

Pollution Prevention Program Evaluation

*Advancing stewardship,
innovation and sustainability*



36 Month Report

Submitted by: The New York State Department of Environmental Conservation
on behalf of The Pollution Prevention and Environmental Compliance Coordinating Council
March 2009

Pollution Prevention and Environmental Compliance Coordinating Council Members

The P2 Council formed under Article 28 of the Environmental Conservation Law, coordinates technical, financial, and procedural assistance to help businesses and other organizations implement pollution prevention and environmental regulatory compliance initiatives.



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Table of Contents

EXECUTIVE SUMMARY	3
1 INTRODUCTION	5
2 ARTICLE 28 BACKGROUND AND INTENT	6
3 P2 COUNCIL –AGENCY MEMBERS	7
3.1 DEC	7
3.2 ESD	7
3.3 EFC	7
3.4 NYSERDA	8
3.5 NYSTAR	8
4 OVERVIEW OF PROGRAM ACTIVITIES AND STATUS	9
4.1 RESEARCH & DEVELOPMENT, TECHNOLOGY TRANSFER	9
4.2 DIRECT ASSISTANCE	12
4.3 SECTOR OUTREACH	15
4.4 INCENTIVES AND RECOGNITION	20
4.5 LEADING BY EXAMPLE	23
4.6 INTERSTATE AND INTERNATIONAL PARTNERSHIPS	24
4.7 SELF HELP TOOLS AND RESOURCES	26
5 ADEQUACY OF MEASURES TAKEN TO ASSIST SMALL BUSINESSES	27
6 EVALUATION OF RESOURCES AVAILABLE TO IMPLEMENT PROGRAMS	29
6.1 DEC	31
6.2 ESD	32
6.3 EFC	32
7 SUMMARY AND CONCLUSION	33
APPENDICES	34
Appendix I – New York State Environmental Leaders Program/ National Environmental Performance Track Leaders	34
Appendix II – NYSP2I - Current Client Assistance Projects	34
Appendix III – NYSP2I – Advisory Board Members	37
Appendix IV – ESD Environmental Investment Program Summary of Awards	38
Appendix V – Environmental Results Program (ERP) Summary of Interagency Responsibilities	43
Appendix VI – Environmental Excellence Awards Program Winners	44
Appendix VII – 2008 Pollution Prevention Intern Projects	47
Appendix VIII – Reference Guide to NYS Pollution Prevention and Compliance Assistance Services CD (Sample Page)	50
Appendix IX – NYS P2 Institute Test Beds	51
Appendix X: – NEWMOA’S P2RX Website	52
Appendix XI: – Annual Report of the Small Business Environmental Assistance Program (SBEAP): SFY 2007/08	54
Appendix XII: Initiative Proposal	59

Executive Summary

On September 16, 2005, legislation was signed into law (Chapter 654, Laws of 2005) that created a new Article 28 of the Environmental Conservation Law (ECL). This legislation declared it is the policy of the State of New York to promote affordable and cost effective methods to reduce energy and resource consumption, reduce or eliminate the use of hazardous substances and the generation of such substances, pollution or waste at the source in order to conserve, improve and protect New York's environment and natural resources.

Article 28 demonstrates the Legislature's strong support for both economic development and environmental protection by enabling state agencies to become more responsive and helpful to the regulated community and more proactive in fostering the type of green investment that New York needs. It helps New York realize the full benefits of a vibrant and healthy economy by promoting pollution prevention and increased investment in greener businesses and jobs. Clean water, clean air, energy independence, and green business practices are crucial to a vibrant, sustainable economy.

This report provides a comprehensive analysis of the steps taken by the New York State Department of Environmental Conservation (DEC), Environmental Facilities Corporation (EFC) and the Department of Economic Development (herein referred to as Empire State Development or ESD) to satisfy the mandates of the NYS Legislature with regard to Article 28 of the Environmental Conservation Law. In addition, perspectives on pollution prevention assistance from the New York State Energy Research and Development Authority (NYSERDA) and the New York Foundation of Science, Technology and Innovation (NYSTAR), the other members of the Pollution Prevention and Environmental Compliance Coordinating Council (P2 Council) formed under Article 28 are also provided.

The primary objectives of Article 28 as mandated by the legislature are to:

- Promote affordable and cost effective methods to reduce energy and resource consumption.
- Reduce or eliminate the use of hazardous substances and the generation of such substances.
- Establish a new small business pollution prevention and environmental compliance assistance program to promote and encourage pollution prevention, and assist businesses with issues surrounding environmental compliance.
- Increase the economic competitiveness of New York businesses.

The following topics are the focus of this report:

Program Activities/ Program Results

Program activities that have been completed or are underway include several initiatives in:

- Research, Development and Technology Transfer,
- Direct Assistance,
- Sector Outreach,
- Incentives and Recognition,
- Leading by Example,
- Interstate and International Partnerships, and
- Self Help Tools and Resources.

In the last three years, DEC has developed and coordinated several interagency, interstate and international pollution prevention initiatives, working with businesses, academia and agencies under the auspices of the Legislature and the Governor's Office including the:

- P2 Council
- NYS Pollution Prevention Institute
- NYS State Green Procurement and Agency Sustainability Program
- National Greening State Government Task Force
- Governor's Green Hospitality and Tourism Initiative

- International Conference on Green Chemistry and Green Engineering via Process Intensification and Nanotechnology
- Pollution Prevention Business Intern Program
- NYS Environmental Leaders and Environmental Excellence Awards Programs
- Chemical Management and Green Chemistry in Schools Program
- Pharmaceuticals and Nanotechnology workgroups
- Green Building Tax Credit Program
- Environmental Results Program
- Toxics in Packaging Clearinghouse (TPCH)
- Interstate Mercury Education and Recycling Clearinghouse (IMERC)

These efforts and more are discussed further in the report but all reflect critical efforts to leverage resources across organizations, drive technology and markets, recognize best practices and help businesses position themselves for competitive advantage as new issues and requirements emerge.

The Small Business Environmental Assistance Program (SBEAP), EFC's technical assistance program for air pollution compliance administered under contract with DEC's Division of Air Resources has assisted more than 11,900 small businesses with their regulatory responsibilities under ECL Article 28 is now expanding to all environmental media.

ESD is charged with advancing State economic development strategies, providing technical and financial assistance to businesses and coordinating the efforts of other State Agencies, authorities, organizations, and local governments on actions affecting the State's economy. In the last two years, the Environmental Services Unit has invested over \$10 million in 46 projects, leveraging almost \$24 million in additional investments in pollution prevention projects. Appendix IV illustrates all the funding projects throughout the State.

Environmental results from 2006-07 investments are summarized below:

- 488 tons per year (TPY) solid waste prevention

- 337 TPY toxic materials source reduction
- 125 TPY feedstock (non-toxic) source reduction
- 74 TPY hazardous waste reduction
- 10 TPY waste water treatment sludge reduction
- 175 TPY air emissions reduction
- 90,235 TPY solid waste recycled/reused

Environmental results anticipated from 2007-08 investments are:

- 700 TPY solid waste prevention
- 77.8 TPY air emissions reduction
- 361,000 gallons per year fuel reduction
- 35,414 TPY solid waste recycled/reused

In addition, ESD developed an interactive PDF/CD in order to help businesses become aware of the resources available to them for specific projects.

The Environmental Results Program (ERP) was initiated by the DEC Division of Solid & Hazardous Materials and is being developed and implemented in conjunction with the Pollution Prevention and Compliance Assistance Council, and other DEC divisions. The ERP was initiated in order to assist small business sectors such as auto body shops and printers in understanding and complying with applicable environmental regulations as well as understanding pollution prevention and energy efficient practices. This represents thousands of New York small businesses.

Analysis of the adequacy of measures taken to assist small businesses in achieving pollution prevention and compliance with Article 28

In the face of several practical challenges and resource limitations, exciting progress has been made in the implementation of the goals of ECL Article 28. This includes: the formation of the P2 Council, formation of the New York State Pollution Prevention Institute (NYSP2I), the expanded role of EFC's small business compliance assistance program to all environmental media, a comprehensive electronic menu of state agency P2 and compliance assistance services for business, multiple business sector initiatives each representing thousands of

small businesses, implementation of the Governor's Executive Order 4 which will help create and strengthen hundreds of green business opportunities across the state, and scores of projects through the financial assistance programs of ESD and NYSERDA for pollution prevention and industrial process improvements.

Evaluation of resources available to implement programs

By evaluating opportunities at the front end of business processes, pollution prevention offers the opportunity for efficiencies and minimization of waste generation that traditional regulatory programs do not emphasize. In comparison, New York's annual investment in pollution prevention of roughly \$10.7 million dollars is less than 3.5% of its annual investment in end-of-pipe and remediation programs of approximately \$308 million. In addition in a report released in June 2008, the New York State Comptroller estimated that the outstanding tax credit liability for all projects currently enrolled in the Brownfield Cleanup Program (200 sites) is potentially as high as \$3.1 billion. The state's pollution prevention investment has remained at the same low level since the last legislative report on pollution prevention investments in 2003. Additional Article 28 funding has offset previous cuts in the EFC SBEAP program and the DEC Pollution Prevention Unit. Additional support will be needed if NYS hopes to achieve the efficiency, effectiveness and business competitive advantage which can be obtained with pollution prevention in comparison to the limitations of conventional environmental regulation.

The legislative sponsors of Article 28 recommended at least seven new staff in NYSDEC, two new staff in ESD and two new staff in EFC for a total of 11 positions to begin to implement Article 28. Initial funding was provided for nine of the eleven positions. Approvals to fill six of these positions were received in 2007 and these positions have been filled. Although significant progress has been made, there are limitations in the state's ability to provide direct on-site assistance to the universe of over 100,000 small businesses statewide.

Looking ahead, the opportunities are enormous and are limited only by the amount of resources available and the awareness level of these opportunities by business owners and operators.

This report will detail progress made to date and will specifically outline steps that need to be taken in the immediate future.

Introduction



New York State and the entire country are currently experiencing one of the worst economic crises in decades. The fate of New York State's economic base is at risk. How business and government respond to this crisis in the coming months and years will be crucial to a sustained recovery. Many reports have cited the potential of the emerging "green economy" as the key to a sustainable future. This hopeful message resonates now, especially in the aftermath of a devastating economic collapse.

The concept of a "green economy" is premised on the efficient use of materials and energy, elimination of waste and use of sustainably produced and recoverable feedstocks, particularly in the manufacturing sector, but applicable to virtually every enterprise at some level. While these measures prevent pollution and reduce impacts on the environment, they also help business reduce cost and increase profits. The use of these measures can be expected to deliver significant returns.

Further, tourism and agriculture, two of the largest economic sectors in New York State, rely fundamentally on the quality of our air, water and natural resources. Hence, the economic health and recovery of this state is tied inextricably to its environmental health and quality.

This report will convey how the implementation of Article 28 of the New York State Environmental Conservation Law is helping to deliver on this promise of a green economy. Article 28 requires that the New York State Department of Environmental Conservation (DEC), in coordination with the Environmental Facilities Corporation (EFC) and Empire State Development (ESD), prepare and submit to the Governor and the Legislature a report evaluating the programs proposed, adopted or implemented pursuant to this article. This report identifies specific measures taken to develop and implement programs, evaluates the resources available to implement such programs and analyzes the adequacy of measures taken to assist small businesses. These are specific reporting requirements outlined in the statute.

In meeting these requirements for the Legislature, it is hoped that this report will also serve as a reference guide for others on the menu of pollution prevention and compliance assistance opportunities and programs that provide significant returns on investment New York needs now more than ever.

Article 28 Background and Intent

The passage of Article 28 of the Environmental Conservation Law was the catalyst for compelling unprecedented coordination and collaboration between business, government and academia, in order to deliver a comprehensive strategy for pollution prevention and, ultimately, build a “green economy” in New York State.

A major component of this legislation provides for the establishment of a new small business pollution prevention and environmental compliance assistance (P2/CA) program. The purpose of the program is to promote and encourage pollution prevention; assist businesses with issues surrounding compliance with the requirements of relevant sections of the ECL; and establish a P2 Council and multi-media Ombudsman Program.

DEC, ESD and EFC were identified as having significant roles in the new program, both as members of the P2 Council and in providing services to businesses eligible to receive assistance under the new program. The legislation also designates the New York State Energy Research and Development Authority (NYSERDA) and the New York Foundation of Science, Technology and Innovation (NYSTAR) to be members of the Council. The legislation mandates that DEC take the lead role in the implementation of ECL Article 28.

P2 Council –Agency Members

The P2 Council was formed in 2006 with representatives from DEC, ESD, EFC, NYSERDA and NYSTAR. DEC has chaired the Council since its inception and the P2 Council meets at least bimonthly. The P2 Council established formal bylaws and a work plan, based on the provisions of Article 28. The P2 Council coordinates technical, financial and procedural assistance to help businesses and other organizations implement pollution prevention and environmental regulatory compliance initiatives. Council members also keep each other apprised of new developments in their program activities. Agency members are described below. The program activities delivered collectively by these agencies are reviewed in section 4.

3.1 DEC

The mission of the DEC is “to conserve, improve, and protect its natural resources and environment, and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well being.” This mission has historically been implemented primarily through its regulatory permit, inspection and enforcement programs; however, there has always been some level of compliance assistance and funding programs accompanying these efforts, particularly for municipal entities in the regulated community. The Department’s goal is to achieve this mission by embracing the elements of sustainability – the simultaneous pursuit of environmental quality, public health, economic prosperity and social well-being, including environmental justice and the empowerment of individuals to participate in environmental decisions that affect their lives.

DEC’s Pollution Prevention Unit (PPU) promotes multi-media pollution prevention awareness and provides compliance assistance to regulated communities, including targeted business sectors. Historically, this has included workshops and guidance materials for such manufacturing businesses as printers, metal finishers, pulp and paper industry, food industry, electronics and others. The Department operates a small quantity generator (SQG) hotline to provide compliance assistance to small businesses generating hazardous wastes; and contracts with EFC to operate their Small Business Assistance Program (SBEAP) to provide free technical assistance to small businesses in New York State to help them to comply with federal and/or state regulatory requirements.

The adoption of ECL Article 28 finally places pollution prevention and compliance assistance at the heart of the Department’s core mission, while maintaining and continuing to enhance the crucially important existing regulatory programs and stewardship responsibilities.

3.2 ESD

ESD is charged with advancing State economic development strategies, providing technical and financial assistance to businesses and coordinat-

ing the efforts of other State agencies, authorities, organizations, and local governments on actions affecting the State’s economy.

ESD seeks to serve the businesses and communities of New York by improving the State’s competitive position and creating and retaining quality jobs in a challenging and rapidly changing economy. This is accomplished by providing customer driven, cost-effective products and services, advocating for a healthy business environment in New York State, and supporting innovative solutions to economic development problems.

Chapter 471 of the Laws of 1998 amended the Economic Development Law to expand ESD’s authority to address all aspects of pollution prevention including air, water, land and the use of less toxic materials in manufacturing and the conservation of all resources (water, energy, and materials). Under the purview of the Environmental Services Unit (ESU), technical and financial assistance is offered to New York State businesses to identify and transform environmental concerns into market opportunities and competitive advantages. Among other things, ESD’s Environmental Investment Program (EIP) provides funding for eligible projects that prevent pollution and encourages reuse and recycling. Typically, these pollution prevention projects focus on solid waste, industrial process waste and hazardous waste.

3.3 EFC

EFC is a public benefit corporation whose mission is to promote environmental quality by providing low-cost capital and expert technical assistance to municipalities, businesses and State agencies for environmental projects in New York State. EFC provides financing for a sustainable future. Its main purpose is to help public and private entities comply with federal and state environmental requirements. Compliance assistance and pollution prevention are part of every program managed by EFC. EFC’s 2007-2008 Annual Report presents an overview of the various programs administered. (Please visit EFC at www.nysefc.org)

One of EFC’s significant compliance assistance programs, the Small Business Environmental Assistance Program (SBEAP) (please refer to SBEAP annual report, SFY 2007/08 -Appendix XI),

provides free, confidential technical assistance to small businesses in New York State to help them comply with federal and/or state multimedia requirements. EFC's program is part of the New York State Small Business Stationary Source Technical and Environmental Compliance Assistance Program, along with its partners in DEC and ESD, which was used as a model for the development of a broader, multimedia compliance assistance program.

EFC also offers a number of programs that integrate assistance and financing in support of environmental compliance and pollution prevention. The Financial Assistance to Business Program (FAB) was created by the Clean Water/Clean Air Bond Act of 1996. FAB has offered targeted business sectors grant funding for P2/CA type activities related to protection of air and water resources, which also help strengthen economic opportunity for businesses and the communities in which they are located. EFC also administers the Industrial Finance program (IFP) and State Revolving Fund (SRF) programs for financing of environmental infrastructure including solid and hazardous waste management, resource recovery, wastewater management, drinking water and brownfield reclamation.

3.4 NYSERDA

NYSERDA is a public benefit corporation whose mission is to use innovation and technology to solve some of New York's most difficult energy and environmental problems in ways that improve the State's economy. NYSERDA's programs and services provide a vehicle for the State to work collaboratively with businesses, academia, industry, the federal government, environmental community, public interest groups, and energy market participants. Through these collaborations, NYSERDA seeks to develop a diversified energy supply portfolio, improve market mechanisms, and facilitate the introduction and adoption of advanced technologies that will help New Yorkers plan for and respond to uncertainties in the energy markets while lowering energy costs and preventing pollution.

NYSERDA's programs provide financial incentives and technical assistance for available technologies directly to businesses and end-use consumers, and also assist with the development of innovative

technologies and products that help commerce and industry operate more productively and economically. As a result, the development and use of pollution-prevention green technologies is encouraged.

The Industrial Research and Development program in particular offers funding for industrial process improvements and product development. While focused on energy efficiency gains, many of these projects inevitably produce coincident pollution prevention benefits through more efficient processing and reduced waste generation.

