ENVIRONMENTAL STEWARDSHIP INITIATIVE ANNUAL REPORT

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N.C. Department of Environmental Quality

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Cover photo: Employees of TE Connectivity – Burgess Rd in Greensboro receives Environmental Steward recognition

Executive Summary

The N.C. Department of Environmental Quality's Environmental Stewardship Initiative is a voluntary program that assists and encourages facilities to use pollution prevention 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.

Reductions and cost savings reported by members demonstrate real results and improvements to the environment and economy in North Carolina. The ESI model addresses environmental challenges through partnerships and a voluntary, comprehensive and innovative approach that benefits the environment and continued economic growth.

This approach combines recognition with assistance, training, mentoring and networking opportunities. A three-tiered membership structure of Environmental Partners, Rising Environmental Stewards and Environmental Stewards allows participation from a wide range 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 while higher tiers require organizations to be models of stewardship, as well as provide mentoring and educational resources to others in the program. In 2016, ESI had 138 member sites as shown in Figure 1 below.

2016 ESI Participants

- Partners (101)
- Rising Stewards (14)
- Stewards (23)
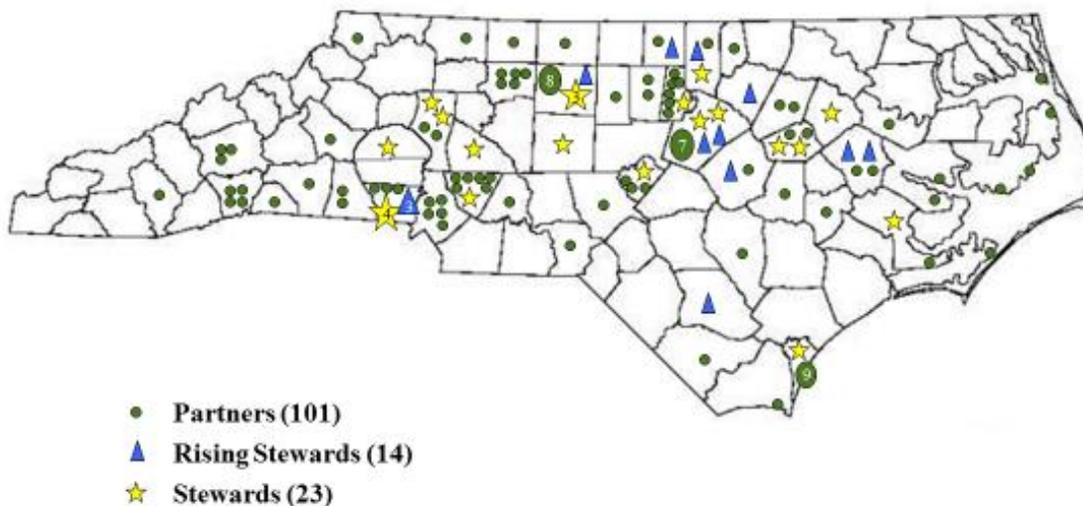
Figure 1: Map of 2016 ESI Participants

The ESI is open to any entity in North Carolina that commits to improving its environmental impact. (See the Membership section of this report for more information on eligibility and the three levels of the program). ESI members commit to developing environmental management systems and/or setting measurable goals that lead to continual improvement and stewardship. In 2016, ESI members set 272 goals covering multi-media regulated and non-regulated impacts including energy and water conservation. Eighty-six members reported progress toward these specific goals*. In 2016, ESI members reported the following reductions in environmental impact, shown in Table 1.

	2016 ESI Members Reported Reductions		
	Area	**2016**	**Unit**
Reductions	Air Emissions	2,973	Tons
	Greenhouse Gas Emissions*	3,562	Metric Tons CO2e
	Hazardous Waste	314	Tons
	Landfilled Waste	2,535	Tons
	Energy	291,695	mmBtu
	Water Use	1,239,254,545	Gallons
	Material Consumption	376	Tons
	Wastewater Pollutants	806	Tons
	Wastewater Volume	230,263,919	Gallons
Totals	Biomass Recovery**	93,888	Tons
	Total Recycled Volume	159,194	Tons
	Total Cost Savings	$ 8,221,014.67	
	*Indirect not reported in energy reductions		
	**Category created for compost/mulch related goals		

Table 1: 2016 ESI Members Reported Reductions

∗   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 totals. Therefore, the total reporting may be less than the total membership numbers.

2016 Progress Report

With the goal of supporting and encouraging superior environmental performance from North Carolina's business and industrial communities, the ESI assists organizations in implementing environmental management systems 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 command and control 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 impacts beyond measures required by any permit or rule in a way that will improve the environment, conserve natural resources, 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 all of the self-reported annual data collected by the ESI members in 2016. Starting in 2005, members began to include cost savings from implementing environmental improvements. Reporting on greenhouse gas emissions 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 diverting waste from landfills for a beneficial use. In 2012, the ESI was opened to organizations not regulated by DEQ permits in order 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 the site's environmental goals. Facilities were also allowed to report in either Fiscal Year or Calendar Year spans in order to ease the capture of data. It was requested that sites remain consistent from this point forward in the timeframe reported.

