



Michigan Department of Natural
Resources and Environment
www.michigan.gov/dnre

Jennifer M. Granholm, Governor
Rebecca M. Humphries, 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 Natural Resources and Environment (DNRE) in accordance the Natural Resources and Environmental Protection Act.

This legislation entrusts the DNRE with the responsibility for:

- *Infusing P2 into DNRE 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.

www.michigan.gov/p2

Department of Natural Resources and Environment

Office of Pollution Prevention and Compliance Assistance
525 West Allegan
Lansing, MI 48933-1502

Mailing Address:
P.O. Box 30457
Lansing, MI 48909-7957

Assistance Center
dnre-env-assist@michigan.gov
Phone: (800) 662-9278
Fax: (517) 241-0858

Pollution Prevention Annual Report

Sustainable, long-term protection of Michigan's environment is best achieved through providing pollution prevention (P2) tools and environmental assistance in partnership with compliance actions.

P2 programs provide voluntary tools to individuals and industries interested in doing more than the minimum to reduce wastes, costs, and demands for energy and natural resources. Ultimately, businesses and citizens work together to 'green' a community and protect the environment for generations to come.

More detailed information about the Department of Natural Resources and Environment (DNRE) P2 Program's can be found on the Web site at www.michigan.gov/p2.

Green Chemistry

The Michigan Green Chemistry Program, led by the DNRE, continues to pursue the mission to advance the use of green chemistry principles in Michigan. The Michigan Green Chemistry Roundtable had another successful year of supporting the Michigan Green Chemistry Program and propelling many initiatives forward. The Roundtable, a multi-sector group created along with the Program in Governor Jennifer M. Granholm's Executive Directive 2006-6, accomplished the task of developing a set of metrics to use as indicators for green chemistry progress in Michigan and to further the Michigan Green Chemistry Action Plan.

In August 2010, a grant was issued to the Aquinas College Center for Sustainability to establish a Michigan Green Chemistry Clearinghouse – an online informational resource and network. Work continues on several other grants issued by the Green Chemistry Program, including the following specific accomplishments in 2010:

- A workshop was held by SAE International on the feasibility of a green innovation center for the automotive industry.
- A conference for the newly established Michigan Green Chemistry Education Network was hosted by Grand Valley State University.
- Higher education courses were developed and taught by Grand Valley State University, Michigan State University, Kettering University, and Wayne State University.

The DNRE has participated in the planning committee for the Interstate Chemicals Clearinghouse (IC2) with nine other states. The IC2 also includes other organizations working toward safer chemicals and products.

The Green Chemistry Program Roundtable worked extensively on planning for the second annual Green Up: Michigan Green Chemistry Conference, to build on the success of the first year. The theme of "Green Chemistry: A Catalyst for the Economy" intends to explore economic development examples, opportunities, and implications of greening chemical products and processes in Michigan. The second annual Michigan Green Chemistry Governor's Award Program was also planned to promote excellence in innovation, economic development, and public health risk reduction by businesses and institutions, with a focus on the benefit to Michigan.

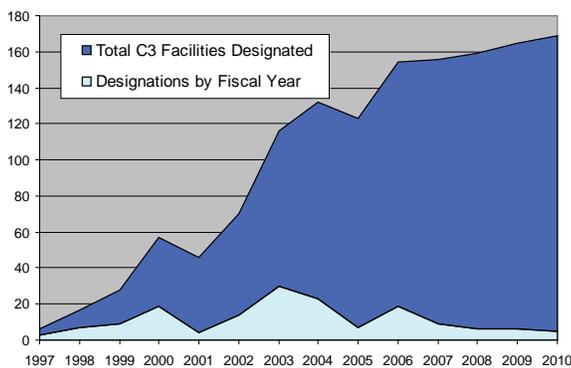
Clean Corporate Citizens

In FY10, 34 Clean Corporate Citizens (C3) received five-year longevity award certificates signed by Director Rebecca A. Humphries for their continued commitment to environmental stewardship. Eight C3s received ten year special tributes signed by the Governor for their decade-long commitment to the C3 program.

