.
- Participated on the external advisory board for the Raleigh-Durham airport sustainability plan.
- Facilitated discussions with DEQ's Division of Water Infrastructure (DWI) regarding the feasibility of creating benefits related to ESI membership within DWI's funding programs.
- Presented an overview of ESI and DEACS services at two NCMA Air Quality workshops.

On March 15th, NC government employees including DEQ were put under a stay-at-home order due to the COVID-19 pandemic. However, ESI staff converted many existing in-person events to web-based opportunities throughout 2020. The following occurred throughout 2020 with associated materials being posted to the DEQ ESI program's Events webpage.

- Hosted/facilitated a Hazardous Materials Roundtable webinar open to ESI members and the public on EPCRA Tier II reporting presented by N.C. Department of Public Safety staff. There were 43 registered to attend.
- Developed/hosted, along with DEQ's Waste Reduction Partners, energy efficiency webinars to ESI members and the public. There were 54 registered to attend to hear the webinar developed to help North Carolina organizations respond to operational impacts from the COVID-19 pandemic. For the webinar featuring the U.S. Department of Energy, there were 41 registered to attend. The ESI and WRP teams also hosted an energy efficiency webinar about energy strategies during COVID-19, including energy management programs and utility incentives that can help reduce electric service costs during the pandemic. There were 88 registered to attend.
- Developed virtual training on the ISO 14001:2015 EMS standard for ESI coaches to improve their understanding of the ISO standard to better assist ESI members.
  Organized and hosted a webinar about cleaning during COVID-19 to assist North Carolina organizations remain compliant and respond to the pandemic. Speakers included staff from the NC Department of Labor, the NC Department of Health and Human Services and DEQ's Division of Waste Management. The discussion included strategies for cleaning, sanitizing, and decontaminating as well as proper disposal of generated wastes. There were 498 registered to attend.
- Hosted and facilitated a pandemic-themed virtual conversation for ESI members about returning to work in which members shared practices related to medical screening of employees; social distancing in cafeterias,

restrooms, and other common areas; dealing with site visitors; employee training; and PPE protocols. Thirty-three staff from ESI members registered to attend.

- Hosted a virtual four-day training class for ESI members and the public about the ISO 14001:2015 EMS standard. There were 40 registered to attend.
- Hosted and facilitated a virtual Hazardous Materials Roundtable webinar open to ESI members and the public regarding Episodic Generation of Hazardous Waste and the Solvent-Contaminated Wipes Exclusion Rule in conjunction with DEQ's Division of Waste Management staff. There were 52 registered to attend. A second virtual Hazardous Materials Roundtable about vendor responsibilities in regards to the Solvent-Contaminated Wipes Exclusion Rule and Vendor Responsibilities was held in conjunction with DEQ's Division of Waste Management staff and 38 were registered to attend.
- Provided a series of five in-depth training modules on the ISO 14001:2015 standard designed for staff tasked with developing, implementing, and maintaining an environmental management system. There were four attendees.
- Performed virtual five-year renewal verification visits for two ESI Environmental Stewards and one Rising Steward member.
- Organized and hosted the virtual ESI Annual Conference during national Pollution Prevention week to honor the 30th Anniversary of the federal Pollution Prevention Act of 1990. There were 136 registered to attend.
- Participated in a nationwide, virtual two-day meeting for EPA Pollution Prevention and Source Reduction grantees to share ideas and accomplishments and provide feedback to the EPA.
- Hosted a booth at the virtual N.C. Manufacturers Alliance Energy, Environment, Health, and Safety School.
- Provided an overview of ESI and DEACS' services at the Triangle Chapter meeting of the Association of Hazardous Materials Handlers. Staff also provided an overview on the ESI program and its benefits for water and wastewater organizations at NCAWWA-WEA conference.
- Held the annual ESI Steward Forum virtually allowing ESI Steward members to meet with DEQ Secretary to discuss challenges, ideas or upcoming regulatory or program changes.
- Provided virtual ISO 14001:2015 internal auditor training for an ESI Partner member; 14 attended.
- Held the fall ESI Advisory Board meeting virtually to review and make recommendations to the DEQ Secretary about program changes and Steward/Rising Steward applications and renewals. The Spring board meeting was cancelled due to COVID-19.
- Performed a virtual assessment for an ESI member to determine the functional equivalency of its EMS to the ISO 14001:2015 standard for program membership.