3.5 NYSTAR

NYSTAR is a public authority that furthers collaborative efforts between academia, government, and the private sector. These partnerships foster integrated approaches for developing and commercializing innovative technologies.

Among the programs NYSTAR administers are: 1) Centers for Advanced Technology (CAT); 2) CAT Development; 3) College Applied Research and Technology (CART) Centers; 4) Regional Technology Development Centers (RTDC); 5) Technology Transfer Incentive Program (TTIP); 6) Capital Facility; 7) Faculty Development; 8) James D. Watson Investigator; and 9) Science and Technology Law Center.

These funding initiatives include college and university based research and development centers that work with industry to solve technological challenges and support the recruitment and retention of the finest research faculty.

CAT program, for example, provide funds for cutting edge research support for business applications. At each CAT, researchers at New York's leading universities work side-by-side with their counterparts in large and small companies to develop and commercialize new technologies. These cooperative efforts create new business, produce products and processes, and lead to high-quality jobs for New Yorkers.

TTIP complements NYSTAR's other programs by providing short-term State assistance to accelerate the commercialization of intellectual property or products developed or enhanced at the universities in collaboration with a New York company partner.

NYSTAR also created the Regional Technology Development Centers (RTDC). These Centers are a regional, statewide network of not-for-profit organizations whose mission is to provide advice and direct service to small and medium-sized manufacturers and other science and technology-based businesses. RTDCs help companies improve productivity and quality, carry out strategic planning, secure financing, and establish links with academic and other research facilities. There are currently ten RTDCs in New York State.

Several NYSTAR funded projects compliment the efforts for renewable energy alternatives and pollution prevention.

Overview of Program Activities and Status

4.1 Research & Development, Technology Transfer



The New York State Pollution Prevention Institute (NYS P2I) was formed in March 2008 after a comprehensive solicitation process developed by



NYS P2I locations throughout the state

DEC. The Institute is a joint undertaking between Rochester Institute of Technology (RIT), Clarkson University, SUNY Buffalo, Rensselaer Polytechnic Institute (RPI), and ten RTDCs. NYS P2I was established to increase the competitiveness of New York State businesses in a manner consistent with the principles of pollution prevention, per Article 28 of the ECL.

The vision of the NYS P2I is to foster the transformation and development of sustainable businesses and organizations in New York State in a collaborative program committed to making the State a leader in environmental stewardship.

The mission of the Institute is to provide a high-impact, comprehensive and integrated program of technology research, development and diffusion, outreach, training and education aimed at making New York State more sustainable for workers, the public, the environment and the economy through:

- reductions in toxic chemical use;
- reductions in emissions to the environment and waste generation; and
- the efficient use of raw materials, energy and water.



The NYS P2I helped TECT Utica Corporation saved over \$500,000 per year by finding innovative ways to reduce their hazardous waste generation and disposal cost

The goals of the NYS P2I are:

- To prevent the risks associated with the use and production of hazardous substances including risks to the public health and the environment.
- To reduce energy and resource consumptions as well as reduction or elimination of hazardous substances, pollution, and waste.
- To implement affordable and cost effective pollution prevention methods to sustain and safeguard the competitive advantage of New York businesses.
- To advance innovation in the reduction of energy and resource consumption and the reduction or elimination of hazardous substances, pollution, and waste.
- To provide a new approach to P2 in New York State that goes beyond compliance driven activities and aims to identify opportunities to maximize ways to make New York State companies more resource efficient and economically vibrant (sustainable enterprises).

It is expected that a great deal of this technical assistance will be directed toward helping small businesses, as these are the business that will benefit most from the NYS P2I services.

The Institute is funded through a new category of the Environmental Protection Fund that has initially provided \$2 million for its first year of operation and \$1 million for the second year. Funding shall optimize environmental benefit and economic development.

NYS P2I completed its first business quarter on June 30, 2008. A marketing plan was submitted, the website (<http://www.nysp2i.rit.edu/>) is live, staff responsibilities and assignments have been made, training programs are being developed, and, most importantly, small business projects have commenced.

The contract between DEC and NYS P2I calls for fifty (50) business collaborations in the first year. These will be the actual hands-on client assistance to the targeted customer base. Assistance ranges from process design and modification of engineering needs to on-site assessments and technology transfer. Completed projects will be written up as case studies and posted on the NYS P2I website for other organizations to evaluate.

The NYS P2I will help small businesses identify and implement appropriate and available options based on their specific needs, resulting in both process efficiency and cost savings. Where technology is not already available, NYS P2I will carry out the necessary R&D to create solutions.

Professional training workshops will be offered each quarter. Small businesses cannot thrive without a trained and skilled workforce. NYS P2I's training programs will bring necessary skill sets back to the shop. Proposed workshop topics include assessment methods and tools, management practices and procurement strategies.

Presently, the NYS P2I is engaged in the following:

- Client Assistance Projects – NYS P2I has already begun client assistance to New York State busi-

- nesses. These projects include toxics reduction, energy use reduction, improved manufacturing efficiency and environmental footprint reduction. Projects in the developmental phase include such tasks as reduction of oil and grease contamination, replacement of acid baths and green chemistry R & D. Companies receiving assistance include facilities such as engine remanufacturing, aircraft equipment, metal plating, printing, etching and many others (See Appendix II, Page 35, for a listing of companies and projects).
- Advisory Board – NYS P2I receives the consultation of an Advisory Board representing various sectors throughout the state. These sectors include industry, academia, government and non-governmental organizations (See Appendix III, roster of Advisory Board members, Page 39). This board provides important feedback on NYS P2I priority assistance projects (i.e. where most impact can be made on behalf of small businesses, toxics reduction, et al) as well as on the community grants assistance program. The board convened its first meeting on August 21, 2008, and meets quarterly.
 - Technical Advisory Committee – The Technical Advisory Committee is comprised of RIT and its university partners. A key component to the NYS P2I is the ability to perform targeted R & D in realistic manufacturing conditions. Each partner university offers unique test beds – demonstration/testing facilities for rigorous and public testing of technologies. (See Appendix IX NYS P2I Test Beds, Page 59). The Technical Advisory Committee will review the R & D outcomes and identify resources available for client assistance projects. Client assistance projects will utilize the various test beds based upon type and geographic proximity to the client. The committee convened its first meeting on August 15, 2008, and meets quarterly.
 - Community Assistance Program – The Institute provides technical and financial assistance on a competitive basis to not-for-profits, institutions, and local governments. Projects may include research, education, outreach, implementation and training. The Institute will also provide technical assistance to grantees.
 - Case Study Summaries – In order to maximize the number of small businesses to learn from NYS P2I projects, project summaries will be posted on the P2I website. Project results will assess environmental and economic improvements as well as the value added from NYS P2I's involvement.
 - Demonstration Projects – A green dry cleaning demonstration project is scheduled for fiscal year 2009-2010. NYS P2I will select a suitable dry cleaning business to demonstrate alternatives to perchloroethylene-based cleaning techniques. Potential demonstration sites will be off-site and have been identified in New York City, Buffalo, and Rochester. The dry cleaning sector represents over 2,200 small businesses in New York State. The conversion to alternative cleaning products will have immediate benefits to the health of employees and adjacent residents, reductions in hazardous waste generation, site contamination risks and the elimination of regulatory requirements. The NYS P2I is working with DEC staff in Pollution Prevention and Division of Air Resources, EFC and the Attorney General on this initiative.
 - Professional Training – Eight training workshops are scheduled for the remainder of the year. A Lean, Energy & Environment (LE2) workshop was conducted on October 27, 2008; a Surface Cleaning Technologies workshop was conducted on October 28, 2008; a P2 Unit Assessment Tools workshop was held on November 25, 2008; a P2 Assessment Techniques and Tools workshop was held on January 22, 2009; a P2 Training for NYSDEC Engineers workshop was held on March 2, 2009; a Green Housekeeping workshop is scheduled for March 12, 2009; a Green Building Materials workshop is scheduled for Spring of 2009; and an Acid Bath Extension Technologies and P2 for Metalworking sector workshop is scheduled for early 2009.
 - Academic Programs – Assistance will be provided to DEC for the development of a K-12 Green Chemistry curriculum. Additionally, RIT and its partner universities will seek to integrate green chemistry in their MS and PhD programs. This is crucial to high tech, green collar workforce development in New York State.

Regional Technology Development Centers

ESD is encouraging Regional Technology Development Centers (RTDCs) to provide technical assistance for pollution prevention and waste prevention projects at New York State businesses. Technical Assistance programs initiated by RTDCs reflect needs of local businesses and the regions.

ESD is funding the RIT to strengthen RTDC P2/waste prevention technical capacity and delivery. On March 25-26, 2008, RIT conducted training for all ten RTDCs on resources that are available to initiate pollution prevention technical assistance. ESD is working with the Mohawk Valley Technology Development Center to develop a technical assistance program template that can be adopted by RTDCs that are not currently providing technical assistance to businesses, and customize it to their local situations. In addition, ESD has developed a P2 outcome chart to help RTDCs quantify and evaluate potential P2 projects. RTDCs that wish to develop technical assistance programs may apply to ESD for funding to underwrite a portion of the cost of the technical assistance. Currently there are five RTDCs that have technical assistance contracts with ESD, and three others are under development.

4.2 Direct Assistance

Small Business Environmental Assistance Program

EFC's technical assistance program for air pollution



compliance is the Small Business Environmental Assistance Program (SBEAP) administered under contract with DEC's Division of Air Resources. SBEAP was mandated by the Federal Clean Air Act Amendments of 1990 (CAAA) and provides free and confidential assistance to New York's small businesses to help them comply with state and federal air emission requirements. SBEAP's partners are the Small Business Environmental Ombudsman of ESD and DEC. Under the CAAA, every state across the U.S. must provide a small business assistance program to help businesses understand if air requirements apply to them, and if so, what they must do to comply.

The SBEAP uses a variety of assistance methods:

- Operates a toll-free (1-800-STATE NY (782-8369)) technical assistance hotline to answer questions from small businesses to help determine what regulations apply to their operations, and help them understand how to comply with those regulations.
- Assists businesses with completing the required authorizations, such as permit application forms for Air State Facility Permits or Minor Facility Registrations.
- Conducts on-site technical assistance visits to evaluate the site-specific compliance issues at a specific business.
- Prepares technical publications (newsletters, fact sheets, brochures) to provide both general compliance information and information for specific industry sectors.
- Sponsors and co-sponsor seminars and workshops across the state to bring technical information to locations near your business.
- Helps new businesses understand what requirements must be met upon start-up.

John C: John Compani, SBEAP Project Analyst, is using a halogen leak detector to check for perchloroethylene leaks at a dry cleaning facility.



The owner of this new biodiesel production facility, located in western New York, contacted SBEAP for assistance to ensure their facility would be in compliance with environmental regulations upon start-up.

There are more than 50,000 small businesses in New York State that may be subject to federal and/or state air emission requirements. The SBEAP is dedicated to helping those businesses attain compliance.

During the 2007/08 State Fiscal Year, the SBEAP assisted over 11,900 small businesses by telephone, on-site visits and workshops. SBEAP also distributed over 41,700 technical outreach materials, and prepared air permit applications and supporting documents for 278 facilities.

By informing businesses of their regulatory responsibilities and requirements, the services SBEAP provides have significantly improved the overall compliance rates of small businesses and air quality state-wide.

Many small businesses such as gasoline stations, printers, dry cleaners, crematories, surface coaters, bakeries, electronic product manufacturers and auto body shops have called the SBEAP hotline for help with regulatory requirements including permitting, emission limits/controls, recordkeeping and reporting.

Training and certification of 172 New York State human crematory operators on air pollution compliance was completed in 2008. This project involved coordinating with DEC, Department of State (DOS), the Cremation Association of North America and engineering staff from a major manufacturer of crematories.

Through an inter-agency collaboration with DEC, SBEAP has undertaken an unprecedented role in compliance assistance with a National Emission Standard for Hazardous Air Pollutants (NESHAP) for perchloroethylene dry cleaning operations. The SBEAP conducted outreach regarding their new reporting requirements and has established a database to track the status of every one of the 2,200 dry cleaning operations located in the state. Data collected includes: type of solvent; machine make/model; type of setting-residential/stand alone/commercial and solvent usage.

The SBEAP brought 278 small businesses into compliance with Part 201, Permits and Registrations, by assisting them in completing their Air Facility Registration or State Facility Permit applications. These permitting projects involved



Filling of a gasoline tanker truck is subject to Stage I vapor recovery regulations. SBEAP has prepared several publications and a DVD to explain these regulations to the distribution plant owners, operators and truckers.

the preparation of emissions inventories and the identification of all applicable state and federal air regulations.

The SBEAP provided site-specific technical assistance in the form of environmental audits or visits to 108 individual businesses during State Fiscal Year 2007. On-site assistance allows the small business owner or operator to explain, in greater detail, the processes and operating procedures at their facility. While on-site, process modifications that can reduce environmental impacts and potential liabilities are discussed with the owner or operator. The audit process also assists in verifying that the small business is operating within the operating permit or registration limits. These environmental evaluations have multiple advantages for the facility and have the potential to yield additional environmental benefits.

Environmental audits were conducted at the following types of businesses: automotive refinishers, crematories, dry cleaners, gasoline dispensing stations, printers, metal finishers, bio-diesel plants and surface coating facilities.

EFC has begun to track the reduction in releases to the environment associated with the technical assistance provided to small businesses.

The following are examples of the environmental benefits associated with recent projects:

- SBEAP prepared a State Facility permit application for a dry cleaning plant. The plant converted from perchloroethylene dry cleaning machinery to a state-of-the-art, liquid carbon dioxide (CO₂) dry cleaning system that entered the marketplace in 2007. Approximately four tons per year of perchloroethylene releases have been eliminated as a result of this project.
- SBEAP prepared a State Facility permit application for a printing facility. The company is combining its printing operations from two facilities into one location that was permitted by DEC two years ago. Approximately ten tons of Volatile Organic Compound emissions are being reduced as the company switched to water based inks in combination with the move.
- SBEAP provided on-site compliance assistance to a wood pellet manufacturing facility as on-going assistance with their recently approved State Facility Permit (application prepared by SBEAP). Staff discussed smoke/opacity controls, options to alleviate nuisance dust (previous and future corrective actions) and recommended proper documentation of events and conversations. Staff also prepared a customized spreadsheet for inclusion with their Annual Certification Report. By fueling the dryer with waste sawdust generated at the facility (in lieu of fuel oil), 47 tons per year (tpy) of potential SO₂ emissions and eight tpy potential NO_x emissions have been avoided.
- SBEAP prepared an emissions inventory spreadsheet and calculations for an auto body shop. At the suggestion of SBEAP staff, the business reformulated to a new clear coat product that will reduce its potential VOC emissions by 0.75 tpy and 1.75 tpy of potential hazardous air pollutant Methyl Ethyl Ketone (MEK) emissions.

Environmental Investment and Manufacturing Assistance Programs

ESD continues to accept applications for financial assistance through its Environmental Investment Program (EIP) for pollution prevention, waste reduction and recycling projects that will achieve substantial environmental and economic develop-

ment results depending upon the availability of funds. (Please refer to Appendix IV for projects awarded to New York businesses, Page 40).

In 2006-2007, EIP committed to invest over \$6 million in 24 projects, leveraging over \$12.8 million. Some pollution prevention and recycling outcomes anticipated from these projects are:

- 488 tons per year (TPY) solid waste prevention
- 337 TPY toxic materials source reduction
- 125 TPY feedstock (non-toxic) source reduction
- 74 TPY hazardous waste reduction
- 10 TPY waste water treatment sludge reduction
- 175 TPY air emissions reduction
- 90,235 TPY solid waste recycled/reused

In 2007-2008 EIP committed to invest over \$4.5 million in 22 projects, leveraging over \$10.9 million. Some pollution prevention and recycling outcomes anticipated from these projects are:

- 700 TPY solid waste prevention
- 77.8 TPY air emissions reduction
- 361,000 gallons per year fuel reduction
- 35,414 TPY solid waste recycled/reused

ESD also accepts applications for financial assistance through its recently launched Manufacturing Assistance Program (MAP). The focus for MAP is capital investments to achieve expanded production outputs which may include some waste reduction and recycling outcomes; more often they are included through co-funding with EIP. MAP can assist businesses with as few as 50 employees.

In calendar year 2006, 2007 and 2008 (6 months only), MAP committed to invest over \$19.8 million in 45 projects, leveraging over \$560.6 million.

Erie County P2 Technical Assistance Program

ESD is underwriting a portion of the cost of an Erie County P2 Technical Assistance program through the Erie County Pollution Prevention Program. The program will (1) provide waste assessments to 25 Erie County companies and (2)

develop a market for scrap wood. This investment provides a great model for County-based assistance delivery in the state, capitalizing on the local relationships already established with businesses.

4.3 Sector Outreach

Green Hospitality and Tourism



At the initiation of the Governor's Office, the Green Hospitality and Tourism Initiative is designed to support and market sustainable tourism in New York State. The greening of hospitality in New York State has the potential to reduce the environmental footprint of many sectors of the tourism industry, including lodging, dining, supply chain, recreation, destinations, transportation, and employment. At the same time, it helps optimize the economic value to be derived from the diverse and unique natural resources that New York State has to offer.

Under the auspices of the Governor's office, DEC currently chairs the green tourism workgroup formed earlier this year. Participation includes I Love NY, The Department of Agriculture & Markets, The Department of Labor (DOL), The Office of Parks, Recreation and Historic Preservation (OPRHP), NYSERDA, New York State Hospitality and Tourism Association, New York State Restaurant Association, and hospitality programs at educational institutions.

As an extension of its leadership of the hospitality initiative, DEC also participates in Northeast Waste Management Officials' Association's (NEWMOA) regional green hospitality workgroup, which is working to coordinate state-level green hospitality efforts in Northeast and New England States.

