



2022 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 robust, 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 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, set aggressive environmental goals and mentor others in the program. In 2022, the ESI had 192 member sites in 62 North Carolina counties as shown in Figure 1 below.

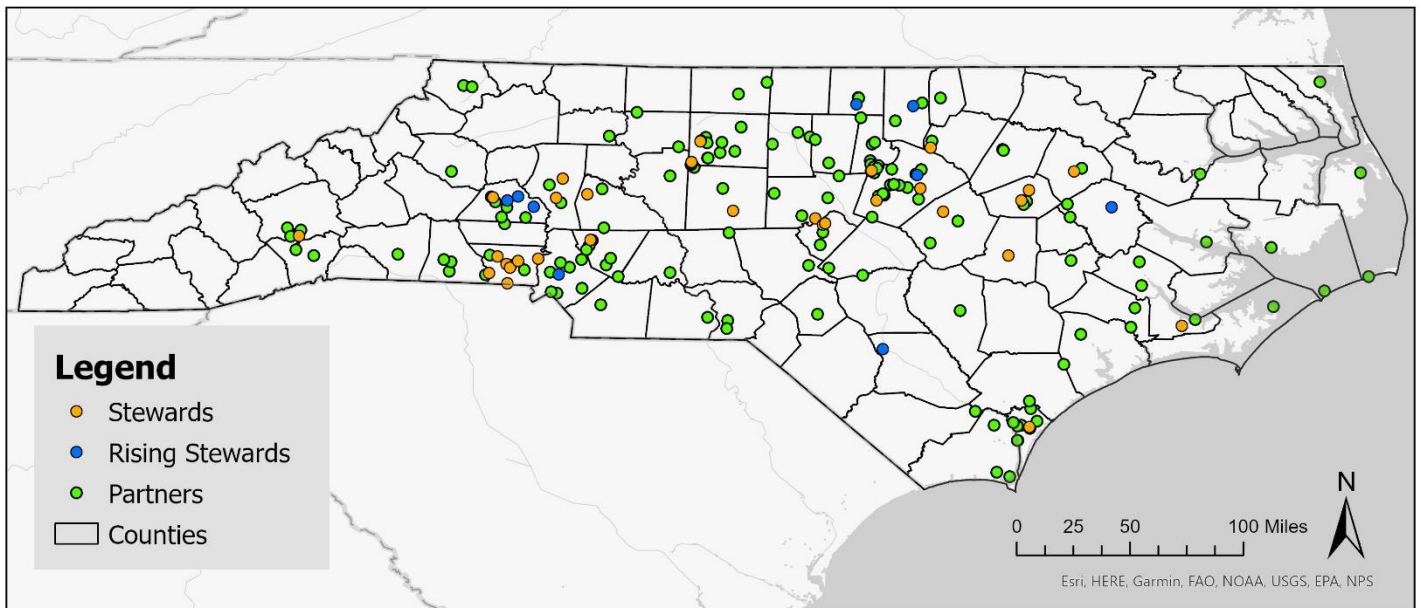


Figure 1. ESI Member Sites in 2022

The ESI is open to any entity in North Carolina that commits to improving and reporting on its environmental impacts. See the Membership section on page 20 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 2022, ESI members set 293 goals covering multi-media, regulated and non-regulated environmental impacts including energy and water conservation. Eighty-two members reported progress toward their goals.† For 2022, ESI members reported the following positive environmental impacts as shown in Table 1.

Table 1. 2022 ESI Members' Report Results

Reductions	Value	Units
Air Emissions	142	Tons
Hazardous waste	191	Tons
Landfilled waste	3,577	Tons
Wastewater Pollutants	8,965	Tons
Greenhouse Gas Emissions*	73,802	Metric Tons CO ₂ e
Material Consumption	185,661	Tons
Energy	1,264,662	MMBtu
Wastewater Volume	98,641,150	Gallons
Water Use	151,764,223	Gallons

Reuse	Value	Units
Biomass Recovery**	61,128	Tons
Total Recycled Volume	176,125	Tons

\$5,396,288
Total Cost Savings

*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.

2022 Annual Report



2022 ESI Annual Conference keynote speaker former DENR Secretary William B. Ross, Jr.

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), making progress on environmental goals, providing educational opportunities and connects and highlights members and their sustainability projects. The ESI helps organizations share best practices 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 data collected by the ESI members in 2022. 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 is 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. The 2022 reporting year saw the launch of online reporting for members in line with the department's desire to modernize processes. This change allows for automation of data analysis and faster tabulation of member and program results. The program also celebrated its 20th anniversary in 2022.



2022 ESI Annual Conference 20th Anniversary Celebration

Program Achievements

Membership Growth

ESI membership has grown eight-fold from its original membership of 27 member sites in 2002 to 192 member sites in 2022 (Figure 2).

