



Michigan Department of Environmental Quality
www.michigan.gov/deq

Jennifer M. Granholm, Governor
Steven E. Chester, Director

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 the Natural Resources and Environmental Protection Act.

This legislation 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.

Pollution Prevention Annual Report

2008

The Michigan Department of Environmental Quality's (DEQ) Environmental Science and Services Division (ESSD) has helped over 10,000 businesses divert more than a billion pounds of potentially hazardous waste materials from landfills and other sources. This past year, the ESSD, Pollution Prevention (P2) programs, concentrated its resources on helping businesses adopt practices and policies that encompass every aspect of environmental improvement. The emphasis is on encouraging practices that make a difference to our economy and environment.



2008 Earth Day poster contest winners encouraging everyone to make a difference to our environment.

The concept is woven into all of our environmental stewardship programs and networking with industry groups, business leaders, environmental groups, and the public. Michigan's diverse business community understands the power of being proactive at preventing pollution at its source of generation. This annual report highlights DEQ's accomplishments and catalyzing positive environmental change.

Green Chemistry

In October 2006, Governor Jennifer M. Granholm issued Executive Directive No. 2007-6 (Directive), "Promotion of Green Chemistry for Sustainable Economic Development and Protection of Public Health." The Directive encourages the research, development, and implementation of Green Chemistry in Michigan and tasks the Department of Environmental Quality (DEQ):

- Providing encouragement for green chemistry research, development, demonstration, education, and technology transfer.
- Examining methods by which state government can create incentives for consideration and use of green chemistry processes and products.
- Facilitate the adoption of green chemistry innovations in Michigan.
- Expanding education and training opportunities for undergraduate and graduate students, and professional chemists and chemical engineers in Michigan, including through partnerships with industry, in green chemistry science and engineering.
- Collecting and disseminating information on green chemistry research, development, and technology transfer.
- Providing venues for outreach and dissemination of green chemistry advances such as symposia, forums, conferences, and the Internet. Support economic, legal, and other appropriate social science research to identify barriers to commercialization and methods to advance commercialization of green chemistry.
- Provide for public input into and outreach on the Green Chemistry Program through public discussions such as citizen panels, consensus conferences, and education events.
- Promote voluntary, cooperative efforts with industrial sectors to develop green chemistry plans.
- Make recommendations to the Governor on an annual basis for a Governor's Green Chemistry Award, promoting excellence, innovation, economic development, and public health risk reduction by businesses and institutions.

To guide the DEQ, Director Chester convened a Green Chemistry Roundtable representing public health, industrial, environmental, local government, and general public. The Roundtable is an advisory group that provides information and recommendations to the DEQ on policy and activities to be undertaken by the Michigan Green Chemistry Program. Recently, the Roundtable has issued a five-year action plan, "Advancing Green Chemistry: An Action Plan for Michigan Green Chemistry Research, Development, and Education." The plan lays the foundation for building a sustainable green chemistry future for Michigan.

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Climate Change

On November 14, 2007, Governor Jennifer M. Granholm issued Executive Order No. 2007-42 establishing the Michigan Climate Action Council (Council), with members representing academia, a broad base of industry, utilities, state and local government, and environmental interest groups.



The Council will act in an advisory capacity to: a) produce an inventory and forecast of greenhouse gas sources and emissions from 1990-2020; b) consider potential state and multi-state actions to mitigate and adapt to climate change in various sectors including energy supply, energy efficiency and conservation, industrial process and waste management, transportation and land use, and agriculture and forestry; 3) develop a comprehensive climate action plan with specific recommendations for reducing greenhouse gases in Michigan by business, government, and the general public; and 4) advise state and local government on measures to address climate change.

The Governor has asked the Council to complete its work in two phases. In the first phase, completed April 30, 2008, the Council submitted an interim report with a list of policy recommendations on reducing greenhouse gas emissions to meet short-, mid- and long-term goals or targets. The second phase will be completed by March 1, 2009 and will result in a comprehensive Michigan Climate Action Plan that has a list of policy options recommended for adoption and includes the amount of greenhouse gas reductions and the cost of the policy option.

