

Governor Jennifer M. Granholm
Director Steven E. Chester

Protecting Michigan's environment through pollution prevention (P2) is a key element in preserving Michigan's natural resources for future generations. The state's P2 programs are administered by the Michigan Department of Environmental Quality (DEQ) in accordance with Parts 143 and 145 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). This legislation, enacted in 1987 and amended under Act No. 289, Public Acts of 1998, entrusts the DEQ with the responsibility for:

- *Infusing P2 into DEQ regulatory and permit programs,*
- *Educating and serving as a catalyst for change within the business community to bring about reductions in the generation of environmental wastes, and*
- *Providing technical and financial assistance to small businesses and institutions to facilitate in-plant P2.*

This annual report fulfills the reporting requirements to the Legislature and showcases Michigan's P2 programs and the importance of taking care of Michigan's resources.

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Pollution Prevention Annual Report

2007



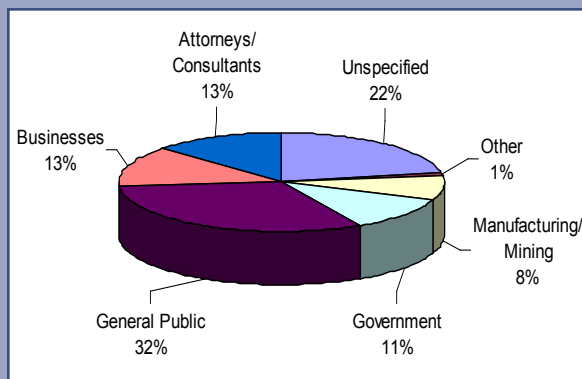
2007 Earth Day, DEQ Student Poster Contest 5th Grade, Oxford, MI

The Michigan Department of Environmental Quality's (DEQ) Environmental Science and Services Division (ESSD) has been at the forefront, helping businesses adopt clean production practices, and promoting green product design and manufacturing. The ESSD, through its Pollution Prevention (P2) programs, has helped over 10,000 businesses to divert over one billion pounds of potentially hazardous waste materials from landfills and other sources.

The P2 programs are directed at businesses, institutions and communities. These programs are voluntary and focus on providing information and technical assistance on practical approaches that eliminate or reduce the generation of waste at the source or recycling waste that cannot be eliminated. During FY2007, the foundation was laid for working with industry and academia to advance Green Chemistry and Environmental Stewardship and to minimize the impacts of Climate Change on Michigan's pristine natural resources.

Our programs are made possible through partnerships and networking with business leaders, environmental groups, and the public. We have worked hard to promote business-to-business mentoring, and support eco-efficient practices that strengthen existing businesses and provide opportunities to establish new ones. The value of our programs resonates within Michigan's diverse business community. The results of these endeavors are highlighted within this year's report.

Over 22,000 calls were handled through the Environmental Assistance Center (EAC). The EAC serves as a single point of entry into all DEQ environmental programs. By contacting the EAC, business, industry, local units of government, and the general public receives direct one-on-one assistance or referral to a network of technical staff within the DEQ.



Source: Environmental Assistance Program

Agricultural Pollution Prevention



Flint Urban Community Youth Outreach Project

Thirteen auditors were trained and completed 13 dairy farm audits through the AgriEnergy Efficiency On-Farm Audit Program.

Michigan State University (MSU) Extension Partnership-Urban Agriculture turned vacant city lots into productive uses by teaching low income, intercity families how to grow and preserve their own organic food. Fifty-six gardens were planted serving over 300 people.

Michigan Agriculture Environmental Assurance Program verified 420 farms in farmstead, cropping and/or livestock system(s).

MSU-Extension Partnership-Farm To Table Program educated over 2,500 citizens on agri-environmental literacy on where our food comes from, buying locally, and the impact on the environment.

"Helping urban residents to grow their own food, or buy locally fresh fruits and vegetables, is good for the environment because it reduces transportation, processing and packaging impacts."

Carolyn Meekins, Executive Director, Flint Urban Community Youth Outreach

Retired Engineer Technical Assistance

An average of over \$59,000 in potential savings per RETAP assessment.



Two year follow-up surveys were conducted with 89 facilities assessed. These companies report implementing or acting on more than 73 percent of RETAP recommendations, with total achieved reductions in waste disposal of over 11.3 million pounds.

Total number of active retired engineers increased to 53, totaling more than 2,000 combined years of professional experience. Nationally recognized pollution prevention experts from the Waste Management and Research Center, the Minnesota Technical Assistance Program, and the National Pollution Prevention Roundtable trained the retired engineers in conducting in-depth assessments.

| Completed 97 assessments in FY07 | |
|----------------------------------|----------------------|
| Reductions | Amount |
| Operating Costs: | 5.8 million Dollars |
| Waste Disposal: | 3.8 million Pounds |
| Water Usage: | 39.4 million Gallons |
| Electricity Usage: | 26.0 million kWh |
| Natural Gas Usage: | 0.8 million CCF |

"Yours is by far a most excellent example of how a state program can keep businesses viable in this global economy."