Achievements

Membership Growth

ESI membership has grown by almost six times its original membership, from 24 member sites in 2002 to 138 member sites in 2016. In 2004, a middle tier, the Rising Steward level, of membership was added (Figure 2). Beginning in 2005, Partner applicants were allowed to submit one application for multiple sites. Facilities of all sizes participate with the smallest having only one employee and

the largest employing more than 19,000 (Figure 3). Sixty-seven members are registered to ISO 14001 by third-party auditors and three have been deemed functionally equivalent by ESI staff. In 2016, one member facility closed, three chose to drop out of the program, and two were terminated for failure to submit the required ESI annual report. One partner site asked to be put on hold for a year due to changes in management structure. In 2016, 8 new sites joined the ESI and one Partner moved to the Rising Steward level while another Rising Steward was terminated (Figure 4).

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
■ Stewards	1	2	5	6	6	8	9	14	14	16	17	20	21	23	23
■ Rising Stewards	0	0	8	9	13	14	16	12	14	13	15	14	14	14	14
■ Partner Sites	23	39	45	57	81	84	92	91	95	99	97	100	106	97	101
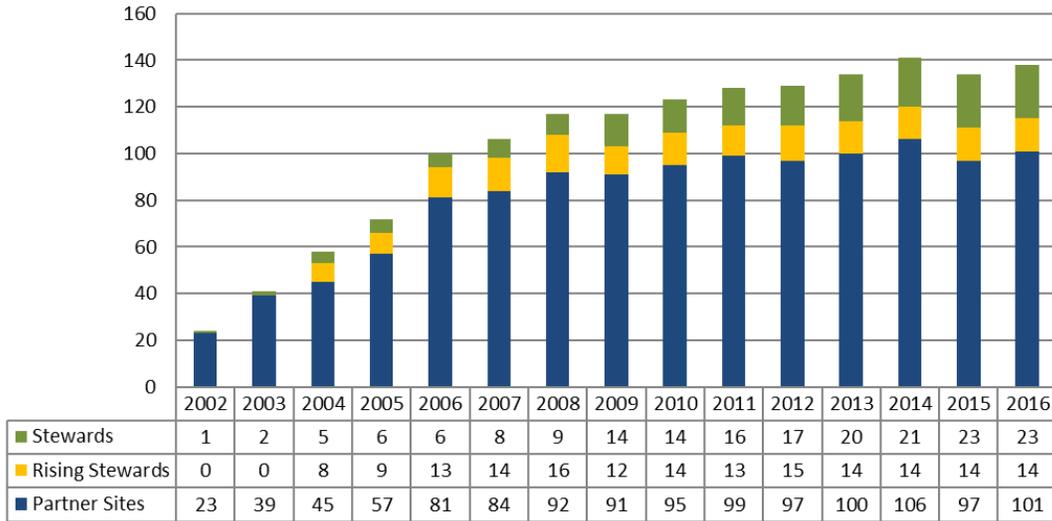
Figure 2: ESI Membership Growth, 2002-2016
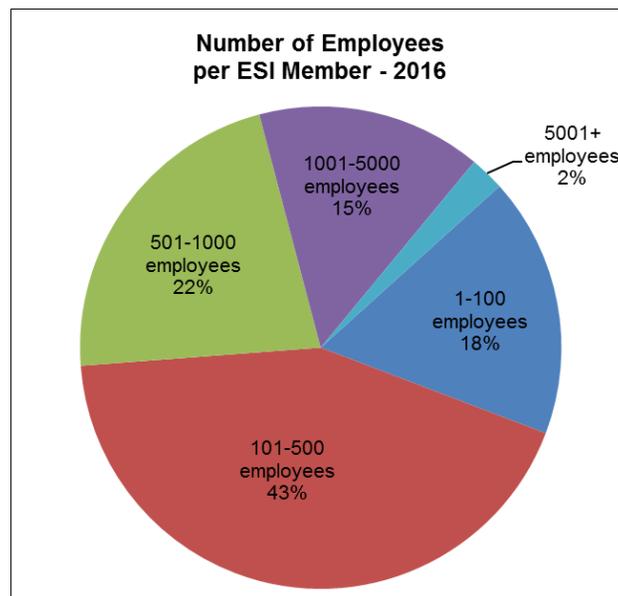
Figure 3: 2016 Graph of ESI Members by Number of Employees

2016 ESI New Members

Facility Name	ESI Level	City	County
CMI Plastics	P	Ayden	Pitt
CommScope - GSO	P	Greensboro	Guilford
Herbalife Innovation and Manufacturing Winston Salem	P	Winston Salem	Forsyth
Linamar Corp. North Carolina	P	Arden	Buncombe
North State Communication	P	High Point	Guilford
RJ Reynolds Tobacco	P	Tobaccoville	Forsyth
RJ Reynolds Tobacco - Shorefair	P	Tobaccoville	Forsyth
RJ Reynolds Tobacco - Tobacco Processing	P	Tobaccoville	Forsyth
SELEE Corporation	P	Hendersonville	Henderson
Uchiyama Manufacturing America LLC	P	Goldsboro	Wayne

Figure 4: 2016 New ESI Members

Member Goals

In 2016, ESI members reported on 272 goals that covered multi-media regulated and non-regulated impacts. As shown in Figure 5, the greatest number of goals set in 2016 were related to energy use reductions.

