

**Environmental Stewardship Initiative  
2005 Annual Report**

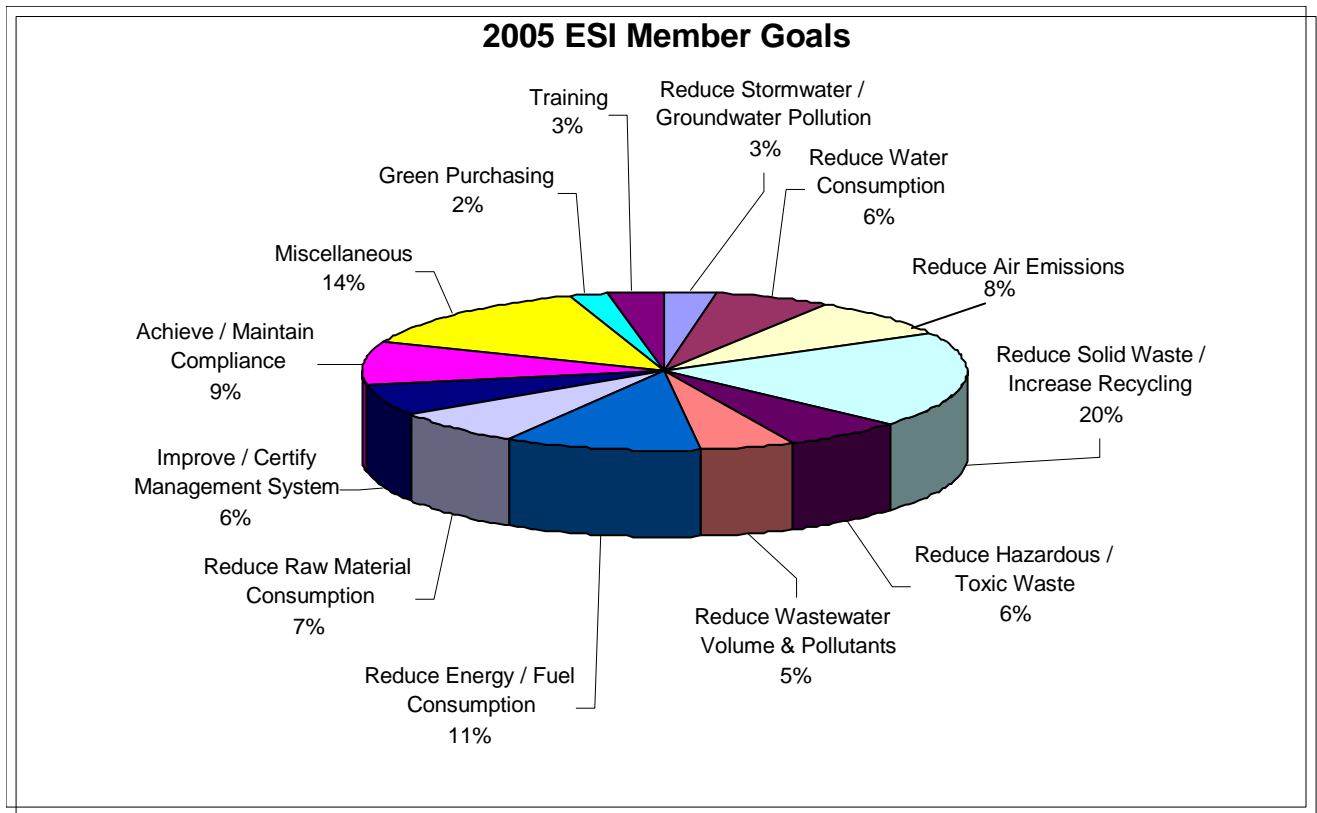


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## Executive Summary

The North Carolina Department of Environment and Natural Resources' 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. ESI requires the development of environmental management systems with established environmental performance goals to drive this effort. By December of 2005, ESI had 65 members representing 95 facilities that had established a total of 223 environmental goals addressing issues illustrated in the chart below.



