



## 2008 Annual Report

Improving Coordinated Air Quality Management Since 1990

### Addressing the Clean Air Interstate Rule Vacatur

In July 2008 air quality planners and policy makers began to digest the news that the Clean Air Interstate Rule (CAIR) had been vacated by the DC District Court. With recently submitted or soon to be submitted State Implementation Plans (SIPs) depending on CAIR, states were quick to begin analyzing the implications of this ruling. MARAMA, the Ozone Transport Commission (OTC), the Lake Michigan Air Directors Consortium (LADCO) and the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) worked through a coordinated effort to develop a response to the vacatur of CAIR. Through the joint effort partners planned a modeling demonstration to examine the CAIR vacatur and possible state responses, including the imposition of performance standards.

MARAMA supported the effort with technical summaries and analysis of 2007 Continuous Emission Monitoring (CEM) data and control costs from Best Available Retrofit Technology (BART) determinations in the western states obtained from the National Park Service. In addition, MARAMA coordinated the development of a No-CAIR emissions inventory. Emissions from electric generating units (EGUs) were represented using the CEM data from 2007 and grown to future years using Department of Energy recommended growth factors. These results were presented to the Inter-RPO partners at a meeting in Chicago on October 7, 2008.

MARAMA's Executive Director worked with colleagues to prepare articles about the CAIR vacatur for the Air and Waste Management Association's December 2008 EM Magazine. The articles represented views from industry, environmental groups, and government.

### Getting a Grip on Green House Gas Efforts

In 2008 MARAMA supported the Air Directors' growing interest in greenhouse gases and related technical and policy challenges. MARAMA's Annual meeting in February 2008 explored the future of the power sector in the Mid-Atlantic Region and the implications for air quality plans. Speakers addressed forecasting electrical demand and supply and the consequences for convergence of climate change and air quality.

MARAMA's Workshop on Energy and Air Quality Issues in September 2008 continued the theme of addressing the policy issues of climate change and air quality planning. Going a step further in discussions, this meeting delved into the opportunities for the promotion of energy efficiency and conservation in air quality planning and the need to promote inter-agency coordination and progress in pursuit of regional air quality improvement strategies.

One outcome of these workshops was a letter to EPA encouraging a coordinated approach to emission inventories for green house gases and other air pollutants.

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# Training Makes a Difference

MARAMA's training program enhances opportunities for members to learn both basic and advanced skills. A continuing challenge is to balance the need for advanced training for seasoned professionals with basic training for new and reassigned staff. MARAMA met these needs in 2008 by providing a mix of courses such as CARB 100 (Jan 08), Health Effects Workshop (Jul 08) and Control of Particulate Emissions (Oct 07) in the basic category. Advanced and specialized offerings included Advances in Control Technology (Jul 08), MACT Overview: HON, MON, Polymer Resins (Nov 07) and Air Dispersion Modeling (Aug 08).

Providing training regionally ensures classes are filled, reducing the cost per person. MARAMA's training committee selects courses and locations to meet members' needs and minimize travel cost. While large agencies (North Carolina, Pennsylvania, and Virginia) often send more people to training events, the schedule is designed to address the needs of both small and large agencies. This year Maryland and New Jersey staff dominated a few courses. Others who attend MARAMA events include speakers, staff from other regional associations, and state/local air agency staff from outside the Mid-Atlantic.

Agency	Events Held Here	Number Attending Courses	Number Attending Workshops	Number Attending Other Events
Allegheny County, PA	0	3	5	5
Delaware	1	49	12	11
District of Columbia	0	5	9	13
Maryland	6	41	27	8
New Jersey	1	45	30	10
North Carolina	1	11	3	7
Pennsylvania	7	73	10	11
Philadelphia, PA	3	22	8	10
Virginia	0	6	10	6
West Virginia	0	16	7	6
<b>Total</b>	10	271	121	87

## New Control Technology Course Meets Regional Need

MARAMA teamed with the Institute of Clean Air Companies (ICAC) to give members the opportunity to hear about new and improved control technologies. ICAC drew 23 industry experts to the July 9-10 course. EPA videotaped the course for later use. MARAMA plans to develop similar opportunities with ICAC and others in the future.