Figure 5: Graph of 2016 ESI Member Goals

Member Reductions

ESI members are required to report on performance toward environmental goals and reductions in environmental impacts. While there are 138 sites in the program, there are nine multi-site members reporting and new members must be in the program for at least one year prior to having their results included in the totals, therefore, 86 members reported progress toward these goals, resulting in the following environmental impact reductions (See Tables 2 through 5). All reduction data are self-reported by member facilities and are not verified by the N.C. Department of Environmental Quality. While reductions are only counted in the first year of their occurence, most are permanent reductions. Starting with the current data year, the format of the data requested from members was updated thereby increasing the data reported in some areas.

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
Totals	$ 69,369,352

Table 2: Total cost savings from environmental projects reported 2004-2016

*ESI members saved enough money on environmental projects in 2016 to pay the salary of **274 people** earning $30,000 per year.*

*ESI members saved enough energy in 2016 to power over **3,800** average North Carolina homes for a year.*

Year	Energy Reductions	GHG Emission Reductions *	Air Emission Reductions**
2004	11,736.51	NA	296.84
2005	48,451.00	NA	208.14
2006	123,821.27	NA	231.63
2007	28,527,501.45	9,370.00	243.08
2008	9,196,666.00	5,466.00	29.46
2009	1,549,174.68	64,223.74	155.41
2010	598,590.94	1,444.00	46.11
2011	1,626,533.99	18,677.40	4.27
2012	547,877.71	1,276.53	12.89
2013	8,643,348.46	2,041.13	72.75
2014	79,174.69	11,136.33	112.03
2015	22,289,628.84	818.13	76.28
2016	291,695.18	3,561.93	2,972.53
Total	73,534,200.71	118,015.19	4,461.41
Units	mmBtu	Metric Tons CO2e	Tons

*Indirect not reported in energy reductions
**Not including GHG emission reductions

Table 3: Energy and air emission reductions 2004-2016

Year	Water Use Reductions	Wastewater Volume Reductions	Wastewater Pollutant Reductions
2004	369,529,216	NA	379.40
2005	54,201,286	85,566,162	527.00
2006	591,356,273	106,092,200	399.95
2007	83,929,264	881,690	0.02
2008	183,587,248	202,701	104.61
2009	1,444,617,822	18,304,480	137.93
2010	41,895,325	20,449,660	3.60
2011	347,399,898	5,904,175	7,209.60
2012	455,656,908	10,862,255	229.88
2013	547,725,143	16,252	3,616.37
2014	2,105,928,788	7,381,860	11,139.25
2015	2,439,754,313	1,690,643	3,530.32
2016	1,239,254,545	230,263,919	806.05
Totals	**9,904,836,030**	**487,615,997**	**28,084**
Units	**Gallons**	**Gallons**	**Tons**

Table 4: Water and wastewater reductions 2004-2016

> *ESI members saved enough water in 2016 to fill more than **56,000** average-sized swimming pools*

Year	Hazardous Waste Reductions	Landfilled Waste Reductions	Material Consumption Reductions	Total Biosolids Volume	Total Biomass Recovered*	Total Recycled Volume
2004	12.31	996.93	508.73	NA	NA	10,015.11
2005	119.00	82,453.10	37,728.00	7,208,691	NA	8,047.48
2006	405.16	59,441.11	973.20	2,720,350	NA	12,594.15
2007	12.52	205,168.79	59.60	18,410,000	NA	23,986.29
2008	200.32	737.28	2,135.70	Not Reported	2,783.00	4,777.12
2009	10.10	4,072.40	639.46	Not Reported	258,635.00	34,233.11
2010	5.77	10,245.22	1,792.20	Not Reported	333,374.90	36,666.68
2011	14.90	3,754.55	115.37	Not Reported	346,436.60	29,901.00
2012	4.27	3,071.32	665.55	Not Reported	2,958.60	33,836.74
2013	37.32	1,604.67	24.32	Not Reported	3,122.40	46,349.80
2014	1,538.20	11,505.19	23,073.14	Not Reported	17.40	32,158.18
2015	283.53	42,737.20	589.07	Not Reported	54,359.91	42,150.28
2016	314.44	2,535.29	376.48	Not Reported	93,887.75	159,194.14
Totals	**2,957.82**	**428,323.05**	**68,680.82**	**28,339,041**	**1,095,575.56**	**473,910.08**
Units	**Tons**	**Tons**	**Tons**	**Gallons**	**Tons**	**Tons**

Table 5: Solid and hazardous waste reductions, material consumption reductions and beneficial use totals 2004-2016

Reducing energy usage, water usage and solid waste generation as well as recycling were the most common reduction goals of ESI members in 2016. Increasing biomass recovery and reducing waste sent to energy while maintaining zero waste sent to landfill were also reported.

- Seventy-five goals related to reducing consumption of energy (natural gas, propane and electricity) as well as fuel used in fleets (gasoline and diesel) were reported with a reduction of more than 291,600 mmBtus (million British Thermal Units, or BTUs). The majority of these reductions came from natural gas reductions in 2016. The reductions occurred even with the increased production that comes with the economy improving. Multiple boiler and HVAC replacement, tuning, and scheduling projects were credited with the majority of the natural gas reductions. Re-lamping projects and process efficiency improvements were the main contributors to the electrical reductions.
- Thirty-four goals related to water reduction were reported with reductions of over a billion gallons of water used, due mainly to improvements in maintenance; boiler use & steam vent scheduling; cooling tower replacements; water reuse projects; new chillers, heat exchangers and other equipment; and reducing backwash frequencies.
- Thirty-four goals related to solid waste, sixteen related to material consumption and fifteen related to recycling were reported with a reduction of more than 2,500 tons of waste going to the landfill and more than 159,000 tons of material being recycled. Also, fourteen sites reported having a zero-waste-to-landfill goal.
- Two goals related to biosolids recovery were reported, and additional data was provided on composting and other organic material recovery such that almost 94,000 tons of organic material was diverted from landfills into beneficial uses.
- Three goals to reduce the amount of waste sent to produce energy while maintaining zero waste sent to landfill as well as additional data provided without formal goals resulted in over 17,000 tons of material eliminated from the waste stream or sent to recycling or compost.