Tom Dupont, Plant Manager, Tesa Tape

Community Pollution Prevention

Eleven grants were awarded in FY2005 for a total of \$211,000 to fund the School Chemical Waste Reduction programs in Michigan. Nine additional schools were awarded grants totaling \$191,397 in FY2006.

Schools have safely disposed of nearly 8,000 pounds of chemicals, including motor oil, acids, explosives and over 130 pounds of mercury.

Schools are implementing programs to promote the purchasing of less toxic materials, as well as developing curriculums to prevent stockpiling of these dangerous chemicals.



Example of chemicals found in school science laboratories

"With school budgets dwindling, without the P2 grant there would have been no way to fund the chemical safety training for staff nor the micro scale and green chemistry training for teachers."

Cathy DeShambo, Project Coordinator, Lansing Public Schools

Electronic Waste



State of Michigan Surplus Computer Equipment

Recommendations for a state-wide recycling infrastructure to recycle common consumer electronics were provided by a stakeholders work group to DEQ Director Steven E. Chester. In addition, ESSD participated in a Midwest Initiative that developed policy used in Minnesota legislation and is being considered in other Midwest states.

Assistance is provided to local collection programs and Michigan businesses. Internet lists of local collection programs and electronics recyclers are available to help communities and businesses recycle computers, televisions, cell phones, etc. Of the 76 electronics recyclers listed in the Michigan Recycled Materials Market Directory, 36 are Michigan recyclers.

Electronic waste collections were held in 35 of 83 Michigan counties during 2006 and 2007.

"The environment will be improved if we fix the electronic waste problem through appropriate regulation and effective service..."

David Perry, Electronics Recycling, Valley City Environmental Services

Economic Development and Growth through Energy Efficiency (EDGE2)

The Department of Management and Budget, along with ESSD, led the "Energy Efficiency in State Facilities" initiative to reduce energy consumption and implement other energy reduction efforts at state facilities.

An analysis of the economic benefits of adopting a Renewable Portfolio Standard and Energy Efficiency Program was developed in collaboration with NextEnergy.

Michigan Renewable Fuels Commission was established under Public Act 272 of 2006, presenting the initial report to the Governor and Michigan legislature in June 2007.

"EDGE2 enhanced greater communication between various state departments on many levels, which in turn yielded energy savings for the state, due for the most part from RETAP assessments of the downtown state office complex."
Steven Kulesia, Energy Specialist, Michigan Department of Environmental Quality

| Department | Total Buildings/Complexes | Total Energy Savings | Weighted Projected Costs | Ave. Payback (Years) |
|---------------------------|---------------------------|----------------------|--------------------------|----------------------|
| Management and Budget | 34 | \$1,022,576 | \$3,299,937 | 3.23 |
| Corrections | 15 | \$2,272,816 | \$6,453,337 | 2.84 |
| Family Independent Agency | 1 | \$55,600 | \$3,760 | 0.07 |
| Community Health | 3 | \$291,113 | \$355,315 | 1.22 |
| TOTAL | 53 | \$3,642,105 | \$10,112,349 | |

Source: Michigan Department of Management and Budget

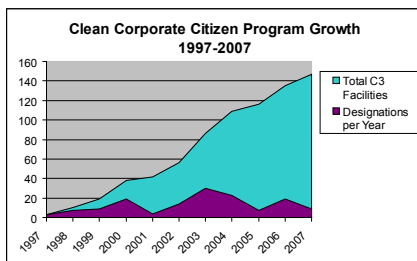
Clean Corporate Citizen

Nine new facilities came into the program including the National Superconducting Cyclotron Laboratory at Michigan State University, the program's first educational institution.



Ten facilities received five-year longevity awards. It is the continued commitment by these longevity members that raises the bar for every facility in the program.

Revisions were made to the administrative rules, adding clarity and strengthening the overall criteria necessary to receive and retain C3 designation.



"Overall, industry recognizes the reality that reduced waste and environmental protection are integral parts of operational efficiency and performance excellence."

Jim Coddington, General Operations Vice President, Consumers Energy

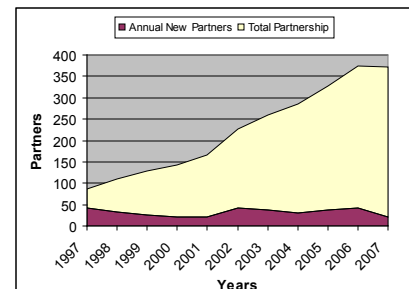
Michigan Business P2 Partnership

Thirty-one new facilities came into the program representing academic institutions, manufacturing and services industries, and non-governmental organizations.