The December 2007 report, "The Economic Impact of Tourism in New York" (prepared by Tourism Economics) states the following about tourism in New York State:



The Golden Arrow Resort in Lake Placid, a green-certified hospitality business

- New York ranks third (after CA and FL) among all 50 states in total visitor spending.
- Hotel revenue in New York State from 9/06 - 9/07 increased by 13%, compared with an increase of only 7% nationally.
- Including indirect and induced impacts, tourism was a catalyst for \$41 billion (4% of state GDP) in 2006.
- Tourism generates 19% of total employment in the Adirondacks and 17% of total employment in the Catskills.
- There are more than 1,400 members of New York State Hospitality and Tourism Association (NY-SHTA) and 7,000 members of New York State Restaurant Association (NYRA).

Given the size of the hospitality sector in New York State, this can translate to significant outcomes in terms of millions gallons of water saved, reduction in megawatts of energy consumed, tons of greenhouse gases avoided, tons of waste diverted from landfills, and a reduction in the use of hazardous substances.

Current objectives of the workgroup are to establish New York State endorsed certification for green “tourism” businesses (hospitality, restaurants, parks, historic sites, outfitters, transportation, etc.) and showcase the State’s sustainable natural and cultural assets as green destinations. The workgroup will ultimately look to create ‘experience packages’ for the visitor (bundling green transportation, lodging,

dining, activities and destinations). This may even include opportunities for environmental restoration activities.

Technical and financial assistance from workgroup members will be targeted to businesses participating in these initiatives.

Environmental Results Program (ERP)

Through the State Innovation Grant program, EPA works collaboratively with the states to: identify areas ready for innovation; improve cost efficiencies for state agencies operations; realize cost or time savings for regulated entities; and, measure and evaluate project results in order to assess the potential to transfer the innovative approaches to other states. It also helps states manage their resources more effectively.

As part of EPA’s innovation grant program, the States of Colorado, Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont and Washington, in conjunction with NEWMOA, have developed common environmental performance measures within specific business sectors as part of the NEWMOA Common Measures Project. One such specific business sector identified was auto body shops, which were chosen in order to evaluate the overall effectiveness and efficiency of different state compliance assurance strategies within specific industry groups.

In addition to participating in the NEWMOA Common Measures Project, DEC is implementing the New York State Small Business Sectors Environmental Results Program Implementation Pilot Project (ERP), an innovative approach to improving and assessing environmental performance by supplementing traditional compliance/enforcement strategies with self certification and compliance assistance. It is designed to assist small business sectors in understanding and complying with applicable environmental regulations as well as understanding pollution prevention and energy efficiency practices.

The first major initiative of the ERP was to focus on the environmental requirements and pollution prevention opportunities for auto body refinishing operations, in DEC Regions 4 and 9. This sector includes approximately 1,000 small businesses, and

will eventually be expanded to approximately 5,000 of these operations throughout New York State.

The DEC's Division of Solid & Hazardous Materials (DSHM) initiated the ERP project and is the project lead responsible for ensuring that data collection and evaluation meet quality assurance criteria. DEC has also partnered with four other State agencies (ESD, EFC, NYSTAR, and NY-SERDA) to provide outreach regarding pollution prevention and energy efficiency assistance to small business sectors. Appendix V (Page 48) provides a summary of the responsibilities for each partner agency in this initiative.

The ERP baseline analysis will assess the extent to which targeted small business sectors are currently in compliance, and going "beyond compliance" using best management practices, and implementing pollution prevention and energy efficiency measures. The baseline analysis will be based on a statistically valid random sample, from which DEC will be able to make inferences about the environmental performance of auto body shops, printers, and a third business sector, initially in DEC Regions 4 and 9, and ultimately across the state.

After DEC conducts the baseline assessment and analyzes the results, DEC and EFC will conduct compliance assistance workshops and distribute compliance assistance workbooks and fact sheets to help auto body shops, printers, and a third small business sector understand the environmental regulations that apply to them, and to educate them about best management practices and pollution prevention and energy efficiency measures they can take to improve their business operations. These facilities will then be required to self-certify their current compliance status for all applicable requirements, including air, hazardous waste, water quality and bulk storage.

Following the self-certification period, DEC will follow up with a second round of inspections, again based on a statistically valid random sample of facilities, to assess the extent to which environmental performance has changed within the target population following the compliance assistance and self-certification efforts.

ESD and DEC have negotiated a reasonable enforcement procedure for DEC staff to follow when

compliance violations are discovered or disclosed, given the ERP goal to encourage business to self-disclose and correct any minor environmental violations. The enforcement procedure includes steps to bring businesses into the program before taking more stringent enforcement actions. Protocols for resolving violations during other assistance efforts continue to be evaluated.

As the lead agency for the compliance assistance element of the ERP, EFC has completed the following items associated with the implementation of the ERP:

- Developed Environmental Indicators for Air Quality requirements – these are the most important air quality requirements that are used by DEC inspectors to evaluate the overall compliance rates of facilities that are inspected during the baseline and post certification.
- Developed Best Management Practices for auto body refinishing operations – these are pollution prevention strategies that go beyond compliance to reduce the facility's impact on the environment.
- Provided DEC with detailed technical comments on the ERP Environmental Compliance Guide for Auto Body Shops that will be distributed to auto body shops and used to evaluate and complete their compliance certifications.
- Conducted training and outreach materials for DEC inspectors to provide an overview of the processes and emission controls used at auto refinishing operations and enable inspectors to distribute materials to regulated facilities.

Conducted workshops to the following trade association meetings to explain the ERP:

Eastern New York Coalition of Automotive Retailers

Capital District Auto Body Association

New York State Auto Collision Technician's Association

- Developed compliance plans for facilities that were inspected during the baseline process – these facilities were referred to EFC by the DEC inspectors. Areas that needed to be addressed

included: hazardous waste; universal waste, air quality, waste oil and bulk storage.

- Established a dialogue with the major automotive coating manufacturers regarding the elimination of chrome and cadmium in the coatings used by facilities in New York.
- Researched the use of waterborne based coatings in the automotive refinishing sector – this reformulation reduces VOC emissions from both the coating process and the spray gun clean-up. In addition, these new coatings do not contain any heavy metals.
- Developed a multi-media auto body refinishing environmental audit checklist to assure all areas of concern are evaluated.

Other records and documents that have been produced in conjunction with this project include:

- Auto Body Shops Performance checklists
- Environmental Reporting Packet for Auto Body Shops
- Environmental Compliance Assistance Guide for Auto Body Shops
- Schedule of auto body shops ERP major project tasks



Green Schools

The DEC Pollution Prevention Unit organized the creation of the DEC Green Schools Group. The first meeting of the group was in November, 2007. This group consists of members from DEC's various divisions who are working on programs that pertain to New York State schools. These divisions are: Pollution Prevention (Mercury & Chemical Management), Solid and Hazardous Materials (which includes Recycling and Pesticides), Public Affairs (Education), Water (Storm Water Management), Environmental Justice, Lands & Forests (Green Infrastructure and Urban Forestry) and the DEC Policy Unit.

This group was established to serve as an internal forum to exchange information on what each division's programs were doing in regards to "greening" New York State schools, and how each of us could coordinate our outreach efforts to aid and not duplicate each other's efforts.

To date, the Green Schools Group has set up a DEC Green Schools Web page and produced an information strip to be available to the public to facilitate their efforts to contact DEC personnel and to raise awareness about the Green School programs that DEC has available.

Although the Green Schools Group primary goal was to exchange information internally, there is strong interest in the group's activities and potential outreach opportunities that is being expressed by outside interests, such as the Capital District BOCES and the New York State Department of Education.

Auto body shops are a key sector for the Environmental Results Program. High Pressure Low Volume (HPLV) paint sprayers are more efficient and reduce VOC emissions to the air.



More than 1,400 pounds of surplus and expired chemicals were removed from just two New York schools in a demonstration project with Questar BOCES

Chemical Management and Green Chemistry in Schools

Toxic chemical exposures to our children and communities from surplus and expired chemicals at schools is a serious issue that can incur significant liabilities and cleanup costs from accidental releases. Mercury products statutes amended in 2005 also compelled action on these products in schools and elsewhere (see Section 4.6 re: Interstate Mercury Education and Reduction Clearinghouse (IMERC)). During 2006 and 2007, DEC's P2 Unit conducted mercury cleanouts at the Rochester and Albany City/County School Districts. Approximately 600 pounds of mercury were removed from these schools. This included elemental mercury, mercury-containing devices and mercury compounds. The Rochester program recovered 225 lbs of mercury at nine schools and the Albany program collected 376 pounds of mercury from 39 schools. An additional 400 pounds of mercury was removed from other New York State schools by participants that attended the PPU mercury workshops.

Environmental benefit fund monies in the amount of \$24,000 resulting from a DEC Consent Order with Solvents and Petroleum Services, Inc. in Syracuse, New York, provided a mercury cleanout to 16 school districts in Onondaga county, including the Syracuse City schools, where 117,150 liner feet of mercury-containing fluorescent bulbs, nine drums of crushed fluorescent bulbs, 77 pounds of mercury-containing devices and elemental mercury were removed.

In April of 2008, DEC's P2 Unit initiated a pilot project for a broader-scope chemical cleanout program at two school districts to remedy various health and safety concerns in their science labs. The effort built on the success of the prior mercury cleanout program in schools. This pilot program, with the assistance of Questar BOCES resulted in the removal of approximately 1,400 pounds of chemicals from the Troy and Lansingburgh High and Middle Schools. The pilot program validated the critical importance of expanding this comprehensive program to other districts statewide.

The information collected from the pilot program is being used by PPU staff to conduct workshops on chemical management at schools state wide.

Workshops have been conducted in Buffalo, Rochester, Syracuse, and Watertown. 163 people representing 1,547 schools already attended the Buffalo, Rochester, Watertown and Syracuse workshops. The audience was a mixture of school officials, teachers, building and grounds personnel and BOCES chemical hygiene staff. Demand for the program is high and increasing. Additional workshops will be held in Yorktown Heights, Binghamton, Stamford, Harriman, Saratoga Springs, and Long Island. As part of this effort, staff has including a green chemistry awareness component.

The P2 Unit staff is working with the New York State Department of Education and staff from SUNY Potsdam's chemistry department on the de-

elopment of a green chemistry lab manual geared to high school students. The aim of this manual is to replace toxic chemicals used in traditional chemistry labs with chemicals that are more environmentally benign, less toxic, without sacrificing academic excellence and meeting New York State curriculum goals.

Using a green chemistry manual at high schools will minimize environmental hazards, health risks and liability. More importantly, however, it will help promote future generations of green chemists. This is particularly relevant to small business ventures, where in the near future, these businesses will need workers able to meet increasing market demands for “green” products that are designed with an eye towards hazardous waste minimization, sustainable practices, less energy use and still be economically competitive.

Pharmaceuticals

DEC Commissioner Grannis announced a “Don’t Flush Your Drugs” campaign on August 8, 2008 to help raise awareness and prevent problems with water quality in the management of these materials. This campaign includes outreach to the public and healthcare facilities, collaborative interagency research and pilot collection programs. The Department initiated a DEC Pharmaceuticals Workgroup to support the campaign and the PPU was recently awarded an EPA grant to evaluate alternatives and develop alternative strategies that will significantly reduce our exposure to unwanted pharmaceuticals. The PPU conducted an initial pilot pharmaceutical collection program at DEC’s headquarters on December 11, 2008. The workgroup also plans to conduct at least two pilot Pharmaceutical Collection Programs to identify the proper steps, legal requirements and costs to hold a collection program. Staff will work with DEA (Drug Enforcement Authorities) and develop the most cost effective, legally allowed collection program. Staff will also study the management of pharmaceuticals at pharmacies, hospitals and nursing homes to identify how unwanted pharmaceuticals are currently being managed. The DEC workgroup will also evaluate the viability of developing a pharmaceutical mail-back program.

Nanotechnology Workgroup

The Nanotechnology Work Group grew out of DEC’s November 1, 2007 Nanotechnology Environ-

mental Issues – Regulators Forum. The objective of the Forum (held in Albany at the Empire State Plaza, with over 150 participants from throughout the State and the Northeast) was to provide an opportunity for regulatory staff to begin to become more informed on nanomaterial properties, nanotechnology and the nanotechnology industry itself. At the conclusion of this event it was determined that DEC should form a workgroup with the objective of remaining current in our understanding on the implications of the latest developments in the rapidly expanding field of nanotechnology. In December 2007, the workgroup was formed with representatives from DEC’s Divisions of Air Resources, Solid & Hazardous Materials, Water, Environmental Permits, Environmental Remediation, Water and the Commissioner’s Policy Office. In addition, staff from the New York State Department of Health joined the work group in October 2008.

The workgroup has been focused on better understanding the issues surrounding nanotech and benchmarking what other states, the federal government, businesses, and academic centers are doing to control the potential impacts from nanotechnology. The nanotech workgroup has also evaluated the Nano Risk Framework developed by DuPont and the Environmental Defense Fund to better understand if this framework is worth promoting to businesses and the applicability to DEC programs. In addition, the workgroup is considering ways to earmark a portion of the government research funds currently dedicated to nanotech development to ensure that at least some of the monies would be used for assessment of environmental, health and safety risks, and life cycle issues associated with nanomaterial development. Lastly, staff is currently convening with the University at Albany’s Center for Nanoscale Science and Engineering (CNSE) to potentially collaborate on research priorities regarding both the environmental risks and opportunities associated with nanotechnology.

4.4 Incentives and Recognition

Green Building Tax Credit Program

New York’s Green Building Tax Credit program offers a substantial financial incentive to developers and builders of environmentally friendly buildings, which has opened a market for new and clean technologies. This innovative program, originally



DEC headquarters, the first LEED silver certified public building in New York State

authorized under legislation in 2000, has become a model for other states and communities and has encouraged the construction of efficient and healthy buildings in our State.

Green buildings use resources-energy, water, materials, and land more efficiently and effectively and they provide healthier environments for working, learning and living. By building green, developers can save money, reduce construction costs and create sustainable buildings. Owners save money by reducing operation and maintenance costs and lowering utility bills.

New legislation was passed in 2005 amending the Green Building Tax Credit Program and providing an additional \$25 million in credits with the aggregate amount of credit components permitted for each such building being \$2 million. Under the new legislation, the DEC has five years, from 2005 through 2009, to accept applications for and to issue initial Credit Component Certificates for the additional \$25 million.

Tax credits can be claimed in the years 2006 through 2014. The legislation, however, did not provide any funding to the Department to develop and maintain this program and this has affected the implementation schedule.

Environmental Leaders Program

On December 26, 2006 DEC issued a Department policy on the New York Environmental Leaders

program (NYEL). The policy sets forth the details of NYEL, including participation requirements, benefits to participating organizations, and the responsibilities of the Department in implementing this program. The Department is implementing NYEL to provide recognition and incentives for those organizations that use sustainable business practices. Further, NYEL focuses on assisting those organizations that are committed to making improvements in their environmental performance. NYEL provides organizations incentives to sustain their existing high levels of performance, and to motivate organizations that are committed to reaching higher levels of performance.

The NYEL program was designed to accommodate organizations in a variety of economic sectors and of various sizes. In fact, specific accommodation was made in the design of NYEL to encourage the participation of small businesses. Further, the program includes both an entry tier and a leadership tier. The entry tier provides opportunity for small business that may not yet qualify for the leadership tier to participate in the program. As organizations enter the program (in either tier), one of the benefits they receive is to be given priority for assistance from the Department. This is especially valuable for smaller business that may not otherwise have the resources, or the capacity, to improve their environmental performance.

The Department launched NYEL in the spring of 2008 and offered existing members of the federal leadership program (EPA National Environmental Performance Track) the opportunity to transition into NYEL. Fourteen applications have been received and are currently under consideration (See Appendix I, Page 34). Also, an open solicitation



for all businesses to join NYEL was held between September 1 and October 31, 2008. Six applications were received and are currently under consideration (See Appendix I).

Environmental Excellence Awards Program

The DEC established the Environmental Excellence Awards (EEA) to honor municipalities, businesses, not-for-profit organizations, academic institutions, governments (except DEC), and individuals for projects that are solving environmental challenges. Awardees are recognized for innovative approaches, sustainable practices and creative partnerships.

A wide variety of projects are considered for an award including, but not limited to, those that are: using emerging technologies, eliminating hazardous chemicals, improving energy efficiency, reformulating or redesigning products to lessen their environmental impacts and reducing or eliminating waste streams.

Applications are subject to a thorough screening process and evaluated by a panel of peer experts representing business, academia, government, citizen organizations and environmental and conservation groups. Award recipients are honored at an event that attracts media coverage. The DEC provides visibility for award winners through displays, press releases, written materials and information on the NYSDEC website.

Several New York businesses have received awards in the last three years from over 180 applications (see Appendix VI).

P2 Summer Intern Program for Business

The Pollution Prevention (P2) Unit at DEC received a grant in 2007 from EPA to place college interns in New York businesses in order to promote green manufacturing and pollution prevention practices as well as attract students into the “green economy” workforce. DEC modeled this intern program based on other state P2 intern programs.

DEC targeted specific New York businesses that had received awards from either DEC or EPA for outstanding environmental performance, and invited these companies to apply.

Due to the technical nature of the program, students were selected based upon their education, i.e., engineering, environmental science, and environmental management or chemistry majors.

There are four goals associated with this program:

- 1-Reward environmentally conscious businesses with a college intern to work on an environmental project to make further improvements at the company,
- 2-Provide students with a real-work experience on projects that go beyond environmental compliance,
- 3-Encourage students to go into technical environmental fields and expand the New York green collar workforce, in the next generation.
- 4-Develop outreach materials that will assist other New York businesses.



H2Gro is an expanding 7.5 acre hydroponic greenhouse business that uses heat and energy from turbines powered by landfill gas from Modern Landfill (see Appendix VI)



The first season of P2 Summer Interns—green collar workers of the future!