2020 EMS Module Training

Membership

Using pollution prevention and other innovative approaches, the ESI program offers benefits and recognition to members for developing and implementing environmental projects to meet and go beyond regulatory requirements.

Any company or organization that operates one or more facilities in North Carolina and whose activities impact the environment is eligible to voluntarily participate in the ESI. This includes manufacturers, businesses, agribusiness, service providers, government agencies, utilities, schools, and nonprofit organizations. Members can enter the program at any of the three tiers: Environmental Partner, Rising Environmental Steward or Environmental Steward. Membership criteria in the ESI varies depending on the tier. In 2012, changes were made to open the Partner level, and in 2015 the Rising Steward and Steward levels to a wider range of organizations by not requiring members to be permitted by DEQ.

Criteria

The Environmental Partner level is designed for adoption by a broad range of organizations that are interested in beginning the process of developing a systematic approach to improving their environmental performance by developing an EMS. In 2012, Partners were given the option to implement measurable goals in lieu of developing an EMS. Partner applications may include multiple sites. By the end of 2020, the program had 151 Environmental Partner sites.

To be considered at the Partner level, the following criteria must be met:
- Demonstrate a commitment to compliance.
- Set environmental performance goals that include pollution prevention and are appropriate to the nature, scale, and environmental impact of the organization and/or commit to developing, implementing, and maintaining an environmental management system based on the ISO 14001 standard or a functionally equivalent model.
- Not be under any environmental criminal indictment or conviction.
- Agree to report annually on progress toward the organization's environmental performance goals, reductions in environmental emissions and/or discharges, solid and hazardous waste disposal, use of energy and water and any reportable non-compliance events.

The Rising Environmental Steward level is designed for those organizations that have a mature environmental management program. Rising Steward applications must be for a single site. The program had 11 Rising Environmental Stewards as of Dec. 31, 2020.

Rising Environmental Steward applicants must meet all Partner criteria and the following:
- Set measurable environmental performance goals that are adopted into the framework of the EMS and must demonstrate improvements to performance.
- Demonstrate a mature EMS based on the ISO 14001 or a functionally equivalent model. The EMS for the site must be ISO 14001 third-party certified or be reviewed and deemed functionally equivalent by DEQ staff.
- Have current or past DEQ regulatory oversight or demonstrate exemplary business and environmental practices normally expected of Rising Stewards.
- Demonstrate commitment to meet and go beyond compliance.

The Environmental Steward level is for those organizations that display a commitment to exemplary environmental performance beyond what is required by law. Steward applications must be for a single site or multiple sites managed under one EMS. By the end of 2020, the program had 29 Environmental Stewards.

Environmental Steward applicants must meet all Partner and Rising Steward criteria plus the following:
- Set aggressive environmental performance goals.
- Have a process for communication with the local community on program activities and progress toward performance goals.
- Demonstrate how their EMS is integrated into core business functions.
- Agree to be a mentor to Environmental Partner and Rising Environmental Steward participants.

Rising Stewards and Stewards are reassessed after five years of membership for renewal at their current level. Partner members are reviewed annually, through their annual report submissions, to assess progress made toward environmental performance and overall program goals.

Benefits

All levels of ESI members are eligible for the following:

- Technical assistance on developing an environmental management system (EMS), pollution prevention approaches, environmental management and treatment technologies and maintaining compliance with local, state and federal regulations;
- Specialized or customized training;
- Networking platforms including an annual conference, environmental benchmarking events, and topic-specific roundtables, workshops, and webinars;
- A listserv open to all ESI members as well as DEQ and Waste Reduction Partner staff to provide a forum for finding solutions to questions, sharing ideas and examples of best practices;
- Recognition of program participation through press releases, the ESI website, newsletters, social media posts or inclusion in other DEQ materials;
- Use of the program logo for the achieved level;
- Access to Stewards as mentors where appropriate;
- A single point-of-contact within DEQ;
- A personal letter signed by the DEQ Secretary; and
- Other benefits as deemed appropriate by the DEQ Secretary based on recommendations from the Advisory Board and the DEQ Internal Workgroup.