Retired Engineer Technical Assistance



2008 RETAPers at an Energy Efficiency Training

One hundred twenty assessments were completed in Fiscal Year 2008 (FY 08) that identified over \$6.1 million in potential cost savings, resulting in an average of over \$50,000 in potential savings per RETAP assessment.



Assessors provided 195 hours of additional pollution prevention technical assistance for small businesses and government facilities, which identified over \$48,000 in potential savings.

Two-year follow-up surveys were conducted with 57 RETAP assessed facilities. These companies report implementing or acting on more than 72 percent of RETAP recommendations, with total achieved reductions in waste disposal of over 3.5 million pounds.

The total number of active retired engineers increased to 54, totaling more than 2100 combined years of professional experience.

The retired engineers received training on water conservation, LEED buildings, pipe insulation, and lighting systems.

Completed 120 Pollution Prevention Assessments in FY 08.

Reductions	Amount
Operating Costs	6.1 million Dollars
Waste Disposal	20.9 million Pounds
Water Usage	33.5 million Gallons
Electricity Usage	36.0 million kWh
Natural Gas Usage	1.1 million CCF
CO2 Emissions (equivalents)	73.1 million Pounds

*"RETAP is a great program and I would recommend it to anyone interested in reducing waste, improving our environment and saving money."
Mike Benedict, Co-President, 2/90 Sign Systems*

Small Business P2 Loan

Michigan small businesses are taking advantage of the DEQ'S Small Business Pollution Prevention Loan (P2 Loan) Program to assist them in deploying preferred technologies and practices.

Established under the 1998 Clean Michigan Initiative Bond approved by voters, the P2 Loan program has dispersed over \$3.8 million in 34 loans to small businesses. Any business that employs 500 or fewer people, is independently owned or operated and not dominant in its field, is eligible to apply for a low interest loan.

"As medical professionals we understand the importance of a healthy environment. This new equipment will prove better for both our patients and the environment."

Dr. Marc Weisman, President, Preferred Family Medicine

Agricultural P2

An average savings of \$4,000 per farm was achieved through the AgriEnergy Efficiency Dairy Farm Audit Program.

Michigan State University (MSU) Extension Partnership-Urban Agriculture Collaborators turned vacant city lots into productive uses by teaching low income, intercity families how to grow and preserve their own organic food.

Fifty-seven gardens were planted serving over 400 people and two community hoophouses were completed.

Michigan Agriculture Environmental Assurance Program has now verified 584 farms in farmstead, cropping and/or livestock system(s).

MSU-Extension Partnership's Farm-To-Table Program educated over 2,200 citizens on agri-environmental literacy on where our food comes from, buying local, and the impact on the environment.



MSU Extension at a project in Genesee County

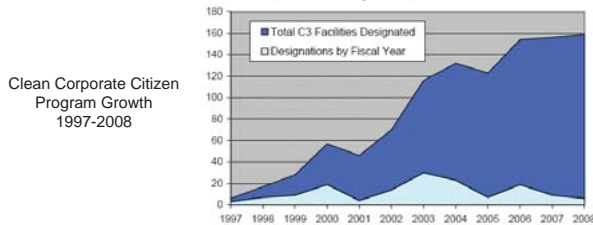
*"Small scale farming in the city builds neighborhood relationships, provides fresh organic produce, and keeps food dollars in the community."
Linda Patrick, Economic Development Educator, MSU Extension, Genesee County*

Clean Corporate Citizen

Seven new facilities became part of the growing Clean Corporate Citizen (C3) family, including Pilgrim Manor in Grand Rapids, the program's first retirement community.



Nine facilities received five-year green glass longevity awards and Chrysler Sterling Heights Assembly Plant and Ford Motor Company–Van Dyke Transmission Plant received the first ever 10-year longevity awards.