Facilities also reported reductions in air pollutants, hazardous waste, wastewater volume, wastewater pollutants and greenhouse gas emissions in 2016.

- Eight goals were reported on hazardous waste reduction that resulted in reducing hazardous waste by more than 314 tons. Elimination of a top coat painting process and reuse and reduction of solvents were the biggest contributors to this reduction.
- Ten goals were reported on air pollutant reductions of almost 3,000 tons.
- Five facilities reported wastewater volume reductions of more than 230 million gallons.
- Eight goals were related to wastewater effluent pollutant reductions of over 800 tons.
- Six facilities reported on reduction goals related to greenhouse gas emissions that were not included in the energy reductions. Additional information on GHG emissions is on the next page.

Members also reported on goals related to compliance, EMS development and improvement, wildlife and habitat improvements, and other environmentally related goals specific to individual sites.

Greenhouse Gas Reductions

Energy reductions can be converted to greenhouse gas reductions. Table 6 and Figure 6 show the breakdown of reductions in energy use and the subsequent metric tons of carbon dioxide prevented from entering the atmosphere. They also include the greenhouse gas reductions that were reported separate from energy reductions. The Simplified Greenhouse Gas Calculator tool provided by the EPA Climate Leaders program was used to convert the heating values to metric tons of carbon dioxide equivalent. This tool can be found under Pollution Prevention Tools and Calculators under the calculators tab here: http://www2.epa.gov/p2/pollution-prevention-tools-and-calculators.

2016 Reported Greenhouse Gas Reductions

	mmbtus	metric tons CO2e
Electricity	34.64	14734.96
Natural Gas	215577.63	11438.55
Diesel	14886.76	2956.86
Gasoline	335.97	1109.44
GHG (not reported in energy reductions)	na	361.69
Propane	5861.14	22.69
Residual Oil	14399.72	0.71
Distillate Oil	40544.55	2.70
Biofuel	330 gallons	2.70
E-85	54.76	0.71
Total Energy		30631.01

Table 6: Greenhouse Gas Reductions Reported for 2016

In 2016 ESI members reduced greenhouse gas emissions equivalent to over 6,470 passenger vehicles driven for one year!
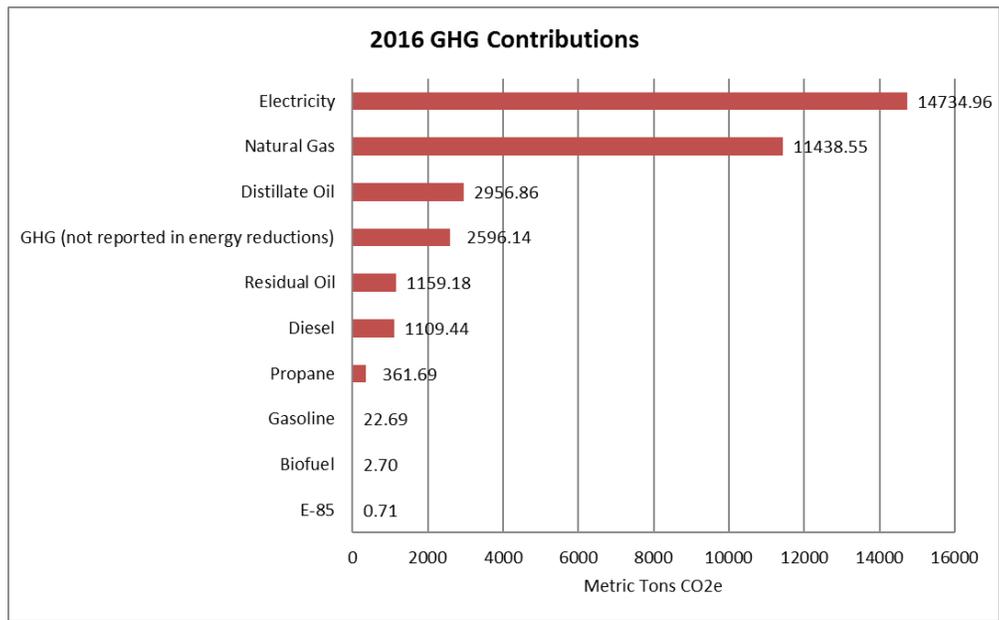
Figure 6: 2016 Greenhouse Gas Emission Reductions by Energy Source in Metric Tons CO2e

Cost Savings

More than $8 million in cost savings were reported by ESI members for projects conducted in 2016. Savings were reported by 27 facilities with most dollars saved through energy reduction projects. Savings were also reported from water and wastewater reductions as well as solid waste related reductions and recycling rebates. Figure 7 shows the breakdown of cost savings by goal type.