Environmental Stewards have the following additional benefits:

- Formal public recognition from the Secretary of DEQ that may include an on-site award ceremony including the presentation of a formal plaque, public announcements and press releases.
- Participation in the Steward Forum chaired by the DEQ Secretary.
- Priority membership on the ESI Advisory Board when appropriate positions are available.

During the annual ESI Conference, a member recognition ceremony is held, and facilities accepted into the program at the Environmental Partner level receive a certificate of recognition signed by the DEQ Secretary. Rising Environmental Stewards receive a plaque recognizing their program advancement. Newly recognized stewards are offered an opportunity to share their environmental management program as well as being recognized for their achievement to the highest membership level. Renewals at five-year intervals for Rising Stewards and Stewards are also celebrated at the ESI Conference.

Application Process

Partner applications are accepted year-round and reviewed quarterly by the DEQ Internal Workgroup. In 2012, ESI began accepting Steward and Rising Steward applications year-round as well. The ESI Advisory Board meets twice per year to review applications, discuss current issues/program highlights, and site visit reports. While applications at the higher levels are in review process, the applicants join the ESI as Partners to begin receiving benefits such as newsletters, listserv, and training notifications.

Following receipt of an application, an environmental compliance check is completed by the DEQ Internal Workgroup to determine if the facility has been under environmental criminal indictment or convicted within the last two years, as well as identify any compliance issues (Figure 9).
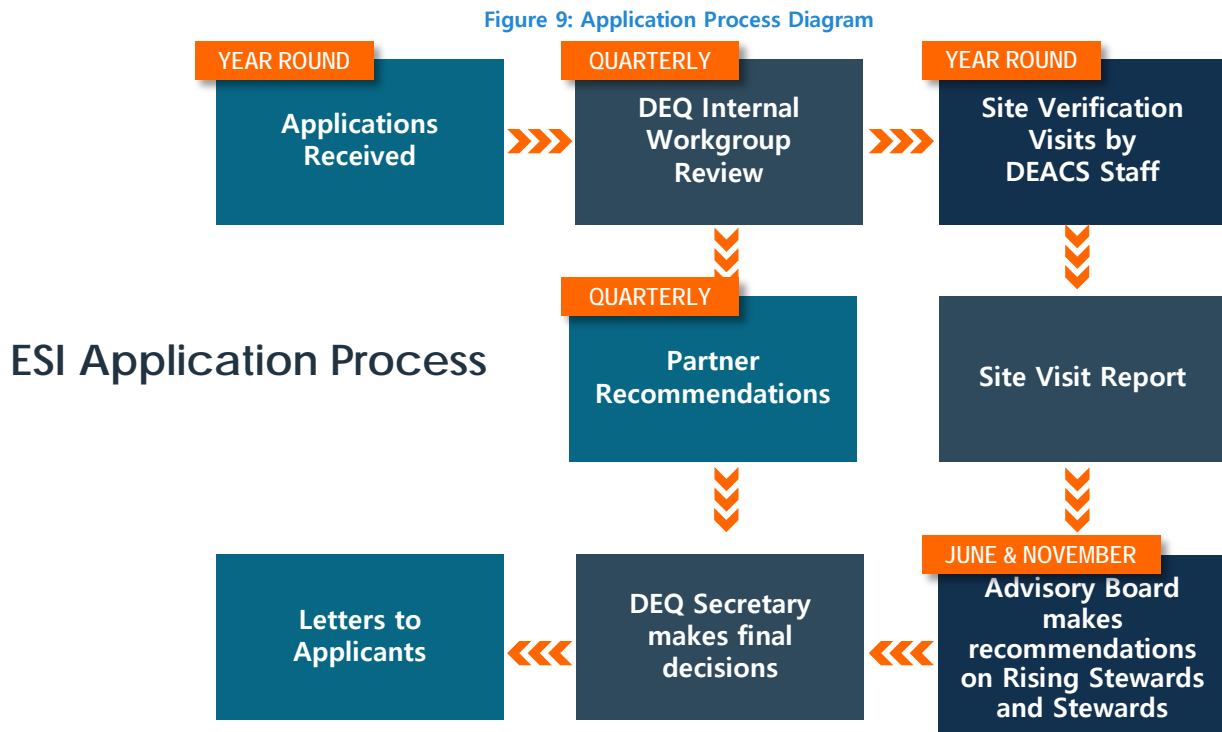
Figure 9: Application Process Diagram