"We are proud to receive this designation and look forward to continuing to identify innovative ways to lead our 'green stewardship' on behalf of our residents and their families."
Grand Rapids Mayor George Heartwell and Pilgrim Manor's CEO

Michigan Business P2 Partnership

The Michigan Business P2 Partnership (MBP3) partners increased their participation in electronic networking with over 125 requests for information including lighting alternatives, renewable energy projects, greening conferences/workshops, and environmentally friendly purchasing (i.e., alternative cleaners).



With 32 new partners in 2008, the total will surpass 400, representing 52 counties and 158 cities in Michigan.

Partnership members completed the first steps of a Strengths, Weaknesses, Opportunities, and Threats analysis which finishes a planning document that effectively steers MBP3 through the strategic planning process to ensure continued future success.

Introduction of the P2 Information and Grant Management (P2IGM) web-based measurement tool begins. This interactive, online application will allow for accurate and timely reporting from P2 partners across Michigan.

"It not only helps us realize what we do, but how it impacts our environment for the future. I believe that it takes programs like MBP3, C3, and others for people to see what we are doing to the environment, and what the future of our environmental impacts will hold."
Grayling Generation

Green Suppliers Network

The collaboration between the DEQ, the US EPA, and the Michigan Manufacturing Technology Center-West resulted in the completion of 25 technical assessments in 2008.



In conjunction with the placement of a RETAP Intern, one Green Suppliers Network (GSN) supplier is on track to save \$56,522 annually and is sharing its story with its own supply chain and with the Society of Manufacturing Engineers Lean to Green Technical Workgroup.

A participating GSN supplier, also a Michigan Business Pollution Prevention Partnership partner, was recognized as a 2008 Business Prize Recipient for the Shingo Prize for Operational Excellence.

In 2008 the DEQ continues working as one of many stakeholders with the Original Equipment Manufacturers and Suppliers in the Office Furniture Industry to promote design of sustainable products through development of the Business and Institutional Furniture Sustainability Standard.

A small GSN supplier is now recycling 74 tons of high-density thermoplastic polymers annually and realizing a 10% reduction in disposal cost.

Green Building / LEED

The DEQ and many others in Michigan are working to reduce the health, energy, and environmental building impacts through "green" building efforts. On Earth Day 2005, the Governor issued a directive that required state government to join the ongoing green building efforts and become more energy efficient.



As of September 2008, Michigan had Leadership in Energy and Environmental Design (LEED) construction of 383 LEED commercial, industrial, governmental and nonprofit projects; 84 LEED homes; 2,627 Energy Star homes, and 193 Energy Star buildings - nonresidential homes.

Highlights for 2008 include:

- Funds granted for green roofs, bioswales, pervious pavement, etc.
- Great Lakes Green Conference held the first ever "green" home building conference in Michigan.
- State "green" facilities include: DEQ Bay City District Office; and DNR "green" resource-efficient park toilet/shower facility at Grand Haven State Park.
- State Historic Preservation Office "green" historic building restoration Web site launched.
- Michigan Business Tax (Act 89, PA 2008) revised to fund "sustainable redevelopment."
- MDOT and DEQ partnership launched to encourage recycling materials such as roofing shingles into highway projects.
- MSHDA grants for city blight control encourages deconstruction.
- Green building added as "green jobs" to the "No Worker Left Behind" training program by Governor Jennifer M. Granholm.

Wood Stove Exchange

A joint venture was launched by the DEQ, Michigan United Conservation Corps, US Environmental Protection Agency (EPA) and Hearth, Patio and Barbecue Association. This partnership sponsored an incentive program for exchanging older wood burning appliances for newer EPA-certified cleaner burning units.



Stop Wasting. Start Saving.

An eligibility period allowed purchasers to receive a manufacturer rebate and installation discount to the first 500 respondents. Responses exceeded 500 participants and was reached prior to July 31, 2008.

A total of 529 wood stoves were exchanged, resulting in a 30% improvement in air quality particulate for emissions from these units.