ESI encourages greater reductions in environmental impacts with existing and new members through the establishment of performance-based environmental goals that meet or go beyond regulatory requirements. Of the members in the program prior to 2005, 46 reported the following reductions in impacts to the environment<sup>1</sup>:

<b>2005 ESI Members Reported Reductions</b>		
<b>Air Emissions</b>	<b>208</b>	<b>Tons</b>
<b>Hazardous Waste</b>	<b>119</b>	<b>Tons</b>
<b>Landfilled Waste</b>	<b>82,453.1</b>	<b>Tons</b>
<b>Energy</b>	<b>48,451</b>	<b>Mbtu</b>
<b>Water Use</b>	<b>54,201,286</b>	<b>Gallons</b>
<b>Material Consumption</b>	<b>37,728</b>	<b>Tons</b>

<sup>1</sup> Members report reductions after being in the program one full year.

<b>Wastewater Pollutants</b>	<b>527</b>	<b>Tons</b>
<b>Wastewater Volume Reduction</b>	<b>85,566,162</b>	<b>Gallons</b>
<b>Biosolids Volume</b>	<b>7,208,691</b>	<b>Gallons</b>
<b>Total Recycled Volume in 2005</b>	<b>8,047</b>	<b>Tons</b>
<b>Total Cost Savings</b>	<b>\$12,721,772.00</b>	

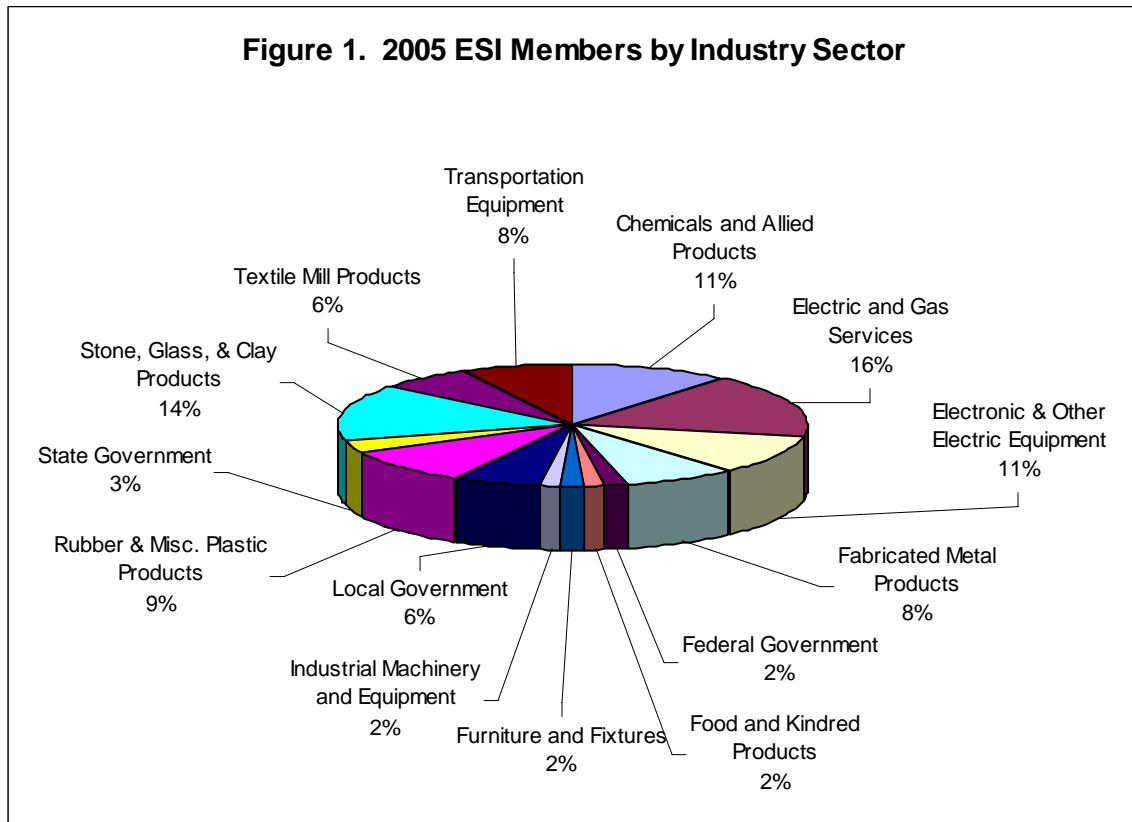


# 2005 Progress Report

The North Carolina Department of Environment and Natural Resources' Environmental Stewardship Initiative supports and encourages superior environmental performance by North Carolina's regulated community. Utilizing pollution prevention and other innovative approaches, this voluntary effort offers benefits to members for developing and implementing programs to meet and go beyond regulatory requirements. ESI seeks to reduce an organization's impacts beyond measures required by any permit or rule to improve the environment, conserve natural resources and gain long-term economic benefits.