In the first season of the program, six projects were completed at New York organizations from all over New York, including Long Island, New York City, the Hudson Valley, Central New York and Niagara Falls. These facilities included a semiconductor manufacturing plant, waste to energy facilities, a non-profit agency, and a municipal waste landfill. The 2008 projects consisted of an in house office recycling program, rainwater harvesting, de-ionized water reuse at a semi-conductor manufacturing operation, storm water-groundwater capture and reuse, evaluating manufacture's claims on an emission reducing catalytic oxidizer, and evaluating alternatives for reducing emissions from a large vehicle fleet. (See Appendix VII, Page 54). Based on this first year success, companies are now eager for more intern opportunities.

4.5 Leading by Example

New York State Green Procurement and Agency Sustainability Program

In April 2008, Governor David A. Paterson signed Executive Order No. 4 (EO-4), establishing a State Green Procurement and Agency Sustainability Program, which directs state agencies, public authorities and public benefit corporations to green their procurements and to implement sustainability initiatives. EO-4 established an Interagency Committee on Sustainability and Green Procurement (Committee). The Committee is comprised of the Director of the Budget, the Commissioner of the General Services, the Commissioner of Environmental Conservation, the Commissioner of Health, the Com-

missioner of Economic Development, the President of the Urban Development Corporation commonly known as Empire State Development Corporation, the Commissioner of Transportation, the President of EFC, the President of NYSERDA, the Chair of the Power Authority of the State of New York, and the Executive Director of the Dormitory Authority of the State of New York.

The Committee is charged with identifying an annual list of categories and products for which specifications can be developed and issued for greener procurements. The Interagency Committee was authorized to establish goals for reductions in the amount of solid waste generated and with the development and performance of training relative to sustainability efforts. In addition, EO-4 requires the design and implementation of a training program that includes outreach for staff, vendors, and contractors. EFC is the chair of the Training Subcommittee.

The Committee is currently focused on three categories that include electronics, building operations and transportation. Each year, twelve products in each of three categories must undergo evaluation for green specifications per the directives of the Order. This is an unprecedented commitment nationally. New York State procures almost \$8 billion annually in commodities, technology and services. This initiative has the power to move markets for a more sustainable future economy and environment in New York State.

Categories to be included in the future include the food services industry where the concept of "buying local" will help support agriculture and related businesses in New York. Also, there is an effort underway to mandate that products to contain a minimum percentage of recycled materials in product manufacturing to sell their goods in New York State. Already specified in the EO-4 is the procurement of 100% post consumer recycled and chlorine process free paper products. The Pollution Prevention Unit is dedicating a substantial amount of time and effort to the green product specifications under this important initiative that will not only reduce the environmental footprint and ultimately save money for state government, but also help green supply chains and create green opportunities for businesses in the state.

Green Cleaning Products

DEC, OGS, DOH, New York State Department of Education and Labor are working together to update and revise the Guidelines and Specifications For the Procurement and Use of Environmentally Sensitive Cleaning and Maintenance Products For All Public and Nonpublic Elementary and Secondary Schools in New York State and for the procurement and use of environmentally preferred cleaning products for state agencies and public authorities. The original guidelines predated Executive Order 4, prompted by both Executive Order 134 and by the Legislature's adoption of the first law in the nation to require green cleaning products in schools (New York State Education Law (409-i) and State Finance Law (163-b)). These efforts have helped inform the work ongoing in the broader EO-4 described above.

The workgroup has met with critical stakeholder groups preparatory to drafting revised guidelines for official public comment. The current guidelines reference Green Seal-37, a standard for general purpose cleaners. Green Seal-37, has been recently revised after lengthy deliberation. In addition to other considerations, the workgroup is evaluating whether these revisions should be incorporated in the guidelines.

Greening State Government



DEC currently chairs the Association of State and Territorial Solid Waste Management Officials' (ASTSWMO's) national "Greening State Government" Task Force, created in October 2007. The Task Force's charge is to create guidance for the establishment and implementation of state government programs and initiatives intended to reduce the environmental impact of state agency activities beyond regulatory compliance. The emphasis will be particularly, not exclusively, on impacts of resource use, waste generation and management, recycling, toxics use reduction releases associated with state agency procurement, programs, land use, construction, facility management, and employee commuting or business travel.

The Task Force has spent the last year collecting information on programs across the United States that

minimize (beyond compliance) the environmental impacts of various state agency activities. Strategies, lessons, and further resources from the leading examples of these programs will be synthesized to create the guidance that will be available by the end of 2009 through ASTSWMO.

Implementation of this project is expected to increase coordination between state agencies, share best practices, promote innovation and demonstrate leadership for local government, businesses and private citizens. Through this effort, agency staff can not only model the behaviors they should ultimately be seeking in their programs but also gain first hand experience on the challenges of implementation.

This "ground truthing" will help improve their practical judgment in developing effective programs for and communicating with the regulated community.

4.6 Interstate and International Partnerships

Safer Chemicals Workgroup



DEC is a member of the Northeast Association of Waste Management

Officials (NEWMOA) Board of Directors, which includes the New England states, New York and New Jersey, and is coordinating both its green hospitality industry initiative and environmental results program initiative for autobody shops and printers with NEWMOA states.

In 2008, NEWMOA initiated a Safer Chemicals Workgroup to address growing interest in toxic chemicals used in products and their manufacturing and the public health and environmental concerns from exposure during the manufacture, use, and end-of-life disposition. The mission of this Workgroup is to:

- Facilitate communication and information sharing about toxic substances in products and manufacturing and safer alternatives; policy and legislative initiatives at the state and national level; health and environmental assessments of existing chemicals and alternatives; priority chemical identification and prioritization; identification of state training needs.

Seek out areas of common interest and concern of the member states and identify potential projects, activities, and funding sources to assist states in program implementation.

As resources allow, develop and sponsor training for state programs, including web conferences and workshops.

Collaborate with other agencies and organizations outside of the NEWMOA membership that share an interest in reducing risk and exposure to toxic chemicals, including but not limited to academic institutions, non-governmental organizations, and public health agencies.

The current focus of the workgroup is on sharing information on state legislative initiatives in the region related to chemical policy. NEWMOA supports a Chemical Policy Listserv that includes a variety of participants from the Northeast states and other agencies and organizations that have participated in workshops and conferences. For more information go to: <http://www.newmoa.org/prevention/chemicalspolicy/index.cfm>

Toxics in Packaging Clearinghouse (TPCH)

The TPCH is a consortium of ten states that aims to reduce the toxicity of packaging by adoption and implementation of legislation that requires the reduction of lead, cadmium, mercury and hexavalent chromium used in packaging. New York is a charter member of the clearinghouse and DEC's Division of Solid and Hazardous Materials currently chairs the effort. TCPH was founded subsequent to an effort in the late 1980s and early 1990s, when model legislation was developed under the direction of the Coalition of Northeastern Governors (CONEG) to reduce the concentration of these toxic metals in packaging. The CONEG effort included a broad array of stakeholders, including government, advocacy and industry perspectives. The model legislation has since been adopted by nineteen states and several countries; New York enacted the Hazardous Packaging Act in 1990. The TPCH provides a forum for industry to advise the states about technology changes and trends to help in decision making, and to help ensure a consistent approach across the country. The TCPH also conducts ongoing outreach and testing to confirm compliance rates with packaging legisla-

tion. A June 2007 report from the group reveals the need for increased education, outreach and enforcement of existing packaging requirements, particularly regarding imported products. The TPCH Website contains a significant amount of additional information: <http://www.toxicsinpackaging.org/index.html>.

Interstate Mercury Education and Reduction Clearinghouse (IMERC)

New York State passed a law (Chapter 145, Laws of 2004, and amended by Chapter 676, Laws of 2005) placing requirements and restrictions on the sale and distribution of most mercury containing products, based on model legislation developed by NEWMOA. While not all the provisions of the model were included, New York State's law contains product stewardship concepts that require manufacturers and distributors to take on more of the end-of-life management responsibilities of mercury containing products the manufacturers and distributors sell and trade. The law authorizes New York's participation in an interstate clearinghouse which, similar to the TPCH, helps states implement their mercury product laws in a consistent manner. More information about this program can be found on the Interstate Mercury Education and Reduction Clearinghouse (IMERC) website: <http://www.newmoa.org/prevention/mercury/imerc.cfm>.

International Green Chemistry and Engineering Conference

The New York State Pollution Prevention and Compliance Assistance Council co-sponsored the London based BHR Group's Green Chemistry & Green Engineering International Conference on Process Intensification and Nanotechnology that was held in Albany, New York, on September, 15–18 of 2008. This is the first time this annual international conference has been convened in the U.S. Over twenty countries and several universities New York businesses were represented at the conference.

The main focus of the conference was to show the opportunities of emerging green technology available to meet today's environmental and economic challenges. The conference enabled businesses and academia from around the world to meet and explore joint collaborations, including several representatives from academia and businesses in New York State.

REACH Training

Registration, Evaluation, and Authorization of Chemicals (REACH) -- is the recently adopted overhaul of the chemicals management system in the European Union (EU). Effective on June 1, 2007, REACH has important implications for New York firms directly exporting to EU member states, or those that are a supplier to a firm that exports to the EU. DEC and ESD collaborated to offer a series of training events on REACH and other international regulations.

DEC sponsored a day long workshop on the REACH legislation on September 26, 2007, at DEC's headquarters. The aim of the workshop was to ensure that New York businesses were aware of REACH and were preparing to comply. A panel of New York businesses made presentations at the workshop and offered their insight on strategies to comply with REACH.

ESD partnered with the U.S. Department of Commerce to present two webinars on International Environmental Regulations. The October 18, 2007 webinar provided information on the REACH regulation and Waste Electrical and Electronic Equipment (WEEE)/ Restriction of Hazardous Substances (RoHS) directives, and Asian environmental regulations. The webinar was broadcast at nine ESD regional locations as well as at attendees' personal computers. The October 25, 2007, webinar provided advanced information on REACH.

4.7 Self Help Tools and Resources

Guide to NYS Assistance Programs

ESD worked with the P2 Council agencies to develop an interactive CD that is a consolidated guide to P2/CA assistance programs offered by P2 Council members. It includes summary listings of financial and technical resources as well as "hot" links to program websites for detailed information. The CD is being distributed in conjunction with training on P2 resources to ESD Regional Offices and other service providers, for use as a reference when advising businesses. A copy of the PDF/CD is included at the back of this report. A sample page from the CD is shown in Appendix VIII.

EMFACT

Environmental and Materials Flow and Cost Tracker@ (EMFACT) is a Amaterial use and profit-

ability@ software tool developed by SYS Technologies for the NEWMOA and funded by an EPA grant. DEC assisted NEWMOA in developing the RFP for the system. The P2 Council decided that it would be beneficial to test the program in order to assess the value for small businesses. EFC and DEC staff tested the program and provided comments to NEWMOA. The comments should assist SYS Technologies (contractor) in developing a user's manual and a program that is user friendly for small businesses.

EMFACT has the potential to be a very powerful tool to assist small business and service providers. The main focus of the tool is to account for the relationship between raw materials purchased, materials used, equipment, production units, products, intermediate products, air emissions, water discharges and waste generation. The P2 Council will continue working with NEWMOA to improve and implement the program.

P2RX

NEWMOA's P2RX website (see Appendix X, and go to www.p2rx.org) is a site dedicated to the dissemination of pollution prevention information in the service provider community. The P2 information is organized by sectors (Topic Hubs). Each sector includes ways to specifically implement P2 activities including energy efficiency and substituting environmentally benign fuel sources. However, the primary focus of the website is in the reduction of pollutants, recycling and reusing byproducts such as wastewater.



The Topic Hubs is the most useful section of the site; it provides overviews of processes/operations, information on waste streams, P2 opportunities and links to reference documents including help for specific questions. The information is critical for compliance assistance agencies to become familiar with the processes utilized at numerous industry sectors.

The P2 Council is working with NEWMOA in order to improve the site as a resource for small business and establish a web-link with the New York State P2 Institute.



Godfrey Point Sign Shop: DEC Godfrey Point Sign Shop served as a pilot for applying an environmental management system to a small business

Environmental Management Systems (EMS)

An EMS is a set of management tools and principles designed to create the administrative procedures that an organization needs to integrate environmental concerns into its daily business practice. It helps an organization meet its environmental obligations.

EMS training was offered on April 11, 2006 in Rochester and May 2, 2006 in Albany. A total of 52 regulatory and legal staff attended the training.

The training helps meet the goal of integrating pollution prevention across DEC programs. This training was designed to give DEC regulatory and legal staff an introduction to what an EMS is, and highlighted some examples of applications being undertaken by the DEC. The training enabled staff to conduct an EMS pilot at the DEC's Godfrey Point Sign Shop. The pilot demonstrated application of EMS principles to small job shops. The Department is currently developing the next demonstration at a DEC vehicle maintenance shop.

Through a EPA grant to DEC, the Rochester Institute of Technology (RIT), has offered EMS assistance to four small to medium sized enterprises in the Rochester area. In March of 2007, a team from RIT launched this effort by reaching out to prospective companies and finalized the training modules that they would offer to participating businesses. The four companies that are working with RIT on developing an EMS are: General Plating, Rochester New York, Performance Technologies, Rochester, New York, Diamond Packaging, Rochester, New York and Infotonics, Canandaigua, New York. Since May of 2007, the RIT team has been working

directly with each of the participating companies. By the conclusion of this effort, each of the participating companies will have gone through a nine module training program provided by RIT. RIT staff also provides advice and support to the companies in addition to delivering the training modules. The EMS development is still ongoing and is anticipated to be completed by the Fall of 2008.

5.0 Adequacy of Measures Taken to Assist Small Businesses

The challenges in achieving pollution prevention and compliance assistance for small businesses across New York State are daunting. Over 100,000 businesses in a diversity of business sectors must be reached. This requires a standing commitment over several years to not only reach every audience but also revisit the same businesses to build on initial P2 opportunities, serve changes in those businesses and catch up with frequent changes in ownership. At the same time, not every business necessarily welcomes government assistance, at least not until proven worthwhile with peers. This requires building reputation and effective marketing.

Soon after the formation of the Pollution Prevention and Compliance Assistance Coordinating Council, the member agencies attempted to bring in trade association representatives to help learn business priorities for assistance. The initial effort proved quite disappointing for several reasons including lack of participation, absence of clear priority agendas by the associations for assistance needs beyond lower taxes and energy costs, and relatively narrow representation by some associations on the issues of only select

members. While this represented only an initial effort, it became evident that marketing and connecting with the actual technical needs of businesses will likely take a lot more than outreach to associations.

Information regarding P2/CA for other environmental media and their respective requirements needs to be provided in order to help ensure compliance, P2 and economic viability. EFC has conducted extensive outreach focusing on air quality requirements to these sectors, through its SBEAP contract with DEC's Division of Air Resources, but we need to expand that effort into both pollution prevention and the full range of multi-media assistance in the programs listed below:

- Automotive Refinishing Operations
- Vehicle Maintenance Operations
- Machining/Metal Fabricating and Finishing
- Graphic Arts
- Plating
- Marinas
- Wood/Metal Surface Coating Operations
- Dry Cleaning
- Wood/Paint Stripping
- Pharmaceutical Production
- Industrial Solvent Cleaning
- Concentrated Animal Feeding Operations/Agricultural Operations
- Chemical manufacturing
- Electronic Parts Manufacturing

To date, the following sectors have received little compliance assistance or P2 attention, particularly multi-media issues, from regulatory programs which traditionally have focused on enforcement.

- Chemical/Petroleum Bulk Storage
- State Pollutant Discharge Elimination System
- Industrial Stormwater Management
- Hazardous Waste Management

- Solid Waste Management
- Wastewater discharges
- Universal Waste
- Fluorescent Lights
- Batteries
- Recycling
- Mercury Management
- Climate Change
- Proper disposal of Medications
- Used electronics
- Oil/Gas Wells

It should be noted that it is critical to maintain outreach to a given sector on an ongoing basis to ensure compliance is maintained and to alert the business to new P2 technologies and changing environmental requirements. In other words, once a specific outreach effort has been completed, continued communication and assistance to that business sector is essential to support P2 and maintain environmental compliance and economic viability. New initiatives are largely additive, not replacements for past initiatives.

Beyond these sector specific and program specific targets, the following broader mandates of Article 28 have yet to be fully addressed:

- Implementation of P2 in all DEC Programs
- Enforcement Discretion-policy development
- Inspection/Enforcement Coordination assistance
- Technical training of agency staffs on P2
- Integrated P2 Data Management
- Coordination of P2 activities with federal and local agencies
- Expanded public education and outreach
- On-site Compliance/P2 Assistance

The regulatory and enforcement responsibilities of DEC continue to present an intimidating presence to the business community. More work remains to be done to provide the most effective policy balance

between regulatory enforcement and assistance obligations to the regulated community. More effective forums for resolving conflicts in this regard need to be provided.

Integration of regulatory and financial services to attract new business and facilitate business expansions also needs to be improved. DEC and ESD have recently been holding joint forums statewide to help identify ways to make those improvements.

Finally, the quest to expand green business opportunities through the Governor's Executive Order faces substantial challenges against traditional parameters for procurement specification. Price, availability, form function and utility are all valid factors but play very differently when the state is trying to induce and grow markets rather than simply shop existing markets. The vision of a future green economy has to be cultivated across agencies at all levels to create the kind of critical mass that will truly move markets and support new business opportunities.

In the face of these challenges as well as the limitations of only recently acquired resources, exciting progress has still been made. The formation of the P2 Council under Article 28 has established cross agency relationships and a convenient means of referrals to single points of contact in each agency for businesses. A comprehensive menu of state agency services has been made available electronically.

The formation of the Pollution Prevention Institute has provided a standing service for on site assistance to businesses in technology and operational improvements that help save money and the environment as well as training and education. It has created unprecedented collaboration between notable public and private universities across the state and a potent resource for the Regional Technology Development Centers statewide that work with local manufacturers every day.

The financial assistance programs of ESD and NY-SERDA continue to provide opportunities to scores of businesses for pollution prevention and industrial process improvements while the other Council agencies help expand promotion of those opportunities through their own work.

The expanded role of EFC's small business compliance assistance program under Article 28, into the

other environmental media beyond air pollution to water, solid and hazardous waste, has logically enabled full service assistance across all major environmental regulatory programs.