Cost Savings by Goal Type

Goal Type	Dollars Saved/Earned
Energy Usage Reduction	$7,111,357.00
Waste Reduction/Recycling Totals	$775,601.67
Water Usage Reductions	$334,056.00
Air Emission Reductions	$-
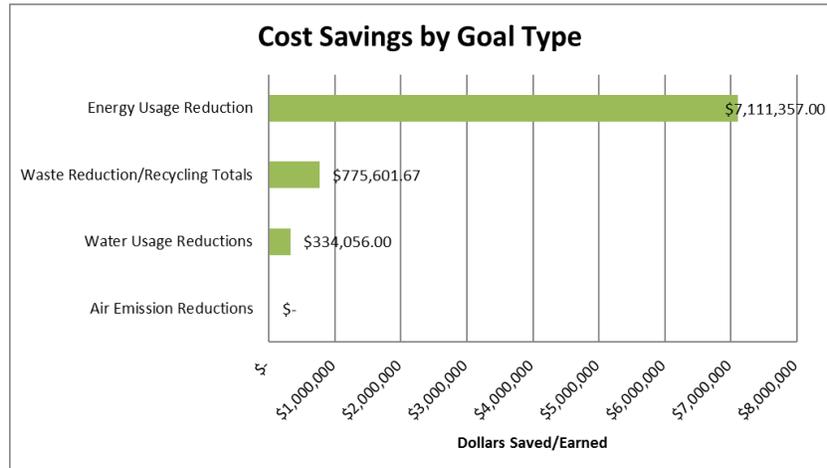
Figure 7: 2016 ESI Member Cost Savings by Goal Type

Community Involvement

In addition to reporting on goals, ESI members also submit information on their environmental involvement in the community. ESI Stewards are required to communicate with their communities about their environmental performance. Although only the Stewards are required to report these activities, other ESI members may choose to report their activities as well. For 2016, 283 activities were reported by 47 members. Figure 8 shows the breakdown of activities.

Community Involvement

Activity	Number of Events Reported
Open House/Appreciation/Earth Day/Employee Events/Community Events	55
Work with Local Schools or College Interns	37
Benchmarking/Mentoring	32
Participation on Community/State/Industry Boards	30
Internal Communications/Green Teams/etc	29
Presentations to Community Groups, ESI, Schools, etc	19
Facility Tours	17
Reporting (Including Websites)	14
Info Sent in Bill Stuffers/Brochures/Signage/etc	13
Wildlife/Habitat/Green Space Activities	11
Community Input (Meetings, Calls, Surveys)	10
Host Environmental Conference/Event/Training	7
Work with Local Emergency Responders	4
Advertising/Articles/TV Spots/Newsletters	4
Program Participation (Other Than ESI)	1

Figure 8: 2016 ESI Member Community Involvement

New Member Accomplishments

Members who have been in the ESI program for less than one year do not have any results included in the reduction sections of this report and are not required to report since baseline data is included in their applications. However, some choose to submit data to demonstrate their achievements. Seven new members chose to submit reports for 2016 with the following results (Table 7).

New Member Reductions		
Area	**2016**	**Unit**
Air Emissions	**Not reported**	**Tons**
Greenhouse Gas Emissions*	**543**	**Metric Tons CO2e**
Hazardous waste	**Not reported**	**Tons**
Landfilled waste	**1,558**	**Tons**
Energy	**Not reported**	**mmBtu**
Water Use	**51,791,917**	**Gallons**
Material Consumption	**Not reported**	**Tons**
Wastewater Pollutants	**Not reported**	**Tons**
Wastewater volume Reduction	**1,101,100**	**Gallons**
Biomass Recovery	**878**	**Tons**
Total Recycled Volume	**10,950**	**Tons**
Total Cost Savings	**$1,487,452.00**	
*Indirect not reported in energy reductions		

Table 7:   2016 Reductions Reported by New Members

Program Updates

The ESI operates on a limited budget that is funded by a federal grant and appropriations from the N.C. General Assembly. From 2002 through 2005, 560 actions were recorded by employees with the N.C. Department of Environmental Quality related to EMS development and assistance. These activities included site visits, presentations, meetings and other technical assistance. See Figure 9 below for a breakdown of 2006 through 2016 actions. Outreach includes training classes provided by ESI staff, networking events, speaking engagements, booths at various events and other program marketing activities. Site visits are made specifically to ESI or potential ESI member sites. Assistance provided includes all other information provided through email and phone calls, including the electronic newsletter to our ESI members.