## Program Structure, Criteria and Member Status

Any regulated company or organization that operates one or more facilities in North Carolina and whose activities impact the environment is eligible to participate in ESI. This includes, but is not limited to, manufacturers, businesses, agribusiness, service providers, government agencies, schools and nonprofit organizations. Members can enter the program at one of three levels<sup>2</sup>: Environmental Partner, Rising Environmental Steward or Environmental Steward. Figure 1 shows the distribution of the 2005 ESI participants by industry sector.



<sup>2</sup> Organizations with multiple sites may only apply at the Partner level.

## **Environmental 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 December 2005, the program had 50 Environmental Partners. Partners must demonstrate a commitment to maintain compliance, commit to establishing an environmental management system and set environmental performance goals. To be considered at the Partner level the following criteria must be met:

- Not be under any environmental criminal indictment or conviction.
- 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.
- Commit to developing, implementing and maintaining an EMS based on ISO 14001 or a functionally equivalent model.
- 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.

## **Rising Environmental Steward**

The "Rising Environmental Steward" level is designed for those organizations that have a mature environmental management program. By December 2005, the program had nine Rising Environmental Stewards. Rising Stewards must demonstrate a mature EMS, set measurable environmental performance goals and demonstrate a commitment to go beyond compliance. To be considered for the Rising Environmental Steward level the following criteria must be in place:

- Set site-specific measurable environmental performance goals that must be adopted into the frame work of the EMS, include pollution prevention and/or process efficiency improvement activities, and demonstrate a commitment to go beyond compliance. Goals should demonstrate annual improvements to performance, be appropriate to the nature, scale and environmental impact of the organization and result in reductions of an organization's environmental impact.
- 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 by DENR staff.
- Demonstrate commitment to meet and go beyond compliance. Applicants will submit information on any environmental violations or reportable non-compliance for review on a case-by-case basis by the Advisory Workgroup. The Advisory Workgroup will use the program's significant violation definition as a guideline.
- 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.

## **Environmental Steward**

The “Environmental Steward” level is for those organizations that display a commitment to exemplary environmental performance beyond what is required by law. By December 2005, the program had six Environmental Stewards. Environmental Stewards must demonstrate a mature EMS, aggressive environmental performance goals, a commitment to meet and go beyond compliance, a process for communicating with the local community about program activities and progress toward performance goals, and that the EMS is integrated into the core business functions.

For consideration at the Environmental Steward level, the following criteria must be met:

- Set site-specific aggressive environmental performance goals that must be adopted into the frame work of the EMS, include pollution prevention and/or process efficiency improvement activities, and demonstrate a commitment to go beyond compliance. Goals should demonstrate annual improvements to performance, be appropriate to the nature, scale and environmental impact of the organization and result in reductions of an organization’s environmental impact.
- 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 by DENR staff.
- Demonstrate commitment to meet and go beyond compliance. Applicants will submit information on any environmental violations or reportable non-compliance for review on a case-by-case basis by the Advisory Workgroup. The Advisory Workgroup will use the program’s significant violation definition as a guideline.
- Have a process for communication with the local community on program activities and progress toward performance goals.
- Demonstrate how the EMS is integrated into core business functions.
- 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.
- Agree to be a mentor to Environmental Partner and Rising Environmental Steward participants.

Organizations at each level are accepted into the program for a period of five years. Rising Stewards and Stewards are assessed after three years on their progress toward meeting the organization’s overall program goals. An organization may apply for renewal after five years. Partner participants are reviewed annually to assess progress made toward environmental performance goals and overall program goals. This annual report is one of the tools used to determine the progress of each facility toward their goals as stated in their applications.