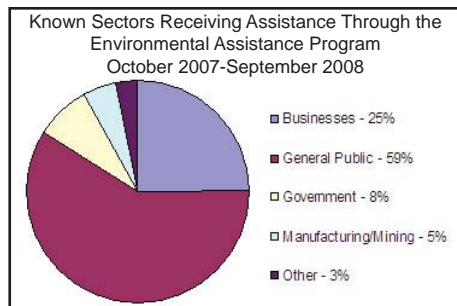
Environmental Assistance Program

The Environmental Assistance Center (EAC) is an integral part of the overall Environmental Assistance Program (EAP) in ESSD and serves as the single point of entry into all DEQ environmental programs. By calling 800-662-9278, business, industry, local units of government, and the general public receive direct one-on-one assistance from one of our EAP staff or referral to a network of technical staff within the DEQ.

The EAC handled 21,936 calls during FY 2007-2008.

Three workshops that promoted the concepts of sustainability and pollution prevention were held in 2008: "Defining Your Lean and Green Workplace Competencies;" "Unwanted Medicine Disposal: Doing It the Right Way;" and the "Green Michigan Healthcare Conference."

The compliance assistance specialists of the EAP incorporated recycling and pollution prevention methods and approaches into two new publications: the "Michigan Manufacturers Guide to Environmental, Health and Safety Regulations – Fifth Edition" and the "Michigan Automotive Mechanical Repair Facility Environmental Compliance Workbook."



*"I found all subjects valuable. I believe I have a better understanding of issues surrounding the disposal of medications."
Attendee, Unwanted Medicine Disposal Conference*

Environmental Purchasing

From office paper to office cleaners, automotive fluids to automobiles, every product we buy affects human health and the environment in many and often unintended ways. The ESSD is committed to helping state agencies identify environmentally preferable products that: contain fewer toxic materials, minimize waste, contain recycled content, conserve energy and water, and/or are made from renewable resources.

Through issuance of Executive Directive 2007-22, ESSD partnered with the DMB to conduct a survey of existing efforts in state government related to environmentally sound purchasing, using results from this survey to expand opportunities for purchasing environmentally preferable products and to further education and outreach opportunities.

Neighborhood Environmental Partnership

The Neighborhood Environmental Partnership (NEP) recognizes facilities and their community partners who have worked together to improve the environment by implementing ongoing local environmental projects, making neighborhoods cleaner and more attractive places to live and work.

Seven Michigan business sites and their community partners were recognized with the NEP Program Gold Award for their outstanding commitment to environmental outreach. They are: Consumers Energy-J.R. Whiting Plant, Luna Pier; Detroit Edison-River Rouge Power Plant, River Rouge; General Motors-Flint Metal Center, Flint; General Motors-Lansing Delta Township and Regional Stamping Plant, Lansing; General Motors Powertrain-Warren Transmission Plant, Warren; Smurfit-Stone Container Corporation-Ontonagon Mill, Ontonagon; and U.S. Army Garrison-Detroit Arsenal, Warren.

Pollution Prevention Program Information

The Web addresses listed below will take you to the program Web page(s) or visit www.michigan.gov/deqp2 to read about more DEQ pollution prevention programs and activities.

www.michigan.gov/deqp2initiatives

Environmental Purchasing
Energy Efficiency Resources
Healthy Schools
State Park Stewardship Initiative

www.michigan.gov/deqrecycling

Electronic Waste
Household Hazardous Waste
Recycling

www.michigan.gov/deqp2outreach

Green Construction and Demolition/Green Buildings
Restaurant Pollution Prevention

www.michigan.gov/deqretap

Retired Engineer Technical Assistance Program

www.michigan.gov/deqp2partnerships

Agriculture P2
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
Recreational Stewardship

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

www.michigan.gov/deqgreenchemistry

Green Chemistry

Other Information

P2 Tribal Initiative
Climate Change
Compliance Assistance
Wood Stove Exchange

The Michigan Department of Environmental Quality (DEQ) 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 DEQ Office of Human Resources, PO Box 30473, Lansing, MI 48909.

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COST PER COPY: \$1.829

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