ESI Application Process

YEAR ROUND	QUARTERLY	YEAR ROUND
Applications Received	**DEQ Internal Workgroup Review**	**Site Verification Visits by DEACS Staff**

QUARTERLY
Partner Recommendations

Site Visit Report

Letters to Applicants	**DEQ Secretary makes final decisions**	JUNE & NOVEMBER **Advisory Board makes recommendations on Rising Stewards and Stewards**

Figure 10: 2020 DEQ Internal Workgroup Members

The DEQ Internal Workgroup reviews all Partner applications and makes a recommendation to the DEQ Secretary regarding acceptance into the program. The DEQ Internal Workgroup reviews Rising Steward and Steward applications to provide regulatory and compliance information to the ESI Advisory Board. The DEQ Internal Workgroup is comprised of representatives (Figure 10) from regulatory and non-regulatory divisions within DEQ. Following the compliance review by the Internal Workgroup, the Rising Steward and Steward applications are presented to the ESI Advisory Board.

2020 DEQ INTERNAL WORKGROUP MEMBERS AND DIVISIONS

DAVID LEE — DEACS

BERNARD MCKEE — DAQ

SHAWN MCKEE — DWM

TOBY VINSON — DEMLR

NICK COCO — DWR

The DEQ Secretary established a volunteer advisory board to oversee program development and implementation. Membership consists of manufacturers, industries, industry trade groups, environmental and citizen nongovernmental organizations (NGOs), small businesses, representatives of city and county governments, DEQ representatives and others as deemed appropriate. A DEQ employee, appointed by the Secretary, serves as the board's chairperson.

Whenever possible, Environmental Stewards are given priority for membership for the business, government and at-large seats. Membership on the Advisory Board rotates on four-year intervals and is capped at 15 members. The 2020 board is listed in Figure 11.

Rising Steward and Steward applicants receive an on-site verification visit by DEQ staff to ensure the implemented EMS is functioning and gather observations supporting the organization's application. All information obtained through the application and the on-site verification visit is documented and summarized in a report presented to the Advisory Board for review. The Advisory Board then makes recommendations to the DEQ Secretary regarding acceptance of the Rising Steward and Steward applicants.

The DEQ Secretary reviews the recommendations made by the Advisory Board and makes final decisions regarding the recommendations. Organizations accepted into the program at the higher two membership levels are usually announced in second and fourth quarter of each year.

Figure 11: 2020 ESI Advisory Board Members

2020 ADVISORY BOARD MEMBERS AND REPRESENTATION

N.C. DEQ — CHAIR
CHIEF DEPUTY JOHN NICHOLSON — Secretary's Office

STEWARD — LARGE BUSINESS
DAVID AUGE – Grifols Therapeutics

STEWARD — LARGE BUSINESS
COLIN BUCHANAN — Daimler Trucks North America - Cleveland