## **Member Listing (as of 12/2005)**

### **Environmental Stewards**

ASMO North Carolina Inc., Statesville  
City of Gastonia - Long Creek Resource Recovery Facility  
GKN Driveline Sanford Precision Forming Facility  
Corning Inc. - Wilmington Optical Fiber Facility  
Naval Air Depot, Cherry Point  
Novozymes North America Inc., Franklinton

### **Rising Environmental Stewards**

City of Gastonia - Crowders Creek Resource Recovery Facility  
City of Gastonia -Wastewater Treatment Division Biosolids Program  
GKN Driveline - Sanford Facility  
GKN Driveline - Roxboro Facility  
NACCO Materials Handling Group, Greenville  
N.C. Zoological Park - Horticulture Section, Asheboro  
Roxboro Steam Electric Plant  
Smithfield Packing Co., Wilson  
Smithfield Packing Company, Inc., Tar Heel

### **Environmental Partners**

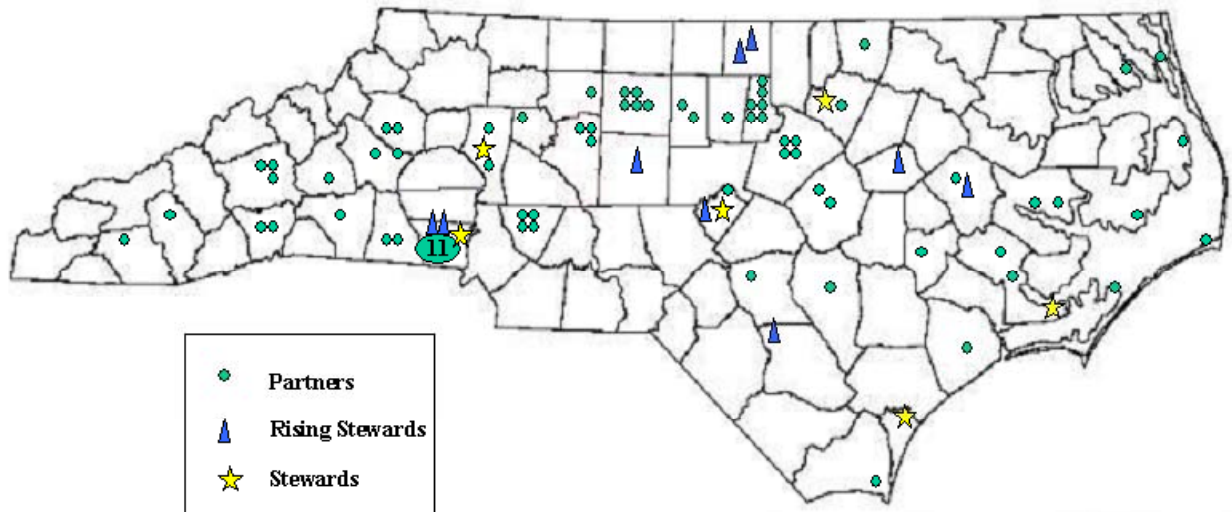
American & Efird Inc. – Nelson 02 Plant, Lenoir	Engineered Sintered Components Company, Troutman
American & Efird Inc. – Rush Plant 03, Mount Holly	Flextronics International NC Inc., Youngsville
American & Efird Inc. – Filament Plant 05, Mount Holly	Fort Bragg – 18th Airborne Corps, Fort Bragg
American & Efird Inc. – Rush Plant 09, Mount Holly	Freudenberg Nonwovens - Durham
American & Efird Inc. – Nelson 12 Plant, Lenoir	General Electric Co. Consumer and Industrial, Mebane
American & Efird Inc. – Dyeing & Finishing Plant 15, Mount Holly	Highland Industries Inc. – Kernersville Finishing Plant, Kernersville
American & Efird Inc. – Gastonia Plant 20, Gastonia	Hunter Farms Dairy, High Point
American & Efird Inc. – Depot 21, Gastonia	Kao Specialties Americas LLC – High Point
American & Efird Inc. – Gastonia Plant 56, Gastonia	Hexion Chemical, Morganton
American & Efird Inc. – Gastonia Plant 01, Gastonia	Lexington Home Brands - Plant 2, Linwood
Baker Furniture – High Point Facility, High Point	Lexington Home Brands - Plant 5, Lexington
Baker Furniture – Hildebran Facility, Hildebran	Lexington Home Brands - Plant 10, Hildebran
Baker Furniture – Mocksville Facility, Mocksville	NCDOT – Ferry Division
Baxter Healthcare - Marion	National Institute of Environmental Health Sciences - RTP
Borg Warner Emissions/Thermal Systems, Fletcher	N.C. Asahi, Inc. - Greenville
BSH Home Appliances Corp., New Bern	Premium Standard Farms - Clinton Plant
Camp Lejeune Marine Corps Base, Camp Lejeune	PSNC Energy
Caterpillar – Henderson	RF Micro Devices – Greensboro
City of Gastonia Public Works and Utilities Department	Rocky River Regional Wastewater Treatment Plant
City of Hendersonville Water Treatment Plant	Smithfield Foods, Benson
City of Shelby First Broad River WWTP	Smithfield Foods, Clayton
City of Shelby Water Treatment Plant	Smithfield Packing Company, Kinston
Duke University, Durham	Stockhausen Inc., Greensboro