The sector efforts begun for the hospitality, dry cleaner, auto body and printer sectors will help reach thousands of New York small businesses in ways that door to door assistance can never get to with the resources available.

Implementation of the Governor's Executive Order 4 will create market shifts in the quest for greener products and services that can create and strengthen hundreds of green business opportunities across the state in a broad diversity of sectors.

The opportunities are enormous and only limited by the resources available and the awareness level of those opportunities by business owners and operators.

6.0 Evaluation of Resources Available to Implement Programs

The following table compares state spending on pollution prevention in New York to spending on end-of-the-pipe regulation and the cleanup of contaminated sites and oil spills. As the table shows, New York's annual investment in pollution prevention (roughly \$10.7 million dollars) is negligible compared to its annual investment in traditional end-of-the-pipe and remediation programs (approximately \$308 million). In addition to direct annual revenue expenditures for oil spill cleanup and site remediation summarized in the table below, New York State also forgoes significant revenue due to the Brownfield Tax Credit Program created in 2003. In a report released in June 2008, the New York State Comptroller has estimated that the outstanding tax credit liability for all projects currently enrolled in the Brownfield Cleanup Program (200 sites) is potentially as high as \$3.1 billion.

¹Thomas, P. DiNapoli, New York State Comptroller, Overview of the New York State Brownfields Cleanup Program, June 2008, pp. 9.

Agencies

Pollution Prevention \$

DEC	\$2.0 million
ESD grants	\$3.3 million ¹
NYSERDA	\$4.0 million
ESD & EFC SBEAP	\$1.4 million

TOTAL \$10.7 million

DEC Regulation and Remediation \$

\$189 million² (End-of-the Pipe Regs)²

\$80 million³ (Superfund remediation) ³

\$39 million⁴ (Oil spill remediation) ⁴

TOTAL \$308 million

1 This estimate is based on Appendix IV of this report, ESD's Environmental Investment Program summary of awards for 2007-2008, including secondary material market development projects (the use of recycled material in products) but with recycling projects subtracted.

2 This estimate is drawn from the enacted state budget for 2007/2008, covering all air, water, solid and hazardous waste programs and enforcement.

3 This estimate is based on annual 2007/2008 Superfund budget for the DEC Remediation program

4 This figure is drawn from the enacted state budget for 2007/2008.

The figures above confirm that New York State investment overall in pollution prevention is still very small compared to other environmental spending - representing less than 3.5% of what the state spends on traditional regulatory programs and the cleanup of already contaminated sites.

The legislative sponsors recommended at least 7 new staff in NYSDEC and 2 new staff each in ESD and EFC for a total of 11 positions to begin to implement Article 28. Approvals to fill six of these positions were received in 2007 and these positions have been filled. Although significant progress has been made, filling the remaining 5 positions will improve our ability to provide assistance to the over 100,000 businesses in NYS who could benefit from pollution prevention actions. In this difficult economic climate it is important that businesses take advantage of every opportunity for efficiencies to ensure that they remain viable and stimulate job opportunity. Following are details of the accomplishments associated with Article 28.

6.1 DEC

As a direct result of the enactment of Article 28, four dedicated staff were added to the Pollution Prevention Unit of the DEC in 2007 to assist in the development and administration of the new legislation. The Director of Environmental Permits & Pollution Prevention is the Chairman of the P2 Council.

New staff has been involved in the following activities:

- 1-Development of the Council workplan, Council by-laws and general day to day activities of the Council,
- 2-Grant development,
- 3-P2 Intern Program for Business,
- 4-Management of the P2 Institute Contract and Advisory Board/Technical Committee participation,
- 5-Hospitality Business Sector initiative
- 6-Environmental Leaders Program.
- 7-Governor's Executive Order 4 on Greening of State Government

Existing staff in the original Unit have been engaged in the following Article 28 activities:

- 7-Environmental Results Program development/facility identification/compliance assistance workbook and checklist development for the auto body business sector,
- 8-Schools Chemical Clean Out Program
- 9-Green Chemistry Program

Existing staff in the original Unit have been engaged in the following Article 28 activities:

- 10-Environmental Results Program development/facility identification/compliance assistance workbook and checklist development for the auto body business sector,

11-TRI-analysis of sectors to provide P2 outreach

12-Compliance/P2 Assistance Manuals

The PPU conducts a number of activities to reach mass audiences, including the development of guidance and assistance documents. The next significant objective is to transform the core programs of DEC to fully integrate pollution prevention into their regulatory process and day to day activities. To accomplish this, it is anticipated that an additional 4-5 staff would need to be added to each of the major program areas. Directing resources from existing core programs would not be practical given the expansive legislative mandates for environmental regulation and minimal resources currently allocated in the agency. Additional staff, would initiate the training activities referenced above and the integration of P2 with inspection/enforcement activities.

Another critical area of staffing needs is in the Green Building Tax Credit program. The Department currently has no audit capability under this program. Under existing legislation, DEC has only the authority to determine if an architect or professional engineer has made a wrongful certification. Existing staff do not have the capacity to do any more than an administrative review of the application documents supplied by those seeking to be eligible for the credit, nor do they have capacity to do any more than an administrative review of the required annual certification documents. In addition to auditing that the buildings were built as designed, we need to determine that the buildings receiving the tax credit are being operated in an energy efficient manner and that indoor air quality standards are being met. Buildings that do not meet these requirements should be denied the annual tax credit. Finally, as law is changed and as DEC deems it necessary, we are required to update regulations necessary to the implementation of this section of the law. Currently less than 0.3 person years is available on the administration of the program.

Two staff are needed to audit the buildings that are receiving the tax credit, to review reports necessary to maintain the technical knowledge to administer the tax credit program and to assist in the administration of the program. One staff person needs to have the technical expertise to develop and update regulations as well as audit the buildings that are receiving the tax credit. The other staff person needs to assist in the administration of the program, auditing buildings and in the development of regulations.

Finally, as noted in section 4.5, the Governor's Executive Order No. 4 places special responsibilities on DEC for its implementation. DEC not only Co-chairs the interagency efforts but also has unique technical responsibilities to research and develop green criteria as needed for the broad range of procurement commodities being reviewed under the order. It is also looked upon as the model agency for implementing a sustainability plan for its own operations, buildings and activities. A white paper of staffing needs to support this effort was developed shortly after the order was issued and is included in Attachment XII for reference. The new Chief of DEC's Pollution Prevention unit has been supporting the Policy Office in implementation to date but a team is needed to realize full implementation over the long term.

6.2 ESD

Three staff were recommended for ESD to implement Article 28. Filling these positions is vital to enhancing ESD's program services delivery to additional members of the business community.

6.3 EFC

One of EFC's major P2/CA goals is to build upon its efforts under the Small Business Environmental Assistance Program (SBEAP), authorized under the Clean Air Act requirements, to include other environmental media, such as water and solid and hazardous waste management. An additional goal

is to enhance EFC's pollution prevention (P2) effort. Following receipt of P2/CA funds in Autumn 2007, EFC hired two new staff in December 2007 to implement responsibilities under the Small Business Pollution Prevention and Compliance Assistance Program. Much of the first six months after hiring was dedicated to staff training, as well as to research and development of P2/CA Program implementation strategies. Under the present scope of work, activities of EFC's two P2/CA staff during this period included:

- Trained on the environmental requirements associated with the automotive refinishing sector, the first of two sectors associated with the Environmental Results Program (ERP).
- Conducted twenty on-site assessments at automotive refinishing facilities.
- Completed twenty Minor Facility Air Registrations and prepared the associated supporting documents.
- Prepared plain language guidance documents for five P2/CA issue areas: Handling Fluorescent Light Bulbs; Management of Shop Towels; Conditionally Exempt Small Quantity Generators; Small Quantity Generators; and a Statewide Listing of Waste Haulers.

These two positions represent a starting point for EFC in developing and providing a technical assistance program to the over 100,000 small businesses subject to environmental requirements in New York State. EFC hopes to continue to systematically implement a strong compliance and technical assistance program as knowledge and experience is gained regarding the numerous industry sectors' environmental requirements and P2 opportunities.

In the future, each additional staff could be expected to perform at a commensurate level. Given the limited resources presently available, EFC could readily adjust the scope of activities, above, adding

tasks and omitting others, to ensure that it addresses the highest priority tasks identified by the P2/CA Council. Prorated to one year, existing P2/CA staff could conduct 40 on-site assessments, prepare 80 Minor Facility Air Registrations and prepare ten plain language guidance documents.

At the current staffing levels, EFC can provide high quality one-on-one assistance and outreach on a limited basis only. Additional resources will permit EFC to reach more businesses and more business sectors with high quality technical and compliance assistance, and help with P2. Based on EFC's experience implementing the SBEAP for the past 14 years, it should be expected that a minimum of at least one additional staff would be needed for each new significant P2/CA outreach sector/effort. For example, sectors such as chemical/bulk storage would need additional staffing due to the complexity of the requirements and the sheer number of facilities located in New York. There are approximately 52,000 storage facilities in the state, involving an estimated 125,000 bulk storage tanks.

7.0 Summary and Conclusion

The adoption of ECL 28 has elevated the concept of pollution prevention and compliance assistance to a legitimate status along side the historical mission of DEC to protect natural resources through enforcement of regulatory standards. This legislation declared it to be the policy of the State of New York to promote affordable and cost effective methods to reduce energy and resource consumption and to reduce or eliminate the use of hazardous substances.

Article 28 requires that the DEC, in coordination with the EFC and the ESD, work together to achieve the goals as set forth in this legislation. These goals require a large undertaking to coordinate the funding and program activities of multiple agencies. Significant progress has been made towards these goals, however, and the state's economic situation demands that investments in improving the sustainability of New York businesses not only continue but increase to retain and build competitive advantage and jobs while reducing environmental liabilities

Appendix I – New York State Environmental Leaders Program/ National Environmental Performance Track Leaders

Applicants Under Consideration

EPA NEPT Transitional Period (04/01/2008 to 05/31/2008) Applicants

1. Brookhaven National Laboratory (Leadership Tier, National/State Option)
2. Covanta Babylon (Leadership Tier, National/State Option)
3. Covanta Huntington (Leadership Tier, National/State Option)
4. Covanta Niagara (Leadership Tier, National/State Option)
5. Covanta Onondaga (Leadership Tier, National/State Option)
6. Covanta Westbury (Leadership Tier, National/State Option)
7. Evelyn Hill Inc. (Leadership Tier, National/State Option)
8. IBM Thomas J. Watson Research Center (Leadership Tier, National/State Option)
9. INX International Ink Co. (Leadership Tier, National/State Option)
10. Lockheed Martin Liverpool (Leadership Tier, National/State Option)
11. Lockheed Martin Owego (Leadership Tier, National/State Option)
12. Ortho Clinical Diagnostics (Leadership Tier, National/State Option)
13. Swiss Re (Leadership Tier, National/State Option)
14. United States Department of Energy West Valley Demonstration Project (Leadership Tier, National/State Option)

Open Solicitation Period (09/01/2008 to 10/31/2008) Applicants

1. Brewster Central School District (Entry Tier)
2. Brooklyn Navy Yard Cogeneration Partnership, LLC (Leadership Tier, National/State Option)
3. Endicott Interconnect Technologies, Inc. (Leadership Tier, National/State Option)
4. LDI Color Toolbox (Entry Tier)
5. Per Scholas, Inc. (Leadership Tier, State Option)
6. The Foundry Company (Entry Tier)

Appendix II – NYSP2I - Current Client Assistance Projects

American Aerogel Corporation (Rochester)

American Aerogel Corporation (AAC) began developing cost-effective means to produce aerogels and aerogel-like materials in 1995. However, to cost effectively ramp up production the company needed a method for effectively recycling waste produced in the manufacturing process. RIT's research team analyzed the chemical composition of effluent waste created in the manufacturing process, tested various recycling processes, and evaluated the quality of recycled foam that was produced from recycled waste effluent. Based on this research, a recycling method was identified, leading to a projected 50-67% reduction in overall manufacturing costs and a 90% decrease in hazardous waste production. Based on the success of this effort, the Sustainability Institute and AAC are now collaborating on a second project to expand commercialization of this product for a wide variety of insulation and storage applications. NYSP2I, ESD, NYSTAR, and NYSERDA have provided funding for this project.

American Motive Products (Dansville)

NYSP2I proposes to collaborate with the Rochester RTDC (HTR) to conduct an LE2 analysis for this remanufacturer of diesel locomotives, and to identify specific strategies for reducing its environmental footprint, such as modifying surface cleaning and surface coating operations. NYSP2I is providing full funding for this project.

Carpet Recycling and Reuse (NYC and Rochester)

NYSP2I is collaborating with Sunnking of Rochester, NY and the NYC Mayor's Office to investigate methods for reusing and recycling carpeting, so as to avoid landfill disposal. NYSP2I is providing full funding for this project.

Community Playthings (Ulster Park)

Community Playthings manufactures quality wood furniture and toys for infant, toddler, preschool and kindergarten environments. NYSP2I proposes to assist Community Playthings in reducing its environmental footprint as well as “greening” its product line by reducing the heavy metal and volatile organic compound (VOC) content of the materials used in its products. NYSP2I will provide the majority of funding for this project, with the remainder to be provided by Community Playthings.

Eco-Friendly Cleaners (Statewide Effort)

NYSP2I is collaborating with Eco-Friendly Cleaners to evaluate practical and feasible alternatives to traditional perchloroethylene-based dry cleaning operations. This effort will also be coordinated with the UB test-bed. NYSP2I is providing full funding for this project.

Inland Paper Products (East New York City)

IPP uses flexographic printing presses to manufacture coated and laminated paper for packaging materials such as boxes, bags, and pouches. IPP is committed to using aqueous-based inks in their printing processes, unlike most of their competitors, who are using solvent-based inks instead. This company, which provides jobs in an economically depressed area, is having difficulty meeting product quality standards consistently with the aqueous-based inks. NYSP2I is working collaboratively with the NYC RTDC (Industrial and Technology Assistance Corporation, aka ITC) and the RIT Printing Applications Laboratory testbed to eliminate these operational difficulties so that IPP can continue to minimize their environmental footprint with the use of these aqueous-based inks. NYSP2I, ESD, NYSTAR have provided funding for this project.

Maloya Laser (Long Island)

NYSP2I is collaborating with the Long Island RTDC (Long Island Forum for Technology, aka LIFT) to evaluate the air emissions generated from heaters used in aircraft de-icing equipment that are fired from diesel fuel, jet fuel, or gasoline. NYSP2I will also review combustion chamber design and evaluate emissions reduction techniques for decreasing the environmental footprint of this equipment for subsequent incorporation in “greener” product designs. Funding for this project has been provided by NYSTAR.

McAlpin Industries (Rochester)

NYSP2I is evaluating existing surface cleaning methods for metal panels prior to plating. These metal panels have rework rates as high as 50% due to problems with existing cleaning processes. NYSP2I has evaluated several alternative processes, with the most promising alternative identified as baking soda abrasive blasting. Implementation of this alternative surface cleaning strategy can reduce hazardous waste, save energy, improve product quality, and significantly reduce operating costs. Funding for this project has been provided by NYSTAR.

NYSHTA (Statewide Effort)

NYSP2I is presently developing tools for greening hotels and preparing case studies for the successful implementation of these tools. NYSP2I is providing full funding for this project.

QES Solutions (Rochester)

NYSP2I is performing a surface cleaning and lean evaluation for this company. It is believed that P2 benefits may be achieved from the implementation of feasible alternative processes. Funding for this project has been provided by NYSTAR.

Tecmotiv (Niagara Falls)

NYSP2I has completed a Lean, Energy, and Environment (LE2) analysis for Tecmotiv Corporation, a remanufacturer of military engines and equipment. LE2 combines two programs previously developed by EPA; the Lean and Environment program, and the Lean and Energy program. LE2 simultaneously addresses productivity, environmental, and energy factors of a manufacturing process so that it can be enhanced along these three dimensions without suboptimization.

Using the LE2 analysis, the following annual benefits were obtained for just one part manufacturing process. Although this part type consumes a disproportional share of resources, it should also be noted that a single engine remanufactured by this company contains thousands of parts.

- Savings in operating costs of \$64,335
- Reduction in electricity use of 32,709 KWH
- Reduction in water use of 1,480 gallons
- Reduction in generation of 5,791 pounds of non-hazardous waste
- Reduction in 3,631 pounds of abrasive media
- Reduction in 259 gallons of non-hazardous wastewater
- Reduction in 41 gallons of detergent

This project was wholly funded by NYSP2I and ESD.

TECT Utica Corporation (Utica)

NYSP2I is collaborating with the Utica RTDC (Mohawk Valley Applied Technology Corporation, aka MVATC) to evaluate methods of extending the life of acid baths used in manufacturing turbine blades, and has moved to the implementation phase. The company is presently generating over 150,000 gallons per year of spent acid as hazardous waste at a cost of over \$500,000 per year. It is believed that both disposal costs and waste volume will be reduced by over 80% after the selected P2 technology has been implemented. NYSP2I, Empire State Development (ESD), and the New York State Office of Technology and Applied Research (NYSTAR) have provided funding for this project, in addition to cash payment from TECT.

Thomas Electronics (Clyde)

NYSP2I is presently evaluating alternative manufacturing processes for this manufacturer of cathode ray tubes for special applications such as displays in commercial airplane cockpits. The current manufacturing process uses hydrofluoric acid, a very dangerous and corrosive chemical. NYSP2I is presently investigating other means of removing screen phosphor through experimentation and testing in one of RIT's test-beds. NYSP2I is also researching alternative methods for controlling acid wash systems for improving operator safety. NYSP2I, ESD, and NYSTAR have provided funding for this project, in addition to cash payment from Thomas Electronics.

