

Environmental Cooperation Pilot Program

# 2008 PROGRESS REPORT



Prepared by the Wisconsin Department of Natural Resources

October 31, 2008



### **More Information Available**

This Progress Report and other information on the Environmental Cooperation Pilot Program are available on the Wisconsin Department of Natural Resource's website at:

<http://dnr.wi.gov/org/caer/cea/ecpp/index.htm>

Also check out the Green Tier website: <http://greentier.wi.gov>



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# The Environmental Cooperation Pilot Program: 2008 Progress Report

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# Environmental Cooperation Pilot Program: 2008 Progress Report

## I. Executive Summary:

The Environmental Cooperation Pilot Program (ECPP) is about results, specifically recognizing and enabling environmental outcomes as well as economic gains. Looking at comprehensive data, participating companies have consistently demonstrated superior environmental performance. For example:

- Nitrogen Oxide emissions for participants are now less than 30% of baseline while statewide numbers have shown only half that level of reduction.
- Sulfur Dioxide emissions are now less than 40% of baseline while statewide numbers have actually increased above the baseline.
- Volatile Organic Compound (VOC) emissions are now below 60% of baseline while statewide numbers are still above 70%
- Hazardous Wastes are on a downward trend along with other businesses in the state with program participants performing nominally better than the remainder of the state.

The companies, through the goals imbedded in their environmental management systems, continue to produce the superior environmental performance envisioned by the program. The pilot program companies stepped forward and are sharing both their goals and results publicly while working with the Wisconsin Department of Natural Resources (DNR) to find ways that will improve both environmental and economic performance.

Results are also quite evident at the facility level:

- We Energies eliminated the need for 2400 cars of coal through the use of recovered ash fuels and realized reductions of nitrogen oxides and sulfur dioxides by 90% or more.
- Saved over a million dollars by using biogas generated on-site at Packaging Corporation of America (PCA).
- Reduced volatile organic compound emissions and hazardous air pollutant emissions by over 28% while also saving hundreds of hours of reduced reporting at Northern Engraving Corporation.
- Reduced energy use by 80-90% through a new thermal oxidizer at Cook Composites and Polymers.
- Beneficially reused bottom ash at Madison Gas and Electric (MGE).
- Diverted one million pounds of coated film from burning or landfills by recycling at 3M.

The work at these companies is summarized in this report and we encourage readers to visit our web site to look at the full reports which show charts, graphs and provide more detailed information about environmental and economic performance. The participants have also made a concerted effort to provide historical trend information for the work that they are doing under the cooperative agreements.

The Department of Natural Resources is pleased with the environmental gains and results of the participants and with their activities to extend those gains to others. It is particularly gratifying that the participants have found sufficient value to remain in the program.



## II. Environmental Cooperation Pilot Program – Environmental Performance

Performance has been the underpinning of the Environmental Cooperation Pilot Program. Performance has been demonstrated by the facilities as they have publicly shared their progress towards meeting the commitments in their agreements. Also, consistent with the most recent legislative audit letter, pilot program participants are re-examining their reporting systems to determine those areas for which normalized and/or longitudinal information will be available. The bulk of the performance indicated in this report gives the progress that has been made by participants to meet or exceed their Environmental Cooperative Agreement commitments. It is not expected that additional longitudinal and normalized data would be a part of the annual reports until 2009.

One of the more enlightening parts of the performance reporting has been the information that DNR has been able to develop by mining the existing information that companies (both Pilot Program and non-Pilot Program) share with the Department. Use of that information has enabled DNR to assemble a comparative snapshot of participant and non-participant environmental performance. These are not and should not be viewed as the definitive look at participant performance. They do represent an indicator that allows the program to take a first step towards overall environmental performance management.

In the course of the last year we also explored other approaches that might have yielded additional comparative performance information. Those efforts included a close examination of data about other similarly situated industries to see if statistical information might be used based on standard industrial code information. Also researched were other industrial, economic and environmental data bases that might yield comparative outcome information. The work did determine that the standard industrial code information did not yield comparative information that could be generated with currently available program resources. The work, done by an intern, does set the stage for further research and experimentation with more sophisticated metrics if we are able to secure volunteers with statistical and research skills able to take that work to the next step.

The information contained in the printed version of this report is the latest available, quality assured information at the time of publication. The online version of the performance tables (<http://dnr.wi.gov/org/caer/cea/ecpp/p2/index.htm>.) is updated as additional information becomes available. Due to the exercise of due diligence in quality assurance of incoming information, finalized statewide data will generally not be available until the end of the calendar year.

### Selection of the Baseline Year

The first ECPP agreements were signed in 2001 with We Energies' Pleasant Prairie Power Plant and Cook Composites and Polymers. By the end of that year, negotiations with Madison Gas and Electric, Northern Engraving Corporation, and Packaging Corporation of America were well under way. We Energies had by then applied for a second agreement covering more sites. We have selected the year 2000 as the baseline for most of this performance analysis because it is the year that predates nearly all of the significant ECPP milestones. The year 2000 also makes sense as a baseline because of EMS activity. 3M did not apply for the pilot program until 2002,



but had achieved certification of the EMS for their Menomonie site in late 2000. Northern Engraving Corporation's Sparta and West Salem sites were also certified in 2000. Other sites and other companies followed in later years.

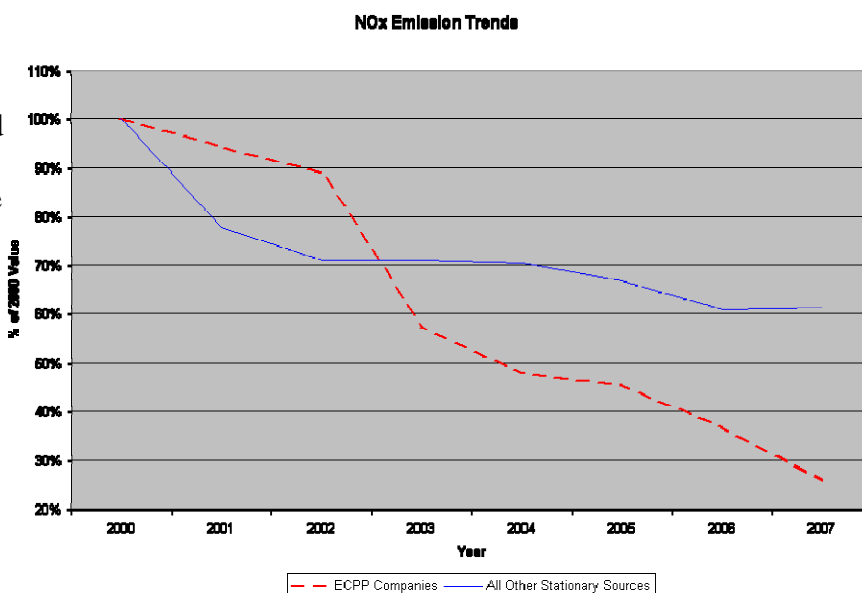
We need to use a different baseline year for one of our performance measures -- hazardous waste generation. Reporting requirements for hazardous waste generation are more comprehensive in odd-numbered years than in even-numbered years. Because of this distinction, it would not make sense to compare odd-year data to even-year data. We have chosen to examine only the more comprehensive and accurate odd-year data as our performance measure. In order to have enough data points to identify meaningful trends, we subsequently set the baseline year for this performance measure at 1997 even though that year significantly precedes the ECPP.