EMS/ESI Actions Recorded

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ESI Site Visits	45	42	57	73	96	32	29	28	48	44	58
ESI Outreach	15	43	42	51	65	36	117	96	71	48	49
ESI Assistance Provided	55	34	93	88	47	44	155	145	116	442	656
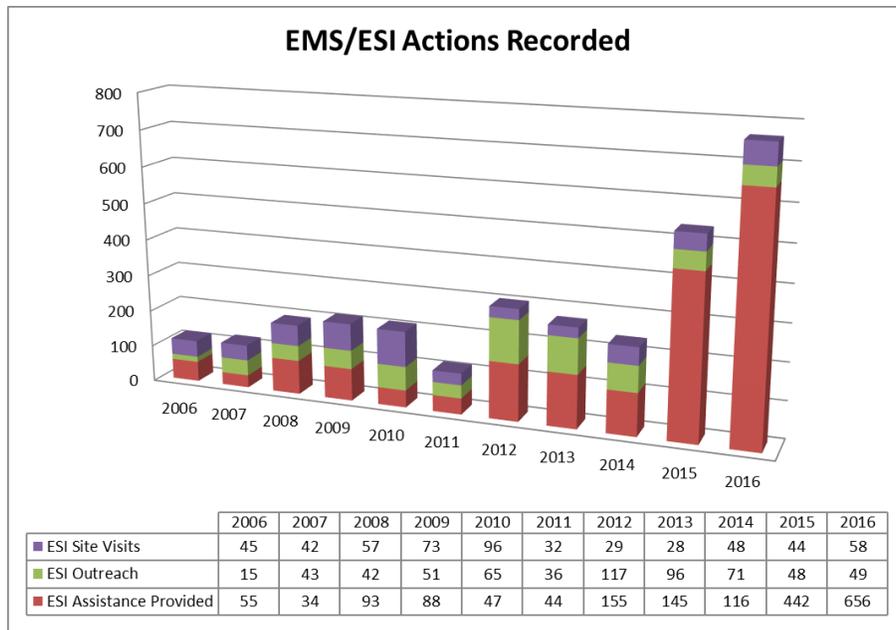
Figure 9: ESI Actions 2006-2016

In 2016, ESI Staff:

- Provided on-site ISO 14001:2004 internal auditor training at Cape Fear Public Utility Authority.

- Held ceremonies at the two newest Environmental Stewards: Stanley Black & Decker – Kannapolis Distribution Center & TE Connectivity – Burgess Rd, Greensboro.

- Performed a verification visit at one Rising Steward applicant facility.

- Participated in the planning and execution of North Carolina's second Manufacturer's Zero Waste Conference. This was a two day event held in conjunction with the Carolina Recycling Association annual conference in Wilmington. Multiple ESI members as well as others who have either achieved or are working toward sending zero waste to landfill spoke. ESI and WRP staff created a Zero Waste 101 training that was open to and attended by many from both the MFZW and CRA Conferences. A 'flea market' of hard-to-home materials was also held where organizations brought samples of their difficult materials and both recycling/composting vendors as well as other organizations were able to speak to them about possible solutions.

- Received certified Lead Auditor training on the new ISO 14001:2015 standard.

- Performed five-year renewal verification visits at three Steward and one Rising Steward sites.

- Presented at four external meetings about ESI.

- Hosted booths at the Statewide Safety Conference, NCMA EEHS School, and Carolina Star Annual Conference.

- Held the annual ESI Members Meeting at the N.C. Zoo, where members networked with each other and heard from other members and DEACS staff on various environmental topics.

- Organized and facilitiated the ESI Networking and Training Event at the N.C. Zoo, which was held the day after the Members Meeting. This training included topics ranging from Zero Waste 101, setting smart environmental goals, ESI applications and reports, and summary of changes in the new ISO 14001:2015 standard.

- Held two Advisory Board meetings to review and make recommendation to the DEQ Secretary on program changes and Steward and Rising Steward applications.

- Attended and presented at the NCMA Energy, Environment, Health, and Safety School; a two-day training event with multiple tracks covering many environmental topics from compliance to sustainability.

- Developed a series of six training modules on environmental management systems specifically based on the updated ISO 14001:2015 standard. The first five were held as a pilot at Cape Fear Public Utility Authority in Wilmington over the course of a week. CFPUA provided feedback which was incorporated into the modules. The modules were then scheduled and open to the entire membership, one per month, with three occuring before the end of the year.

- Created and held a training at TE Connectivity on Life Cycle Perspective in ISO 14001:2015.

- Participated in the EPA Pollution Prevention Roundtable and the EPA Region 4 P2 Roundtable in Pennsylvania.

- Arranged and participated in a site tour and networking exchange between Eaton in Youngsville and Dell in Apex. Eaton toured Dell to learn about their environmental program then hosted Dell on a similar tour. Both organizations had very positive feedback about what they learned from each other. Dell shared their experience at the 2017 ESI Members Meeting.

- Planned and participated in a networking event in Kinston with our partners at the Economic Development Partnership of North Carolina. This event discussed the assistance available through the Division of Envirnomental Assistance and Customer Service, including participation in the ESI, with local organizations.

- Assisted CFPUA with a dumpster dive/waste sort to help them divert more materials from the landfill.

- Performed one EMS Gap Analysis and three assessments to determine the functional equivalency of the sites' EMS with the ISO 14001:2004 standard.

- Acted as the facilitator for Caterpillar – Sanford as they planned their environmental goals and overall EHS vision for the coming year.

- Performed visits to fourteen potential ESI members and nine additional coaching visits to ESI members.

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 advisory board meets to review applications and site visit reports twice per year. While applications at the higher levels are in process, the applicants are processed as Partners in order to begin receiving benefits such as newsletters and training notifications.