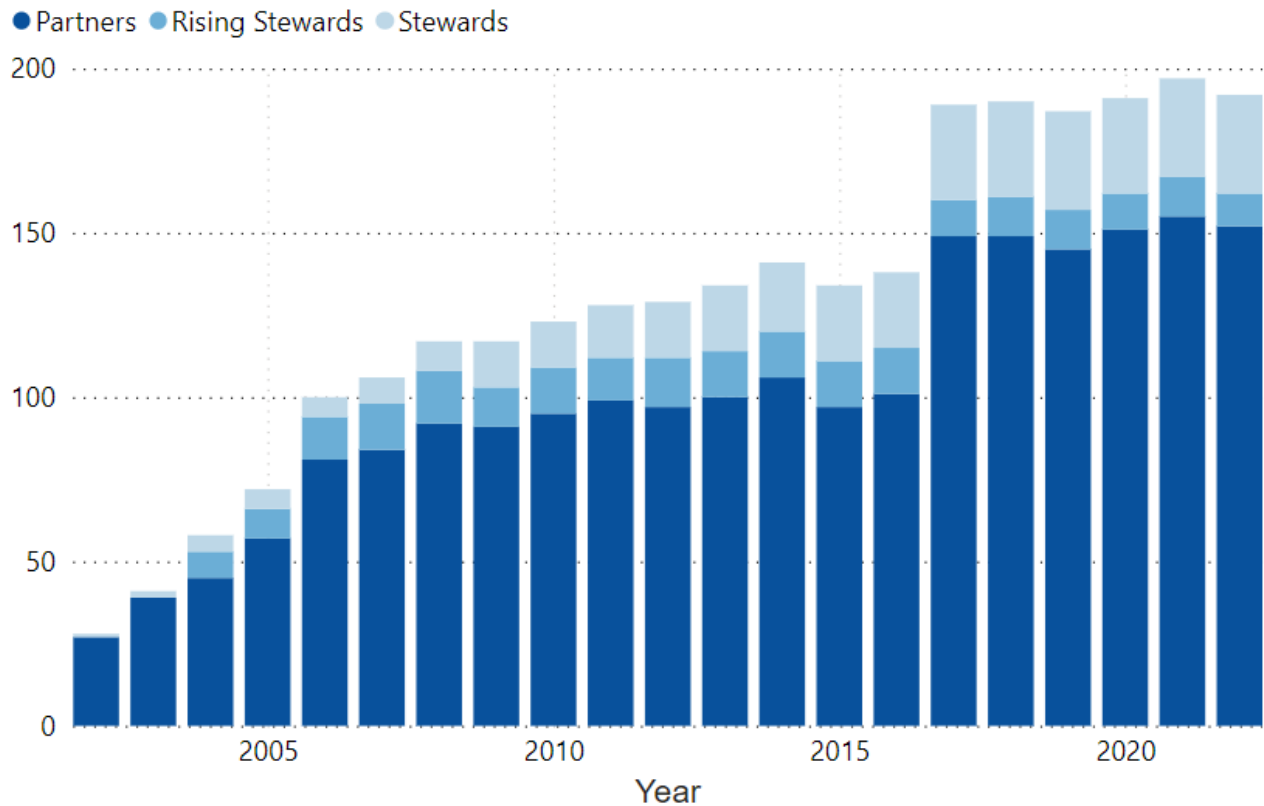


Figure 2. ESI Membership Growth, 2002-2022

Facilities of all sizes participate – the smallest having two and a half employees and the largest employing more than 19,000 (Figure 3). Fifty 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.

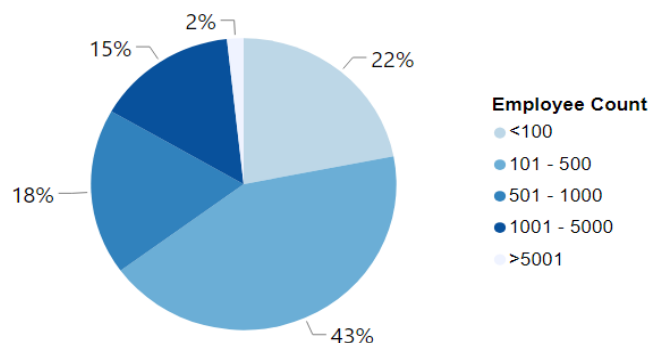


Figure 3. Number of Employees per ESI member in 2022

In 2022, five member sites closed or were in the process of closing, and therefore, did not report. Seven member sites were removed from the program for failure to submit the required ESI annual report. One member asked to be put on hold. In 2022, seven new sites joined the ESI (Table 2).

Table 2. New ESI Members

Facility Name	ESI Level	Year Joined	City	County
Aptar Group (Lincolnton Facility)	P	2022	Lincolnton	Lincoln
Best Western Hendersonville Inn	P	2022	Hendersonville	Henderson
Cygnus Technologies	P	2022	Southport	Brunswick
Jowat Corporation	P	2022	Archdale	Randolph
Mattamy Homes Raleigh Division	P	2022	Cary	Wake
RTI International	P	2022	RTP	Durham
The Plant	P	2022	Pittsboro	Chatham



Awards bestowed at the 2022 Conference



2022 Steward of the Year Grifols Therapeutics LLC award presentation with DEQ Secretary Biser

Member Goals

In 2022, ESI members reported on 293 goals that covered both regulated and non-regulated environmental impacts. As shown in Figure 4, the greatest number of goals set in 2022 were related to energy use reductions. This has been the primary goal reported by members since 2008. Reducing energy usage, water usage and solid waste generation were the three most common reduction goals of ESI members in 2022. 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, community involvement, and a variety of other environmental topics were also reported.