The tables below contain information on all of the We Energies plants even though the multi emissions cooperative agreement was not renewed. We retained that information in order to both maintain the continuity of the longitudinal information about the cooperative agreement program and in recognition of the agreement of the company to continue the work that was started under the cooperative agreement. At the time that we are able to issue a combined report for both Green Tier and the Environmental Cooperation Pilot Program, we would expect to make the transition to start a new baseline and new longitudinal information about environmental performance.

### Nitrogen Oxide Emissions

Nitrogen oxides, or NO<sub>x</sub>, is the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. To learn more about NO<sub>x</sub> and the human health and environmental effects of NO<sub>x</sub>, visit DNR's website at: <http://dnr.wi.gov/air/aq/pollutant/oxides.htm>

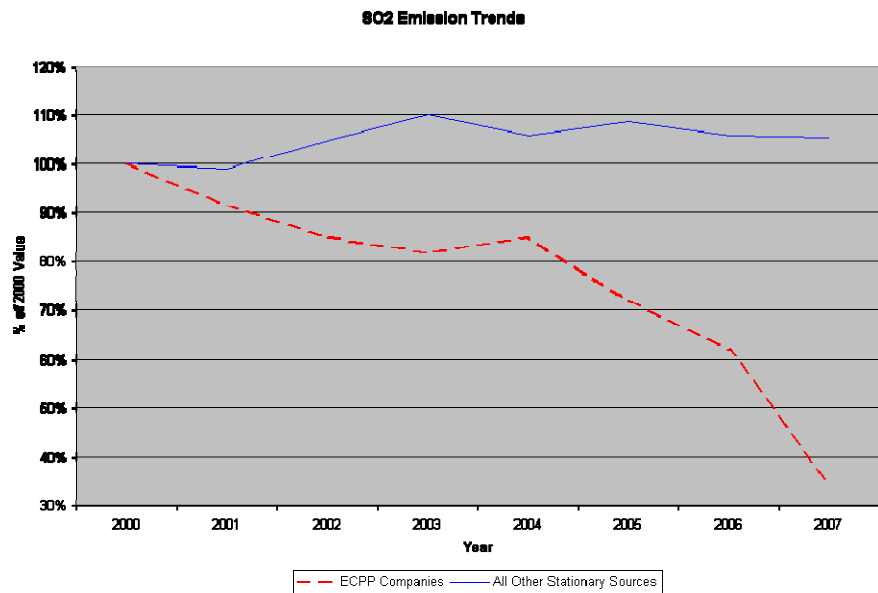
As the chart below shows, ECPP participants have reduced their NO<sub>x</sub> emissions to less than 30% of baseline (year 2000) levels in the course of seven years. Over the same time period, NO<sub>x</sub> emissions from all other stationary sources in Wisconsin have also declined, but the decline has not been as dramatic.



## Sulfur Dioxide Emissions

Sulfur dioxide, or SO<sub>2</sub>, belongs to the family of sulfur oxide gases (SO<sub>x</sub>). DNR provides more information on SO<sub>x</sub> and its human health and environmental effects on the following web page: <http://dnr.wi.gov/air/aq/pollutant/sulfurdiox.htm>

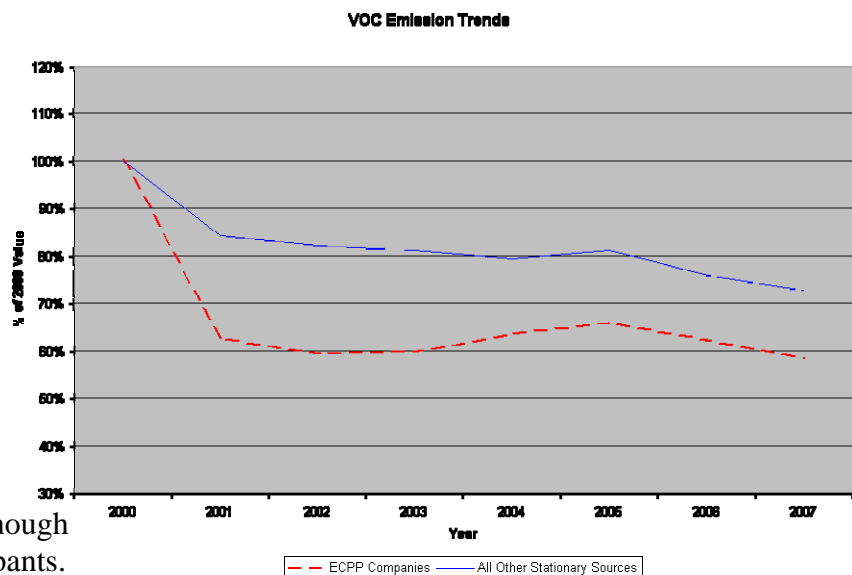
ECPP participants have reduced SO<sub>2</sub> emissions by about 65% from baseline levels. The large drop from 2006 to 2007 can be attributed to one participant in particular, We Energies. They had new standards which helped drop this percentage considerably. This accomplishment has happened at a time when SO<sub>2</sub> emissions at all other stationary sources in Wisconsin have remained relatively constant.



## Volatile Organic Compound Emissions

Volatile organic compounds (VOCs) are emitted as gases from a wide array of products including paints and lacquers, cleaning supplies, pesticides, building materials, glues and adhesives. More information about VOCs and their effects can be found at: [http://dnr.wi.gov/air/emission/historical\\_emissions/historical\\_emissions\\_voc.htm](http://dnr.wi.gov/air/emission/historical_emissions/historical_emissions_voc.htm)

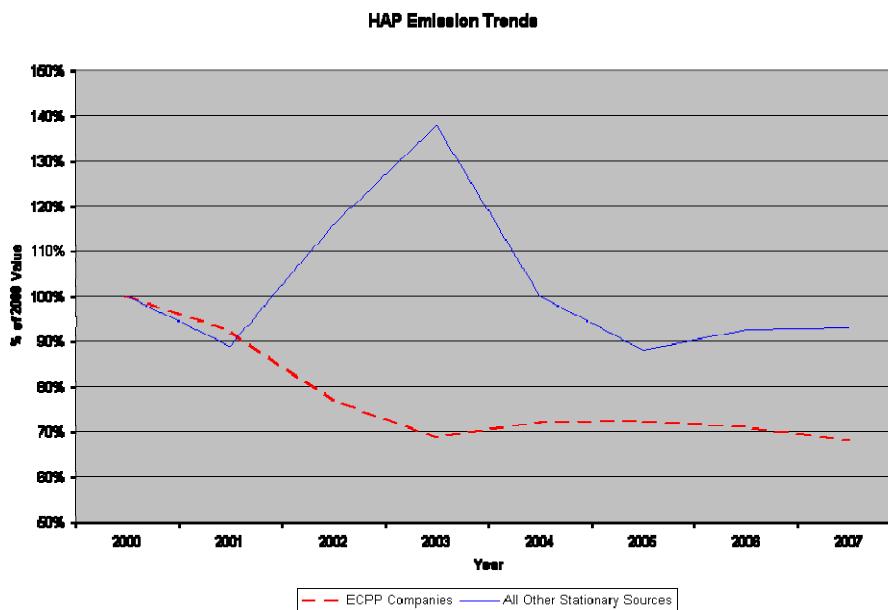
ECPP participants have reduced their VOC emissions by more than 40% since the baseline year of 2000. A slight increase in these emissions was noted in 2004 and 2005; however, VOC emissions decreased slightly in 2006 and 2007. VOC emissions from all other stationary sources in Wisconsin have also declined since 2000 though less than the ECPP participants.