NYSP2I – Active Proposals

Monroe Plating (Rochester)

NYSP2I proposes to collaborate with the Rochester RTDC (High Tech of Rochester, aka HTR) to evaluate methods of extending the life of acid baths used at this contract plating company and will also evaluate methods for recycling washwater and wastewater, which is critical as the company is using over 1.5 million gallons of water per month. Proposed methods of reducing water consumption will include filtration and recycling of wash water, removal of oil from wastewater, and reduced consumption from overall improvements in wastewater treatment. NYSP2I proposes to provide full funding for this project.

Smart Materials (New Hartford)

NYSP2I proposes to collaborate with the Utica RTDC (MVATC) to eliminate the use of acid baths (and subsequent conversion to hazardous waste) for this primary smelter and finisher of shape memory alloy wire, bar, sheet, and ribbon. If, after completing this evaluation, acid baths are still required to be used, NYSP2I will evaluate the utilization of products to extend the lives of these baths so as to reduce the amounts of hazardous waste generated by this process. NYSP2I and ESD propose to provide full funding for this project.

Southco (Honeoye)

RIT intends to improve the current cleaning process used for hardware production for this manufacturer of access hardware. It is believed that P2 benefits may be achieved from the implementation of feasible alternative processes. Funding for this project has been provided by NYSTAR.

Welch Allyn (Skaneateles)

NYSP2I proposes to collaborate with the Syracuse RTDC (Central New York Technology Development Organization, aka CNYTDO) to evaluate methods of extending the life of acid baths used at the medical equipment manufacturing company and will also evaluate methods of minimizing the introduction of oil and grease into wastewater effluent, so as to reduce operating loads on the company's wastewater treatment plant. This will result in overall improvements in product quality while reducing the company's environmental footprint. NYSP2I proposes to provide full funding for this project. NYSP2I and ESD propose to provide full funding for this project.

NYSP2I –Proposals Under Development

- **American Log Splitter (Watertown)** – Surface Coating Assessment
- **Ames Goldsmith Corp (Glens Falls)** – Water Recycling & Ethanol Recovery
- **Anaren Microwave (East Syracuse)** – Acid Bath Extension
- **Commercial Envelope (Deer Park)** – Environmental Footprint Reduction
- **D&W Diesel (Auburn)** – Cleaning Assessment
- **Dynabil (Caxsackie)** – Environmental Footprint Reduction
- **Gorbel/Retrotech (Fishers)** – Environmental Footprint Reduction
- **Harley School (Rochester)** – Environmental Footprint Reduction
- **Hubbell Galvanizing (New York Mills)** – Environmental Footprint Reduction
- **Kaddis Manufacturing (Rochester)** – Water Conservation and Recovery
- **Monroe County (Rochester)** – Environmental Footprint Reduction
- **National Compressor (Ridgewood)** – Environmental Footprint Reduction
- **Rochester City Schools (Rochester)** – Lean Energy & Environment Analysis

- Rural Opportunities, Inc (Rochester) – Greening Office Spaces
- Spray-Nine (Johnstown) – Green Chemistry Development
- TAG (Romulus) – Environmental Footprint Reduction
- United Materials (Lancaster) – Environmental Footprint Reduction
- Xerox Corporation (Webster) – Environmental Footprint Reduction

NYSP2I General Contacts, Multi-Site Contacts

- First Niagara Bank (Statewide) – Greening Office Spaces
- GasTran Systems (Statewide) – De-aeration Process Improvement

Appendix III – NYSP2I – Advisory Board Members

Name	Title	Agency	Category
Edwin Pinero	Director of P2I	RIT	Chair
Newton Green	P2I Business Manager	RIT	TAC Liaison
Jeffrey J. Sama	Director of Environmental Permits and Pollution Prevention	NYS Dept of Environmental Conservation	P2 Council Chair
Patricia A. Calkins	Vice President of Environment, Health and Safety	Xerox Corporation	Industry
William Wolfram	Director of Global Regulatory Affairs	S I Group	Industry
Paul J. Burton	President	DynaBil Industries	Industry
Bruce Pearl	General Manager	Commercial Envelope Manufacturing Inc.	Industry
Mr. Bob Bechtold	President	Harbec Plastics, Inc.	Industry
Paul MacEnroe	President	Mohawk Valley Applied Technology Corporation	RTDC
Amy Schoch	SVP for Environmental, Manufacturing and Small Business Programs	Empire State Development	Government
Audra Herman	Sustainability & Green Procurement Coordinator for the NYS Office of General Services	Office of General Services	Government
Matthew Millea	President	NYS Environmental Facilities Corp	Government
Stephanie Costner	Consultant	Environmental Justice Action Group of Western New York	NGO
Roberta Chase Wilding	Organizing Director	Clean New York	NGO
Roger Cook	Executive Director	Western New York Committee on Occupational Safety and Health	NGO
Katrina Smith Korfmacher, PhD	Community Outreach Coordinator/Research Assistant Professor	Environmental Health Sciences Center	NGO
Barbara Warren	Executive Director	Citizens' Environmental Coalition	NGO
Last Updated 10/17/08			

Appendix IV - ESD Environmental Investment Program

Summary of Awards

EMPIRE STATE DEVELOPMENT ENVIRONMENTAL SERVICES UNIT

ENVIRONMENTAL INVESTMENT PROGRAM

SUMMARY OF AWARDS FOR FY 2006-2007

Finger Lakes Region

Genesee County Economic Development Center

Award: \$138,000 **Total Project:** \$283,800

Capital project to assist Tompkins Metal Finishing (Batavia, Genesee County) to purchase a reverse osmosis system, a water treatment unit and a solids separation unit. Success of the project will reduce the purchase of hazardous materials by 37 tons per year; reduce the amount of discarded hazardous waste by 3 tons per year; reduce water purchase and treatment by 4 million gallons per year; and save \$113,825 annually in operating costs.

Monroe County Industrial Development Corporation

Award: \$169,900 **Total Project:** \$343,900

Capital project to assist General Plating LLC in the purchase of a reverse osmosis system, a process water pretreatment system and a metals removal microfiltration system. Success of this project will result in the company's reuse of 1,456,000 gallons of metal finishing rinse waters; reduce waste water treatment sludge by 19,950 pounds per year; reduce hazardous waste by 31,640 pounds per year; reduce the use of sodium hydroxide by 29,743 pounds per year; reduce the use of sulfuric acid by 7,700 pounds per year; reduce the use of hydrochloric acid by 6,188 pounds per year; and save \$25,000 annually in avoided purchase and disposal costs and \$39,000 in additional operational savings.

Ontario County Industrial Development Agency

Award: \$496,607 **Total Project:** \$1,987,989

Capital project to assist Trilogy Glass, LLC, a new subsidiary of Casella Waste's recycling division, FCR, Inc., to install and implement a glass beneficiation line adjacent to the Ontario County landfill and MRF currently managed by Casella under a 25-year agreement with the County. Success of this project will create the capacity to process up to 50,000 tons of mixed-color container glass diverted for recycling each year, and assure that at least 30,000 tons per year is being recycled during the project. This investment will save regional glass recyclers at least \$735,000 annually on reduced glass management costs and create 12 new jobs.

Long Island Region

Long Island Forum for Technology

Award: \$216,450 **Total Project:** \$528,945

Capital project to assist Suffolk Industrial Recovery Corporation (d/b/a PK Metals) with the purchase of equipment necessary to increase the amount of post-industrial polyvinyl chloride (PVC) plastic scrap recycled at its facility. Success of this project will increase PVC recycling by 411 tons per year and increase annual revenue by \$328,800.

Xiom Corporation

Award: \$184,000 **Total Project:** \$321,000

Research project to assist Xiom Corporation (West Babylon, Suffolk County) to improve the efficiency of its polymer multi-coat thermal spray system and to mitigate defects for broader commercial acceptance.

Mid-Hudson Region

Hudson Valley Technology Development Center, Inc.

Award: \$397,377 **Total Project:** \$2,127,627

Capital project to assist Hudson Baylor Corporation in purchasing a high grade paper processing sort system. Success of this project will

two, value-added products: 3,100 tons/year Whey Protein Concentrate and 22,000 tons/year Permeate Powder that will conservatively earn \$6.1 million/year for Great Lakes Cheese (\$3.8 million/year more than Whole Whey marketed by GLC today). The new whey process plant will also allow for the recovery and reuse of 57.8 million gallons of process water each year, a \$267,800 annual savings in terms of avoided water purchases and eliminated waste water treatment costs.

Woodruff Block Company, Inc. **Award:** \$196,721 **Total Project:** \$282,723
 RD&D project to assist Woodruff Block Company, Inc., Graymont Materials, Inc. develop and test specifications for the use of 8,000 tons per year of glass dust byproduct generated by neighboring Potters Industries.

Southern Tier Region

Chemung County Economic Development, Inc. **Award:** \$163,892 **Total Project:** \$327,784

Capital project to assist Thomas and Betts Corporation in purchasing the equipment necessary to convert its cadmium electroplating line to a nickel-tin electroplating line. Success of this project will eliminate 55 tons per year of hazardous wastewater and hazardous sludge, saving \$8,190 per year in avoided disposal costs; realize \$125,027 in efficiency improvements from reduced labor and electricity costs; eliminate the purchase and use of 178 tons per year of hazardous materials; retain \$2 million in sales revenues; and save \$241,600 per year in avoided costs to outside contracted nickel electroplaters.

Chenango County Industrial Development Agency **Award:** \$28,300 **Total Project:** \$56,600

Capital project to assist Golden Artist Colors, Inc. (New Berlin, Chenango County) in purchasing a reverse osmosis unit which will enable them to reuse 75% of their wastewater. Success of the project will result in reuse of 351,000 gallons per year of wash water, saving the company water hauling and POTW charges of \$34,410 per year.

Western New York

Buffalo ReUse, Inc. **Award:** \$187,450 **Total Project:** \$263,875
 Research project to assist Buffalo ReUse, Inc. (Buffalo, Erie County) to determine best practices for deconstruction in the City of Buffalo.

Erie County Industrial Development Agency **Award:** \$250,000 **Total Project:** \$935,000

Capital project to assist AccuMED Technologies, Inc. (Buffalo, Erie County) in purchasing a new Flame Lamination system and associated equipment to reduce the generation of a significant amount of waste product. Success of this project will reduce scrap waste by 26 tons per year and generate \$2,562,500 annually in scrap savings and increased sales.

Erie County Industrial Development Agency **Award:** \$500,000 **Total Project:** \$1,197,460

Capital project to assist Akron Ag Products, Inc. in purchasing equipment to economically dry waste paper solids from the Norampac paper mill in Niagara Falls. Success of the project will enable Akron Ag Products to recycle a minimum of 30,000 tons per year of waste paper solids and 1,200 tons of scrap metal, eliminating landfill disposal by Norampac. In addition, Akron Ag Products will realize a minimum economic benefit of \$1,446,900 and create four full time, permanent positions.

Erie County Dept. of Environment & Planning **Award:** \$230,501 **Total Project:** \$461,138

Technical assistance project to enable Erie County Department of Environment and Planning to assist at least 25 companies in identifying and implementing pollution prevention/reuse/recycling opportunities over a two year period. Success of this project has the potential to prevent a minimum of 435 tons of pollution/waste, saving a minimum total of \$278,051.

Erie County Industrial Development Agency **Award:** \$275,000 **Total Project:** \$1,000,000

Capital project to assist KDM Die Company, Inc. (Buffalo, Erie County) in purchasing new machining centers and grinding machines to reduce scrap product and waste currently generated. Success of this project will reduce manufacturing scrap by 27 tons per year, generate \$970,130 in annual economic benefits, retain 9 jobs, and create two new full time jobs.

Erie County Industrial Development Agency **Award:** \$104,000 **Total Project:** \$366,600

Capital project to assist Seal & Design, Inc. (Clarence, Erie County) in purchasing a new horizontal bandknife splitting machine to significantly reduce the amount of waste generated. Success of this project will reduce waste generated in the current foam rubber bun

Mohawk Valley

Montgomery County Industrial Development Agency

Award: \$300,000

Total Project: \$772,000

Capital project to assist US GreenFiber, LLC of Hagaman, Montgomery County (Mohawk Valley Region) to purchase a shredding system that will allow the cellulose insulation manufacturer to use different and less expensive feedstock than the "over-issue" old newsprint it now buys. Success of the project will save US GreenFiber \$400,950 on raw material purchases. In addition, 1,680 tons per year of low grade paper waste will be diverted from disposal, saving US GreenFiber an additional \$87,192 in raw material purchases and earning the suppliers of that low grade paper \$33,600 in avoided disposal costs.

New York City Region

New York City Industrial and Technology Assistance Corporation

Award: \$350,010

Total Project: \$700,430

Technical assistance project to assist New York City Industrial and Technology Assistance Corporation in New York City to support the growth and continued operation of its Sustainable Business Unit and its continued integration into ITAC's core business outreach efforts. Over two years, the project will save NYC businesses (with an emphasis on manufacturers) \$2,366,000 in avoided waste management and avoided purchasing costs and divert 13,000 tons of material from disposal to reuse or recycling.

Per Scholas, Inc.

Award: \$66,400

Total Project: \$97,890

Research project to assist Per Scholas, Inc. (Bronx, New York), to collaborate with the New York City Industrial Technology Assistance Corporation to conduct a market research and feasibility study on a new e-waste recycling project.

North Country

Black River Generation, LLC

Award: \$195,849

Total Project: \$270,394

Research project to assist Black River Generation, LLC (Fort Drum, Jefferson County) test the use of high-carbon fly ash and bottom ash generated by the coal-fired power plant in the manufacture of concrete products at Taylor Concrete Products in Watertown, NY.

Council for International Trade, Technology, Education and Communication

Award: \$94,349

Total Project: \$188,698

Capital project to assist Newton Falls Fine Paper, Co., LLC. (Newton Falls, St. Lawrence County) install boiler modification equipment to maximize efficiency and reduce air emissions. Success of the project will reduce fuel consumption by 361,000 gallons per year; save \$516,516 per year; and prevent the generation of at least 30.3 tons NOX, 43.2 tons of SOX, 2.8 tons of CO, .5 tons of VOCs, and 11 tons of particulate annually.

ND Fusion, Inc.

Award: \$200,000

Total Project: \$311,450

RD&D project to assist ND Fusion, Inc. to design, fabricate and demonstrate innovative technologies developed at Clarkson University's Center for Advanced Materials Processing at Losurdo Food Inc.'s Heuvelton, NY cheese manufacturing plant. The new technology will help Losurdo reduce the cost associated with waste whey management, and possibly extract a saleable protein from the waste whey.

Western New York

Accu-Sort America, Inc.

Award: \$199,213

Total Project: \$267,573

Research project to assist Accu-Sort America, Inc. (Lackawanna, Erie County) to determine the feasibility of making several new products out of post consumer plastics (Nos. 3-7), high-carbon fly ash and post consumer carpet scrap.

AIC, Inc.

Award: \$120,200

Total Project: \$150,325

Research project to assist AIC, Inc. (Tonawanda, Erie County) to build a prototype "Water Press." The project will determine if the water press will be technically and economically feasible to dewater paper mill sludge and waste produce from food manufacturing / processing facilities.

County of Chautauqua Industrial Development Agency

Award: \$500,000

Total Project: \$2,578,300

Capital project to assist Dunkirk Specialty Steel (Dunkirk, Chautauqua County), in purchasing machinery and equipment and associated infrastructure improvements for a new round bar mill manufacturing line. Success of the project will reduce process waste and scrap (bar turnings, lubricants and swarf) by 180 tons per year; increase bar sales by an estimated \$1.6 million due to yield improvements; and save Dunkirk \$390,250 annually.

County of Chautauqua Industrial Development Agency	Award:	\$190,000	Total Project:	\$389,500
Capital project to assist Pacific Sterling of New York, LLC, located in Dunkirk, Chautauqua County, (Western New York Region), in purchasing glass crushing and processing machinery and glass bead sifting and sorting equipment. Success of the project will recycle 8,000 tons of waste glass cullet and scrap windshields into glass beads; generate approximately \$4,000,000 in new sales; and create five new full time positions.				
Don's Welding Service, Inc.	Award:	\$112,805	Total Project:	\$150,355
Research project to assist Don's Welding Service in Depew, Erie County (Western New York Region) in determining if it will be technically and economically feasible to develop a prototype dosing system for the GCS Radiant Inc trays using a self-consolidating lightweight concrete mix with recycled glass powder as an ingredient.				
Erie County Industrial Development Agency	Award	\$300,000	Total Project	\$2,500,000
Capital project to assist Allied Waste Services of North America, LLC, in Kenmore, NY (Erie County) in purchasing a new "single stream" recyclables sorting system. Success of this project will increase Allied's recycling rate by 7,200 tons of new recyclable materials per year and increase annual revenue by \$720,000. In addition, Allied will retain its current recycling throughput of 111,000 tons per year.				
Niagara County Industrial Development Agency	Award:	\$45,000	Total Project:	\$180,635
Capital project to assist Metallics Systems (Sanborn, Niagara County), in purchasing a new Raschig Ring Saw. Success of the project will prevent a total of 18.9 tons of start up scrap waste, remnant scrap waste and oil clean-up waste, saving Metallics \$175,470 annually.				
Solid Surface Acrylics, Inc.	Award:	\$199,120	Total Project:	\$274,709
Research project to assist Solid Surface Acrylics in North Tonawanda, Niagara County (Western New York Region) to determine if it will be technically and economically feasible to manufacture a Solid Surface Board out of recycled solid surface and recycled glass. The project will develop the manufacturing process, test the final product and develop a marketing plan to provide the best approach for market penetration of this new "green product." The larger board will make Solid Surface more competitive in the commercial hospitality market for larger table tops.				
Western New York Technology Development Center	Award:	\$213,790	Total Project:	\$456,590
Technical assistance project to assist Western New York Technology Development Center (Buffalo, Erie County) to provide area manufacturers with site evaluations to determine waste reduction and elimination methods or improvement methods for the manufacturers. The project will assist manufacturers with improvements to reduce waste by 500 tons and save at least \$1.5 million in waste reduction and elimination or processes improvements.				