Highlights over the past year include welcoming the following new members:

- Magnesium Products of America, Eaton Rapids
- SAS Global Corporation, Warren
- MichCon Belle River Mills Compressor Station, China Twp.
- Dearborn Industrial Generation, LLC, Dearborn
- Diversified Machine, Inc., Montague

**Clean Corporate Citizen Program Growth
1997-2010**



"Helping the environment is only one benefit of implementing a more green approach. In almost all instances, the implementation of various programs has been beneficial to the bottom line as well." - Chuck Stage, SAS Global Corporation's Purchasing/Environmental Manager

Neighborhood Environmental Partners

The Neighborhood Environmental Partners (NEP) Program offers business and citizen groups the opportunity to work together to improve their neighborhoods, making them cleaner and more attractive places to live and work.

The DNRE Director Rebecca Humphries awarded 13 facilities in Michigan the NEP Program Award for their outstanding commitment to environmental community outreach. Their community partners were also recognized for their outstanding environmental contributions. The thirteen companies that received an award were:

- City of Wyoming Clean Water Plant
- Consumers Energy - J.R. Whiting Plant
- Detroit Edison - Belle River Power Plant
- Dow Corning - Midland Site
- General Motors - Flint Metal Center
- General Motors - Lansing Delta Township Plant (GM LDT)
- General Motors - Orion Assembly
- General Motors Powertrain - Romulus Engine Operations
- General Motors Powertrain - Warren Transmission Plant (GM WTP)
- Herman Miller, Inc. - Grand Rapids
- Mel Trotter Ministries - Grand Rapids
- Pilgrim Manor Retirement Community - Grand Rapids
- US Army Garrison - Detroit Arsenal

Green Lodging

Michigan's Energy Office and DNRE jointly sponsor Michigan's 'Green Lodging' Program to help hotels, bed & breakfasts, motels, resorts, and other lodging facilities enjoy and protect our state's natural resources and environment.

FY 2010 highlights include:

- 22 new applicants
- 25 newly certified facilities
- 2 facilities moving to a higher level of certification
- 5 facilities received energy audits

"We're very pleased to be designated as the first green hotel in Ann Arbor. Our team realized that hotel travelers will seek out environmentally smart hotels when making a travel choice. The Ann Arbor Convention and Visitors Bureau has fielded requests from potential clients and didn't have a green hotel to refer them to until now. We're excited to begin marketing our Green Lodging certification that will give us a competitive advantage."
Joe Sefcovic, General Manager, Holiday Inn-Ann Arbor

Mercury P2

Significant actions for reducing mercury environmental impacts in Michigan include the following:

- A grant was awarded to Michigan Energy Options to recycle mercury thermostats removed during energy efficiency improvements and community demolition efforts. The number of collection sites nearly tripled in less than a year.
- A grant was awarded to the Department of Agriculture's Clean Sweep program. During 2009, over 700 mercury items and 200 pounds of pure mercury were collected from local residents.
- Through a Great Lakes Restoration Initiative Grant, Michigan will expand efforts to remove mercury and reduce its impact from the state fisheries and water supply.
- Rules are being developed under Act 503 PA 2008 which regulates mercury amalgam discharges from dental offices.
- Over 31,000 mercury auto switches were recycled during 2009.

Environmental Assistance Program

The DNRE Assistance Center is an integral part of the overall Environmental Assistance Program (EAP) and serves as the single point of entry into all DNRE 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 a referral to a network of technical staff within DNRE.

The EAP staff handled 18,062 inquiries in fiscal year (FY) 2010.

Fostering effective partnerships with industry, government, and academia, the workshop team conducted 35 events held throughout Michigan. A total of 2,692 attendees participated in various training activities that encompassed technical training, compliance and enforcement activities, and innovative approaches to affecting change in various sectors.

Thank you so much for your support of this event [Pharmacy Day at the Capitol] and educating us on the medication disposal process. We look forward to continuing to work with you to improve public health and safety for Michigan patients! - Michigan Pharmacists Association

Green Building

Green building efforts in Michigan have continued growing each year.

- EnergyStar has certified 395 buildings in Michigan as energy efficient, including the House of Representatives' Anderson Building, three DNRE district office buildings, and over 200 K-12 school buildings. There are also over 5,000 energy star rated homes in Michigan.
- The US Green Building Council (USGBC) certifies green buildings under the Leadership in Energy and Environmental Design (LEED) program. There are 612 buildings registered that include museums, banks, nature centers, community centers, state office buildings, universities, and 187 LEED certified homes in Michigan.