## Hazardous Air Pollutant Emissions

This performance measure encompasses emissions of more than 400 different chemicals that are listed by Wisconsin and/or the federal government as hazardous air pollutants (HAPs). The human health and environmental effects of HAPs vary from chemical to chemical. Concise information on all of the listed HAPs is not available at this time, but a wealth of information covering more than a hundred HAPs is available from the U.S. Environmental Protection Agency website at <http://www.epa.gov/ttnatw01/hlthef/hapindex.html>.

Just as we saw with the previous performance measures, the trend in HAP emissions among ECPP participants is very encouraging. Total HAP emissions from participants have declined by over 30% from baseline levels, even with a slight increase in 2004 and 2005. HAP emissions from the rest of Wisconsin's



stationary sources have varied erratically from year to year. The latest statewide HAP emissions data from 2007 show an encouraging but modest 7% decline from baseline levels.

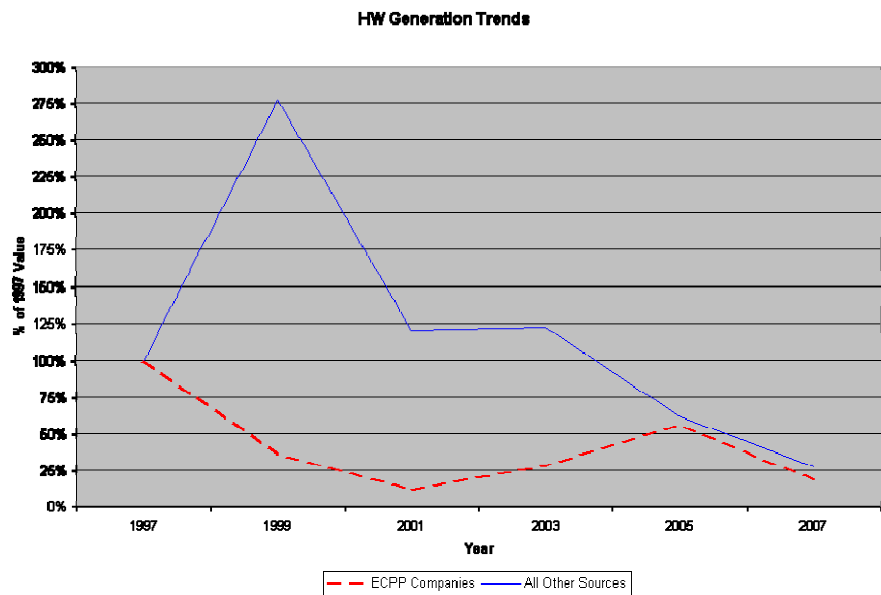
## Hazardous Waste Generation

“Hazardous waste” is a term that has a very specific meaning in Wisconsin and federal laws. The term includes an incredibly wide variety of materials each of which potentially poses some risk to human health or the environment. A DNR publication, available in electronic format at: <http://dnr.wi.gov/org/aw/wm/publications/aneupub/WA1152.pdf>, provides an explanation of how to determine what is and is not considered a hazardous waste. Under certain circumstances, regulated facilities must report to DNR the amount of hazardous waste (HW) they generate (or create) in a given year, which provides us with this performance measure.

As explained above, this performance measure only considers HW generation data reported in odd-numbered years because by law those reports are more comprehensive and accurate than reports in even-numbered years. The baseline year for this performance measure is set at 1997 in order to provide enough data points to discern meaningful trends.



When the last report was done with 2005 data, there was a troublesome upward trend line for program participants in contrast to the downward for the non-program participants. We are pleased that the current downward trend lines for both program and non-program participants mirror each other and that the program participants continue to nominally



out perform non-program participants. One of the trends that the data does not show is the work that the companies have done to pursue higher and better uses for the waste materials produced. Goals have been set and met to reclaim hazardous materials rather than just dispose of those materials or simply redirect them to fuel blending operations. These changes in practice are the result of collaboration between the participants and the Department. The work is actively encouraged by the Department and viewed as an objective of the program.



### III. Program Participant Accomplishments

The participants in the Environmental Cooperation Pilot Program continue to push leading edge environmental improvements both in the products that they produce and the way that they produce them. These companies have also taken their management of environmental performance to their communities, advocating for sustainability and to others in business as advocates for the sharing of technology and practices yielding competitive advantage and environmental benefit.

#### **Cook Composites and Polymers Co. (CCP) – Saukville**



CCP and DNR have been implementing Vision Element #3 of their Environmental Cooperative Agreement: “Together, CCP and DNR drive market-based environmental solutions and improvement”. This is a new type of effort for DNR because it focuses on helping a company facilitate connections between other relevant industries and state programs (university/government) in Wisconsin. So far the feedback from those other industries and programs contacted has been fairly positive and receptive to initiating discussions with CCP. Hopefully this effort with CCP will serve as a model for Green Tier companies interested in pursuing this type of relationship with DNR.

- CCP completed an internal AIMS and ISRS Audit in August 2007. The results of the Internal Assessment were quite favorable. CCP Saukville demonstrated a Level 8 AIMS rating, which indicates a well designed and developed management system.
- Recovery of xylene with Macro Porous Polymer Extration (MPPE) suste, attained xylene removal efficiency averaging approximately 96% in 2007, and higher than 99% in some sampling events during operating years 2001 through 2007. CCP continues efforts for improvements of MPPE operating consistency.
- In 2007, CCP generated approximately 1.36 million pounds of spent xylene, all of which were recycled (340,000 pounds) or reused through a by-product synergy partnership (1.02 million pounds).
- CCP also recycled for reuse approximately 206,000 pounds of spent glycol generated from its scrubber system and reactor cleaning in 2007. CCP used offsite vendors for this recycling.
- New Plant Manager: Paul Utecht of 28+ years experience with CCP and the former Production Manager assumed the role of Saukville Plant Manager in December 2007.
- CCP Saukville plant has moved composite resin production to another plant and will only produce coatings resins. As a result of this change:
  - Styrene use will decline and dicyclopentadiene (DCPD) will no longer be used at the Saukville plant.
  - There will be an increased use of mineral spirits and toluene.
  - The plant will continue to increase production of water-borne products.
- CCP installed a new Regenerative Thermal Oxidizer (RTO) in July 2008. This replaced an older technology unit and will result in better odor controls, reduced energy consumption and reduced green house gas emission. In the first month, CCP recorded an 80 to 90% decrease in energy use with the new technology.
- CCP moved from on-site wastewater incineration to off-site disposal via rail shipments to a centralized disposal facility in Houston. The incinerator will be disassembled and significant energy savings and emission reduction will result from this change.



- CCP expedited the change out of the plant's deep cooling water well pump with a temporary one in order to reduce their usage of village water. A permanent pump was installed at a later date.
- Initial tests using an innovative biological agent for in situ soil and groundwater remediation were completed. An initial injection of the agent into the soil was found to actively degrade the contaminants of concern present in the soil.

#### Stakeholder Engagement

- CCP has established a web page focusing on sustainability on the website of the U.S Business Council for Sustainability Development (<http://www.usbcsd.org/ccp.asp>). This allows CCP to share important information with stakeholders, including the Community Advisory Committee (CAC) and the Saukville community.
- CCP will host a series of bi-monthly *Sustainability Forums* in conjunction with the Village of Saukville to promote area and regional sustainability initiatives. DNR is assisting with these forums by contacting and discussing the forums with potential presenters and participants.
  - The first forum was held October 8, 2008 and was a joint forum held with Veolia, another Green Tier participant. The forum covered sustainable infrastructure, by-product synergy and how working together fits into a sustainable business model.
- In response to a suggestion from CCP's Community Advisory Committee (CAC), CCP agreed to send out CAC meeting invitations to all residents in the vicinity to enhance participation at the CAC meetings.
- CCP has worked closely with Village officials to gather data to determine the cause of odor problems with the Village water. It was determined the odor was a result of an iron problem NOT contamination from VOCs.
- In an ongoing effort to widen the network of businesses working toward environmental sustainability, CCP coordinated a meeting of CCP, DNR and Charter Steel and a tour of Charter Steel's Saukville facility.