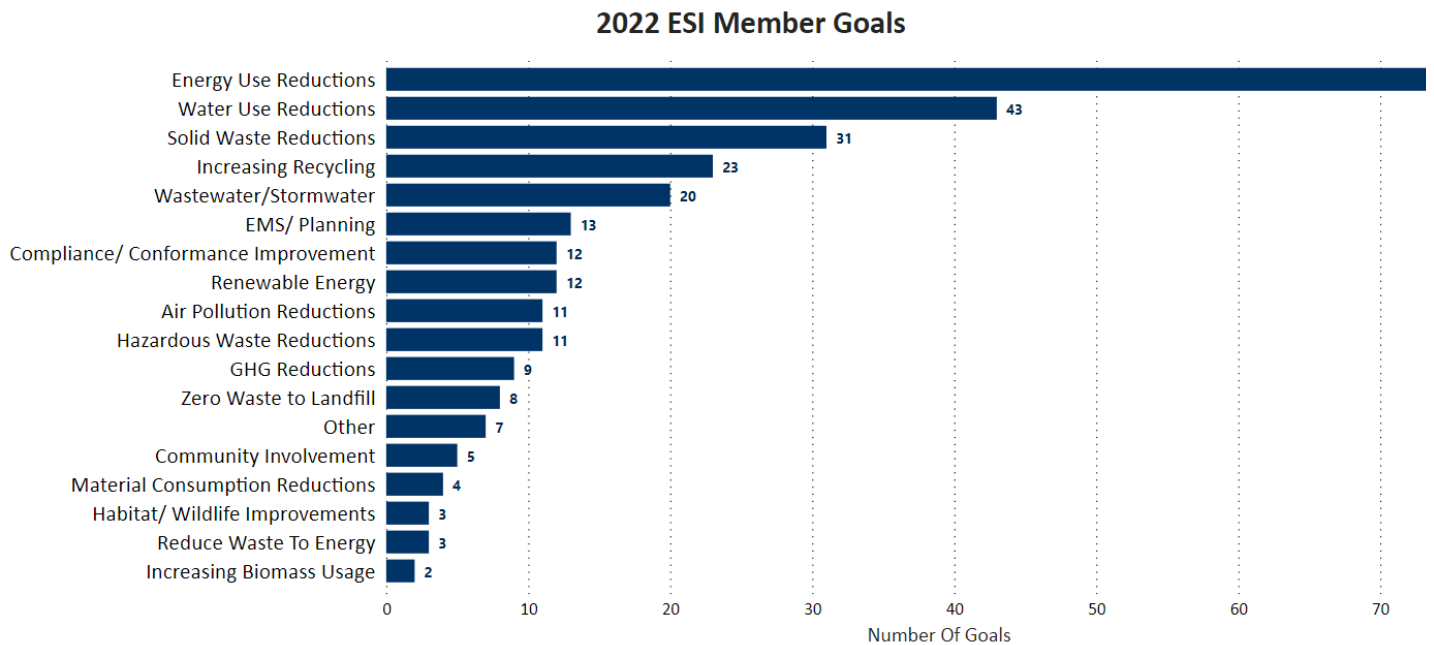


Figure 4. 2022 ESI Member Goals

Member Results

ESI members are required to report on performance toward environmental goals and reductions in environmental impacts. While there are 192 sites in the program, there are 10 multi-site Partner members that account for 116 of the sites reporting. New members are not required to submit annual reports until after their first full year of membership. Therefore, 82 members reported progress toward their goals, resulting in environmental impact reductions and cost savings shown in Tables 3 through 6 below. All data is 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. ESI Member Energy and Air Emission Reductions 2004-2022

Year	Energy Reductions (MMBtu)	Greenhouse Gas Emissions Reductions* (Metric tons CO ₂ e)	Air Emissions Reductions** (tons)
2004	11,737		297
2005	48,451		208
2006	123,821		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
2021	666,966	10,377	663
2022	1,264,662	73,802	142
Total	88,678,428	281,866	10,301

*Indirect not reported in energy reductions

**Not including Greenhouse Gas (GHG) emission reductions

Table 4. Total Cost Savings from Member Reported Environmental Projects

Year	Total Cost Savings (\$)
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
2021	\$2,500,986
2022	\$5,396,288
Total	\$110,688,874



Networking at the 2022 conference

Energy Data

Seventy-six 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 energy usage by more than 1.2 million MMBtus (million British Thermal Units, or BTUs). Most of these reductions came from reductions in natural gas and electricity usage in 2022. 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. In 2022, ESI launched the Energy toolkit project, which allows members free access to energy monitoring equipment and was immediately used by two members. The toolkit includes an ultrasonic leak detector, an infrared camera, an AC current probe, an LED light meter, power data loggers and electricity usage monitors.

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. 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 CO₂e emissions. At least two members have reported partnering with an organization who has received grant funding through the VW Settlement agreement to implement clean energy projects.



Number of North Carolina homes that could be powered for a year by ESI member energy savings in 2022.



New ESI Energy Toolkit

ESI members saved over \$5 million on environmental projects in 2022.

Water Data

Forty-three goals related to water usage were reported with reductions of 151,764,223 gallons of water. Reductions were attributed to leak detection; improvements in maintenance; new chillers and other equipment replacement; implementation of closed-loop cooling systems and other water reuse projects; elimination of inefficient equipment; and employee education campaigns.

Table 5. ESI Member Water and Wastewater Reductions 2004-2022

Year	Water Use Reductions (Gallons)	Wastewater Volume Reduction (Gallons)	Wastewater Pollutants Reductions (tons)
2004	369,529,216		379
2005	54,201,286	85,566,162	527
2006	591,356,273	106,092,200	400
2007	83,929,264	881,690	0
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	1,032,748,100	6,777
2021	512,073,937	747,744,377	74,803
2022	151,764,223	98,641,150	8,965
Total	16,042,395,283	8,330,424,892	634,417



ESI members saved enough water in 2022 to fill almost

6,898

average-sized swimming pools!

Twenty facilities reported goals related to wastewater discharge volume or stormwater reductions, resulting in total reductions of 98,641,150 gallons. Projects related to stormwater included cleaning around outfalls, re-routing drainage inlets and regrading on-site surfaces to improve run-off quality, and creation of a rain garden. Goals related to wastewater included maintenance projects, updating equipment and in one case, increased capacity for an existing wastewater treatment plant on site.

Members reported 8,965 tons of wastewater reductions, mainly chemical oxygen demand and total suspended solids. Actions included upgrading wastewater treatment equipment, performing stormwater best management practices and maintenance to reduce leaks and improve efficiencies.