Forty-three partners are entering their tenth year of active involvement.

Requests for information are increasing through the "Environmental Tidbits" service, as well as continued growth in partners' direct networking opportunities.



"We love it ... MBP3 has allowed us to reduce our costs and the use of natural resources without anything negative to our company or people."
Betz Industries

Mercury Pollution Prevention

Michigan joined the National Vehicle Mercury Switch Recovery Program (NVMSRP), a voluntary program to capture mercury switches from vehicles. Eighty thousand mercury switches have been collected in Michigan.

Mercury legislation passed banning the sale of mercury-containing thermostats, the sale of and use of blood pressure devices that contain mercury, and the sale of medical devices that contain mercury and/or mercury compounds.

Materials published include: Mercury-Added Product White Paper (November 2006), Great Lakes Mercury in Products Phase-Down Strategy (May 2007), and MDEQ Mercury Strategy Staff Report (Fall 2007).

Mercury Reduction Initiative



Initiative

"2007 was a banner year for assessing Michigan mercury use, releases and evaluating reduction success. An ambitious statewide reduction goal was proposed and a course is presently being charted to help us attain it."

Steve Kratzer, Mercury P2 and Policy Specialist, Michigan Department of Environmental Quality

Small Business Pollution Prevention Loan Program

Since the program's inception in 2000, over \$3.5 million has been loaned to 31 small Michigan businesses to institute pollution prevention projects. In 2007 alone, over \$1.2 million was awarded in loans to five individual businesses.

Annual results reported from all 31 borrowers include:

Waste Reduction

- * 438 cubic yards/year manure waste
- * 550 pounds/year perchloroethylene filter waste
- * 93 spent filters/year
- * 75 gallons/year perchloroethylene solvent/sludge waste
- * over 30,000 pounds solid waste
- * 7,200 pounds/year F006 hazardous waste
- * 117 gallons of used motor oil
- * 625,000 gallons/year liquid industrial waste

Water Conservation

- * over 84 million gallons/year

Energy Conservation

- * over 12,000 kilowatts per year
- * 6,575 gallons of gasoline

Source Reduction

- * 3,566 gallons/year of perchloroethylene (over 24 tons)
- * 1,316 gallons/year of x-ray photo developing chemicals
- * 18,300 x-ray films/year
- * 350 sets of match print proofing material
- * 361,410 feet of printer film
- * 1,320 printer plates
- * 26,582 pounds/year plating make-up chemicals
- * \$8,240 saved on agri-chemical use (25% reduction)
- * 92,300 pounds commercial nitrogen fertilizer
- * 116,590 pounds commercial phosphorus fertilizer
- * 151,440 pounds commercial potassium fertilizer

"We're excited at the opportunity to participate in this loan program. We needed to move forward with this project and with the help of this program will save over \$43,000 in interest costs. That's money that can be reinvested in our business."

Russell Willett, President, R & R Ready Mix, Inc.

Pollution Prevention Program Information

The Web addresses listed below will take you to the menu for the program Web page(s). Program addendums with information about this year's activities are available electronically at www.michigan.gov/deqp2 (select Pollution Prevention Annual Reports).

www.michigan.gov/deqp2

Pollution Prevention Annual Report

www.michigan.gov/deqp2initiatives

Environmental Purchasing
Energy Efficiency Resources
State Park Stewardship Initiative

www.michigan.gov/deqp2outreach

Green Construction and Demolition/Green Buildings
Restaurant Pollution Prevention

www.michigan.gov/deqp2partnerships

Agriculture P2
Clean Marina
Dept. of Defense/Michigan Environmental Alliance
Great Printers
Great Lakes Sustainable Suppliers Environmental Network
Green Lodging Resources
Michigan Business P2 Partnerships
Pulp, Paper, and Products
Turfgrass Stewardship

www.michigan.gov/deqrecycling

Electronic Waste
Household Hazardous Waste
Recycling

www.michigan.gov/deqretap

Retired Engineer Technical Assistance Program

www.michigan.gov/deqc3

Clean Corporate Citizen

www.michigan.gov/deqnep

Neighborhood Environmental Partnership

www.michigan.gov/deqmercuryp2

Mercury P2 Initiative

www.michigan.gov/deqgrantsandloans

Community Pollution Prevention Grants
Small Business P2 Loans

www.michigan.gov/deqsara

Toxic Chemical Release Inventory

Other Information

Great Lakes Green Chemistry Network
P2 Tribal Initiative

The Michigan Department of Environmental Quality (MDEQ) will not discriminate against any individual or group on the basis of race, sex, religion, age, national origin, color, marital status, disability, or political beliefs. Questions or concerns should be directed to the MDEQ Office of Human Resources, PO Box 30473, Lansing, MI 48909.

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Michigan Department of Environmental Quality