INDUSTRIAL TRADE GROUP
JIMMY CARTER – NC Manufacturers Alliance

STEWARD — LARGE BUSINESS
TAUSHA FANSLAU — Bridgestone Americas Tire Operations

STEWARD — AGRIBUSINESS
KELLY FIE — Santa Fe Natural Tobacco

STEWARD — AT LARGE
ROSIE HUFFMAN — Firestone Fibers and Textiles

STEWARD — AT LARGE
JON JENSEN — Leggett & Platt ON64

STEWARD — STATE/FEDERAL FACILITY
KELLY MURPHY — N.C. Zoological Park

ACADEMIA
DR. WILLIAM PAIGE — NC State University

STEWARD — LOCAL GOVERNMENT
DAVID SHELLENBARGER — Two Rivers Utilities

STEWARD — AT LARGE
MATT WILLIAMS – John Deere Turf Care

2019 External Advisory Board Meeting

Conclusions

The results from the ESI annual report show that an organization's environmental management approach that exceeds regulatory requirements can lead to a reduction of negative environmental impacts and natural resource consumption while having significant positive economic and environmental outcomes. These achievements often benefit the community of the member. Therefore, the DEQ ESI program is unique in its ability to collect environmental data across media, including monetary savings associated with the environmental improvements made by its members. These savings to the financial and environmental bottom line help North Carolina organizations be resilient and promote economic growth and responsible environmental management especially during the COVID-19 pandemic. The ESI encourages its members to share their environmental success stories across sectors to provide a better environment for everyone in the state. The ESI members work in partnership with DEQ to protect and enhance North Carolina. The unique partnership of the regulated community with the regulator should serve as an example to other states.

Glossary of Terms

DAQ – Division of Air Quality – regulatory unit within DEQ that is responsible for protecting and improving outdoor, or ambient, air quality in North Carolina.

DEACS – Division of Environmental Assistance and Customer Service – non-regulatory unit within DEQ that helps expand the use of sustainable practices regarding waste reduction, energy efficiency, water conservation and emissions reductions including pollution prevention. DEACS also helps promote recycling material management programs and help expand recycling infrastructures thereby creating economic growth. DEACS also manages two recognition programs: NC GreenTravel and ESI.

DEQ – North Carolina Department of Environmental Quality – Cabinet level state agency that is the lead stewardship agency for the protection of North Carolina's environmental resources.

DEQ Divisions – DEQ is organized into multiple units including regulatory (based on media – air, water, waste, etc.) and nonregulatory (environmental assistance, public affairs, etc.) functions.

DEQ Internal Workgroup – advisory group comprised of representatives from regulatory and non-regulatory divisions within DEQ (DAQ, DEACS, DEMLR, DWM, and DWR) that perform compliance checks on all applicants to the ESI and provide a point of contact for questions by ESI staff pertinent to their media.

DEQ Secretary – appointed by the Governor and confirmed by the North Carolina General Assembly as a cabinet officer responsible for the overall management of the DEQ.

DEMLR – Division of Energy, Mineral, and Land Resources – regulatory unit within DEQ that is responsible for protecting North Carolina's land and geologic resources. The division regulates and provides technical assistance related to mining, dams, sediment and erosion control and stormwater management.

DOE – United States Department of Energy – federal agency with a mission to ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions.

DWM – Division of Waste Management – regulatory unit within DEQ that is responsible for assuring that solid and hazardous wastes and underground storage tanks are managed properly, and that existing contamination is cleaned up. This is accomplished through the Hazardous Waste, Solid Waste, Superfund, and Underground Storage Tank Programs. In addition, the Brownfields Program promotes redevelopment of abandoned, idle and/or under-utilized sites.

DWR – Division of Water Resources – regulatory unit within DEQ that is responsible for ensuring safe drinking water in accordance with federal requirements, issuing pollution control permits, monitoring permit compliance, evaluating

environmental water quantity and quality, and carrying out enforcement actions for violations of environmental regulations.

EMS – Environmental Management System - part of an organization's business management system used to develop and implement an environmental policy and manage its environmental impacts. ISO 14001:2015 is the accepted international standard used to provide auditable guidelines for an EMS.

Environmental Partner or Partner – assistance/introductory level within the ESI. Members at this level must not be under any criminal indictment for environmental issues and must set either 2 measurable goals or commit to implementing an EMS.

Environmental Rising Steward or Rising Steward – middle level of the ESI. Members at this level must meet the requirements of the Partner level and then must have both a mature EMS as well as measurable environmental goals.