Waste Data

Thirty-one goals related to solid waste reduction were reported in 2022, with a reduction of 3,577 tons of waste going to landfill and more than 176,000 tons of material being recycled. Eight sites also indicated having active zero-waste-to-landfill (ZWTL) goals with others indicating that they had achieved ZWTL status without an associated goal. Process improvements, including material consumption reductions, waste to energy and beneficial reuse, packaging changes, increased recycling efforts and educational campaigns were reported for many of the solid waste reductions.

Table 6. ESI Member Waste Reductions and Beneficial Reuse Totals 2004-2022

Year	Hazardous waste Reductions (tons)	Landfilled Waste Reductions (tons)	Material Consumption Reductions (tons)	Total Biomass Recovered* (tons)	Total Recycled Volume (tons)
2004	12	997	509		10,015
2005	119	82,453	37,728		8,047
2006	405	59,441	973		12,594
2007	13	205,169	60		23,986
2008	200	737	2,136	2,783	4,777
2009	10	4,072	639	258,635	34,233
2010	6	10,245	1,792	333,375	36,667
2011	15	3,755	115	346,437	29,901
2012	4	3,071	666	2,959	33,837
2013	37	1,605	24	3,122	46,350
2014	1,538	11,505	23,073	17	32,158
2015	284	42,737	589	54,360	42,150
2016	314	2,535	376	93,888	159,194
2017	105	350,911	356	95,625	97,774
2018	30	3,430,522	515	89,607	329,229
2019	158	988	1,749	77,939	189,404
2020	723	32,268	600	86,620	341,881
2021	710	64,015	374	71,665	113,477
2022	191	3,577	185,661	61,128	176,125
Total	4,876	4,310,605	257,934	1,578,160	1,721,799

*Category created for compost/mulch related goals

Eleven goals were reported on hazardous waste reductions that prevented the generation of 191 tons of hazardous waste. Reclassification of some materials as non-hazardous by finding recycling options, efficiency improvements, and increased analysis of waste streams/disposal information all contributed to these reductions.

Twenty-three goals were reported related to increased recycling efforts. Some of these efforts included training new staff members, finding new vendors to take previously unrecyclable materials, and improving recycling infrastructure. Two facilities reported goals for reduction in waste to energy by improving recycling sorting and separation.

Air Quality Data

Members implemented eleven goals related to air pollutant emissions, not including GHG emissions, that resulted in reductions of 142 tons of various air pollutants. These included almost 83 tons of volatile organic compounds (Table 7) from coating and solvent operation efficiency improvements.

Table 7. ESI Member 2022 Air Emission Reductions

Air Emission Reductions	Value	Units
CO Reduction	4.47	Tons
CO ₂ Reduction	2,852.97	Tons
NO _x Reduction	38.80	Tons
PM ₁₀ Reduction	3.06	Tons
SO _x Reduction	3.44	Tons
Total HAPs Reduction	9.49	Tons
VOCs Reduction	82.96	Tons

Members noted 9 goals specific to GHG emission reductions not associated with energy reductions and a decrease of 73,801 metric tons of CO₂ and CO₂e emissions. Additional information on GHG emission reductions can be found in the next section.

Other Goals

In 2022, members reported on 12 goals related to environmental compliance and 13 goals related to EMS development/improvement. EMS goals pertained to implementing a new EMS, increased staff training, and maintaining ISO 14001 certification.

Members also reported on goals related to wildlife and habitat improvements (3 goals), improved community involvement (5 goals), and other environmentally related goals specific to individual sites (7 goals). Wildlife habitat goals mentioned bee boxes, enhancing timber management programs and improving habitats for native flora and fauna.

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. Figure 5 provides a summary of reductions by type of energy use resulting in the total 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 Climate Leadership program was used to convert the reported electricity and combustion fuel values to metric tons of carbon dioxide equivalent (CO₂e). This tool can be found on the EPA [website](#).

In 2022 ESI members reduced greenhouse gas emissions equivalent to more than

16,423
passenger vehicles driven for one year!