## Events Well Attended in FY 2008

During FY 2008 MARAMA held 11 courses and organized six workshops. The course with the highest attendance (39 members) was the Advances in Control Technology course co-sponsored by ICAC. The workshop with highest attendance (48 members) was the Energy and Air Quality Issues Workshop in September 2008. Second was the EPA Region III Air Toxics Summit, attended by 38 members. MARAMA also helped support members attending eight national conferences. The Board of Directors met four times in person and three times via conference call. Events planned for Virginia were shifted to FY 2009.

# Supporting Air Quality Planning & Permits

## Visibility Work Nears Completion

As part of its work to support the Mid-Atlantic/Northeast Visibility Union (MANE-VU), MARAMA updated its template for Regional Haze State Implementation Plans (SIP Template). MARAMA convened a core group of state SIP planners and writers to develop, review, and discuss regional haze SIPs. MARAMA staff updated the SIP Template and tailored the contents to fit states that do and do not have Class I areas.

As the states worked through the key sections of the Template, MARAMA researched and revised the various components. In addition MARAMA made sure that the key reference documents and required appendices were included. Staff also ensured that SIP planners and writers were aware of deadlines and that the policy staff understood the timeline related to the technical support documents.

After the primary work on the SIP Template was completed, MARAMA served as a clearing house for regional haze SIP information and questions. Staff posted all SIP related materials including guidance documents on the MARAMA website, tracked down answers to state questions and helped states find needed documents. MARAMA used its prior experience in developing the MANE-VU SIP Template to support the District of Columbia's SIP effort. Working closely with DC staff, MARAMA prepared a draft Regional Haze SIP for the District.

MARAMA's Executive Director, Susan Wierman, was an invited panelist speaking about regional haze planning at the AWMA's annual conference in Portland, Oregon, in June. She also spoke about regional haze at the West Virginia Chamber of Commerce's annual Environmental Academy in May.

## Regional Coordination Remains a Focus

MARAMA initiated a series of conference calls to promote communication among planners developing SIPs for  $PM_{2.5}$ . Calls covered issues such as air quality modeling, the status of SIP submittals, and PM designations. MARAMA staff also arranged for speakers to brief the group. This effort will continue.

In response to new control techniques guidance from EPA, MARAMA worked with EPA to organize conference calls to help member agencies understand requirements to amend rules and plans.

MARAMA also organized conference calls to help permits managers and staff in the region stay in touch and learn about regulatory developments and issues. This ongoing effort involves EPA Region 3 and provides opportunities for mini-training sessions.



Pine and Brush, Blue Ridge Mountains, North Carolina

# Emissions Inventory Analysis Yields Important Results

“Data Analysis is a process of gathering, modeling, and transforming data with the goal of highlighting useful information, suggesting conclusions, and supporting decision-making.”

(Wikipedia.org)

## Improving Condensable Particulate Matter Inventory

To help prepare for further analysis of visibility and air quality, MARAMA collected, catalogued, and reviewed over 80 stack test reports from EGUs representing over 160 individual tests located in six different states. MARAMA’s contractor, MACTEC, extracted and analyzed particulate matter (PM) and condensable PM emissions data from the reports to develop revised condensable particulate matter (CPM) emissions factors at the six-digit SCC level. Extracted data included PM and CPM emissions factors, test method and details, fuel type, fuel characteristics (e.g., sulfur content), control device(s), and other emissions and process related data. These data were used to calculate revised CPM emissions factors for use in future visibility and PM modeling. The factors developed represent between a two and five fold reduction in condensable PM emissions estimated from EGU units compared to estimates using EPA AP-42 emissions factors.

The Technical Oversight Committee for this project included staff from Delaware, New Hampshire, and New Jersey. Pennsylvania staff were particularly helpful in providing stack test data for numerous sources.

## Coordinated Activities Improve Emissions Inventory

MARAMA joined with counterparts from the Midwest and Southeast to improve critical elements of the 2008 periodic emissions inventories by forming the Eastern Regional Technical Advisory Committee (ERTAC). ERTAC is an ad hoc group of states, regional staff, and EPA

MARAMA led ERTAC’s rail emissions investigations. The goal was to obtain a consistent set of information from all railroad companies for the states east of the Mississippi sufficient in detail to develop a comprehensive emissions inventory for 2008. Recent work done to improve state inventories in New York and Georgia were investigated to identify the best approaches and data available. Members combed industry websites and researched data availability. Key stakeholders were engaged via the Federal Railway Administration and the Association of American Railroads. ERTAC explained its emissions inventory efforts and requested additional data via a conference call with North American railroad representatives on November 21, 2008. ERTAC then followed up the meeting via a formal letter requesting rail data elements and a release form to allow ERTAC access to detailed information for all rail companies from the Federal Railway Administration.