#### CCP industry and national activities

- CCP launched a multi-pronged advertising campaign that introduced a new line of SYNAQUA water-borne alkyds to the US coatings market.
  - Over arching theme "Treating products with technology, treating nature with respect". The products in the SYNAQUA line are ideal for wood and concrete applications, porch and deck stains, wiping stains, and sash and trim enamels.
- CCP presented on its Saukville experience with stakeholder engagement at the 2007 National Association of Environmental Managers (NAEM) Annual Environment, Health and Safety Management Forum.
- CCP participated in an independent audit of its Corporate Social Responsibility (CSR) conducted by *The Good Corporation*, based in the United Kingdom.
- CCP presented at the *2007 Composites and Polycon* convention on opportunities for sustainable composites and cast polymer products using by-product synergy strategies.
- CCP participated on the *Industry Working Group of the State of Wisconsin Governor's Task Force on Global Warming*.
- CCP worked with Missouri and Wisconsin Departments of Transportation on testing soy-based traffic marking paint that reduces the need for petroleum solvent based coatings.



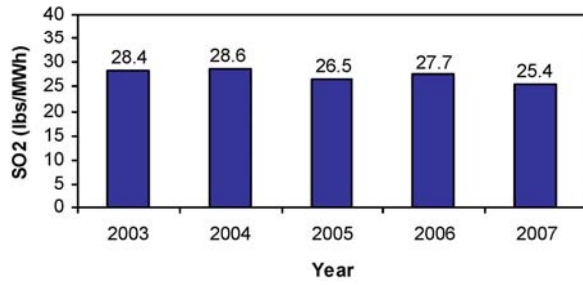
In 2008, MGE accomplished the following:

- Found new ways to beneficially reuse about 15% of the Blount Generation Station (BGS) bottom ash (in addition to the fly ash which has been beneficially reused for years).
- BGS recently underwent a successful full-system ISO-14001 three-year recertification audit.
- Removed and recycled more than 280 pounds of mercury equipment at BGS.
- Diverted 51,415 tons of waste from landfills, displaced the use of 46,156 tons of coal, and thereby reduced SO<sub>2</sub> emissions by 1,137 tons through the use of a paper-derived fuel at BGS.
- Displaced more coal and reduced NO<sub>x</sub> emissions at all but the lowest loads by implementing the Combustion Improvement Study on BGS Boiler 8.
- Launched a new green power pricing program that gives customers the opportunity to purchase up to 100% renewable energy. More than 10% of MGE’s residential customers have signed up, the highest participation rate for any investor-owned utility in the U.S.
- Increased wind capacity nearly eight times to 87 megawatts by commissioning a new wind farm and purchasing capacity from wind farms in Wisconsin and Iowa. MGE meets Wisconsin’s Renewable Portfolio Standard.
- Introduced a new solar buy-back program to encourage a local solar energy market. MGE buys solar power generated by customer-owned photovoltaic units and includes the energy in the company’s green pricing program.
- Opened a Diesel Generator Emission Reduction Study by converting a backup generator for operation on natural gas and ultra-low sulfur diesel fuel to compare emissions of the two fuels.
- Purchased 63,559 gallons of biodiesel to reduce company vehicle emissions of carbon monoxide, particulate matter, SO<sub>2</sub>, and VOC.
- Completed the Storm Water Filtration Demonstration Project which decreased the sediment concentrations that are generally found at similar sites using urban storm water monitoring.

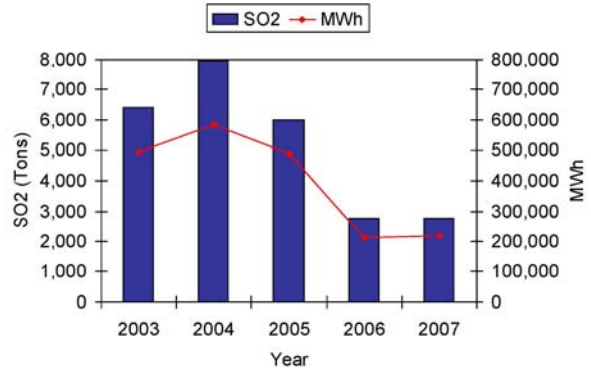


MGE Wind Farm

## Blount SO<sub>2</sub> Emission Rates

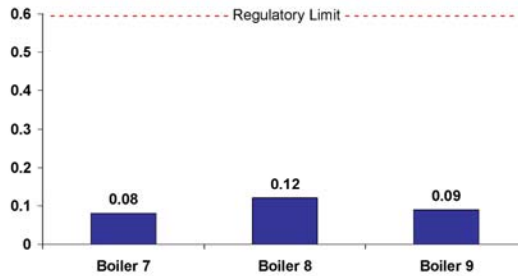


## Blount SO<sub>2</sub> Emissions vs. MWh Production



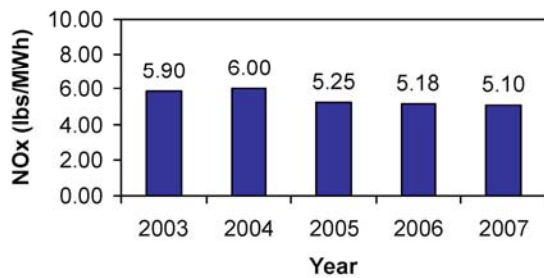
## Particulate Matter<sup>1</sup>

Emission Rate in Pounds per Million British thermal units (lbs/mm Btu)

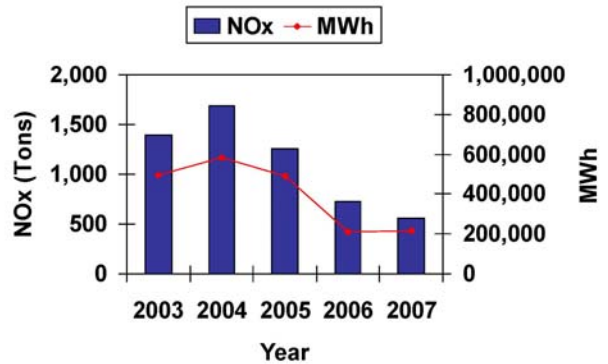


<sup>1</sup>The particulate matter data represents total particulate matter.