U.S. Coast Guard - Support Center, Elizabeth City  
Warren Wilson College - Facilities Management and Technical  
Services, Swannanoa

Water and Sewer Authority of Cabarrus County (Interceptor  
System)  
WSACC – Mt. Pleasant Water Treatment Facility

Figure 2 provides a map with the location of ESI members.

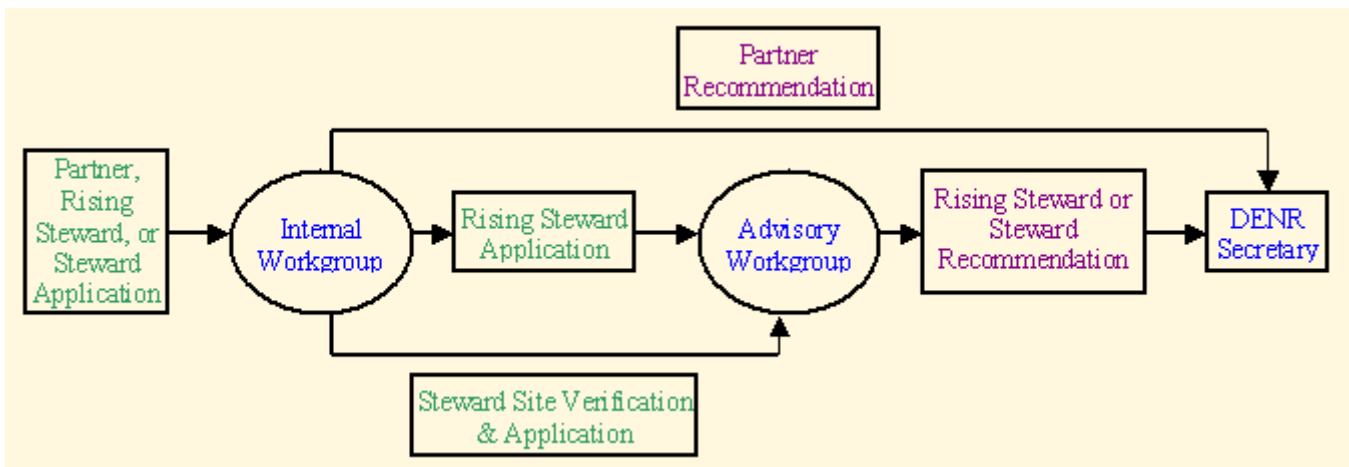
Figure 2. ESI Members (12/2005)



### Application and Review Process

Partner applications are accepted year-round and reviewed monthly. Steward and Rising Steward applications are accepted only during a two-month period starting in March. Figure 3 illustrates the application process.

Figure 3. ESI Application Process



Following receipt of an application an environmental compliance check is completed to determine if the facility has been under environmental criminal indictment or been convicted within the last two years, as well as identify any compliance issues. The DENR Internal Workgroup, listed in Table 1, reviews all Partner applications and makes a recommendation to the Secretary regarding acceptance into the program. The internal workgroup also reviews Rising Steward and Steward applications to provide regulatory and compliance information to the ESI Advisory Workgroup. The internal workgroup comprises representatives from regulatory divisions within DENR.