The group plans to complete work on these five areas by the end of 2009. To facilitate work group activities the group developed a website, <http://www.ertac.us/>.

### ERTAC Project Areas

- Locomotive and Rail
- Mobile Organic Carbon
- Area Source Comparability
- Agricultural Ammonia (NH<sub>3</sub>)
- Marine Vessels

### NEEDS Database Updated

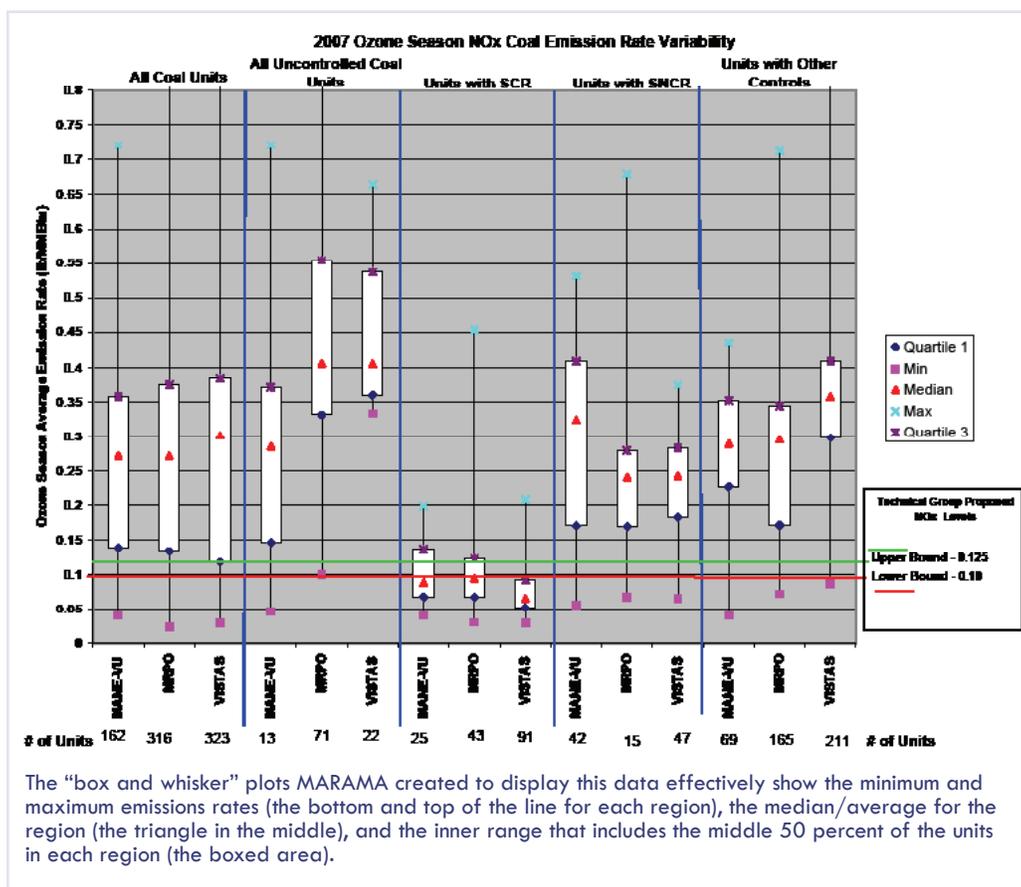
The NEEDS database is a national database of Electric Generating Unit characteristics, controls, operating conditions, and emissions. MARAMA coordinated the collection of state data for submission to EPA’s Clean Air Markets Division, which maintains the NEEDS database.

## Analysis Shows Low Emission Rates Possible from Units Burning Coal

Regional air quality is strongly influenced by emissions from large coal-fired boilers at Electric Generating Units (EGUs) and at other industrial, commercial, and institutional (ICI) facilities. A central question for air quality planners is what emissions reductions can reasonably be required of these boilers, particularly in light of the court decision to vacate the CAIR rule. Without the CAIR cap and trade program, performance standards for boilers became a prime alternative for

states to consider. MARAMA staff helped member states and the Ozone Transport Commission investigate how tight these standards might reasonably be set.