## Blount NO<sub>x</sub> Emission Rate



## Blount NO<sub>x</sub> Tons vs. MWh Production



## WE Energies - Pleasant Prairie Power Plant

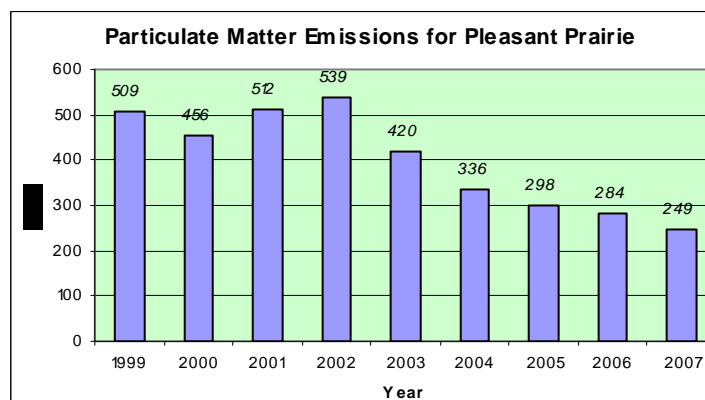


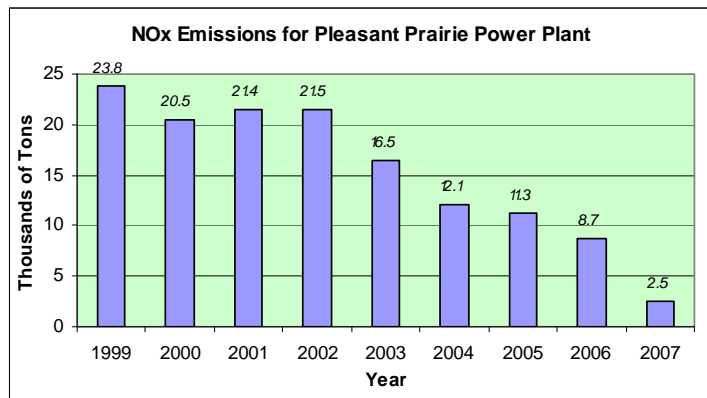
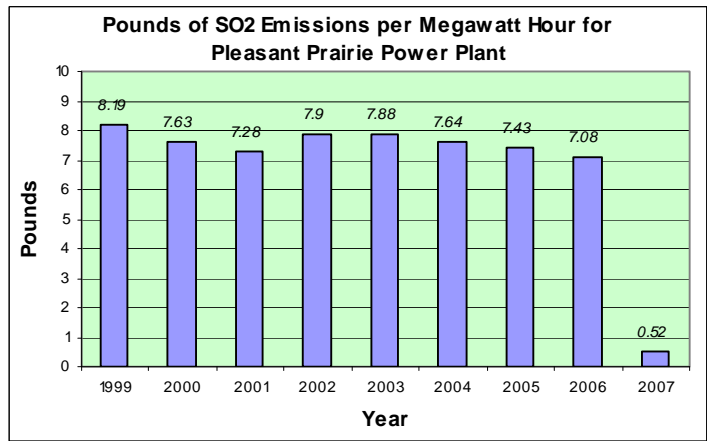
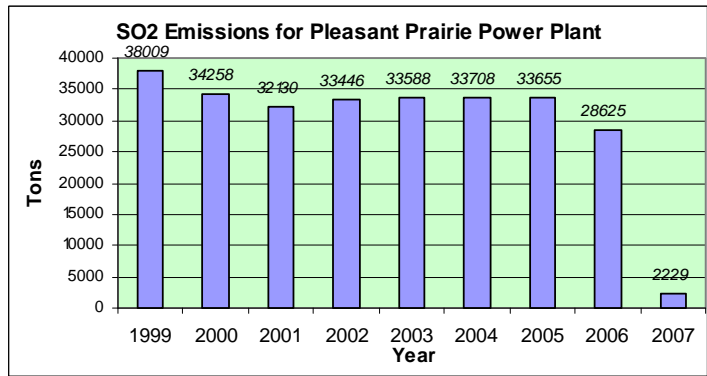
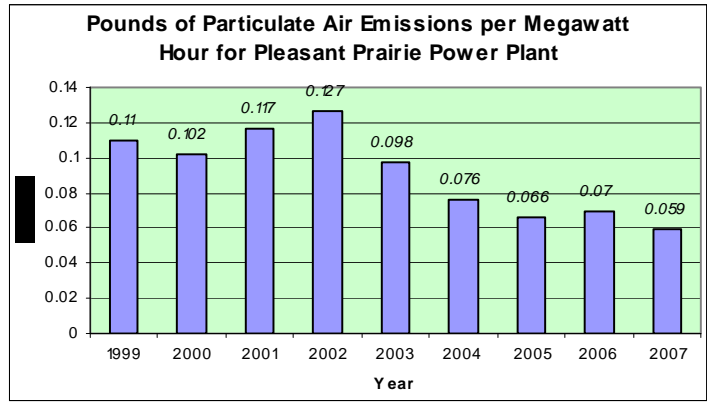
### 2007 Performance Highlights

Completed construction and brought into full operation the \$325 million installation of the Air Quality Control System (AQCS) project at both units.

- By the end of the year, realized a reduction of NOx emissions by 90 percent and SO2 emissions by more than 90 percent.
- By end of the year, realized a particulate matter reduction by more than 50 percent.
- Serving as the host site, initiated construction on the first-of-a-kind \$10 million carbon capture demonstration project.
- Continued to be the only plant in Wisconsin with both particulate matter (PM) and mercury continuous emission monitors (CEMS).
- Continued to achieve a 100 percent utilization of coal combustion products (i.e. bottom and fly ash) for commercial use.
- Established a local, commercial market for gypsum by-product produced from the flue gas desulfurization (FGD) units installed as part of the AQCS project.
- Displaced more than 2,400 rail cars of coal by reburning ash fuel at the plant that would otherwise be landfilled. This is the equivalent of over 20 unit trains of coal from Wyoming.
- Achieved a total of 37 Peregrine falcon chicks successfully fledged from the nest box at the plant. Pleasant Prairie Power Plant has the only chimney in the U.S. designed specifically to accommodate Peregrine falcons.
- We Energies has undertaken extensive efforts to share a broad range of technologies that have been developed and are in development at the facility including international sharing of information, work through media to introduce the public to the benefits of new technologies and work with regulators to examine new technologies.

### 2007 Key Air Quality Performance Parameters for We Energies Pleasant Prairie Power Plant





## Northern Engraving Corporation (NEC) – Sparta, Holmen and West Salem Facilities



Northern Engraving Corporation continues to utilize their quality EMS to find ways to reduce their environmental impact. NEC has met all conditions of the 2007 Extended Agreement. The company's administration has dedicated the kind of support required in staffing, time, and training in order to make their EMS one of the most robust systems in the program.

### Overall Summary (Excerpt from March 2008 Annual Report)

#### Collective Summary of 2007 (1996 through 2007) for Sparta, Holmen and West Salem

- Volatile organic compounds (VOC) and hazardous air pollutants (HAP) decreased 73% (223 tons/year) and 94% (110 tons/year), respectively.
- 79% less water usage than in 1996
- generation of hazardous and solid wastes decreased 73% (42,450 gallons/year) and 83% (1,311 tons/year), respectively

Note: Reduction in hazardous waste generation resulted in collective 45% increase (1,559 gallons/ year) in non-hazardous waste between 1996 and 2007 as treated waste water.

#### Collective Summary Comparison (2007 to 2006) for Sparta, Holmen and West Salem

- VOCs and HAPs were reduced 28% (31.9 tons/year) and 9% (0.7 tons/year), respectively.
- In 2006 and 2007 steps were taken to remove oil from absorbents, allowing for their reuse and thus their removal from the non-hazardous waste stream. This, along with reductions in the waste from spraying water base paints, resulted in a reduction of 46% (4,620 gallons/year) in 2007 compared to 2006.

