

Clean Air Excellence Award Recipients: Year 2007

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Clean Air Technology

Foss Hybrid Tugboat — Foss Maritime Company

Foss Maritime Company began constructing a hybrid tugboat in August of 2007, which will be delivered to San Pedro Harbor in 2008. This innovative hybrid tug will reduce emissions of hazardous and toxic air pollutants and will provide an innovative model for others to follow.

The hybrid tug will combine the technology of modern batteries and an active power management system to minimize engine use. When the engines are used, they will run at power levels which maximize efficiency, which contradicts the current trend of harbor tugs that spend approximately 60 percent of their time at lower power levels with less efficiency. Through the utilization of a hybrid model, main engine emissions will be reduced by about 44 percent for PM and NOx. As a result, fuel consumption is expected to decrease by 20 to 30 percent, which will also reduce levels of SOx and CO2. The primary financial benefits of the design will be accrued through fuel and lube savings and lowered maintenance costs for major equipment components.

Additionally, the tug's modular design can be applied as a retrofit technology for existing tugboats. The hybrid tug will also be able to incorporate future energy storage improvements in battery technology and hydrogen fuel cells, which leaves ample room for further emissions reductions.

Use of Catalytic Materials for Improved Operation in Abatement of VOC's in the Semiconductor Industry — Texas Instruments Inc. and Matros Technologies Inc.

Texas Instruments (TI) and Matros Technology (MT) partnered together to reduce emissions at three of TI's semiconductor manufacturing facilities. Through their collaboration, TI and MT installed the MT copper-chromium catalyst, which reduced NOx emissions and improved VOC performance.

Installation of MT's catalyst made it possible to combine the low temperature of catalytic oxidation with the high thermal efficiency of regenerative heat exchange, providing three primary environmental benefits. First, due to the much lower oxidation temperature, the regenerative catalytic oxidizer operates using 50 to 60 percent less fuel and generates approximately 40 percent less NOx. Second, due to the nature of the catalyst,

greater than 99 percent destruction efficiency can be maintained longer, improving energy recuperation and reducing maintenance activities. Finally, using MT's catalyst reduces the volume of packing material disposed annually.

Additionally, this technology reduces the use of natural gas as well as materials and labor and disposal costs.

The collaboration of Texas Instruments and Matros Technologies has successfully reduced air emissions and material disposal at Texas Instruments and can be applied globally to similar facilities in the industry.

Community Action

Project Green Fleet — Minnesota Environmental Initiative

Project Green Fleet (PGF) is a voluntary collaborative effort of the Minnesota Environmental Initiative, the Minnesota Pollution Control Agency, the Minnesota Chamber of Commerce, the Minnesota Center for Environmental Advocacy, businesses, state government agencies, and nonprofits. The project reduces emissions and children's exposure to exhaust through idle reduction and by installing EPA-verified pollution control equipment on school buses. The project is unique because Minnesota is already in attainment for all pollutants under the Clean Air Act; even so, it has funded more than \$3.6 million worth of diesel emission reduction projects through a combination of partner and government funding.

PGF has exceeded a two-year goal to retrofit 500 school buses with pollution control equipment in the State of Minnesota by 2008. Recognizing the importance of this work, Minnesota's legislature recently appropriated \$2.4 million to support retrofitting school buses statewide. This increased state funding will allow PGF to develop and implement plans to retrofit all of Minnesota's 4,000 eligible school buses in four years.

These early PGF efforts will directly reduce emissions exposure for approximately 30,000 children statewide. Project Green Fleet will continue to track the emissions and exposure reductions for at least five years.

The foresight of establishing Project Green Fleet has allowed Minnesota to address air quality problems before they become more serious environmental and health threats.

Northern Wood Power Project — Public Service of New Hampshire (PSNH)

The Public Service of New Hampshire's (PSNH) Northern Wood Power Project (NWPP) permanently replaced a 50-megawatt coal-burning boiler with a state-of-the-art fluidized-bed wood-burning boiler of the same capacity. The NWPP is one of the largest coal-to-wood repowering conversion projects in the nation.

The NWPP was made possible through extensive collaboration of the NH Timberland Owners Association, the Society for the Protection of New Hampshire Forests, New Hampshire Audubon, and the Office of the Governor. In addition to nurturing a cleaner environment, the program offers economic benefits by creating a demand for 450,000 tons of wood chips annually. The project provides a huge boost to the forest industry's viability and adds approximately \$20 million to the regional economy each year.

The Northern Wood Power Project reduces annual coal consumption by more than 130,000 tons and reduces the plant's annual air emissions by thousands of tons. The project decreases emissions across the board; it reduces: NOx emissions by more than 75 percent, SO2 emissions by more than 95 percent, and mercury by more than 90 percent. In addition, instead of generating coal ash that may be landfilled, the project generates wood ash that can be reused as an agricultural product.

By selling Renewable Energy Certificates and avoiding the need to purchase emissions credits, PSNH has found innovative ways to generate renewable energy without increasing the cost to customers. SNH's work demonstrates how a large emission reduction project can benefit a community environmentally and economically.