Many large facilities with coal-fired boilers are already equipped with Continuous Emissions Monitoring Systems (CEMs). CEMs provide a record of hourly emissions that can be analyzed to calculate emission rates of nitrogen oxides (NOx) in pounds per million Btu. These rates vary depending on whether the units are controlled and the type of controls. Possible controls include selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR), and other controls such as low NOx burners or combustion controls.



The “box and whisker” plots MARAMA created to display this data effectively show the minimum and maximum emissions rates (the bottom and top of the line for each region), the median/average for the region (the triangle in the middle), and the inner range that includes the middle 50 percent of the units in each region (the boxed area).

The chart (above) is one result of MARAMA’s analysis of data from three regions: MANE-VU (the Mid-Atlantic and Northeast states), MRPO (the Midwest), and VISTAS (the Southeast states). The chart shows that emissions rates vary widely from one unit to another, but that controlled units on average have much lower emissions.

MARAMA’s analysis was helpful to the states in selecting potential performance standards to consider in collaboration with other states as they work with EPA to chart a path forward after the court’s decision to vacate CAIR.

## Assessing Uncertainty in Predicting Future Emissions

What will emissions from stationary sources other than EGUs really be in 2009, 2012, and 2018? MARAMA has previously forecast emissions using EPA-recommended forecasting methods. Based on past experience, EPA and others are now concerned that those methods may significantly over-predict future emissions growth. Factors such as technological innovation, energy conservation, and investment in new equipment can change the relationship between emissions and economic growth or population forecasts.

In FY 2008, MARAMA contracted with MACTEC to compare future emissions for area sources and point sources other than EGUs under a no-growth or “flat line” scenario. The result for 2018 was a 21 percent reduction in NOx emissions and an 18 percent reduction in SO<sub>2</sub> emissions from point sources other than EGUs in the MANE-VU region. For area sources, the result was an eight percent reduction in NOx emissions and a five percent reduction in SO<sub>2</sub> emissions predicted for 2018. This information indicates the potential variability in emissions growth projections and will be considered as part of the process of developing new emissions inventories for future modeling studies.

# Diesel Efforts Move Forward

Diesel engines of all sizes, doing all kinds of jobs have steadily been getting cleaner as Federal rules have mandated the introduction of cleaner technologies. The problem that remains is the estimated 11 million older engines still in use. MARAMA worked with partners to develop diesel emission reduction projects throughout the year. Through its Mid-Atlantic Diesel Collaborative project grant MARAMA continued to support retrofit projects by the Maryland Port Administration, Philadelphia Air Management Services, and the City of Pittsburgh.

In fiscal year 2008, the Mid-Atlantic Diesel Collaborative workgroups were restructured into forums: Construction, Goods Movement (Freight and Ports/Marine), School Bus and Urban Fleets. The newly created forums held quarterly calls that included keynote speakers, funding opportunity updates, and regional project discussions. Additional east coast calls with higher profile speakers were also organized. Participants learned about EPA's Locomotive and Marine Rule and the release of EPA's Drayage model.

MARAMA also expanded electronic communications. In November 2007, the Collaborative launched periodic updates which provide information about funding opportunities, interesting projects, and diesel technology news. The Collaborative website expanded to include new pages; state and local activities, resources, and links.

MARAMA's work for the Collaborative helped members prepare to request funding for projects to reduce diesel emissions.

## Small Trucking Companies Reduce Diesel Emissions and Save Fuel

MARAMA began the Mid-Atlantic Regional Small Business Anti-Idling Initiative in partnership with Delaware, Pennsylvania, and Virginia in November 2005. An EPA grant helped support the purchase and installation of anti-idling technology by independent truckers and small transport companies in Delaware and Pennsylvania. The 2008 final project report analyzed data on the effectiveness of auxiliary power units (APU) in reducing idling emissions.

While the project was designed to reduce emissions it was also intended to increase the capacity of the Mid-Atlantic Region to implement similar programs. Both goals were achieved. Total project emission reductions were 236 tons/year of CO<sub>2</sub>, 2.8 tons/year NO<sub>x</sub>, and 0.034 ton/year PM. Over 21,000 gallons of fuel were conserved.