**Table 1. 2005 DENR Internal Workgroup Members**

Dale Dusenbury	Radiation Protection
David Vogel	Division of Soil and Water Conservation
Edythe McKinney	Customer Service
James Southerland	Division of Air Quality
Jimmy Carter (Chair)	DENR Asst. Sec. for Information Systems/Chief Information Officer
John Southerland	Division of Water Resources
Linda Culpepper	Division of Waste Management
Sonya Avant	Division of Land Resources
Tom Belnick	Division of Water Quality

Following review by the Internal Workgroup the Rising Steward and Steward applications will be presented to the ESI Advisory Workgroup at its fall meeting. Steward applicants also receive an intensive on-site verification visit prior to the fall meeting to ensure the EMS is functioning and to gather observations supporting the organization's application. All information obtained through the application and the onsite-verification visit is documented and collated into a report that is given to the Advisory Workgroup for review. At the discretion of the Secretary, organizations accepted into the program will be announced by December.

**Advisory Workgroup**

DENR Secretary Bill Ross established an Advisory Workgroup to oversee program development and implementation. Membership consists of a balanced group of manufacturers, industries, industry trade groups, environmental and citizen non-governmental organizations, small businesses, representatives of city and county government, agribusiness, DENR representatives, and/or others as deemed appropriate. DENR Assistant Secretary, Jimmy Carter, chairs the workgroup. Whenever possible, Environmental Stewards will be given priority for membership. Membership on the Advisory Workgroup rotates every three years and is capped at fifteen members. The 2005 members are listed in Table 2.

**Table 2. 2005 ESI Advisory Workgroup Members**

Jimmy Carter (chair)	Dept. of Environment and Natural Resources	Raleigh
Dr. Richard Andrews	UNC-Chapel Hill	Chapel Hill
Katy Ansardi	Sustainable North Carolina	Raleigh
Kristin Beck	Progress Energy	Raleigh
Jack Blackmer	Novozymes North America Inc.	Franklinton
Scott Brewer	MCB Camp Lejeune	Camp Lejeune

Eric Henry	T.S. Designs	Burlington
Preston Howard Jr., P.E.	MCIC	Raleigh
Matt Jordan	City of Gastonia	Gastonia
Jane Preyer	Environmental Defense	Raleigh
Danny Yount	ASMO North America	Statesville

The DENR Internal Workgroup provides technical support to the advisory workgroup.

### **Membership Benefits**

All levels of ESI members are eligible for the following:

- Technical assistance on developing an EMS, pollution prevention approaches, environmental management and treatment technologies, and achieving and maintaining compliance with local, state and federal regulations;
- Specialized training;
- Networking opportunities;
- Recognition of program participation;
- Coverage by U.S. EPA and DENR self-reporting policies;
- A coach and/or single point of contact within DENR; and
- Other benefits as deemed appropriate by the Secretary based on recommendations from the Advisory Group.

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

- Formal public recognition from the governor and the secretary of DENR that may include use of a program logo, an on-site award ceremony, public announcements and press releases.
- Participation in the Environmental Stewardship Forum chaired by the secretary and including key department policy makers.
- Priority membership on the ESI Advisory Workgroup.
- Established time frames for permit decisions. This does not change existing public comment opportunities.
- Stewards who have been in the program for at least one year can seek support from DENR to implement regulatory innovations that follow principles outlined in the Joint EPA/State Agreement to Pursue Regulatory Innovation.