### 2007 Objectives and Targets Results

Significant environmental successes of 2007 include:

- Reuse of inside air as intake air for coating ovens saved 4,489 million cubic feet (MCF) of natural gas and the corresponding avoidance of over 260 tons of carbon dioxide emissions.
- Process improvements for the purpose of improving product yield resulted in fewer wastes and emissions in all of NEC's facilities.
- Process changes that allowed for the removal of one oven and for turning off the heat in one section of another resulted in the savings of 6,100 MMBTUs of natural gas. (350 tons of carbon dioxide emissions avoided)
- Relighting projects at these three facilities resulted in an annual savings of 577,000 KWH. (200 tons of carbon dioxide emissions avoided)

### Successful Approaches:

- Reformulation of sprays from solvent to water base
- Recycling of oil absorbents
- Reuse of inside air
- Relighting
- Improved efficiency and process allowed for removal of one oven with better control over heat generated from another
- Improvement in product yield



Individual facility information can be accessed from the yearly reports at:

<http://dnr.wi.gov/org/caer/cea/ecpp/agreements/nec/index.htm>

Interested Persons Group - NEC conducted one virtual meeting in May 2007 through e-mail (due to members unable to attend a meeting) and held one face-to-face meeting on December 6, 2007. DNR was involved with both. Updates were provided on 2007 annual report, company restructuring, and new air applications.

Environmental Management System - In addition to frequent internal audits, NEC continues to conduct annual audits utilizing a third-party auditor. In 2007 no non-conformances were found with only one formal corrective action. Two opportunities for improvement were observed. 100% of staff interviewed during the external audit understood the 4 key points of their environmental policy.

Compliance - On November 30, 2007 NEC received a Notice of Violation from USEPA as a result of March 19 and 20 multimedia inspections at the Sparta facility that listed three violations under the provisions of the Resource Conservation and Recovery Act (RCRA).

- 1.) A 55-gallon container was without the accumulation start date. This was an oversight on the part of the waste handler and immediately corrected.
- 2.) NEC transported aerosol cans to West Salem to have them drained, crushed and recycled. This form of recycling of aerosol cans is acceptable and preferred to discarding the cans; however if any of the cans contained a hazardous waste, transporting aerosol cans to another facility would have been a violation. Transporting empty aerosol cans would not be a violation. Neither NEC nor USEPA made a determination if any of these cans were empty or contained hazardous residues. NEC immediately discontinued transporting aerosol cans to West Salem and began crushing them on-site. In December NEC purchased a device that punctures the cans, thus making recycling easier.
- 3.) Disposable towels are centrifuged to remove solvent and sent to the Holmen facility for disposal at the Xcel Energy waste-to-energy facility. USEPA contended that some of the towels contain a listed hazardous waste and must be sent out for disposal as a hazardous waste. NEC has determined that its handling of the towels is exempt from hazardous waste regulation since the solvent and the towels are recycled; either reclaimed and reused or burned for energy recovery respectively. In previous inspections DNR agreed with NEC's determination that the towels are exempt from hazardous waste regulation. Based on consultation with DNR, NEC continued with its towel handling practice and has determined that these practices are not a violation of Wisconsin Administrative Code.

On March 5, 2008 USEPA issued a Letter of Acknowledgment informing NEC that USEPA had reviewed NEC's response and determined that additional enforcement action need not be taken at this time. This letter acknowledges that NEC had corrected any and all violations and is operating in compliance with RCRA requirements. Holmen and West Salem did not receive a notice of violation in 2007.

Operational Flexibility - Both DNR and NEC agree that the flexibilities in the agreement offer substantial savings in time, money and resources.

Collective Time Saved:

- RACT Compliance: 8.25 hours/day
- LACT Compliance: 40 hours/month (480 hours/year)
- Discontinued annual Reporting: 30 hours/year

Energy Savings: 24,000 Million Cubic Feet (MCF)/year in natural gas use.



Overall Assessment of Agreement - For NEC the Cooperative Agreement offers a valuable tool for competing in an ever changing and highly competitive, global marketplace. The environmental management systems at Sparta, West Salem, and Holmen are now nine, eight and five years old, respectively. As mature and successful systems they must concentrate on retaining environmental improvements while searching even deeper in their processes for innovative pollution prevention and waste reduction measures. The time saved, as a result of this agreement, allow NEC personnel to devote more of its effort toward pollution prevention and waste reduction measures. Reducing waste not only benefits the environment, it also helps NEC to contain its costs. A strong working relationship has been developed with DNR. In 2007 this strong, cooperative effort resulted in the renewal of a mutually beneficial agreement. Additionally the support of the DNR was extremely valuable in NEC's dealings with the USEPA. Both DNR and NEC value this working relationship and looks forward to it continuing into the future. The mutual benefits, education and assistance from the company in conducting outreach to others and assisting department staff in the educational component of their EMS and diversity of its business is invaluable.

## **Packaging Corporation of America (PCA) – Tomahawk**



PCA continues to move forward under the cooperative environmental agreement. The agreement was renewed in the fall of 2007. Since the renewal, PCA identified several environmental action items. Of the 12 items that PCA has identified, several are driven by permit or Federal or State requirements. However many include beyond compliance components. This following list identifies all action items and highlights those with voluntary improvement components.

- **Sludge Reuse** - In an effort to seek alternatives to landfilling as well as finding the highest value end use for the sludge generated at PCA, the company has obtained a permit to publicly distribute wastewater treatment residuals for private or commercial use. Currently, private use is the sole outlet for the residuals. In an effort to expand into the commercial market, PCA has shared analyses information. Transportation costs to the prime market (Northern Illinois) appear to be a barrier.
- **Spill Prevention Control and Countermeasure plan (SPCC) review and update** - PCA has begun updating their SPCC plan in anticipation of upcoming regulations that will modify the requirements.
- **Alternate Phosphorus Plan** - As part of PCA's reapplication for their NPDES permit, the company needed to justify an alternative phosphorus discharge limit. PCA retained a third party to review the technical and economic impacts of complying with the default standard. The review did indicate that an alternative level is warranted.
- **PCA is awaiting information from USEPA on how the June 2007 boiler MACT court decision will affect the designation and ultimately the operation of their boilers.**
- **PCA continues to have BOD discharges that are substantially below their allowable level. This summer, water temperatures rose and triggered wasteload allocation monitoring. The monitoring requirement for PCA goes from twice weekly to daily in this circumstance and only reaffirmed the long historical trend of being below permit requirements.**
- **Title V Recordkeeping/Inspections** - By maintaining recordkeeping and by computerizing maintenance management inspections, PCA is able to demonstrate compliance with CAA – title V operating permit requirements.



- FERC license - In 2008, PCA was required to perform vegetation surveys for aquatic invasive species such as purple loosestrife and Eurasian water milfoil. PCA retained a consulting firm to conduct the survey.
- Phase 2A Frost Protection - Placement of a 4-foot layer of boiler ash to serve as a frost protection layer for the base of newly constructed Phase 2A of the landfill was completed in April 2008.
- NPDES renewal - Every 5 years PCA is required to reapply for a NPDES permit. The permit establishes the conditions under which PCA must operate to ensure water quality standards as they relate to wastewater treatment plant discharges.
- Mercury Minimization Plan - PCA is required to conduct mercury testing of its wastewater plant effluent. In addition, the mill is required to review purchased chemicals for mercury to limit occult inputs of mercury into the process.
- In 2007 PCA brought a biogas collection system on line. The biogas is generated from the facilities wastewater treatment plant. A core component of the original environmental cooperative agreement was the flexibility to hard-pipe non-condensable gases to the wastewater plant. This alternative MACT process has allowed PCA to generate biogas and ultimately utilized it at the facility to offset their fossil fuel usage. PCA is collecting on average 23,250 cubic feet/month of biogas. In 2007, the heat value of the biogas (as a natural gas substitute) totaled 192,000 MMBtu, worth about \$1.6 million.
- PCA's Tomahawk facility piloted a biogas technology that is now instituted at their Filer City, Michigan facility. The biogas refinery there is reducing natural gas and coal use and is reducing production costs. It appears this technology will be applicable to other types of mills and may have the potential to reduce the capital cost of expanding some types of existing mills.