The project explored the use of emission reductions from the use of APUs for use in State Air Quality Implementation Plans. The methods used to calculate emissions benefits may be used by planners to assess emission reductions from programs that states pursue in the future. During the data analysis phase of the project, MARAMA created Microsoft Excel Calculation Sheets for NO<sub>x</sub>, PM, and CO<sub>2</sub> for each truck in the project.

Funding was provided by the U.S. Environmental Protection Agency Region III and the Office of Transportation and Air Quality. The grant was administered by the Office of Transportation and Air Quality.

## MARAMA and Collaborative Support Regional Transportation Events

MARAMA, EPA, and the Federal Highway Administration cosponsored the Northern Transportation and Air Quality Summit held August 13-15 in Baltimore, MD. The summit brought together 121 stakeholders from the transportation and air quality communities to discuss the regulatory environment, new technologies, and lessons learned. MARAMA provided all aspects of event support including registration, marketing and website development. MARAMA's Susan Stephenson moderated the Diesel Panel.

MARAMA was also pleased to be an Endorsing Organization for the first Faster Freight Cleaner Air East Coast conference. This event provided a venue for ports in the



Planning Committee  
2008 Northern Transportation and Air Quality Summit

East to interact with technology providers, elected officials, environmental organizations and the community to develop plans to improve efficiency and reduce the air quality impacts of the goods movement industry.

## Documentation of 2018 Emissions from Electric Generating Units in the Eastern United States for MANE-VU's Regional Haze Modeling, April 2008

MARAMA contracted with Alpine Geophysics to document the methods used to estimate future emissions from electric generating units (EGUs) for use in Mid-Atlantic/Northeast Visibility Union (MANE-VU) 2018 regional haze modeling. This document synthesizes and adds new information to describe the process of preparing emissions estimates. EGUs have a significant impact on air quality. This report provides important support for air quality planning in the region.

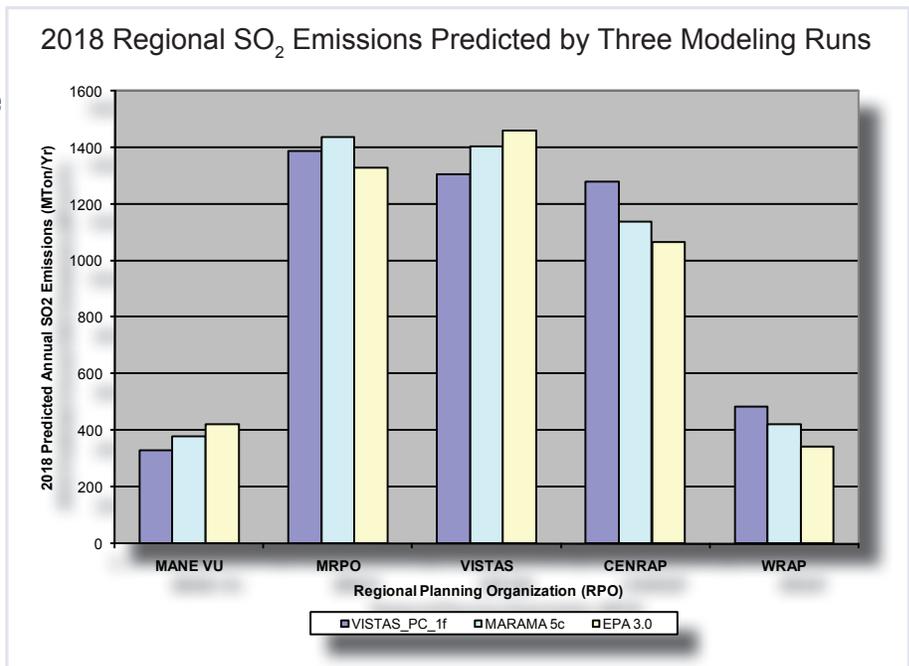
## MANE-VU SIP Template, April 2008

This report was a good starting point for states to develop their SIPs. Sections address the assessment of baseline and natural conditions, monitoring, emissions inventory, best available retrofit technology (BART), reasonable progress goals, and long term strategies for visibility improvement. Link: [http://www.marama.org/visibility/SIP\\_Planning/index.htm](http://www.marama.org/visibility/SIP_Planning/index.htm).

## The Effect of Modeling Inputs on the Results of IPM Modeling used to Predict Pollutant Emissions, June 2008

Julie McDill of MARAMA prepared a paper comparing the results of a number of IPM<sup>®</sup> modeling studies that use different sets of plausible inputs. IPM<sup>®</sup> is a model used to predict future emissions from EGUs. This paper summarized information about estimating future EGU emissions and compared data used by various regional planning organizations and EPA.