Environmental Steward or Steward – highest level of the ESI. Members at this level must meet the requirements of the two lower levels and must have aggressive environmental goals, have their mature EMS integrated into their core business functions, demonstrate going beyond compliance, and have community involvement related to the environment. Stewards also agree to mentor others on environmental topics.

EPA – United States Environmental Protection Agency – federal agency with a mission to protect human health and the environment.

EPCRA – Emergency Planning and Community Right-to-Know Act – federal rule created to help communities plan for chemical emergencies. It also requires industry to report on the storage, use and releases of hazardous substances to federal, state, and local governments. EPCRA requires state and local governments, and Indian tribes to use this information to prepare for and protect their communities from potential risks.

ESI – Environmental Stewardship Initiative – no-cost assistance and recognition leadership program administered by NCDEQ.

ESI Advisory Board – volunteer group created to oversee ESI program development and implementation. Membership consists of manufacturers, industries, industry trade groups, environmental and citizen nongovernmental organizations (NGOs), small businesses, representatives of city/county governments, state/federal government agencies, and others as deemed appropriate. A DEQ employee, appointed by the Secretary, serves as the board's chairperson. Stewards in the ESI are given priority membership on this board which reviews and makes recommendations to the DEQ Secretary on applications to the two higher levels of the program.

GHG – Greenhouse Gases - gases that trap heat in the atmosphere, often used interchangeably with the term carbon emissions, however GHG includes more than carbon dioxide and methane. Carbon dioxide (CO_2) is the primary greenhouse gas emitted through human activities and is used to calculate equivalent emissions from energy production.

LEED – Leadership in Energy and Environmental Design – green building rating system created by the United States Green Building Council. LEED provides a framework for healthy, highly efficient, and cost-saving buildings using a points system for activities and design features that reduce environmental and energy impacts.

LED – Light Emitting Diode – a semiconductor diode which glows when power is applied frequently used in energy efficient lighting.

NC AWWA-WEA – North Carolina Section of the American Water Works Association (NC AWWA) and North Carolina Member Association of the Water Environment Federation (NC WEA) – nonprofit with a mission to enrich the expertise of water professionals in North Carolina.

NCMA – North Carolina Manufactures' Alliance – non-profit association representing the interests of North Carolina manufacturing industries.

NCSU – North Carolina State University

NGO – non-governmental organization

P2 – pollution prevention – also known as source reduction, is any practice that reduces, eliminates, or prevents pollution at its source prior to recycling, treatment, or disposal

PPE – personal protective equipment – devices meant to provide some protection from injury or illness and includes masks, safety glasses, safety shoes, earplugs, and other such materials.

WTE – Waste-to-Energy – process of generating energy in the form of electricity and/or heat from the combustion of solid waste.

ZWTL – Zero-Waste-to-Landfill – philosophy of reducing the amount of waste that ends up in landfill. Although 'Zero' is used, not all waste types can be otherwise processed and may end up in landfill. The main point is that companies aim towards reducing their landfill usage significantly.

2020 ESI Members

Environmental Stewards

- **Bridgestone Americas Tire Operations, LLC – Wilson**
- **Corning Inc. – Wilmington Optical Fiber**
- **Daimler Trucks North America LLC – Cleveland**
- **Daimler Trucks North America LLC – Gastonia**
- **Daimler Trucks North America LLC – Mount Holly**
- **Dell Technologies – Apex Manufacturing**
- **DENSO Manufacturing North Carolina - Statesville**
- **Eaton Corporation - Asheville**
- **Eaton Corporation – Youngsville Production Operations**
- **Engineered Sintered Components – Troutman**
- **Firestone Fibers & Textiles – Kings Mountain & Gastonia**
- **Fleet Readiness Center East – Cherry Point**
- **GKN Driveline – Sanford**
- **Grifols Therapeutics LLC – Clayton**
- **Corning Optical Communications LLC - Hickory Manufacturing and Technology Center**
- **John Deere Turf Care – Fuquay-Varina**
- **Keihin Carolina System Technology – Tarboro**
- **Leggett & Platt – Branch ON64 High Point Furniture**
- **North Carolina Zoo – Asheboro**
- **Pfizer - Sanford**
- **Santa Fe Natural Tobacco– Oxford**
- **Smithfield Packaged Meats Corp – Wilson**
- **Stanley Black & Decker – Kannapolis DC**
- **TE Connectivity – Greensboro**
- **Thomas Built Buses, Inc. – High Point**
- **Two Rivers Utilities Wastewater Treatment Division – Gastonia**
- **Two Rivers Utilities Water Plant - Gastonia**
- **Uchiyama Manufacturing America LLC – Goldsboro**
- **U.S. Environmental Protection Agency - RTP**