The state of Michigan has been constructing and improving the management of state buildings to make them as 'green' as practical and improve their energy efficiency, reducing tax payers dollars spent on maintenance and energy.

Michigan Business P2 Partnership

The estimated combined cost savings gained via the P2 results reported by the Michigan Business P2 Partnership (MBP3) partners during calendar year 2009 was \$103,990,976 (Cost factor source: National P2 Results Data System).

Six new organizations joined the MBP3 in 2009, committing to develop P2 goals and report results each calendar year.

Newsletters and electronic mailings disseminated P2 news and opportunities to partners. Presentations were given at workshops to inform and engage potential new partners.

A new online P2 tracking and reporting application will be up and running for the next reporting cycle to allow partners to follow and submit their P2 progress and results.

P2 Results Reported By Partners In Terms Of Green House Gas Reductions:

Metric Tons of CO2 Equivalent (MTCO2Eq) Reduced

Reduction	MTCO ₂ Eq Reduced	Equivalency
Energy Use	92,128	The annual greenhouse gas emissions from 17,616 passenger vehicles.
Water Use	6,173	The CO2 emissions from 694,376 gallons of gasoline consumed.
Solid Waste Diverted from the Landfill	1,736,122	The CO2 emissions from burning 9,066 railcars' worth of coal.

(Source: USEPA GHG Equivalencies Conversion Tool)

"Networking, waste reduction/reuse opportunities and best practice sharing continue to be invaluable attributes of MBP3; as are educating, engaging and inspiring our employees' awareness to environmental responsibility. We continue to identify and 'raise the bar' with new/improved waste reduction opportunities." - Steelcase

Manufacturing Initiatives and Clean Technologies in Michigan

The DNRE continued the forward momentum to integrate P2 practices with the implementation of clean technologies to assist the manufacturing sector in Michigan in 2010.

Several collaborating partnerships resulted in the successful demonstration of government and business working together to reduce waste, enhance efficiency, protect the environment, and create economic benefit.

- The Southeast Michigan Sustainable Business Forum developed the first annual award program to recognize the efforts of companies demonstrating best practices in developing a sustainable Southeast Michigan and driving our economy towards an environmentally equitable future.
- The Southwest Michigan Sustainable Business Forum events focused on sustainability measures and metrics both for the business community and the Southwest Michigan Regional Sustainability Covenant.
- The West Michigan Sustainable Business Forum provided an online self-assessment tool designed for the sustainability leader to work with representatives from key areas within a company to identify ways to increase product and service efficiency, reduce negative health and environmental impacts, and meaningfully contribute back to their communities. The tool is also intended as an internal subjective analysis to help the company achieve continuous improvement.

Michigan Healthcare P2 Partnership

The Michigan Healthcare P2 works together with healthcare organizations and providers to promote sustainable waste reduction solutions for the healthcare industry in Michigan.

The DNRE, in partnership with Michigan Health and Hospital Association (MHA) and Michigan hospitals, formed the Michigan Green Healthcare Committee (MGHC). The MGHC was created to encourage and support sustainability initiatives that improve public and environmental health in Michigan. The partnership organized a conference focusing on waste reduction and energy efficient initiatives in healthcare. Over 90 healthcare representatives participated in the conference.

The DNRE is administering \$82,355 in Community P2 Grant funding to four hospitals for projects focusing on P2 at healthcare facilities in the state of Michigan. These hospitals are implementing various programs to support their goals including installing energy efficient lighting, purchasing environmentally preferred products, and implementing water conservation practices. The four community grant recipients are required to match the state funds by at least 25 percent.