Education/Outreach

"Drive Clean Across Texas" Campaign — Texas Department of Transportation & Texas Commission on Environmental Quality

Drive Clean Across Texas (DCAT), a partnership between the Texas Department of Transportation (TxDOT) and Texas Commission on Environmental Quality (TCEQ), is the nation's first statewide public outreach and education campaign designed to motivate drivers to take steps to reduce their personal vehicle emissions.

The campaign, focusing on nine urban areas in Texas with poor air quality, has five simple messages: 1) maintain your vehicle; 2) drive less; 3) buy a "cleaner" vehicle; 4) drive the speed limit; and 5) reduce idling.

DCAT has a successful public outreach program. They advertise to the general public in English and Spanish through TV, radio, billboards, gas pump toppers, and through their website, where they offer free videos, music, and printed materials. The DCAT web site also offers free educational materials to teachers, as well as links to other air quality programs and related sites. DCAT also reaches out to teachers by regularly displaying booths at teacher conferences.

Every two years, DCAT conducts a statewide survey to quantify the effectiveness and success of the program. The latest survey results show that nearly 70 percent of those who were aware of the DCAT message have adopted at least one of the behavioral changes.

Georgia Radon Education Program — University of Georgia College of Family and Consumer Sciences

Since 2003, the University of Georgia (UGA) Radon Education Program has worked to reduce lung cancer by promoting radon awareness through education, testing, and reducing high radon levels in indoor air. Radon, the second-leading cause of lung cancer, kills approximately 600 Georgians per year. The UGA Program encourages collaboration and partnerships with hospitals, schools, media outlets, and builders.

The program specifically targets children, who are especially susceptible to radon due to their body size and breathing level. From March 2003 through March 2007, UGA met with more than 35,000 people and distributed more than 22,000 radon test kits. Overall, the program has reached out to more than 145,000 people.

In a survey of 2,000 program participants, 96 percent stated that the program was helpful and said it improved their radon knowledge. Increased knowledge was demonstrated by an average test score improvement of 45 points between pre- and post-testing, and 79 percent of participants stated that they planned to test for radon. The program's success has also been demonstrated through the actions and behaviors of the participants. As many as 163 homes have performed home radon mitigations and 273 families have adopted radon-resistant new construction. The medical savings of these radon mitigations and outreach efforts is estimated at nearly \$10 million.

The UGA Radon Education Program is an effective and easily replicable program that greatly impacts the health and wellness of the community.

Life is a Breath of Fresh Air — Auntie Litter, Inc.

Since 1998, Auntie Litter Inc. has served as the lead Education Partner for the Alabama Partners for Clean Air, a consortium of business, government and civic organizations dedicated to improving air quality in the greater Birmingham area. Auntie Litter Inc. creates and implements new programs and materials to teach students and their families in the Jefferson and Shelby counties about the importance of clean air and the harmful effects of air pollution.

Auntie Litter Inc. created an original musical comedy play, "Life is Breath of Fresh Air," which was performed by professional actors and reached over 50,000 students. The organization also developed a series of entertaining and educational music videos for students in grades 3–8. After watching the videos, students were provided the opportunity to learn more about how to protect the air and their health with reinforcement materials. Then, the videos were condensed into 30-second Public Service Announcements that air on local channels.

Educating children about the importance of taking action to improve air quality is a top priority of Auntie Litter Inc. The organization is currently developing and implementing an Idle Free Zone program for area schools which will include an interactive CD, colorful signs for school driveways, coloring activity pages for students, and a Pollution Patrol Club for kids.

Spare the Air in Greenville County, SC: Improving Air Quality in Greenville County Public Awareness Campaign — Greenville County, South Carolina

Greenville County, South Carolina began implementing an aggressive program in July 2006 called the Improving Air Quality Public Awareness Campaign. Using radio, TV, newspapers, websites, brochures, and billboards, the campaign disperses information to the public about improving air quality. They are also active in community outreach. In addition to discussing air quality at festivals and community events, they also offer educational presentations to organizations, such as municipalities' planning commissions and city councils.

The County has partnered with public and private entities to host campaign activities such as the "Gas Can Exchange" in April 2007, and a "Car Care Clinic" in May 2007. At these events, residents could trade in old cans for new no-spill plastic containers, and drivers could have their car tire pressure, air filters, fluids, batteries, and emissions checked.

The Awareness Campaign has also encouraged student participation through the Breathe Better Air at School Program at the Fountain Elementary School. The program works to educate students, parents, and staff about the importance of not idling vehicles on campus. Because of these improvements, this program is now being expanded to other schools.

Regulatory/Policy Innovations

Michigan Source Reduction Initiative. This Initiative is a public-private partnership formed to reduce waste and emissions through pollution prevention and waste minimization activities. Through collaborative approaches, the Initiative led to waste and emissions reductions from Dow Chemical Company's Michigan Operations and significant annual savings.

Pollution Prevention in Permitting Pilot Program. The Oregon Department of Environmental Quality, Intel-Oregon, and U.S. EPA Region 10 collaborated to write an air permit that promotes environmental protection and streamlines regulatory compliance requirements. Implementation of this permitting system has resulted in a 56-percent reduction in volatile organic compounds and has enabled an Intel Corporation facility to achieve minor source status.