Environmental Rising Stewards

- **Ajinomoto Health & Nutrition North America, Inc. – Raleigh**

- **Bridgestone-Bandag, LLC – Oxford**

- **Cree|Wolfspeed – Durham**

- **DENSO Manufacturing North Carolina - Greenville**

- **Eaton Corporation - Raleigh Production Operations**

- **GKN Driveline North America, Inc. – Roxboro Assembly**

- **GKN Sinter Metals – Conover**

- **Hyster-Yale Group – Greenville**

- **Mecklenburg County Solid Waste Operations – Charlotte**

- **QORVO, Inc. – Greensboro**

- **Smithfield Fresh Meats Corp. – Tar Heel Facility**
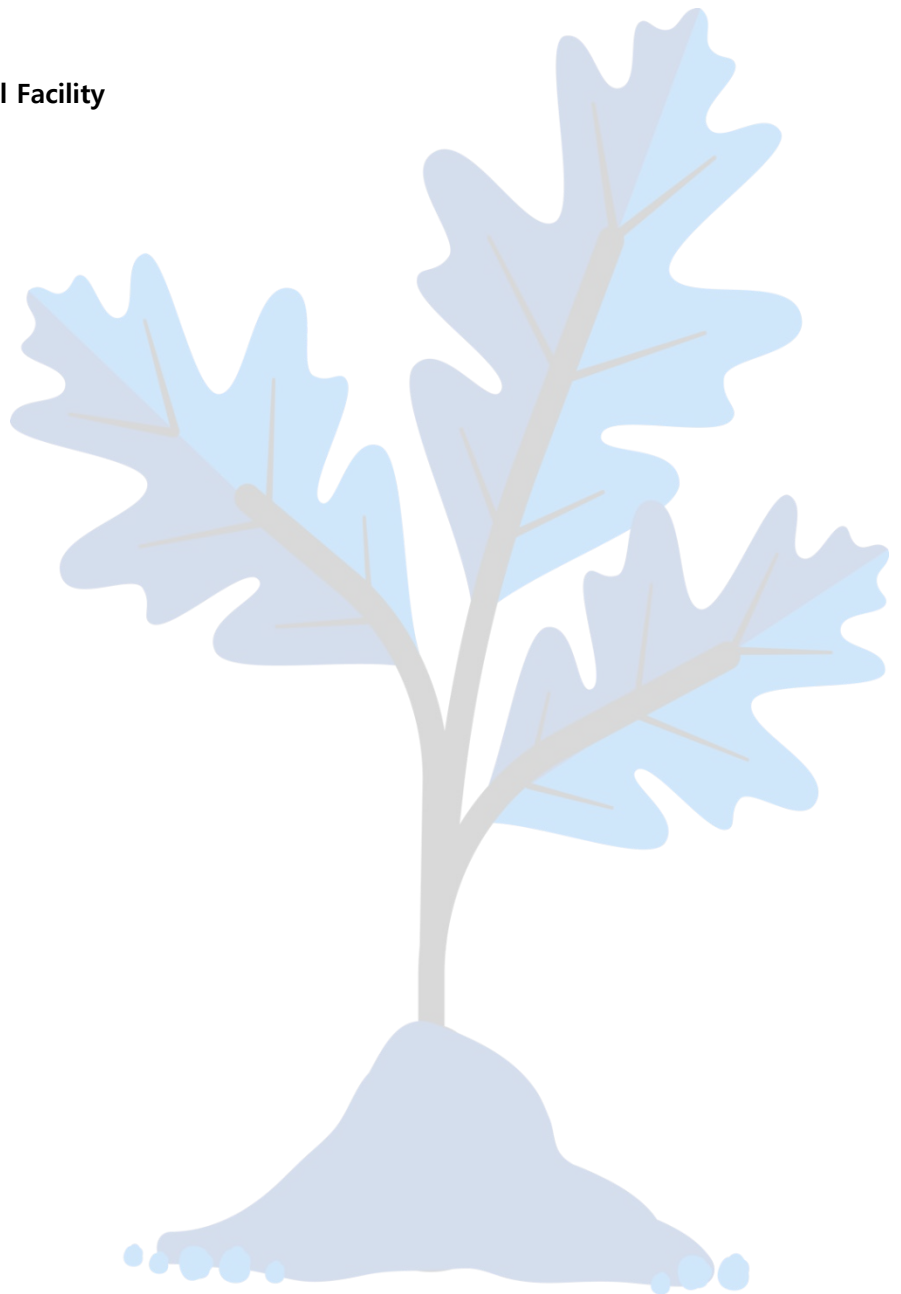
Environmental Partners

