2004

SectorStrategies

Performance Report

EPA
United States
Environmental Protection
Agency

NCEI
NATIONAL CENTER FOR
ENVIRONMENTAL INNOVATION

A Note To Stakeholders:

Performance measurement is a priority today at the Environmental Protection Agency. EPA Administrator Mike Leavitt has stated his goal "to increase the velocity of environmental progress" through collaborative problem-solving and other means to achieve performance results. This focus on measuring real environmental progress, rather than mere process milestones, reflects the current expectations of citizens, states, and the regulated community itself.

Several programs within EPA's National Center for Environmental Innovation are exploring innovative ways to measure performance trends. Our Performance Track program tracks the progress of environmental leaders in meeting voluntary stewardship goals. Our evaluation division is helping other EPA programs assess their effectiveness in meeting the Agency's long term goals. NCEI's Sector Strategies Program is working with selected manufacturing industries and other types of business and service sectors to measure performance trends on a broad scale.

During the past year, Sector Strategies staff initiated a dialogue on performance measurement with representatives of the twelve sectors participating in the program. Early discussions focused on defining relevant performance criteria for each sector and identifying available data (and gaps). The Sector Strategies Performance Report is a first attempt to portray the environmental progress of the twelve sectors.

This report represents a baseline, a snapshot in time. In the near term, I hope it will be useful to you as a reference guide and strategic planning tool. Its long term value, however, will be determined by the extent to which it prompts innovative thinking about how best to measure and understand the pace of our environmental progress.

Sincerely,

Jay Benforado
Director

Introduction

The U.S. Environmental Protection Agency invites you to learn about its new Sector Strategies Program through this first ***Sector Strategies Performance Report.*** Launched in 2003, the Sector Strategies Program promotes industry-wide environmental gains through innovative partnerships with 12 manufacturing and service sectors:

- Agribusiness
- Cement
- Colleges & Universities
- Construction
- Forest Products
- Iron & Steel
- Metal Casting
- Metal Finishing
- Paint & Coatings
- Ports
- Shipbuilding & Ship Repair
- Specialty-Batch Chemicals

Through this collaborative, voluntary partnership, we are working with sector trade groups and other stakeholders to reduce pollution and conserve resources, and to measure corresponding performance results through quantitative metrics. During the first year of the Sector Strategies Program, we looked back on each sector's environmental progress to date in order to set the stage for further performance enhancements. We also discussed with our sector partners where additional opportunities for environmental performance improvements lie. Key environmental opportunities identified through our research and discussions form the basis for this report.

The purpose of this report is multi-fold:

- To profile each sector, highlighting industry statistics and trends, typical processes and operations, and trade group partners;
- To describe, and where possible, to measure environmental progress to date, focusing on performance trends over the past 10 years; and
- To identify opportunities – both in the near term as well as over the next decade – for continued environmental improvement.

We used available emissions and resource data, performance indicators, and/or case studies to provide a snapshot of environmental progress in each sector. Case studies, in particular, illustrate the kinds of innovative operational and measurement activities that might be adopted by the entire sector. In many cases, sector commitments are further demonstrated through their active membership in relevant public-private partnerships, such as the National Environmental Performance Track. Over time, we will update performance information and measure sector gains. Thus, we see this report as the first in a series of sector performance updates within the framework of the Sector Strategies Program.

Sector Strategies Program

The Sector Strategies Program promotes widespread improvement in environmental performance, with reduced administrative burden, in 12 sectors. These sectors are significant for their contributions to the nation's economy as well as their environmental and energy footprint. Participating sectors are represented by their national associations – more than 20 in all. Individual companies also take part, as do EPA programs and regional offices, other government agencies, and other stakeholder groups.

Sectors At-a-Glance+

Contribution of Partner Sectors to U.S. Manufacturing Totals

Gross Domestic Product:	22%*
Facilities:	14%*
Employees:	20%*
Environmental Releases & Wastes:	21%**
Fuels and Energy Purchases:	33%*

+These figures represent the contribution of only manufacturing partner sectors.
*Source: U.S. Census Bureau, 2001[1]
**Source: U.S. EPA Toxics Release Inventory[2]

The Sector Strategies Program pursues its goals through a knowledge-based approach to problem-solving. The program maintains EPA staff experts in each participating sector who understand and can effectively address environmental issues that arise. These sector liaisons are helping stakeholders develop unique, sector-based strategies to:

- Address and overcome barriers to environmental improvement;
- Promote the use of environmental management systems (EMS); and
- Track progress using performance metrics.

For more information visit the Sector Strategies Program Web site at www.epa.gov/sectors. If you are in one of the participating sectors, contact your trade or service association to get more information or become involved.

The Sector Strategies Program is part of EPA's National Center for Environmental Innovation. The Center provides a testing ground for innovative ideas that advance environmental protection and assists EPA programs and regional offices in adopting innovative approaches that support improved performance. NCEI also houses the National Environmental Performance Track, which recognizes top environmental performance among participating facilities of all types, sizes, and complexity. Performance Track participation requires that facilities adopt and implement an EMS, with commitments to continued improvement in environmental performance, public outreach, and performance reporting. Trade groups can participate as Performance Track Network Partners by promoting the program to their membership. For more information, visit the program's Web site at www.epa.gov/performancetrack.