## 3M Company – Menomonie



The plant's commitment to reducing its environmental footprint continues to contribute to 3M's reputation in the community, the country, and the world and demonstrates that economic progress and environmental improvement can go hand-in-hand. It is important to reiterate that the reporting (which was started when the agreement was renewed) does not include recycled waste and reuse of material as "good output" and are now included as waste output (non-product output or NPO). This allows for more discrete reporting on the percentage of materials recycled or percentage of materials reused. As important, this approach provides a lesser credit for emissions/waste reduction activities and therefore establishes a more challenging goal. The information below is from 3M's March 2008 annual report, and is the first report under the October 2007 Extended Agreement. 3M Menomonie experienced several changes that influenced their environmental achievements in both positive and negative ways. It is important to remember that the goals indicated in the 5 year Agreement cover a 5 year period (2005-2010) under 3M's Environmental Targets 2010, their corporate environmental goals.

### 2007 Environmental Performance

#### Tools

- Six Sigma
- Environmental Management System (ISO 14001)
- Lean Manufacturing
- 3M 3P Program (Pollution Prevention Pays)

#### Influences on overall efforts

##### Energy

- Major capital improvements including expansion and building, equipment installation, seasonal weather changes and lower good output contributed to a lag in energy improvement. 3M expects improvements in energy use/1000 pounds good output to improve in 2008.
- An ongoing high bay lighting project is the replacement of many of the metal halide fixtures with newer hi-intensity fluorescent fixtures that put out 50% more light and use 50% less electricity. With the rebates from Focus On Energy, the cost of the lamp and installation has a 1.5 year simple payback. Each fixture replaced saves about \$115 dollars per year on a 24/7/365 burn.

##### Emissions

- While actual VOC emissions decreased by 15% compared to 2006, some of this was due to lower production.
- New formulations and solvent mixes of higher solids/low solvent also contributed. In 2008 new process equipment installation should provide additional improvement.
- A new pollution control unit installed in 2008 as part of a new ceramic fiber making line concentrates solvents applied from three lines and incinerates them in a thermal oxidizer. This should significantly reduce VOC emissions from these lines that previously were exhausted to the atmosphere.

##### Non-product Output

- In 2007 the startup of two new film lines, modifications to an existing line in Personal Care Division (PCD), increased process waste from the new coater lines, a new plating tank start-up, and obsolete raw materials from Ceramic Fibers, created additional waste that could not be



offset by gains in production output. In addition, considerable product development on existing processes also added to the increase.

Note: Though amount of hazardous and non-hazardous waste incineration increased by 35% and 21%, 1,000,000 pounds of coated film waste was diverted from landfill and incineration to recycling in 2007.

- 3M continues to see success in recycling and reuse of materials. Through Q2 2008 the plant has reused or recycled 89% of its non-product output.
- Non-standard wood pallet recycling continues to provide improvements in the sum of 2,717,000 pounds in 2007.

### **Natural Environment**

3M has a unique opportunity to protect and enhance a 100 acre parcel adjoining the industrial complex. This property is adjacent to other wild land property owned by the city, consisting of wetland shrubs, hardwoods, prairie, and open water. In addition, this property provides an extended buffer between the industrial complex and Lake Menomin within the city limits. 3M Menomonie just recently received site certification through Wildlife Habitat Council (WHC) *Wildlife at Work*<sup>SM</sup> certification program for the successful implementation of a comprehensive wildlife habitat management program. This prestigious distinction is awarded by WHC for demonstrated commitment towards long-term wildlife habitat enhancement efforts. Completed and ongoing projects included bluebird and wood duck nest box placement and monitoring, wildlife shrub and tree planting, and prairie meadow restoration.

### **3P Projects**

- 3M discovered an opportunity that saved 1.4 million dollars in packaging material. By winding twice as much product onto a core and using new packaging they reduced shipping weight by 672 tons. This project was recognized as the 2007 3M corporate 3P award winner in the mobius (packaging) category. No CO2 reduction relationship was provided, however significant.
- Improved yield process allowed for increased sales of finished product by 1.5 million dollars and diverted 9.9 tons of waste from landfills.

### **Interested Persons**

Participation in the stakeholder group meetings has been good. The group is well rounded with representation from public works, business, health, utilities and the local chapter of the Sierra Club. 3M provides a great opportunity for stakeholder input into the annual reports with additional overall community involvement activities and on site progress reports. 3M also provides overviews of the next year's projects.

### **Other Stakeholders**

Through a grant from 3M Community Affairs, 3M-Menomonie provided the Menomonie Public Schools \$5,000 for their 2007 Earth Day Challenge IV. Approximately 40 3M volunteers assisted the students on various environmental projects throughout the county that day. This was the fourth straight year that 3M has provided monetary and volunteer support.

### **Overall Assessment**

3M is committed to reducing their environmental impact. They incorporate a number of tools to track and identify both areas of improvement and areas needing improvement in their pursuit of sustainability.



## IV. Technology Transfer

### Sharing Ideas and Information

Our ECPP participants are more than just environmental stewards – they are leaders. On a regular basis these companies go out of their way to assist others in learning about and adopting innovations in environmental protection. From partnerships in developing new energy sources to sharing best practices with businesses in Japan, our participants work to protect the environment beyond their borders.

Technology Transfer Activity	Active ECPP Participant
One-on-one advice on EMS & other technologies	CCP, MGE, NEC, PCA
Talks & presentations on environmental advancements	3M, CCP, NEC, PCA, WE
Facility tours & events highlighting environmental efforts	PCA, WE
Supply chain improvements	CCP, MGE, NEC, PCA
Public education of efforts they can take to improve the environment	3M, MGE, PCA, WE

It is not possible in a report of this type to provide a comprehensive delineation of the technology transfer efforts undertaken over the course of the last year. In the spirit of sharing the collective commitment to technology transfer, there are several examples of information sharing and technical assistance that are provided below.

- Packaging Corporation of America’s environmental manager has delivered a guest lecture on EMS every semester to students at University of Wisconsin – Stevens Point for the last five years.
- PCA met with the Japanese on biogas generation.
- Madison Gas & Electric has an extensive website educating its customers in alternative energy options as well as methods to reduce energy consumption.
- Northern Engraving has instigated dozens of improvements in its supply chain to develop environmentally safer and more sustainable components for its products.
- CCP presented at the 2007 Industrial Energy Technology Conference on partnership through Management Systems for Energy to reduce cost and greenhouse gas emissions and shared its experience in stakeholder engagement with the 2007 meeting of the National Association of Environmental Managers.
- 3M and CCP educated Green Tier participants at Green Tier Advantage '08 with a session on an aspect of Eco-economics: “Working with customers and the supply chain to yield sustainable environmental and economic benefits”.
- We Energies hosted visitors from throughout the U.S., Europe and Japan to tour the completed AQCS and Carbon Capture Demonstration Project.



ECPP participants share information at *Green Tier Advantage '08*

## V. Renewal of Agreements

The law that enabled the pilot program allowed only one renewal and all of the agreements are now in that final period. In last year's annual report we reported the renewal of six of seven cooperative agreements. Work is now underway for a long term strategy to enable these agreements after the law essentially expires after the remaining 5 years on these agreements. To accomplish that objective, the group advising DNR on Green Tier has recommended language to be included with the legislative reauthorization of Green Tier which would enable the transition of the cooperative agreements to Tier 2 contracts under Green Tier.

The legislation is expected to be introduced at the beginning of the 2009-2011 legislative session. While there will still be time remaining on the Cooperative Agreements, the driver for the introduction of the legislation is the July 2009 sunset provision in the Green Tier Law. Our goal is to create the pathway for Cooperative Agreements to Green Tier Contracts, consolidate the reporting and analysis of the programs and get reauthorization of the Green Tier and Compliance Audit Programs.