- **Alliance One International Inc. (4) ***
- **Alphagary - Pineville**
- **American Emergency Vehicles - Jefferson**
- **American Snuff Company - Taylor Brothers**
- **Best Diamond Packaging, LLC - Kinston**
- **BorgWarner – Asheville**
- **Burt's Bees Inc. – Morrisville**
- **Cape Fear Public Utility Authority (8) ***
- **Cascades Tissue Group – North Carolina Inc. - Richmond**
- **Caterpillar – Clayton**
- **Charlotte-Mecklenburg Schools**
- **City of Shelby First Broad River Wastewater Treatment and Composting Facility**
- **City of Shelby Water Treatment Plant**
- **CommScope Inc. – Catawba**
- **CommScope Inc. - Claremont**
- **Continental Automotive - Henderson Plant**
- **Corning Newton Cable Plant**
- **Crown Equipment – Kinston**
- **Dominion Energy North Carolina, Inc. (21) ***
- **Domtar Paper Company, LLC – Plymouth**
- **Eaton Corporation – Capital Production Operations**
- **Flowserve, Inc. - Raleigh**
- **Freudenberg Performance Materials – Durham**
- **General Electric Aviation – Durham Engine Facility**
- **HAECO Airframe Services – Greensboro**
- **Industrial Connections & Solutions LLC – Mebane**
- **International Paper – Riegelwood Mill**
- **Kao Specialties Americas, LLC – High Point**
- **Kewaunee Scientific Corporation - Statesville**
- **Leggett & Platt Branch 0548 and 8814***
- **Liberty Tire Recycling, LLC (2) ***
- **Linamar North Carolina - Asheville**
- **Martin Marietta (58) ***
- **MATREX – A Division of Leggett & Platt Components Company, Inc. - Greensboro**
- **Michelin Aircraft Tire Co. – Norwood**
- **National Institute of Environmental Health Sciences – RTP**
- **N.C. Dept. of Transportation Ferry Division (9) ***
- **Novartis Gene Therapies – Durham**
- **Piedmont Service Group – Raleigh Office**
- **Siemens Healthineers - Cary Campus**
- **Smithfield Fresh Meats Corp. – Clinton**
- **Static Control Components – Sanford**
- **Tarboro Brewing Company**
- **TC Transcontinental - Thomasville**
- **The Hempville – Siler City**
- **Two Rivers Utilities Field Operations Division – Gastonia**
- **Unilever - Raeford**
- **Universal Leaf North America U.S., Inc. (2) ***
- **Water and Sewer Authority of Cabarrus Co. (4) ***
- **Zero Waste Recycling, LLC**

*Denotes multi-site Partners

NORTH CAROLINA
Department of Environmental Quality

N.C. Department of Environmental Quality

Division of Environmental Assistance and Customer Service

1639 Mail Service Center, Raleigh, NC 27699-1639

877-623-6748 (toll-free)

esi@ncdenr.gov

Cover Photo 1: Internal Auditor students performing practice audit at Hyster-Yale Group in Greenville, NC