Data Sources

This report looks back over the last 10 years at sector-specific environmental trends in order to identify areas of continued opportunity, such as:

- Conserving water;
- Improving water quality;
- Increasing energy efficiency;
- Managing and minimizing waste; and
- Reducing air emissions.

The multi-year data upon which this report is based comes from a variety of public and private sector sources. Industry reporting to some of these data systems is required by law, while other systems are populated with information submitted voluntarily by the sector. Additionally, sector partners often maintain their own databases to track environmental measures over time. Using multiple sources in this report allows the Sector Strategies Program to provide the most comprehensive picture of each sector's environmental performance to date.

Toxics Release Inventory

One of the report's key data sources is EPA's Toxics Release Inventory (TRI), a publicly available database that contains information on toxic chemical releases and other waste management activities at facilities that use, process, or manufacture certain chemicals annually at levels above reporting thresholds. Although not all facilities are subject to TRI reporting requirements, aggregate TRI data indicates sector trends in the management and minimization of waste. Where applicable and available for a sector, this report describes and/or arrays graphically annual TRI data from 1993 through 2001. TRI categories include:

- Releases to air, bodies of water, land, or underground injection wells, including on-site releases occurring at a facility and off-site releases resulting from wastes transferred for disposal at another facility;
- Treatment of materials destroyed in on- or off-site operations such as biological treatment, neutralization, incineration, and physical separation;
- Energy recovery from materials that are combusted in an energy recovery device like a boiler or industrial furnace, not including treatment by incineration; and
- Recycling of materials recovered at the facility and made available for further use, or sent off-site for recycling and subsequently returned to the facility for further processing or use in commerce.

Other Federal Databases

The report also draws upon two other federal environmental databases for more information on releases to air and water. The first, the National Emissions Inventory (NEI), contains EPA's estimates of air emissions based upon inputs from numerous state and local air agencies, tribes, and industry. NEI data are in part modeled, rather than collected. The second, the Permit Compliance System (PCS), contains information on facilities' permitted pollutant discharges in their wastewater. Only those facilities that discharge directly to waterbodies are included; discharges to sewer systems are not tracked in PCS.

Normalization of Data

In all cases the report depicts normalized data in order to track more accurately real changes in environmental performance. As noted in the Glossary, "normalizing" means adjusting the actual annual release numbers so they are not distorted by changes in facility and sector economic conditions. In this report, annual economic output is measured by production volumes or value of shipments.

For more details on data sources used in this report, see Appendix B.

Glossary

Beneficial reuse: Use or reuse of a material that would otherwise become a waste.

Byproduct: Material, other than the intended product, that is generated as a consequence of an industrial process.

Co-product: A substance produced for a commercial purpose during the manufacture, processing, use, or disposal of another substance or mixture.

Energy efficiency: Actions to save fuels by better building design, modification of production processes, better selection of road vehicles and transport policies, etc.

Energy recovery: Obtaining energy from waste through a variety of processes, including combustion.

Environment management system (EMS): A systematic approach to managing all environmental aspects of an operation. May be certified to ISO 14001, a widely recognized international standard.

Greenhouse gas (GHG): A collective term for those gases, including carbon dioxide, methane, nitrous oxide, ozone, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, which contribute to potential climate change.

Hazardous air pollutant (HAP): A category of air pollutants that may present a threat of adverse human health effects or adverse environmental effects. Includes asbestos, beryllium, mercury, benzene, coke oven emissions, radionuclides, and vinyl chloride.

Hazardous waste: A byproduct of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or is specifically listed as hazardous by EPA.

Nitrogen oxides (NO_X): A reddish-brown gas compound that is a product of combustion and a major contributor to the formation of smog and acid rain.

Non-hazardous waste: Any solid, semi-solid, liquid, or contained gaseous materials discarded from industrial, commercial, mining, or agricultural operations, and from community activities, that is not defined as "hazardous".

Normalization: A process applied to a data set to compare the data against some common measure of annual economic output, such as value of shipments, number of employees, or units of production.

Particulate matter (PM): Solid particles or liquid droplets suspended or carried in the air (e.g., soot, dust, fumes, or mist). $PM_{2.5}$: Particles less than or equal to 2.5 micrometers in diameter. PM_{10}: Particles less than or equal to 10 micrometers in diameter.

Stormwater runoff: The portion of precipitation, snowmelt, or irrigation water that does not infiltrate the ground or evaporate but instead flows onto adjacent land or watercourses or is routed into drain/sewer systems.

Sulfur oxides (SO_X): A gas compound that is primarily the product of combustion of fossil fuels and a major contributor to climate change and acid rain.

Value of shipments: The net selling values, exclusive of freight and taxes, of all products shipped by manufacturers.

Volatile organic compounds (VOC): Any organic compound that evaporates readily to the atmosphere. Contributes significantly to smog production and certain health problems.

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