Appendix V - Environmental Results Program (ERP) Summary of Interagency Responsibilities

The NYSDEC Project Manager and DSHM QA Officer are responsible for the following activities:

- Overall management and coordination of all internal/external stakeholders responsibilities
- Development and management of data management strategy in consultation with stakeholders
- Development and management of sector database
- Management and coordination of the development of all ERP materials including: sector specific ERP inspection checklists, Environmental Business Practice Indicators (EBPIs), compliance assistance workbooks, and self-certification forms
- Management and completion of baseline and post-certification inspections
- Management, collection, evaluation and reporting of inspection and self-certification data
- Enforcement regarding non-responders, and non-compliance issues
- Sector-specific cross-training of ERP inspectors
- Assistance in preparation for compliance assistance workshops
- Development and maintenance official, approved QAPP
- Distribution of QAPP, and maintenance of QAPP distribution list
- Completion of readiness reviews

- QAPP amendments, as needed
- Quarterly progress reporting to USEPA.

New York State Environmental Facilities Corporation (NYSEFC) responsibilities include:

- Development of plain language compliance assistance workbooks and outreach materials
- Arrangement and presentation of ERP workshops
- Technical outreach/assistance to trade associations
- Development of cross-agency metrics with the P2/CA Council for gauging and reporting program progress and success
- On-site technical assistance

New York State Empire State Development (ESD) responsibilities include:

- Serve as small business ombudsman
- Coordination of outreach to trade associations
- Development of publicity regarding ERP and Workshops
- Lead marketing/outreach to the business community Development of cross-agency metrics with the P2/CA Council for gauging and reporting program progress and success

New York State Energy Research and Development Authority (NYSERDA) responsibilities include:

- Provide a list of possible applicable energy efficiency measures
- Provide information about NYSERDA program opportunities for mailings, workbooks, and workshops
- NYSERDA Presentation Materials for Workshops
- Provide funding for energy efficiency projects through existing NYSERDA programs.

New York State Office of Science, Technology and Academic Research (NYSTAR) responsibilities include:

- Provide information/materials regarding NYSTAR programs for ERP mailings and compliance assistance workbooks and workshops;
- Assist in the development of New Technologies (Research) for ERP sectors.

Appendix VI - Environmental Excellence Awards Program Winners

2007 Environmental Excellence Award Winners

Delphi Thermal Systems

Eliminated the hexavalent chromium coating for air conditioning evaporator units by using an alternative metal alloy.

This project has resulted in a reduction of:

- 145,000 gallons of hexavalent chromium chemical use annually
- 4.3 million gallons of water
- 3.4 million KW hours of electricity
- 200 tons of solid hazardous waste from being disposed of in a landfill

IBM - East Fishkill

IBM East Fishkill facility developed and implemented an innovative wastewater treatment system that reduced the discharge of nitrates to the Hudson River. This project has resulted in a reduction of nitrates discharged in the final effluent by 67%. Other benefits have been realized including the conservation of natural gas and liquefied petroleum gas generally used during the conversion of nitrogen to ammonia, the generation of an ammonium hydroxide product for offsite use instead of biological sludge for offsite disposal, and reduced chemical usage.

Ecovation and Breyers Yogurt Company - North Lawrence Facility

Breyers Yogurt Co. partnered with Ecovation to install an innovative waste treatment and renewable energy system that allows the facility to treat high-strength dairy production waste and generate methane-rich biogas, which is then used to offset fossil fuel use at the facility. As a result of installing the renewable energy waste treatment system, the Breyers Yogurt facility was able to replace an average of 1,000 gallons of No. 6 fuel oil per day. In addition, the treatment system is so efficient the resulting excess capacity allowed the company to accept wastes from nearby dairies, expanding the environmental benefits, further reducing the area's reliance on fuel oil and building new and creative partnerships advancing sustainability. Along with providing a renewable resource, the treatment system eliminates the safety and environmental risk of many acid whey disposal practices and reduces air emissions from both burning and transporting fossil fuels.

2006 Environmental Excellence Award Winners

The Nature Conservancy and Lyme Timber Company

The Nature Conservancy and Lyme Timber Company developed an innovative partnership that resulted in the protection of 104,000 acres of forest land in the Adirondack Park. The project ensures the sustainable use of forest land, the protection of water quality and the conservation of ecologically-significant habitats.

By safeguarding 104,000 acres from fragmentation, this project has numerous environmental benefits that include:

- protecting 220 miles of streams; 2,627 acres of significant wetlands; and 20 lakes and ponds totaling 16 miles of undeveloped shoreline;
- long-term commitment to meet the Forest Stewardship Council's sustainable forestry standards;
- protecting foraging grounds of moose, fisher, black bear, and bobcat;
- preserving the forest canopy in which wood warblers and other neotropical migrants nest and breed;
- supporting habitat for sugar maples and other native tree species.

Xerox Corporation

Xerox Corporation was honored for its product stewardship and sustainable manufacturing facilitated by their implementation of an environmental management system. Xerox has pioneered the practice of converting end-of-life electronics into new products; developed an innovative life-cycle analysis process to maximize material recyclability and improved awareness of their recycling program resulting in an overall plant reuse/recycle rate of 81% for all materials used at the Webster Campus.

Some achievements in this regard include:

- Xerox Webster has been designing for reuse, pioneering applications of innovative materials and processes, and reducing energy consumption.
- Xerox Webster pioneered the practice of converting end-of-life electronic equipment into new products and parts. The facility developed a comprehensive process for taking back end-of-life products from customers in the early 1990's, establishing a remanufacturing and parts reuse program that fully supports "waste free" initiatives. In 2004, 90% of Xerox-designed product models introduced were developed with remanufacturing in mind.
- As one of the largest distributors of cut-sheet paper, Xerox worked with its suppliers to ensure that proper and sustainable forestry practices are deployed. Xerox improved designs to allow the most efficient use of paper.
- Reliable two-sided printing is featured in Xerox equipment. Xerox extended its reach of environmental policies across the product life-cycle. For example, Xerox Webster developed and implemented waste reduction parts/material reuse and recycling processes for certain equipment. As a result, the annual reduction in waste totals 1.5 million lbs., with an annual monetary savings of \$20 million.

2005 Environmental Excellence Award Winners

Philips Semiconductors Fishkill

Philips Semiconductors implemented an innovative project that permanently reduced volatile organic compound (VOC) emissions to the air. Philips replaced two highly volatile solvents used in the photolithograph process with a single solvent having much lower volatility.

The project resulted in the following:

- A reduction of overall VOC emission of 36,980 pounds (18.49 tons) per year (approx 44%).
- The waste stream (the PGMEA solvent plus excess photo coating material) was reclassified as non-hazardous waste because PGMEA is considered non-flammable, as opposed to NBA and Ethyl Lactate.
- One chemical distribution system was made available for future process realizing a \$250K capital avoidance.

Modern Landfill, Inc.

Modern Landfill developed a process to convert the gas generated by the landfill to electricity that powers the facility, supplies the power grid, and provides heat and light to the green house complex growing hydroponic tomatoes.

The gas from Modern Landfill is used to generate 5.6 megawatts of electricity by Model City Energy that is sold back to the New York power grid. In addition, the heat generated in the process of burning the gas in Caterpillar internal combustion engines creates waste heat, which is also captured in another recovery process. This heat and a small fraction of the electricity generated are then used to heat and light an adjacent 7.5 acre hydroponic greenhouse complex, "H2Gro", where vine-ripened tomatoes are grown and profitably marketed. The facility's fugitive landfill gas emissions has been reduced by 85%.

Materials for the Arts, Long Island City, NY (Queens)

Materials for the Arts (MFTA) developed and operates New York City's oldest reuse program. This innovative program supports the arts and the environment by collecting a wide range of material from the public and business communities. Materials are available at no cost to students, teachers and everyone in the arts.

In 2004, 741 tons of materials (valued at \$4.5 million) were diverted from the waste stream and redistributed New York City not-for-profit institutions and public schools.

Selkirk Cogen Partners, L.P.

Selkirk Cogen Partners, L.P. installed a reverse osmosis (RO) system which reduced chemical use and the potential for spills of caustics and acids used in the previous water treatment system. The project also reduced the amount of water used and waste water generated at the facility.

The RO project achieved several environmental benefits. It has significantly reduced the total amount of wastewater generated at the site and has reduced facility water usage. The RO system also significantly reduced the amount of caustic and acid stored and used at the facility for water treatment and reduced the total bulk chemical unloadings (over 100 bulk tanker truck transfers were eliminated), thereby reducing the potential for chemical spills. This reduction represented significant risk mitigation in terms of transportation risk and associated potential releases. Employee safety was also improved due to the risk mitigation associated with the reduced number of unloading activities.

Homogeneous Metals, Inc.

Homogeneous Metals, Inc.'s (HMI) operates as a foundry. In 2003, HMI was out of compliance with their permit from the Oneida County wastewater treatment plant. The facility set a goal to achieve zero emissions of nickel and chromium to the sewer.

The main source of the nickel and chromium was determined to be from mop water. Since the materials HMI produces can be as fine as smoke, metal powder sometimes escapes the dust collection system and is captured in the mopping process. The facility capped all floor drains and installed an evaporator in effort to contain the mop water and prevent its release to the POTW.

The project cost was approximately \$80,000 and included the purchase of an 174-gallon capacity evaporator, the plumbing of all sinks to the evaporator, and the plumbing of several production processes to the evaporator. As a result, more than 2,000 gallons of mop water per month is processed through the evaporator leaving a sludge that is properly managed and disposed of. In conjunction with this project, the facility has reduced hazardous waste by 62%, reduced air emissions by 95%, reduced energy use by 18% and water use by 45%.

Appendix VII - 2008 Pollution Prevention Intern Projects

Table 1 – Summary of Facilities and Internships				
Facility Name	Student Major /Year	Project Topic	Project Setting	Skills Needed
Council on the Env. of NYC	Env. Eng. Junior	Preparing a How – To Manual for a Rainwater Harvesting System	Community Gardens in NYC interacting with public and volunteers	Public outreach, presentation, writing, travel throughout NYC
Covanta - Hempstead	Env. Geoscience Sophomore	Launching an In-House Recycling Program	Waste to Energy Facility with staff of 80	Program development; preparation of outreach material to motivate staff
NXP Semiconductors	Chemical Eng. Senior	Deionized Water Reuse	Chip Fab / clean room working with PhDs	Data collection and analysis, fluid mechanics in lab setting Oral communication and presentation skills
Covanta – Niagara	Materials Science Engineering Senior	Storm water and Groundwater Collection and Reuse	Waste to energy plant, capturing stormwater from parking lot	Storm water flow, rainfall and runoff, pumping
Covanta - Onondaga	Env. Science (Geol) & Economics Senior	Fuel Catalyst Installation for Emission Reduction and Improved Fuel Efficiency	Waste to energy plant, working with engines	Knowledge of engines, air emissions, data collection and analysis, report preparation
Modern Landfill	Env. Science (Air) Mech Engr Senior	Road Vehicle Retrofits to Reduce Emissions	Office setting at municipal landfill, evaluating technologies for vehicles	Knowledge of vehicles and engines, air quality, literature review, report preparation

Project Summaries

NXP Semiconductors

Intern Marc Porosoff is a senior at Johns Hopkins, majoring in chemical engineering. NXP is a chip fab plant located on the IBM campus in Fishkill in the Hudson Valley. The facility submitted a proposal to evaluate the feasibility of recycling de-ionized water in the Chemical Mechanical Polishing area of its manufacturing area. This area is in a “clean room” where wafers are immersed in a constantly flowing bath of de-ionized water. Mr. Porosoff monitored flow rates in different units, analyzed water samples for resistivity and other parameters, and concluded that the pilot program was successful, and it is possible to recycle the de-ionized water, and that the program should be implemented. He estimated that 21 MG of water annually can be saved. Note that in addition to water conservation, 21 MG less de-ionized water will need to be generated, so there are energy conservation benefits as well.

Covanta Hempstead

Intern Christie Hegermiller is a sophomore at Boston College, majoring in geosciences. This waste to energy facility is located in a populated area in Nassau County on Long Island. The facility had submitted a project proposal to use landfill leachate in their cooling tower in place of potable water. However, this project fell through at the last minute, after we had committed to the student, and it was agreed that the intern would launch an in-house recycling program, as the facility does no recycling. Ms. Hegermiller developed a brief survey to gauge employee willingness to recycle at work, and also to determine where recyclables are generated. Ms. Hegermiller placed temporary recycling bins in strategic areas of the plant identified in her survey, collected and weighed the recycled materials, modified sizes and placement as needed. After a three week trial period, she purchased permanent recycle bins. She promoted the program through posters, emails and verbal communication. She developed a brochure on how to launch a recycling program, which is attached. During the 10 week internship period, 1000 pounds of recycles were collected. The intern calculated that the project could result in 2.6 tons/year of materials recycled. Additional metrics are summarized in Table 3. The brochure has been shared with the recycling staff in the DEC Division of Solid and Hazardous Materials. The brochure is available at DEC outreach events, and is a very popular handout.

Council on the Environment of New York City (CENYC)

Intern Julia Leung is a junior at Cornell University, majoring in Environmental Engineering. CENYC is a non-profit organization under the auspices of the mayor's office. One of CENYC's program areas is in promoting community gardens. The Council submitted a project proposal for an intern to prepare a "how-to" manual on rainwater harvesting at NYC's community gardens. Rainwater harvesting keeps stormwater runoff out of the city's combined sewer system and may reduce the amount of flow in combined sewer overflow discharge events. In addition, the captured rainwater is used for irrigation in the community gardens in place of potable water. Ms. Leung researched rainwater harvesting systems, assisted in the construction of systems, visited community gardens throughout the city, and developed the manual. The manual is very user friendly and contains all the information needed to design, construct and maintain a rainwater harvesting system. The manual includes many photos of plumbing fittings, tools, system components and completed systems. Ms. Leung walks the reader through the math in calculating the amount of runoff expected from a roof and in calculating the size of the storage tank. The manual is posted on the web, at www.waterresourcesgroup.org/wiki/index.php?title=How_to_Make_a_Rainwater_Harvesting_System and will also be posted on the DEC intern website. It was not practical to determine metrics for the potential environmental benefits of the manual, but impacts could be significant as "green infrastructure" interest in stormwater management increases.

Covanta Onondaga

Intern Dana Esposito is a senior at Rensselaer Polytechnic Institute, majoring in geosciences. Covanta Onondaga is a waste to energy facility located on the outskirts of Syracuse in central NY. The facility submitted a proposal to evaluate a manufacturer's claims on emission reductions of NOx and CO and improved fuel efficiency in their diesel fuel catalyst. Mr. Esposito selected two engines to study, collected a set of baseline emission measurements from the two engines using a portable emissions analyzer, installed the catalyst unit in two engines, and collected post installation measurements. Fuel consumption records were not kept, but efficiencies were inferred based upon CO readings. Results were mixed, and the student concluded that more study was necessary. His results indicated that on one engine, emissions decreased post installation, and fuel efficiency improved. On the other engine however, emissions increased after an initial decrease, and there was no improvement in fuel efficiency.

Covanta Niagara

Intern Elana Lewis is a senior at Alfred University, majoring in materials science engineering. Covanta Niagara is a waste to energy facility located in an industrial setting of Niagara Falls. The facility submitted a proposal to use stormwater in place of river water in the cooling tower. The project would reduce the amount of river water withdrawn, and also reduce stormwater flow to the river. Stormwater was captured in the collection system by plugging outlet pipes in a manhole, pumping the stormwater to a large tank, and allowing the water to flow by gravity to the cooling tower. Infiltrated groundwater was also incidentally captured. Ms. Lewis sized the pump based upon the amount of runoff expected, analyzed water quality samples, and worked to overcome employee resistance to the project. The catchment area was increased during the internship, and the intern recommended that based upon the success of the project, the temporary set up become permanent. The cooling tower uses 300 to 500 gpm of river water. The intern calculated that at a monthly average rainfall of 3 inches, approximately 2.8 MG of stormwater could be used in the cooling tower annually in place of river water.

Modern Landfill

Intern Rebecca Lukac is a senior at SUNY Albany, School of Atmospheric Sciences majoring in environmental sciences. She completed three years of mechanical engineering at Drexel prior to transferring to SUNY. Modern Landfill is a municipal solid waste landfill located northeast of Niagara Falls in Model City. The facility submitted a proposal to evaluate different technologies to reduce emissions and improve fuel efficiencies of their numerous fleets of vehicles. Ms. Lukac narrowed the focus of the study to 11 fleets comprising 138 on-road diesel vehicles. After an in depth literature review of potentially applicable technologies, she evaluated a diesel oxidation catalyst, diesel particulate filter, biodiesel 20%, and biodiesel 100%. These technologies were evaluated for the 11 fleets using the desktop EPA Diesel Emissions Quantifier Model. Based on the model results and her other research, she recommended that the facility switch the fleet

to 100% biodiesel fuel. If implemented for all vehicles in the 11 fleets, the facility would reduce CO, hydrocarbons, and particulates. NOx emissions would increase 10%.