## VI. USEPA Collaboration

In 2007, the United States Environmental Protection Agency Region 5 (USEPA- Region 5) undertook some organizational changes that caused changes to some offices and their priorities. Collaboration between DNR and the Region were sidetracked while the Region worked on restructuring and strategic plan development. In spite of this diversion, Region 5 and DNR pursued joint efforts to market, recruit and promote USEPA's Performance Track program and DNR's Green Tier program.

DNR sponsored and/or organized several marketing and communication events that focused on making a business case for sound environmental practices and Green Tier. USEPA participated in DNR's and Wisconsin Environmental Initiative's Green Tier Advantage – "Making Your Business the Most Powerful Force for Environmental Good" which provided an opportunity to network with businesses, consultants, and organizations regarding performance-based environmental programs as well as discuss related issues and concerns. DNR and USEPA collaborated on marketing and recruitment which included meetings with prospective members such as Harley Davidson, or at a Performance Track recognition event at a 3M facility. Based on the positive reception of these joint efforts, DNR and USEPA plan to develop a strategic approach for identifying events and/or sectors of mutual interest and benefit.

USEPA and DNR continued to make progress on implementing special Green Tier projects with federal regulatory interest. These projects present significant challenges, but when successfully completed will be of national interest as well as possibly present a model for use by other programs and states. Both agencies are working diligently to resolve issues and develop new approaches such as the integration of an environmental management system into an air permit. Another project proposes the inclusion of a trade association into the management and monitoring of its members. These projects represent new approaches to existing problems with new partners, and the Agencies are working together to find solutions.



The working relationship of the agencies was reaffirmed in the Environmental Performance Partnership Agreement (EnPPA) between USEPA and DNR which moved the language from a separate Memorandum of Agreement to the EnPPA which is the governing document for joint work between the two agencies for all of the programs shared between them.

Progress in developing incentives remains mixed but both parties have remained dedicated to working out the issues and barriers. Work continues on the development of flexible air permits through the Green Tier Program and work also continues on ways to draw the Pilot Program, Green Tier and USEPA's Performance Track Program together in ways that support all of the performance based programming.



## VII. Program Challenges

- **Sunset Provisions and Statutory Limitations** – Referenced in last year’s report, progress has been made but work remains to be done. We expect legislation to be introduced at the start of the 2009-2011 legislative session. The legislation is expected to have a component that would allow the transition of participants into the Green Tier program before their agreements expire. The long term future of the agreements remains in question. The Green Tier Advisors (a statutorily designated group that advises DNR on Green Tier implementation issues) has been working on a recommendation to provide new statutory provisions that would allow the Pilot Program participants to easily become participants in the Green Tier program with their Cooperative Agreements becoming participation contracts under Green Tier.
- **Performance Metrics** – One of the biggest challenges DNR has faced has been quantifying the divergent environmental activities undertaken by the pilot program companies into a set of translatable performance measures. DNR has maintained a high degree of flexibility with its pilot companies to allow experimentation and business value for pilot companies. This approach however has left the Department with fewer standard program metrics in which to demonstrate success of the program. While the basic set of metrics will be included in this report, staff attrition has left the program without the resources and skill sets to further develop these valuable and informative metrics.
- **Program Resources** – The Environmental Cooperation Pilot Program has been further stretched with the staff departures and retirements. Both the Bureau of Cooperative Environmental Assistance and the program bureaus have made adjustments but continued restriction on federal funds, limits associated with state funding sources and budget reductions restrict the scope and nature of the work under both the Environmental Cooperation Pilot Program and Green Tier.
- **Stakeholder Involvement** – DNR continues to explore strategies to fortify the objective for increased public involvement for Environmental Cooperation Pilot Program companies. The Department and the participants are working on ways to fortify stakeholder involvement work.



## VIII. Conclusions

Considerable time and effort has been spent in developing metrics. The pilot program is one of the few programs nationally that provides both longitudinal and comparative information. Clearly defined base year information has been developed and the progress in addressing key environmental outcomes is now shared on an annual basis. Similarly, that information is shared in a way that examines how participating companies have performed in relation to the rest of the state. To our knowledge, this is not done by the other 25 state performance-based programs and is not done for the national performance program. We continue to work on ways to further refine that information but the resources are not available to undertake some of these more complicated forms of analysis. We will however continue to seek opportunities to do that work. The bottom line to the information that we can derive from the numbers thus far is that the participants out perform others in the state, provide a level of performance transparency generally not equaled by their peers and consistently provide hard evidence of superior environmental performance. We still have much to learn and the metrics are helping that learning process.

Certainty and continuity are the critical elements of maintaining a performance based working relationship between the Department, companies and communities. Reauthorization of Green Tier with a component for Pilot Program participants is an essential next step to affirm recognition and flexibility for companies committed to superior environmental performance. Continuity will come not only from reauthorization but also from the closer union of the two programs, now sharing goals, technology transfer and publicity. As the programs come closer together we expect that metrics and administrative efficiency will also develop.



## *Environmental Cooperation Pilot Program Contacts*

<b><i>Participating Company</i></b>	<b><i>Company Contact</i></b>	<b><i>DNR Contact</i></b>
<b>3M Company – Menomonie</b> (Menomonie, WI) Agreement 10/1/02, renewal 9/28/07	Paul Gerbec, 3M pgerbec@mmm.com (651) 778- 4086  Mike Wendt, 3M mrwendt@mmm.com (715) 235-5541 Ext. 2318	Mark Harings, DNR Mark.Harings@wisconsin.gov (715) 831-3263
<b>Cook Composites And Polymers</b> (chemical manufacturer in Saukville, WI) Agreement 10/1/01, renewal 9/29/06	Mike Gromacki, CCP Gromacki@ccponline.com (816) 391-6011	Mark McDermid, DNR Mark.McDermid@wisconsin.gov (608) 267-3125
<b>Madison Gas And Electric</b> (electric and natural gas utility in Madison, WI) Agreement 9/26/02, renewal 8/30/07	Mike Ricciardi, MGE Mricciardi@mge.com (608) 252-5627	Kim McCutcheon, DNR Kim.McCutcheon@wisconsin.gov (608) 275-3207
<b>Northern Engraving Corporation</b> (surface coater in Sparta, Holmen and West Salem, WI) Agreement 6/10/02, renewal 9/04/07	Randy Nedrelo, NEC rnedrelo@norcorp.com (608) 269-6911	Mark Harings, DNR Mark.Harings@wisconsin.gov (715) 831-3263
<b>Packaging Corporation of America</b> (paper mill in Tomahawk, WI) Agreement 9/10/02, renewal 9/6/07	John Piotrowski, PCA Jpiotrowski@packagingcorp.com (715) 453-2131, ext. 349	Laurel Sukup, DNR Laurel.Sukup@wisconsin.gov (715) 365-8936
<b>We Energies/ Pleasant Prairie Power Plant</b> (electric utility in Pleasant Prairie, WI) Agreement 2/5/01, renewal 2/3/06	Brian Borofka, We Energies Brian.Borofka@we-energies.com (414) 221-4872	Dan Schramm, DNR <a href="mailto:Daniel.Schramm@wisconsin.gov">Daniel.Schramm@wisconsin.gov</a> (414) 263-8620
<b>We Energies – system wide</b> (electric utility) Agreement 9/30/02, expired 9/30/07	Kris McKinney, We Energies kris.mckinney@we-energies.com (414) 221-2157	





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