2022 GHG Emission Reductions

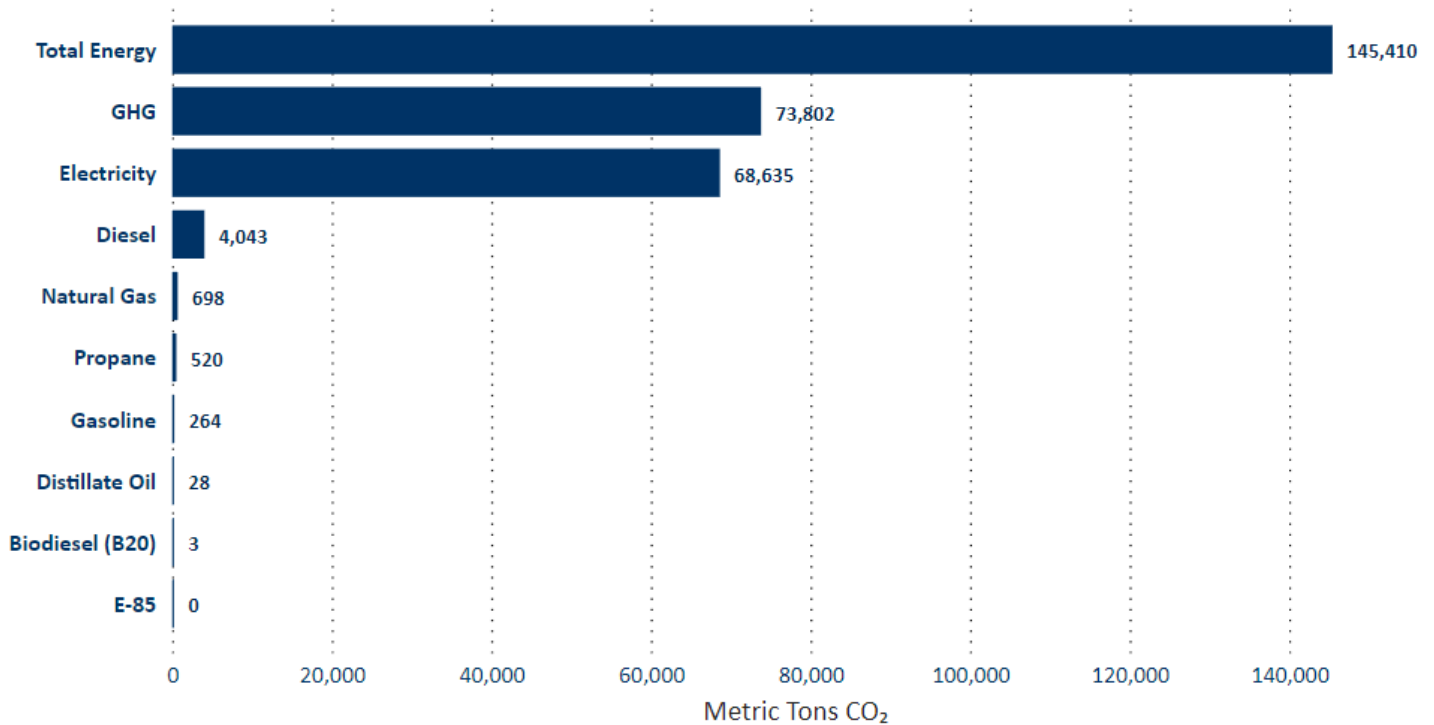


Figure 5. 2022 Greenhouse Gas Emission Reductions by Energy Source

Cost Savings

Almost \$5.3 million in cost savings were reported by ESI members from their 2022 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 14 facilities through waste reductions. Savings were also reported from water and solid waste reduction projects as well as recycling rebates. Facilities reported cost savings within the energy, water and waste reduction categories. Figure 6 shows the breakdown of cost savings by goal type.

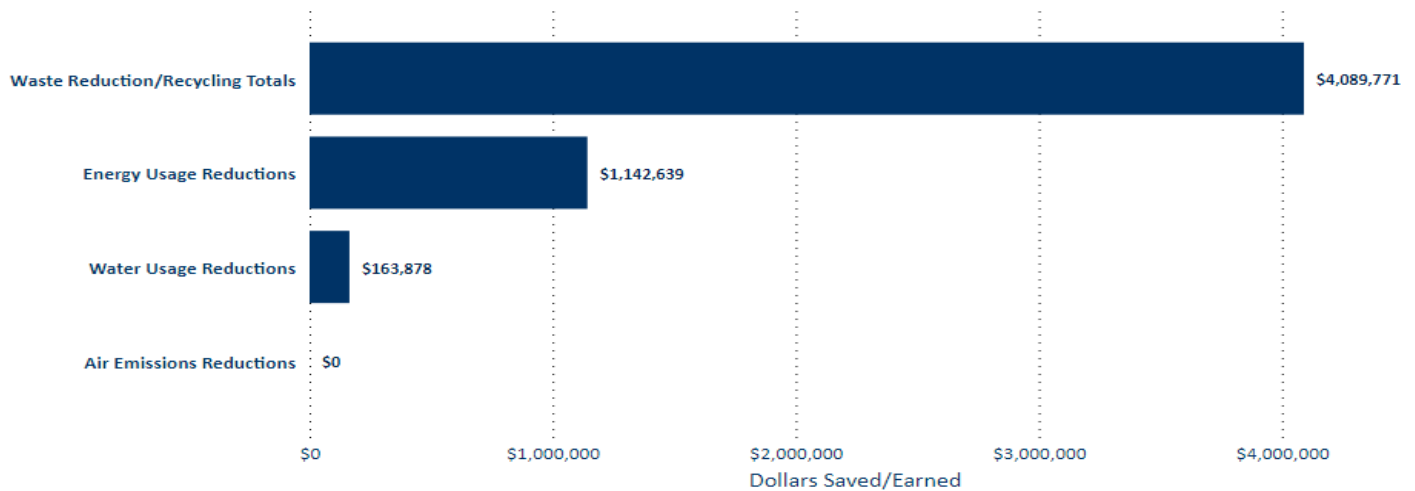


Figure 6. 2022 ESI Member Cost Savings by Goal Type.

Community Involvement

In addition to reporting on environmental goals, ESI members also submit information on their involvement with their surrounding community. ESI Steward members are the only level required to engage with their local communities on their environmental performance. However, many members have broader community involvement programs. Other members are encouraged to connect with their local communities and may choose to report their activities as well. For 2023, 216 activities were reported by 54 members (27 Stewards, 7 Rising Stewards, 20 Partners), an increase from last year. The ESI program encourages community involvement activities that are meaningful and environmentally focused. The ESI Advisory Board has begun discussions on this requirement and is working with DEQ staff to clarify the best activities and types of outreach and engagement to promote more meaningful community involvement by members. Some examples of community outreach reported include stream or highway litter clean ups, habitat restoration, installing beehives, coordinating with local first responders for improved emergency preparedness, working with college students on scientific projects, and hosting tours for students (elementary, middle, and high school) at their facilities. Some members also hosted meetings with community organizations, while others focused on providing educational information (often recycling) geared towards facility workers and their families through Earth Day events. These discrete

events and efforts described by members have been categorized into 18 groups. Figure 7 shows a summary of the number of each type of activity.