Following receipt of an application, an environmental compliance check is completed 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 10).
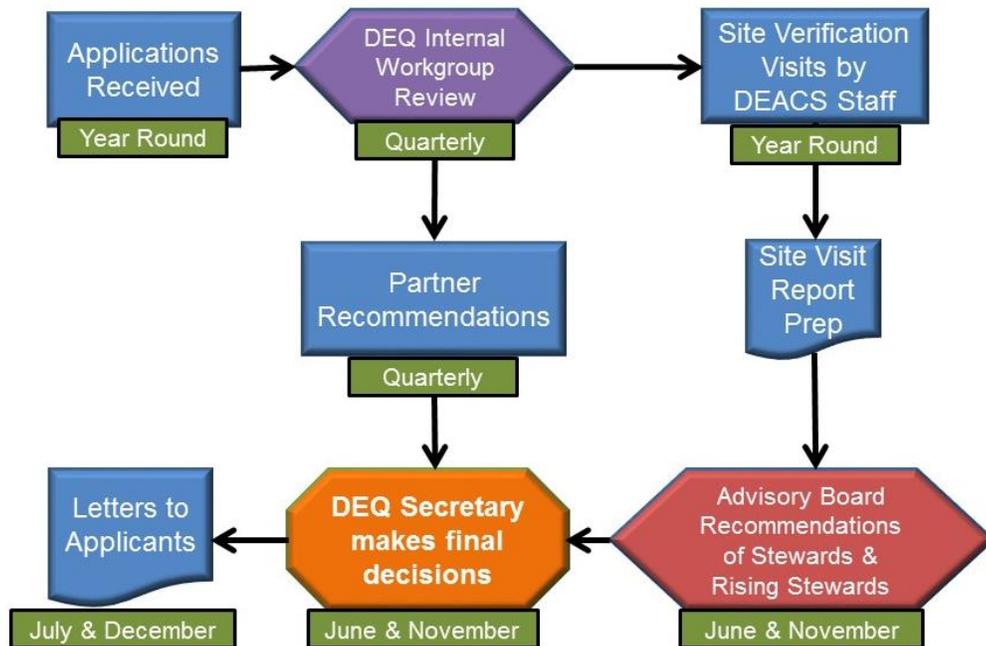
Figure 10: Application Process Diagram

The DEQ Internal Workgroup reviews all Partner applications and makes a recommendation to the DEQ secretary regarding acceptance into the program. The internal workgroup reviews Rising Steward and Steward applications to provide regulatory and compliance information to the ESI Advisory Board. The internal workgroup is comprised of the following representatives (Table 8) from regulatory divisions within DEQ:

2016 DEQ Internal Workgroup Members

Name	Division
Bernard McKee	DAQ
Vanessa Manuel	DWR
David Lee	DEACS
John Evans	Chief Deputy Secretary
Shawn Mckee	DWM
Toby Vinson	DEMLR

Table 8: 2016 DEQ Internal Workgroup Members

Following the compliance review by the Internal Workgroup, the Rising Steward and Steward applications are presented to the ESI Advisory Board.

The Department of Environmental Quality's 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, 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 every four years and is capped at 15 members. The 2016 board is listed in Table 9 below.

2016 Advisory Board Members

Name	Organization	Representation
Daniel Bagnell	The Scrap Exchange	Small Business
Aubrey Meadows	Engineered Sintered Components	Steward - Large Business
John Evans	N.C. DEQ	N.C. DEQ - Chair
Tausha Fanslau	Bridgestone Americas Tire Operations	Steward – Large Business
Kimberly Killian	GKN Sanford Precision Forming	Steward – At Large
Mary Joan Pugh	N.C. Zoological Park	Steward – State/Federal Facility
David Shellenbarger	City of Gastonia	Steward - Local Government
Steve Street	Hickory Manufacturing Technology Center – Corning Cable Systems	Steward – At Large
Jane Woodall	Dell	Steward - Large Business

Table 9: 2016 Advisory Board Members

Rising Steward and Steward applicants receive an on-site verification visit by DEQ staff to ensure the Environmental Management System 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 collated into a report that is 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 recommendations made by the advisory board and makes the final decisions. Organizations accepted into the program are usually announced in December and June.

Membership

Using pollution prevention and other innovative approaches, this voluntary program offers benefits and recongnition to members for developing and implementing 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 participate in the ESI. This includes manufacturers, businesses, agribusiness, service providers, government agencies, 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 to a wider range of interested organizations while still maintaining the integrity of the program at the Steward and Rising Steward levels.

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. In 2012, Partners were given the option to implement measurable goals in lieu of developing an environmental management system. Additionally, Partners are no longer required to be regulated by DEQ to apply. Partner applications may include multiple sites. By year end of 2016, the program had 101 Environmental Partner sites.

To be considered at the Partner level, the following criteria must be met:

- Demonstrate 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 ISO 14001 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 of releases, 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 fourteen Rising Environmental Stewards by Dec. 31, 2016.

Rising Environmental Steward applicants must meet all Partner criteria and the following:

- Set measureable environmental performance goals that are adopted into the framework of the EMS, and must demonstrate improvements to performance.
- Demonstrate a mature EMS based on ISO 14001 or a functionally equivalent model. The EMS for the site must be ISO 14001 third-party certified or be reviewed on-site and deemed functionally equivalent by DEQ staff.
- Have current or past 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. By year end of 2016, the program had 23 Environmental Stewards.

Environmental Steward applicants must meet all Partner and Rising Steward criteria and 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 environmental management system 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 participants 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 training;
- Networking opportunities;
- Recognition of program participation;
- Use of a program logo for the achieved level;
- Coverage by U.S. EPA and DEQ self-reporting policies;
- A single point of contact within DEQ; and
- Other benefits as deemed appropriate by the secretary based on recommendations from the advisory board.