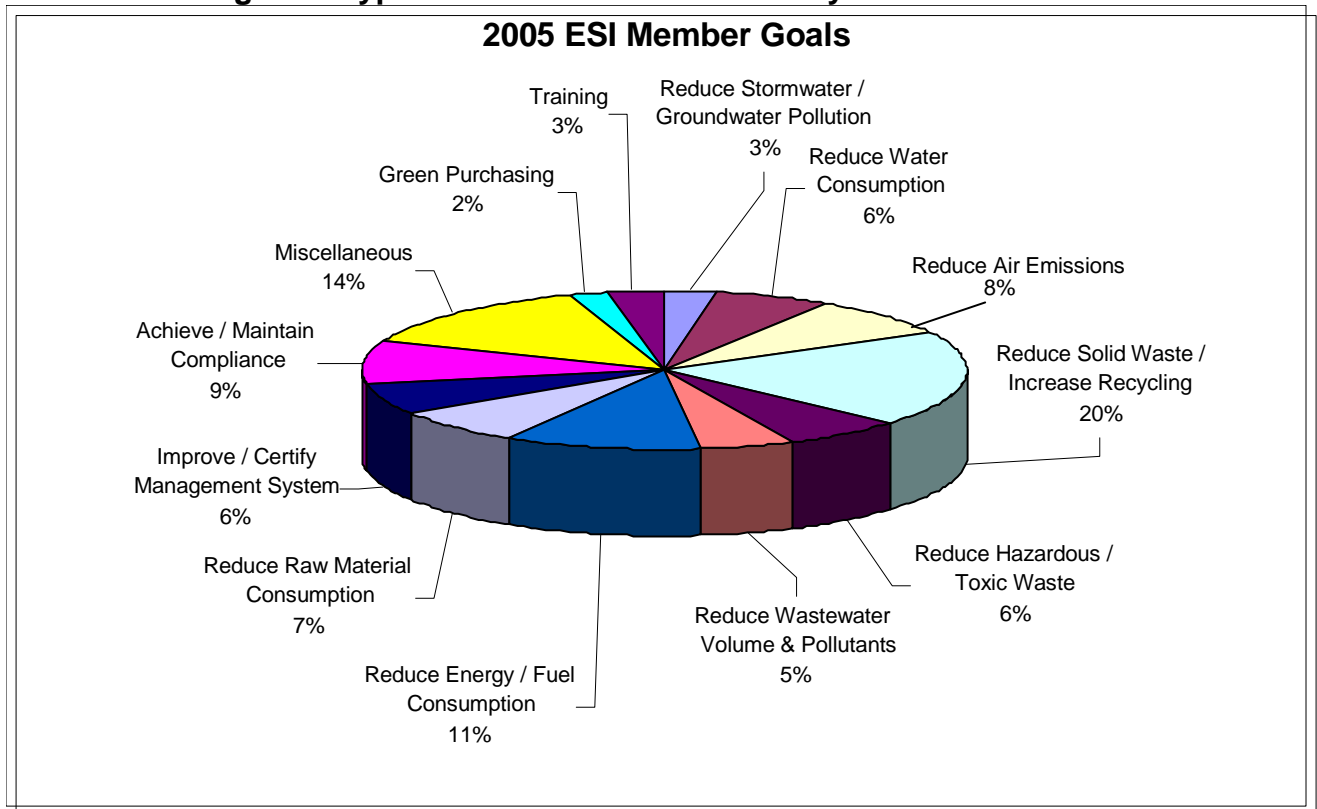
### **Award and Recognition**

Facilities accepted into the program at the Environmental Partner level receive a letter of recognition signed by the DENR secretary and Rising Environmental Stewards receive a plaque during the annual members' meeting. Environmental Stewards accepted into the ESI receive a letter signed by the Governor. The secretary presents Stewards with a large plaque during an on-site ceremony. DENR highlights members' participation in press releases, the ESI Web site and newsletters. Facilities' achievements are also written in publications by peer facilities and customers, which promote companies' environmental reputations and public relations. ESI posters are distributed to other state agencies and local governments to promote the program and highlight members' participation.

## Environmental Stewardship Initiative Member Goals

ESI requires the development of an environmental management system to drive the development and progress toward performance based environmental goals. While Rising Stewards and Stewards must have a certified or functionally equivalent EMS to enter the program, Partners can enter the program without a formal environmental management system as long as they commit to develop one. For those members reporting in 2005, 43 percent had an EMS deemed functionally equivalent or certified to ISO 14001. Members who had certified EMSs and those developing their EMSs reported a total of 223 environmental goals established. These environmental goals address the areas described in Figure 4.

**Figure 4 Types of Environmental Goals by ESI Members**



## 2005 Achievements

ESI members are also required to report on performance toward environmental goals and reductions in environmental impacts. From 2004 to 2005, 46 members reported the reductions listed in Table 3:

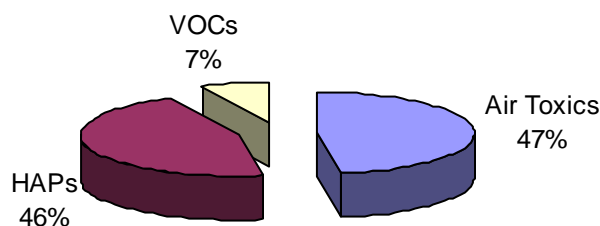
**Table 3. ESI Members Reported Reductions**