Table 2. P2 Intern Program Results Metrics				
Facility Name	Pollution Reduction	Water Conservation	BTUs conserved	Comments, including carbon reductions
Covanta Hempstead	N/A	See comments	77,194 kWh	In-house recycling program could result in approx 2.6 tons solid waste recycled/year. During the 10 wk internship, 1000 lbs were collected, saving an equivalent of 14,845kWh of energy. Over a year, this could result in an equivalent energy saving of 77,194 kWh.
CENYC	N/A	Reduces potable water use in community gardens.	N/A	Reduces stormwater runoff contributing to combined sewer overflows (CSOs). How-to manual on waterresources web site: www.waterresourcesgroup.org/wiki/index.php?title=How_to_Make_a_Rainwater_Harvesting_System
NXP Semiconductors	N/A	21 MG to be recycled annually	966,000 kWh	Deionized water reuse project, with potential to result in \$1 million in energy savings the first year. This project could be expanded to other parts of the fab for greater cost savings in the future.
Covanta Onondaga	NOx reduction of 276 lbs/yr	N/A	N/A	Evaluated Air Emissions impact from diesel fuel catalyst installation. Preliminary results showed cost savings on diesel fire pump engine, as well as NOx and CO. CO reductions from fire pump estimated at 12 lbs/yr. Diesel Caterpillar 970F loaders NOx emissions decreased at idle and at a low rpm, but were higher at 2200 rpm. No real change in CO levels was documented. More study is needed.
Covanta Niagara	N/A	approx 2.8 MG	N/A	Reduced stormwater runoff to Niagara River. Note that a monthly average rainfall was used in estimate. It is likely that less flow will occur in the winter months.
Modern Landfill	PM reduction of 0.44 tons/yr; HC reduction of 1.62 tons/yr	N/A	N/A	Desk top evaluation of air emissions on 138 vehicles in 11 fleets using EPA Diesel Emission Quantifier model. Switching fuel to biodiesel 100% was recommended. Would reduce CO by 5.83 tons.
TOTAL	4396 lbs/yr	23.8 MG	1,043,194 kWh	Total assumes all projects fully implemented.

Abbreviations: CO – carbon monoxide; DI – deionized; HC – hydrocarbons; kWh – kilowatt hours; MG – million gallons; MM – million; N/A – not applicable; NOx – nitrogen oxides; PM – particulate matter

Appendix VIII - Reference Guide to NYS Pollution Prevention and Compliance Assistance Services CD (Sample Page)

RESEARCH FOR BUSINESS

TECHNICAL ASSISTANCE

FUNDING FOR CLEAN INVESTMENT

APPLIED RESEARCH AND DEVELOPMENT OPPORTUNITIES

CONSULTING AND ADVISORY

PUBLICATIONS AND OUTREACH

PROGRAMS AND SERVICES

CONTACT US

Environmental Improvement Resources for Business in New York State

- ▶ Energy Conservation
- ▶ Pollution Prevention
- ▶ Waste Reduction
- ▶ Recycling
- ▶ Compliance Assistance

www.eresources.ny.gov

Empire State Development

Press the "Back" key at any time to return to your regular internet browser.
Click here for additional info.

NEXT PAGE

Appendix IX - NYS P2 Institute Test Beds

Test beds are a key component of the P2I. Test beds are a technology development or demonstration facility, laboratory or other platform for use in experimentation for technology development projects that support the goals of pollution prevention. They allow for rigorous, transparent, and replicable testing and validation of technologies, scientific theories, analytical tools, and other new technologies. In addition, they will be used to publicly demonstrate technologies, theories, and tools to New York State industries, university researchers, government agencies, non-profit organizations and citizens.

Test Beds	
Identified Test Beds	Locations
Surface Cleaning Technology Evaluation Facility	RIT
Printing Applications Laboratory	RIT
Electronics Manufacturing and Assembly	RIT
Life Cycle Environmental Engineering of Nanomaterials	RIT
Green Processing via Process Intensification	Clarkson
Advanced Materials Synthesis for Pollution Prevention	Clarkson
Monitoring / Sessions	Clarkson
Environmental Systems	Clarkson
Green Supply Chain Management	Clarkson
Biofuel Testing Facility	Clarkson
Computational Center for Nanotechnology Innovations (CCNI)	RPI
Polymer Processing and Testing	RPI
Membrane Process Test Facilities	RPI
Aqueous Process Management	UB
Sustainable Chemical Processes	UB
Toxicology and Risk Reduction	UB

Appendix X: - NEWMOA'S P2RX Website

<http://www.newmoa.org/prevention/p2rxinfo/>

NEWMOA P2RX INFORMATION RESOURCES

[site map](#)

A & P2 Activities Database

Assistance & P2 Measurement

Innovative P2 Technology Profiles

Listserve

NE A & P2 Newsletter

Other Resources

P2 News

Program Directory

Rapid Response

Topic Hubs™

Pollution Prevention Resource Exchange (P2Rx™) Information Resources

NEWMOA is one of the eight regional pollution prevention information centers that make up the [Pollution Prevention Resource Exchange \(P2Rx™\)](#). P2Rx™ is funded in part through grants from EPA. The mission of P2Rx™ is to facilitate a national network of regional centers dedicated to improving the dissemination of pollution prevention information in the service provider community. The goals of P2Rx™ are to:

- Serve as the first stop for pollution prevention (P2) information for environmental service providers
- Increase the awareness, accessibility, and usability of P2 information

NEWMOA, as the Northeast P2Rx™ Regional Center, provides pollution prevention information and other services to state and local governments and other environmental assistance providers in the region.

This webpage provides links for each of NEWMOA's P2Rx™ activities:

- [A & P2 Activities Database](#) - Search here to find out what assistance and P2 activities have taken or are taking place in the Northeast.
- [A & P2 Measurement](#) - Find out about NEWMOA's resources to support measurement of outputs and outcomes of assistance and pollution prevention, including the National P2 Results Data System.
- [Innovative P2 Technology Profiles](#) - Offers compiled and distilled profile information on the operation and benefits of innovative P2 technologies.
- [Listserv Subscribe Info](#) - Find out about NEWMOA's Assistance and Pollution Prevention listserve and how to subscribe to them.
- [NE Assistance & P2 News](#) - Provides NEWMOA's newsletter, which is published a few times a year and provides information on state and local assistance and P2 activities in the Northeast. The production and distribution of this newsletter is funded by EPA Region 1 - New England. P2Rx™ supports posting the newsletters on the website and using the content to populate the P2 Activities Database. To receive a hard copy or e-mail version of the newsletter, send an e-mail to Andy Bray at abravi@newmoa.org.

National P2 NEWS

- [Innovative P2 Technology Profiles](#) - Offers compiled and distilled profile information on the operation and benefits of innovative P2 technologies.
- [Listserv Subscribe Info](#) - Find out about NEWMOA's Assistance and Pollution Prevention listserves and how to subscribe to them.
- [NE Assistance & P2 News](#) - Provides NEWMOA's newsletter, which is published a few times a year and provides information on state and local assistance and P2 activities in the Northeast. The production and distribution of this newsletter is funded by EPA Region 1 - New England. P2Rx™ supports posting the newsletters on the website and using the content to populate the P2 Activities Database. To receive a hard copy or e-mail version of the newsletter, send an e-mail to Andy Bray at abrav@newmoa.org.
- [P2 News](#) - Find news related to P2 topics
- [A & P2 Program Directory](#) - Browse through the program directory to find information on government-based environmental assistance and P2 programs in the Northeast.
- [Rapid Response](#) - Submit your question to the "rapid responder." NEWMOA can conduct free research for the Northeast.
- [Topic Hubs™](#) - Provides access to over 60 Topic Hubs™, which are guides to web-based P2 resources specific to particular subjects.
- [Calendar](#) - Find out about assistance and P2 events taking place in the Northeast and nationally.
- [State Documents](#) - Provides links to NEWMOA-member state assistance and pollution prevention documents.

For more information on NEWMOA's P2Rx™ projects, contact Andy Bray at abrav@newmoa.org.



NEWMOA is a member of the [P2Rs™](#), a national network of regional information centers: [NEWMOA](#) (Northeast), [WBRG](#) (Southeast), [GLRPPR](#) (Great Lakes), [Zero Waste Network](#) (Southwest), [P2RIC](#) (Plains), [Peaks to Plains](#) (Mountain), [WSPRN](#) (Pacific Southwest), and [P2RC](#) (Northwest).



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**Appendix XI: Annual Report of the Small Business
Environmental Assistance Program (SBEAP): SFY 2007/08**

**Annual Report of the Small
Business Environmental
Assistance Program
(SBEAP): SFY 2007/08**

June 2008



Prepared for the New York State
Department of Environmental Conservation

By the New York State
Environmental Facilities Corporation

Introduction	1
Executive Summary	1
State Fiscal Year (SFY) 2007/08 Program	2
SBEAP SFY 2007/08 Contract and Budget	2
Direct Costs	2
Indirect Costs	2
Program Services	3
Off-Site Technical Assistance/Hotline	3
Number of Hotline Calls	3
Dry Cleaning	4
Automotive Refinishing	4
Surface Coaters	4
Figure 1, SBEAP Hotline Calls by Industry Sector SFY 2007/08	5
Types of Toll-Free Hotline Assistance	6
Regulatory Information	6
Permitting Assistance	6
MACT / NESHAP Information	6
Multimedia Assistance	7
Figure 2, Types of SBEAP Hotline Assistance SFY 2007/08	8
Other Technical Assistance	9
On-Site Technical Assistance/Visits	9
Partnering with Trade Groups, Associations and Other Assistance Providers	9
Training	10
Workshops/Presentations	11
Website	11
Technical Assistance Projects	12
Automotive Refinishing Facilities	12
Dry Cleaning	13
Surface Coating (metal, wood, other)	14
Graphic Arts	15
Asphalt Plants / Gravel Pits	15
Combustion	16
Metal Finishing / Plating	17
Renewable Energy	17
Gasoline Dispensing Facilities	17
Miscellaneous Manufacturers / Processes	17
Outreach / Publications	19
Architectural and Industrial Maintenance (AIM) Coatings Outreach	19
Dry Cleaning Outreach	20
Crematory Training Outreach	20
Automotive Refinishing Outreach	20
NYS Stage II testing notices	21
Interview	21

SBEAP Annual Report, SFY 2007/08

PROGRAM Partners	21
DEC	21
Other Agencies	23
Professional Development	24
SFY 2008/09 Program	26
Projections for SFY 2009/10	26
Summary	27
Staff	27

Introduction

New York State is committed to providing a climate that is conducive to business growth and a clean, healthy environment. To help New York State's small businesses achieve these mutually compatible goals, the Small Business Environmental Assistance Program (SBEAP) was established within the New York State Environmental Facilities Corporation. The SBEAP delivers environmental services primarily to small businesses that do not have staff with environmental expertise or sufficient financial resources to hire environmental consultants.

According to the eligibility criteria, a qualifying small business is defined as one that has one hundred or fewer employees, is not a major source of air emissions, and emits less than one hundred tons of air pollution per year.

The New York State Environmental Facilities Corporation (EFC) is under contract with the New York State Department of Environmental Conservation (DEC) to oversee, manage and provide the SBEAP the venue to assist small businesses in determining appropriate mechanisms to control air pollution for compliance with the Clean Air Act Amendments of 1990 (CAAA). The SBEAP provides free and confidential technical assistance to help businesses voluntarily achieve compliance with requirements of Federal and State air pollution regulations.

The SBEAP provides technical assistance and information regarding control technologies, pollution prevention, material substitution, process modification and permitting. The SBEAP assists companies in determining if environmental requirements apply to their small business, understand what their obligations are under the law, and how to achieve compliance. Off-site assistance is provided to small businesses via a toll-free hotline, the SBEAP website, seminars, and outreach products such as fact sheets, self-inspection handbooks and industry sector newsletters. On-site assistance is provided via visits to business locations, which help companies address site-specific concerns with their operations. To help businesses comply with air quality standards and regulations, the SBEAP examines and evaluates process equipment, raw materials and operating practices. This analysis allows the SBEAP to identify any applicable requirements and ensure that the facility is aware of all its environmental responsibilities.

Executive Summary

The SBEAP continues to work closely with both DEC central office and regional staff, providing input on proposed regulations/control strategies and handling numerous case referrals from regional staff.

A major initiative completed during the SFY 2007/08 (April 1, 2007 - March 31, 2008) included the training and certification of all human crematory operators in NYS. This project involved coordinating with two state agencies (DEC and the New York Department of State), the Cremation Association of North America and the engineering staff from a major manufacturer of crematories.

Additionally, through an inter-agency collaboration with DEC, SBEAP has undertaken an unprecedented role in the compliance assistance with a National Emission Standard for Hazardous Air Pollutants (NESHAP) for Perc dry cleaning operations. The SBEAP conducted outreach regarding the new reporting requirements and has established a database to track the status of every dry cleaning operation located in the state. Data collected includes: type of

solvent; machine make/model; type of setting - residential/stand alone/commercial and solvent usage.

Due to an increase in promotional outreach for the SBEAP, there has been a significant increase in requests for permitting assistance from business start-ups. This has always been a difficult goal to achieve but one that assures that not only is the business in compliance upon start-up, but allows pollution prevention opportunities to be evaluated.

During the 2007/08 SFY, the SBEAP assisted over 3,100 small businesses by telephone, on-site visits and workshops. SBEAP also distributed over 14,700 technical outreach materials, and prepared air permit applications and supporting documents for 85 facilities.

By informing businesses of their regulatory responsibilities and requirements, the services SBEAP provides have significantly improved the overall compliance rates of small businesses and air quality state-wide.

State Fiscal Year (SFY) 2007/08 Program

SBEAP SFY 2007/08 Contract and Budget

The SBEAP's contract funding level for SFY 2007/08 was \$800,000. The SBEAP has kept its budget request constant for seven consecutive years, with no funding increase, though actual costs have and will continue to exceed \$800,000. EFC incurred \$802,201.27 in expenses and billed DEC \$800,000 for services rendered.

Direct Costs

The SBEAP incurred \$333,551.98 in direct costs in SFY 2007/08. Of this total, \$312,432.86 was for personal services (labor) and \$21,119.12 was for non-personal services such as equipment, travel, membership fees and professional training. Equipment purchases included computer upgrades, computer software upgrades and a projector. Another significant expenditure was the purchase of supplies and materials to support the many outreach efforts of the SBEAP in SFY 2007/08. These efforts, detailed in this report, include printing and distribution of newsletters, handbooks and presentation materials, and travel associated with workshops and on-site audits.

Indirect Costs

The SBEAP incurred \$468,649.29 in indirect costs in SFY 2007/08, which includes fringe benefits and overhead associated with the SBEAP.

Appendix XII: Initiative Proposal

Initiative:

Green State Government program - implement the State Sustainability and Green Procurement program in DEC (serve as the Sustainability and Green Procurement Coordinator for DEC, co-chair with the Office of General Services (OGS) the interagency Greening State Government Committee, help OGS develop lists of green products and develop green procurement specifications, implement the program, train other agency coordinators, procure green commodities and services and report on department progress toward greening procurement).

Legislation Required:

No. Pursuant to Article 1 of the Environmental Conservation Law (ECL), it is the policy of the State of New York to improve and protect its natural resources and environment for present and future generations and to promote technologies to minimize adverse impacts. Also pursuant to Article 28 of the ECL, we should reduce or eliminate the use of hazardous substances and the generation of pollution at the source. An Executive Order directing state agencies to green state government: State Sustainability and Green Procurement is currently being developed and will be executed soon.

Short Description:

The executive order hereby establishes a State Sustainability and Green Procurement Policy for the State of New York which shall include greening the daily activities of state government and the purchase of commodities, services and technologies that minimize potential adverse impacts on public health and the environment when compared with other commodities, services and technologies that serve the same purpose.

Fiscal Impact:

Staffing Summary:

	Salary:
(1) Environmental Analyst 3 (Gr 27) (Permits)	\$72,029
(1) Associate Building Electrical Engineer (Gr 27) (Operations)	\$72,029
(1) Environmental Program Specialist (Gr 23) (DSHM)	\$58,406
(1) Environmental Chemist 2 (Gr 23) (Permits)	\$58,406
(1) Purchasing Agent (Gr 18) (Management and Budget)	\$45,113
(1) Environmental Engineering Technician 3 (Gr 16) (Operations)	<u>\$40,424</u>
	\$346,407

NPS: \$30,000

Indirect: \$207,177

Total: \$583,584

Background and Proposal:

State Government is a major consumer of materials, services and energy spending over \$8 billion per year, and the production, use and disposal of materials and the generation and use of energy have a significant impact on environmental quality and public health, contributing to pollution, toxic chemical exposures and the generation of waste. By minimizing the potential adverse impacts of their daily activities and spending patterns, state agencies will take anticipatory action to prevent harm to future generations, children, workers, the public and the environment. Therefore, New York State government should take a position of leadership and practice sustainability in its daily activities and implement a green procurement program, thereby serving as a model for local governments, businesses and private citizens. This action will strengthen the market for green commodities, services and technologies and help to ensure the ongoing environmental quality, public health, economic prosperity and social well being of New York.

The Executive Order will establish an Interagency Committee on Greening State Government. DEC will designate a Sustainability and Green Procurement Coordinator and will co-chair this committee. This committee will assist in the implementation of the State Sustainability and Green Procurement programs. Each agency will: develop and implement agency wide programs, establishing waste reduction targets and schedules; and identify and implement programs to eliminate the use and generation of toxic substances, reduce, reuse recycle and compost solid waste, increase energy efficiency, conserve water and natural resources, maximize the procurement of green commodities services and technologies and reduce health and environmental impacts. With respect to recycling agencies will be encouraged to implement programs that fully comply or exceed local recycling laws. Agencies will also seek to achieve reductions in solid waste generation and will seek to achieve a reduction in paper use.

Staff is needed to serve as the DEC Sustainability and Green Procurement Coordinator as well as serving as co-chair of the interagency Greening State Government Committee. In addition, staff will be responsible for the prioritization of commodities, services and/or technologies which the department will initially evaluate and develop a Green Procurement list. Staff will also be responsible for the assisting in the development of green criteria to be used for the evaluation of commodities, services and technologies to be used in the development of the Green Procurement list. An Environmental Analyst (Gr 27) in the Division of Environmental Permits should serve as the DEC coordinator and that an Environmental Chemist 2 (Gr 23) should provide program support.

Staff is also needed in the Division of Solid and Hazardous Materials Environmental Program Specialist 2 (Gr 23) to support all of the recycling requirements being identified in the proposed executive order. Staff is also needed in the Division of Operations, Associate Building Electrical Engineer (Gr 27) and an Environmental Engineering Technician 3 (Gr 16) to audit, provide support and training to all of the Department's facilities required to implement the executive order. Finally staff, a Purchasing Agent (Gr 18) is needed in the Division of Management and Budget to assist in the procurement of green commodities and services and in the development of reports regarding the Department's progress toward greening our daily activities and purchases.