Partners and Rising Stewards have the additional benefit of access to Stewards as mentors where appropriate. Environmental Stewards have the following additional benefits:

- Formal public recognition from the secretary of DEQ that may include an on-site award ceremony, 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 members meeting, 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 achievement. Environmental Stewards accepted into the ESI receive a personal letter signed by the DEQ secretary. The secretary also presents Stewards with a large plaque during an on-site ceremony. DEQ highlights members' participation in press releases, the ESI website, newsletters and/or social media posts.

Conclusions

The results from the ESI annual report show that an approach that exceeds regulatory requirements can lead to positive impacts for regulated pollutants and non-regulated environmental and economic factors. This DEQ program is unique in its ability to collect environmental data across media, including monetary savings associated with the environmental improvements made. These savings to the financial and environmental bottom line help North Carolina organizations to be resilient and promote economic growth. The Environmental Stewardship Initiative encourages North Carolina organizations to share their environmental success stories with each other across sectors in order to provide a better environment for everyone in the state.

2016 ESI Members

Stewards:

- ASMO North Carolina Inc. – Statesville
- Bridgestone Americas Tire Operations LLC – Wilson
- City of Gastonia Crowders Creek Resource Recovery Facility
- City of Gastonia Long Creek Resource Recovery Facility
- City of Gastonia Water Treatment Plant
- Corning Inc. – Wilmington
- Daimler Trucks North America LLC – Cleveland
- Dell – Apex
- Engineered Sintered Components – Troutman
- Firestone Fibers & Textiles – Kings Mountain
- Fleet Readiness Center East – Cherry Point
- GKN Driveline – Sanford Precision Forming Facility
- Hickory Manufacturing and Technology Center, Corning Optical Communications
- John Deere Turf Care – Fuquay-Varina
- Keihin Carolina System Technology, LLC – Tarboro
- N.C. Zoological Park – Asheboro
- Santa Fe Natural Tobacco Knotts Grove Campus – Oxford
- Smithfield Packing Company – Wilson
- Stanley, Black & Decker – Kannapolis
- TE Connectivity – Pegg Rd – Greensboro
- TE Connectivity – Burgess Rd – Greensboro
- Thomas Built Buses, Inc. – High Point
- U.S. Environmental Protection Agency – RTP

Rising Stewards:

- Ajinomoto North America, Inc. – Raleigh
- ASMO North America Inc. – Greenville
- Bridgestone-Bandag, LLC – Oxford
- City of Gastonia Resource Recovery Farm
- Daimler Trucks North America LLC – Gastonia
- Eaton Corporation, Raleigh Production Operations
- Eaton Corporation, Youngsville Plant Operations
- Firestone Fibers & Textiles – Gastonia
- GKN Driveline – Roxboro
- GKN Sinter Metals – Conover
- Grifols Therapeutics – Clayton
- Hyster-Yale Group – Greenville
- Smithfield Farmland – Tar Heel Facility
- Qorvo, Inc – Greensboro

Partners:

- **Alliance One International Inc. (5)***
- **American Emergency Vehicles**
- **American Snuff Company / Taylor Brothers**
- **Baker Furniture –Hildebran**
- **Baker Furniture – High Point**
- **Borg Warner Thermal Systems – Fletcher**
- **BorgWarner Turbo Systems – Arden**
- **Burt's Bees Inc. – Morrisville**
- **Cape Fear Public Utility Authority (9)***
- **Cascades Tissue Group – North Carolina Inc. – Rockingham**
- **Caterpillar BCP – Sanford**
- **Caterpillar – Clayton**
- **Charlotte-Mecklenburg School System**
- **City of Gastonia Public Works Division**
- **City of Hendersonville Water Treatment Plant**
- **City of Shelby First Broad River Wastewater Treatment Plant**
- **City of Shelby Water Plant**
- **CMI Plastics**
- **CommScope – Greensboro**
- **Crown Equipment – Kinston**
- **Daimler Trucks North America LLC – Mt. Holly**
- **Domtar Paper Company, LLC – Plymouth**
- **Eaton Corporation CPO – Raleigh**
- **Freudenburg Nonwovens – Durham**
- **General Electric Company – Aviation – RTP**
- **General Electric Company – Industrial Solutions – Mebane**
- **Haeco Airframe Services – Greensboro**
- **Herbalife Innovation and Manufacturing – Winston Salem**
- **High Point Furniture (2)***
- **International Paper – Riegelwood Mill**
- **Iredell Fiber, Div. of Leggett & Platt – Statesville**
- **Kao Specialties Americas, LLC – High Point**
- **Leggett & Platt ON64 – High Point**
- **Liberty Tire Recycling, LLC (2)***
- **Linamar Corporation**
- **Mecklenburg County Solid Waste Operations- Charlotte (4)***
- **Michelin Aircraft Tire Co. – Norwood**
- **MVP Group International – Elkin**
- **NIEHS – RTP**
- **N.C. DOT Ferry Division (9)***
- **North State Communications – High Point**
- **Pfizer – Sanford**
- **PSNC Energy Carolinas Inc. (21)***
- **RJ Reynolds Tobacco Company (3)***
- **SELEE Corporation – Hendersonville**
- **Siemens Medical Solutions, CSG Service Headquarters – Cary**
- **Smithfield Clinton Plant**
- **Uchiyama Manufacturing America LLC – Goldsboro**
- **Universal Leaf North America US Inc. (2)***
- **Water and Sewer Authority of Cabarrus County (3)***

*Denotes multi-site partners

Member list for CY2016