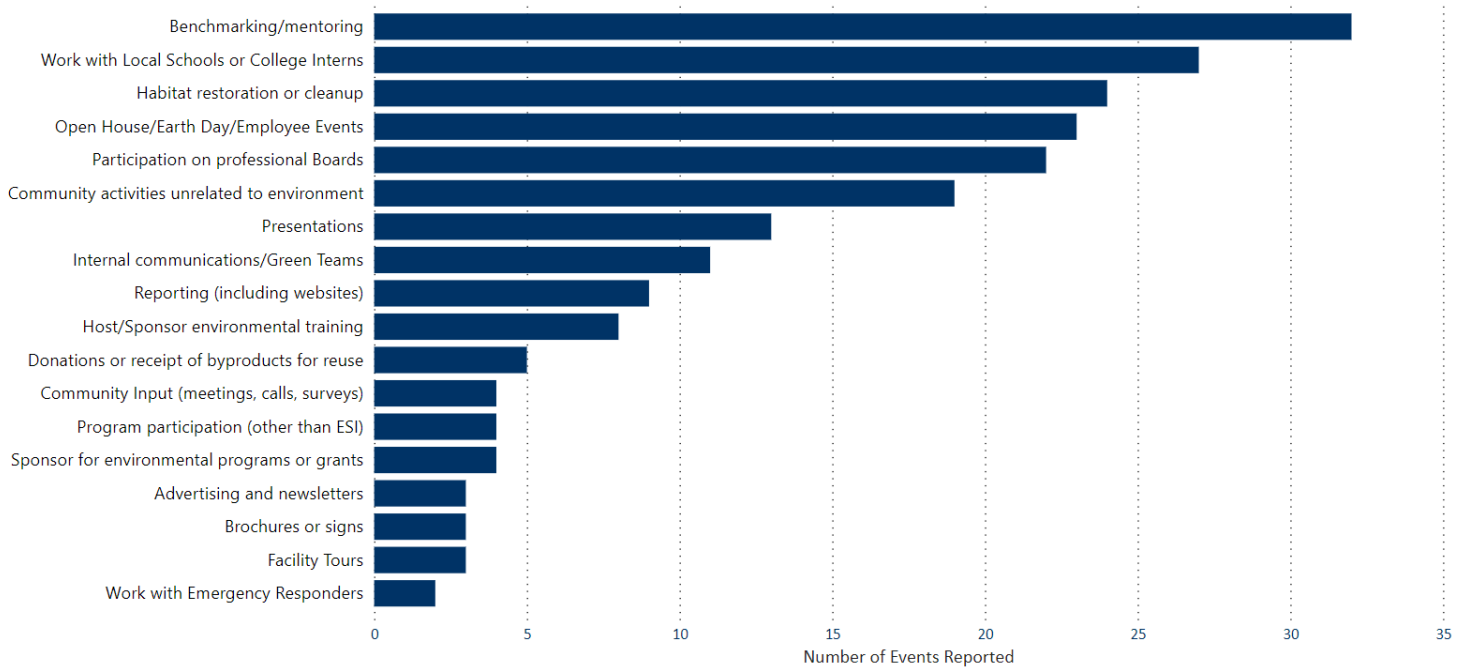


Figure 7. 2022 ESI Member Community Involvement by Event Type



Program Updates

The ESI is managed and supported by seven staff members within the DEQ Division of Environmental Assistance and Customer Service (DEACS) on behalf of the DEQ Secretary. The program operates on a limited budget that is funded by an EPA pollution prevention grant and appropriations from the N.C. General Assembly. DEACS staff provide day-to-day management of the program and support members through one-on-one interaction from a dedicated coach. DEACS program outreach also includes training classes, hosting an annual conference, facilitating networking events, hosting a member listserv, distributing an electronic newsletter, and marketing and promoting program services and member achievements. Site visits are made specifically to current or potential ESI member sites. ESI staff continues to expand programming offered to members, and in 2022 the team restarted the Environmental Benchmarking Series which was paused during the COVID-19 pandemic. It is designed to be hosted by a member at their facility as a platform for ESI members to collaborate and share success stories. Additionally, in 2022 the annual conference returned to its traditional two-day, in-person format. It had been held virtually in 2020 and 2021.



Steward Member representatives and DEQ Secretary Elizabeth Biser at the 2022 ESI Conference

In 2022 ESI staff:

- Provided a program overview at the January NC Chamber Environmental Compliance Conference.
- Co-hosted an Environmental Benchmarking webinar in February with ESI Partner Domtar Paper Company that highlighted their landfill reduction efforts for 64 attendees.
- Provided a program overview at the March North Carolina Manufacturers Alliance (NCMA) Air Quality Compliance Workshops.
- Co-hosted an Aftermarket Automotive Industry Best Management Practices webinar in March for 63 attendees with the Automotive Service & Tire Alliance.
- Provided in-person EMS internal auditor training to 40 attendees in May and December.
- Provided virtual overview training on the ISO 14001 and 50001 management systems to 99 attendees in May and June.
- Coordinated the annual ESI Steward Forum in June hosted by ESI Steward the NC Zoo with 31 attendees.
- Co-hosted the Understanding Carbon Emissions Reporting - the New Belgium Journey webinar with the Waste Reduction Partners program for 170 attendees in July.
- Co-hosted an Environmental Benchmarking webinar in August for 51 attendees with Steward member Two Rivers Utilities promoting EMS use to advanced pollution prevention strategies, regulatory compliance and reduce costs.
- Organized and hosted 176 attendees at the two-day ESI Annual Conference in October. The event launched new recognition awards and included a keynote address by former NCDENR Secretary William R. Ross, Jr. to celebrate the program's 20th anniversary.
- Facilitated an in-person Environmental Benchmarking Series (EBS) event in October hosted by ESI Steward Grifols Therapeutics LLC, featuring their biodiversity and wildlife habitat program and nature area. Twelve attended the event.
- Held the Spring and Fall ESI Advisory Board meetings in-person to review Steward/Rising Steward applications and renewals and discuss recommendations regarding program improvements.
- Performed a functional equivalent EMS audit for ESI Rising Steward Mecklenburg County Solid Waste Operations and an ISO 14001 gap analysis for new Partner member FCR, Inc. in November.
- Provided a program overview to 75 participants at the annual NC Craft Brewers Guild Conference in November.
- Attended a multi-day EPA Pollution Prevention (P2) grant program training/meeting in December. The event connected technical assistance providers from across the country.
- Launched the Energy Toolkit in December, which allows members to use energy monitoring equipment at no cost. The data provided through the toolkit helps members identify potential pathways to reduce energy usage, the associated greenhouse gas (GHG) emissions and energy costs.
- Provided six virtual EMS training courses during the year to 82 attendees from the Association of Hazardous Materials Professionals (AHMP) RTP Chapter.
- Developed a new ESI video, a GIS story map, and benchmarked the program against leadership and recognition programs across the country during the year.