The hospitals receiving funding are:

- Covenant Medical Center; \$24,000
- Northern Michigan Regional Hospital; \$20,000
- Otsego Memorial Hospital; \$13,655
- War Memorial Hospital; \$24,700

Supply Chain Environmental Management

Green Suppliers Network

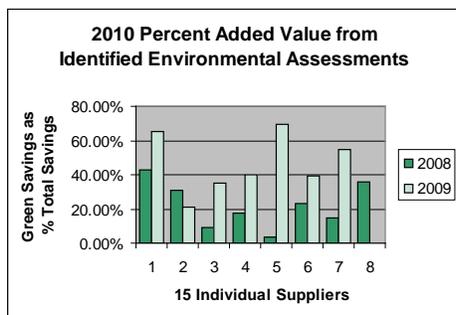
The 2010 sustainable manufacturing progress report provided by the West Michigan Strategic Alliance in conjunction with their consultant, the Sustainable Research Group, highlighted a total dollar amount in Lean and Green Savings for 21 GSN suppliers of \$12.9M, which covers the GSN demonstration period from 2006 through 2009.

To facilitate the continued progress of the Green Suppliers Network in Michigan, the U.S. Environmental Protection Act (U.S. EPA) 2010 P2 Grant Program awarded the DNRE \$276,594 to build upon the DNRE relationship with the Michigan Manufacturing Technology Centers, additional governmental agencies (Federal, State, and Local), businesses, and utility partners in the Southern Region of the Lower Peninsula, including Detroit and Grand Rapids. The E3 (Economy, Energy, and Environment) - Sustainable Supply Chain Alliance project is intended to set in place a mechanism for small to medium sized businesses to effectively track environmental outputs, engage in process changes or modifications, measure reductions in greenhouse gas (GHG) emissions and integrate the economic benefits of environmental measurement as a core competency into workforce training and business management.

In September 2010, the DNRE celebrated the 20th Anniversary of the P2 Act and the success of the Green Suppliers Network with officials from U.S. EPA Headquarters, Steelcase, Inc. Executives, company employees, and suppliers.

Suppliers Partnership for the Environment

The DNRE and The Suppliers Partnership for the Environment have partnered to foster collaborative synergies among Michigan companies, organizations, and governments by matching under-valued waste streams from one company to another. This creates opportunities for cost reduction and potential social and environmental benefits relating to "closing the loop" in materials use and management in the manufacturing sector.



The Michigan Department of Natural Resources and Environment (DNRE) 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 DNRE Office of Human Resources, PO Box 30473, Lansing, MI 48909.

Community P2 Grants

The Community P2 Grant Program seeks to bring local government, businesses, planning agencies, and residents together to achieve measurable waste reductions of pollutants using innovative sustainable pollution prevention practices. The DNRE awarded \$246,547 in community P2 grant funds to five municipalities for projects that focus on climate action planning. The grant requires municipalities to develop a greenhouse gas inventory and a plan that addresses emissions, climate, and energy challenges. The grant recipients are required to match the state funds by at least 25 percent. The municipalities receiving funding are:

- City of Ann Arbor, \$50,000
- City of Dearborn, \$50,000
- City of Hazel Park, \$48,747
- City of Southgate, \$49,767
- City of Ypsilanti, \$48,033

Small Business P2 Loan

All across Michigan, small businesses are taking advantage of the DNRE's Small Business P2 Loan (P2 Loan) Program to assist in deploying preferred technologies and practices. Established under the 1998 Clean Michigan Initiative (CMI) Bond approved by voters, the P2 Loan program has dispersed over \$5.3 million in 46 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.

In FY 2010, over \$940,000 was awarded in loans to the following P2 Loan Program participants:

- Bone & Joint Institute and their local lender, Citizens Bank
- McLeod Eastpointe Chiropractic and their local lender, Citizens Bank
- Robert Hasbany, MD, PLLC and their local lender, Citizens Bank
- Ogemaw Veterinary Clinic PC and their local lender, Firstbank
- Eastpointe Radiologists, PC and their local lender, Comerica Bank
- Donald J. Powers, DDS, PC and their local lender, Citizens Bank
- Thomas J. Giroux, DDS, and their local lender, Citizens Bank
- Daniel D. Rangell, MDS, PC and their local lender, Citizens Bank

"I am extremely grateful for the low interest loan from the Small Business Pollution Prevention Loan Program and Citizens Bank enabling us to install digital x-ray equipment in our Madison Heights office" said Dr. Robert Hasbany, member of Robert Hasbany, M.D. P.L.L.C. "This is a great program for small businesses like mine. We are able to reduce waste, conserve energy, and provide our patients with a state of the art service."

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