<b>Air Emissions</b>	<b>208</b>	<b>Tons</b>
<b>Hazardous Waste</b>	<b>119</b>	<b>Tons</b>
<b>Landfilled Waste</b>	<b>82,453.1</b>	<b>Tons</b>
<b>Energy</b>	<b>48,451</b>	<b>Mbtu</b>
<b>Water Use</b>	<b>54,201,286</b>	<b>Gallons</b>
<b>Material Consumption</b>	<b>37,728</b>	<b>Tons</b>
<b>Wastewater Pollutants</b>	<b>527</b>	<b>Tons</b>
<b>Wastewater Volume Reduction</b>	<b>85,566,162</b>	<b>Gallons</b>
<b>Biosolids Volume</b>	<b>7,208,691</b>	<b>Gallons</b>
<b>Total Recycled Volume in 2005</b>	<b>8,047</b>	<b>Tons</b>
<b>Total Cost Savings</b>	<b>\$12,721,772</b>	

### Air Emissions

Three members reported total air emission reductions of 208 tons. Figure 5 shows the decreases in volatile organic compounds, hazardous air pollutants and toxic air pollutants. Examples of activities at facilities used to reduce air emissions include: elimination of solvent based chemicals in textile bonding and dyeing and finishing operations.

**Figure 5. Reduction in Air Emission Parameters, % of Total**



### Hazardous Waste

Five members reported reducing 119 tons of liquid and solid hazardous waste through various techniques including changes to cleaning procedures, non-hazardous chemical substitution, improved spill management practices and replacement of mercury-containing devices.

## **Landfilled Waste**

Thirteen members reported reducing 82,453.1 tons of solid waste sent to landfills through identifying viable markets for waste streams, reducing raw material consumption and implementing new and increasing existing recycling programs.

## **Energy Reduction**

Six members reported reducing consumption of energy (natural gas, propane and electricity) by 48,451 Mbtus. Figure 6 shows the percentage of reduction for natural gas and propane versus electricity. Methods for reduced energy consumption include reducing the frequency of pump start-ups and monitoring propane consumption versus temperature patterns.

**Figure 6. Reduction in Energy Source Types, Btu**

<b>Electricity</b>	48,278,335,775.2
<b>Propane</b>	135,499,000.0
<b>Gas/diesel</b>	37,605,000.0

## **Water Use Reduction**

Seven members reported reducing consumption of water by 54,201,286 gallons through upgrading equipment, use of reclaimed water, employee training, as well as more efficient water use techniques.

## **Raw Material Reduction**

Seven members reported reducing raw material consumption by 37,728 tons through more accurate application, improved chemical feed systems and automatic control, process improvements and employee training. Figure 7 provides the types of raw materials that were reduced and the percentage of the reduction total.

**Figure 7. Reduction in Raw Materials by Type, % of Total**

Paint	0.06%
Wastewater chemicals	2.99%
Chemicals	0.00%
Pesticides	0.01%
MAK <sup>3</sup>	96.50%
Cleaner	0.43%

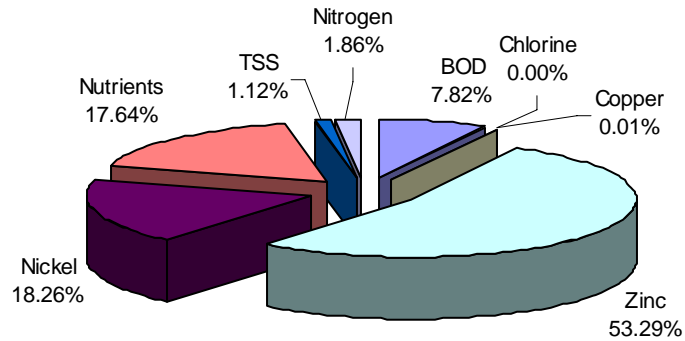
## **Wastewater Pollutants**

Six members reported an aggregate decrease in wastewater pollutants by 527 tons through techniques including identification and reduction of wastewater pollutant sources and improved treatment efficiencies. Figure 8 provides the wastewater pollutant parameters that were reduced and the percentage of the reduction total.

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<sup>3</sup> Methyl Amyl Ketone

**Figure 8. Reduction in Wastewater Pollutant Parameters, % of Total**



Through establishing and maintaining EMSs with performance based environmental goals, ESI members will continue successfully meeting and going beyond environmental regulations and reducing impacts on the environment through pollution prevention and innovative practices.

### **Caveats to the 2005 Results**

- All reduction data are self-reported by member facilities and are not verified by N.C. DENR.