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.

Criteria

PARTNER

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. Partners have the option of implementing measurable goals in lieu of developing an EMS. Partner applications may include multiple sites. By the end of 2022, the program had 152 Environmental Partner sites.

To be considered at the Partner level the applicant must meet the following:

- 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.

RISING STEWARD

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 10 Rising Environmental Stewards as of December 31, 2022.

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, include pollution prevention and/or process efficiency improvement activities.
- 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.

STEWARD

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 2022, the program had 30 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 mentor other ESI members.

Rising Stewards and Stewards are reassessed after each five-year period 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 and technical assistance including the use of the ESI Energy Toolkit;
- 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 DEQ Secretary 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, members are recognized for their achievements. Newly accepted facilities starting at the Environmental Partner level receive a certificate 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 successes and are 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. Additionally, organizations that have reached their five-, ten-, and twenty-year milestone as an ESI member are also acknowledged. In 2022, to honor the program's 20th anniversary additional recognition categories were launched including Member of the Year awards at each level of membership and P2 awards for member completed pollution prevention projects and these presentations will be a central part of the conference each year.

Application Process

Partner, Rising Steward, and Steward applications are accepted year-round. The ESI Advisory Board meets twice per year to review applications and renewal site visits and reports at the higher two membership levels, discuss program challenges, and review potential program improvements. While applications at the higher levels are under review, the applicants join the ESI as Partners to begin receiving benefits such as newsletters, listserv postings, and training and networking notifications. Figure 8 depicts the application and review process for facilities.

Following receipt of an application, an environmental compliance check is completed by the DEQ Internal Workgroup to determine their compliance status over the preceding two years, as well as identify any pending compliance issues.

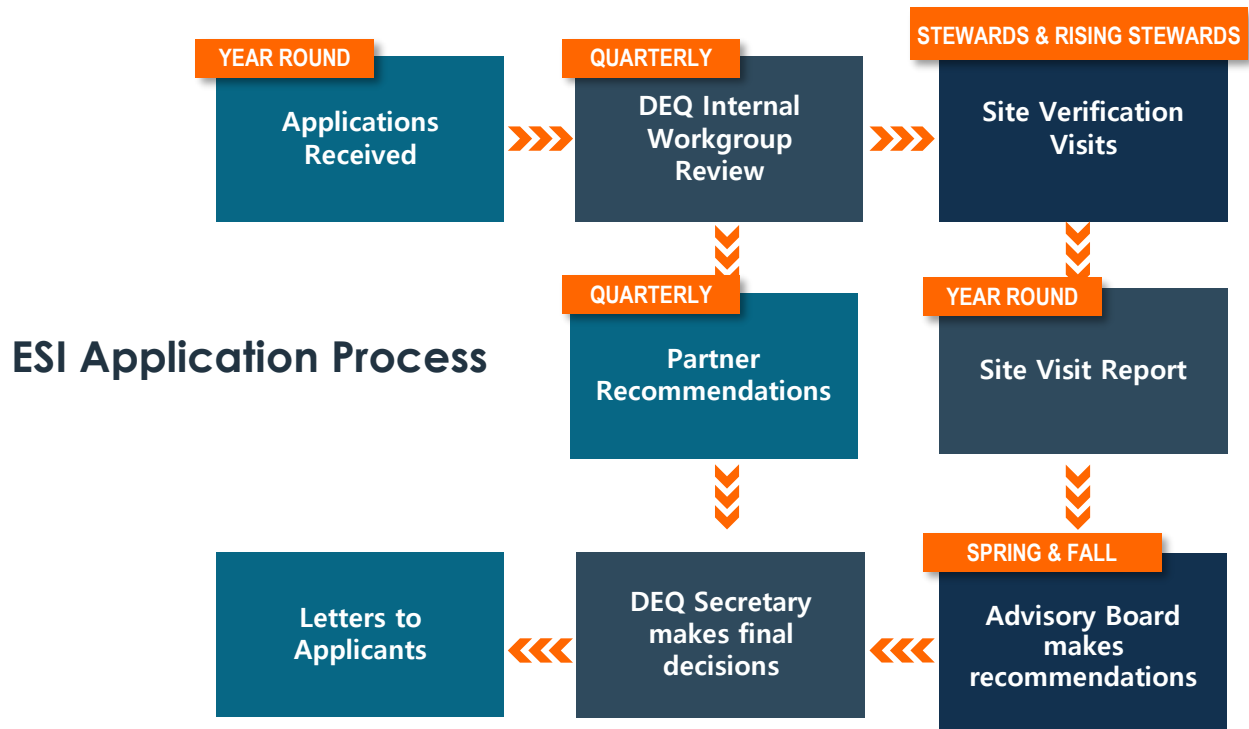


Figure 8. ESI Member Application Process

The DEQ Internal Workgroup (Workgroup) reviews the compliance status of all new member applications and this information is considered by the DEQ Secretary regarding acceptance of new organizations as Partners in the program. The Workgroup also reviews Rising Steward and Steward compliance history during the 5-year renewal process and when members request to advance to a higher level to ensure the member is meeting regulatory requirements and maintaining permit compliance. This information is shared with the ESI Advisory Board as part of their review. The Workgroup is comprised of representatives from the following regulatory and non-regulatory divisions within DEQ:

- Division of Air Quality
- Division of Water Resources
- Division of Waste Management
- Division of Environmental Assistance and Customer Service
- Division of Energy, Mineral, and Land Resources

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 at four-year intervals and is capped at 15 members. The 2022 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 the second and fourth quarter of each year.





2022 ESI 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 can often benefit the community surrounding the member site(s). Therefore, the DEQ ESI program is unique in its ability to collect environmental data across environmental media and sector, 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. 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 and entities.

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 and material management programs and helps expand recycling infrastructure 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; formerly known as NCDENR.

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 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 mostly commonly used international standard 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.

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

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 (CO₂) is the primary greenhouse gas emitted through human activities and is used to calculate equivalent emissions from energy production.

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

NCMA – North Carolina Manufacturers’ 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.

2022 ESI Members

Environmental Stewards

- Ajinomoto North America, Inc. – Raleigh
- 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 – Mt. Holly
- Dell Technologies – Apex
- DENSO Manufacturing North Carolina Inc. - Statesville Plant
- Eaton Corporation, Asheville
- Eaton Corporation, Raleigh Production Operations
- Eaton Corporation, Youngsville Plant Operations
- Firestone Fibers & Textiles – Kings Mountain & Gastonia
- Fleet Readiness Center East – Cherry Point
- GKN Driveline – Sanford
- Grifols Therapeutics – Clayton
- Hickory Manufacturing and Technology Center, Corning Optical Communications
- Hitachi Astemo Indiana, Inc. Tarboro Plant
- John Deere Turf Care – Fuquay-Varina
- Keystone Powdered Metal Company - Troutman
- Leggett & Platt 0N64 – High Point
- North Carolina Zoo – Asheboro
- Pfizer – Sanford
- Smithfield Packaged Meats Corp. – Wilson Facility
- Stanley Black & Decker – Kannapolis DC
- TE Connectivity – Pegg Rd – Greensboro
- Thomas Built Buses, Inc. – High Point
- Two Rivers Utilities Wastewater Treatment Division - Gastonia
- Two Rivers Utilities' Water Supply & Treatment - Gastonia
- Uchiyama Manufacturing America LLC – Goldsboro
- U.S. Environmental Protection Agency – RTP

Environmental Rising Stewards

- **Bridgestone Bandage, LLC Oxford**
- **CommScope Inc. Catawba**
- **CommScope Inc. Claremont**
- **GKN Automotive – Roxboro Assembly**
- **GKN Sinter Metals – Conover**
- **Hyster-Yale Group – Greenville**
- **Mecklenburg County Solid Waste Operations**
- **QORVO, Inc. – Greensboro**
- **Smithfield Fresh Meats Corporation – Tar Heel Facility**
- **Wolfspeed Durham and RTP**

Environmental Partners

- Alliance One International Inc. (4) *
- Alphagary - Pineville
- American Emergency Vehicles (2) *
- Aptar Group (Lincolnton Facility)
- Best Western Hendersonville Inn
- BorgWarner- Arden
- Burt's Bees Inc. – Morrisville
- Cape Fear Public Utility Authority (8) *
- Cascades Tissue Group – North Carolina Inc. - Richmond
- Charlotte-Mecklenburg Schools
- City of Gastonia Field Operations Division
- City of Shelby First Broad River Wastewater Treatment and Composting Facility
- City of Shelby Water Treatment Plant
- Corning Newton Cable Plant
- Cree LED- Durham
- Crown Equipment Corporation – Kinston
- Cygnus Technologies- Southport
- Dominion Energy North Carolina, Inc. (21) *
- Domtar Paper Company, LLC – Plymouth
- Eaton Corporation – Capital Production Operations
- Freudenberg Performance Materials – Durham
- General Electric Aviation – Durham Engine Facility
- HAECO Airframe Services – Greensboro
- Industrial Connections & Solutions LLC – Mebane
- International Paper – Riegelwood Mill
- Jowat Corporation- Archdale
- Kao Specialties Americas, LLC – High Point
- Kewaunee Scientific Corporation - Statesville
- Liberty Tire Recycling, LLC (2) *
- Linamar North Carolina - Asheville
- Martin Marietta (58) *
- MATREX – A Division of Leggett & Platt Components Company, Inc. - Northridge
- Mattamy Homes Raleigh Division
- 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
- The Plant- Pittsboro
- Reich LLC- Arden
- Revlon- Oxford
- Riverbend Malt House- Asheville
- RTI International- Durham
- Siemens Healthineers - Cary Campus
- Smithfield Fresh Meats Corp. – Clinton
- Tarboro Brewing Company
- The Hempville – Siler City
- Unilever - Raeford
- Universal Leaf North America U.S., Inc. (2) *
- Water and Sewer Authority of Cabarrus Co. (3) *

*Denotes multi-site Partners



N.C. Department of Environmental Quality

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Cover Photos: Photos from ESI member facility trainings and tours