Maryland's Smart Growth Initiative. Maryland has introduced measures that encourage redevelopment of existing urban areas and increase development densities. The Smart Growth Initiative provides better planning for the land already in use, preserves rural landscapes, and emphasizes public transportation and pedestrian access to reduce air pollutants from mobile sources.

Voluntary Low Reid Vapor Pressure Program. In the summer of 1999, several petroleum companies stepped forward, at the request of the Puget Sound Clean Air Agency, to combat high regional emissions by voluntarily producing lower Reid Vapor Pressure gasoline. The use of the new gasoline resulted in a 10-percent reduction of volatile organic compounds in one summer, helping the region meet the federal air quality ozone standard.

Transportation Efficiency Innovations

Gila River Indian Community Air Quality Management Plan — Gila River Indian Community (GRIC) Department of Environmental Quality (DEQ) Air Quality Program Team

The Gila River Indian Community (GRIC), in Arizona, has developed a multi-program Air Quality Management Plan (AQMP) that is the most comprehensive plan developed by a tribe to regulate air quality under the Clean Air Act (CAA). The AQMP was enacted into tribal law by the GRIC Council in December 2006.

The tribal AQMP significantly reduces emissions by establishing regulatory requirements (e.g., emission limits, operating requirements and work practices) for stationary and area sources that did not exist prior to the tribal AQMP. The AQMP also establishes three air quality monitoring stations located throughout the Community. GRIC air quality personnel measure ambient concentrations of criteria air pollutants for comparison against the National Ambient Air Quality Standards (NAAQS) and toxics as a primary member of

the Joint Air Toxics Assessment Project (JATAP). GRIC also collects ambient air quality data to measure the positive impacts of air quality management and regulation at GRIC. Additionally, the GRIC AQMP contains a detailed preconstruction permitting program for non-major sources of air pollution that enables GRIC to regulate the construction and modification of such sources, and to require pollution control measures where necessary to meet applicable CAA requirements.

Gila River's AQMP is a national air quality model for tribes. Furthermore, the substantial outreach conducted by the GRIC Department of Environmental Quality Air Team and support from all key stakeholders is a model for all environmental regulatory programs.

San Pedro Bay Ports Clean Air Action Plan — The Port of Long Beach and the Port of Los Angeles

The Clean Air Action Plan (CAAP) is a joint venture between the Port of Long Beach and the Port of Los Angeles (the Ports) and regulatory agencies that was created to: 1) set goals at the San Pedro ports, including project specific standards and source specific performance standards; 2) implement strategies to reach these goals; 3) create a Technology Advancement Program (TAP); and 4) track and monitor emissions from the Ports.

The CAAP's goal is to reduce emissions and associated health risks from heavy-duty vehicles, oceangoing vessels, cargo-handling equipment, harbor craft, and railroad locomotives involved in port operations. Both Ports now have berths equipped with shore-power and have committed \$10 million to replace all Pacific Harbor Line locomotives, with cleaner units, by 2008. The Ports also established the Voluntary Speed Reduction Program in which vessels slow to 12 knots when they are within 20 nautical miles of Point Fermin, which reduces NOx and PM emissions. Both Ports are also moving forward with a Clean Trucks Program which requires that all trucks calling at the Ports meet the 2007 on-road standard by 2012. Finally, the TAP focuses on identifying, evaluating, and demonstrating new and emerging emission reduction technologies applicable to the port industry.

CAAP will be tracked through annual emissions inventories that are developed in cooperation with the air quality regulatory agencies. The CAAP will serve as a model for other ports to follow in future years.

Thomas W. Zosel Outstanding Individual Achievement

Dr. Joseph T. Ling — 3M

Dr. Joseph Ling was a pioneer in the field of environmental and air quality management. Throughout Dr. Ling's distinguished career, he revolutionized the way society understands and manages its environmental impacts. He was one of the first individuals to articulate and embrace a holistic approach to environmental management that considers the environmental impacts to all media (air, water, and land) when evaluating policy and program decisions.

In 1975, Dr. Ling launched 3M's revolutionary Pollution Prevention Pays program (3P). 3P is based on the reality that pollution prevention is more economical, environmentally effective, and technically sound than conventional pollution control equipment. 3P seeks to eliminate pollution at the source through product reformulation, process modification, equipment redesign, and the recycling and reuse of waste materials. The

program has been instrumental in helping 3M to reduce its volatile organic air emissions by 95 percent since 1990. Over the last 32 years, the program has prevented more than 2.6 billion pounds of first year pollutants with more than 565 million pounds coming from the prevention of emissions to air.

Dr. Ling's greatest impact may be from his work to spread these ideas globally. After first presenting his ideas in 1976 at a conference sponsored by the United Nations Economic Commission for Europe, countries such as the United Kingdom, France, Germany, and Sweden adopted pollution prevention as a formal part of their environmental policies.

Up until his death in 2005, Dr. Ling continued to advocate a holistic, pollution prevention approach and donated his time to advancing proactive, science-based environmental decision making.