Predictions from the model can vary widely depending on the assumptions used. Important assumptions include the price and availability of both fuel and control technology, and the controls installed for other reasons outside the emissions trading scheme.



## The Mid-Atlantic Truck Engine Idle Reduction Technology Demonstration, June 2008

See page 6 for project and report details.

# Recognizing Service to the Region

## Jim Snead Receives 2008 Outstanding Achievement Award

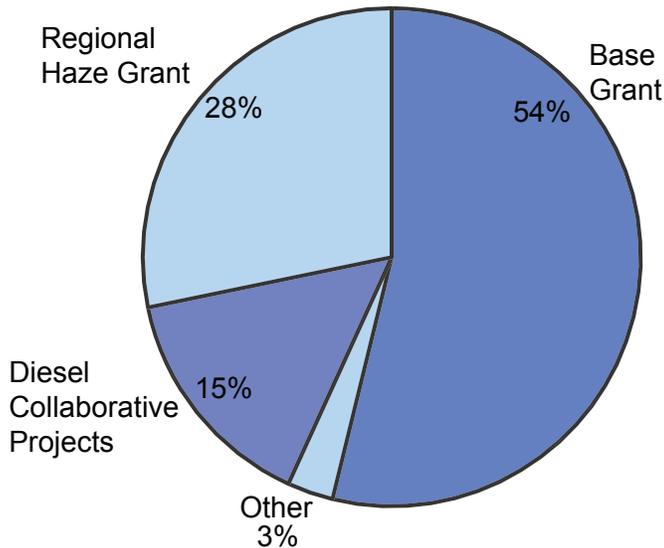
Each year many MARAMA members work together on regional projects. At their Annual Meeting in February 26, 2008, the MARAMA Board of Directors approved the 2008 award for outstanding service to MARAMA. The award went to Jim Snead of Delaware, in recognition of his superior performance in making the HON/MON/Polymer & Resins MACT course a great success and a useful tool for teaching state personnel about these complex rules. Jim was instrumental in developing and reviewing materials for this course. His backstage assistance made a big difference. Thanks Jim!



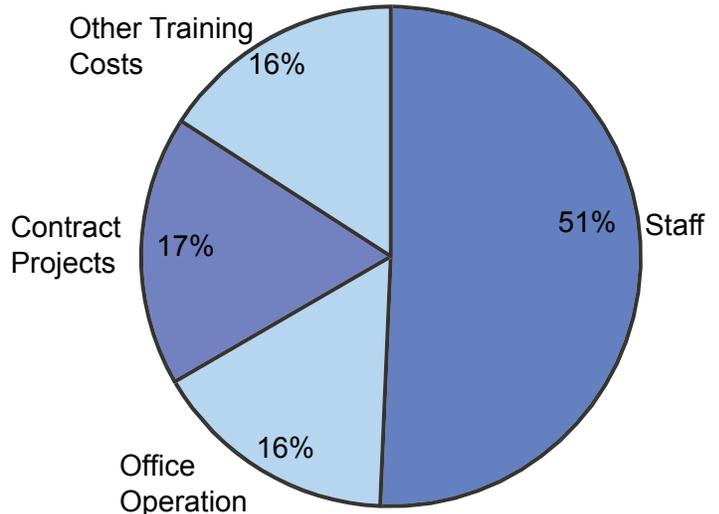
# Funding and Administration

Overall expenses for FY2008 were approximately \$862,000, up from \$855,000 in FY2007. The staff grew in FY2008, as Patrick Davis returned to full time status on May 1, and Charles Piety joined the staff part time in July. MARAMA moved from Baltimore to Towson in late December 2007. Funding for technical contracts dropped by about 14% from 2007 as regional haze revenues dropped by nearly \$200,000. MARAMA maintained an active training program with increased base grant funding and won special EPA grants for diesel emission reduction projects which increased revenues by nearly \$100,000.

## Revenues



## Expenses



## What is MARAMA?

The Mid-Atlantic Regional Air Management Association, Inc. is a voluntary, non-profit association of ten state and local air pollution control agencies. MARAMA provides cost-effective approaches to regional collaboration by pooling resources to develop and analyze data, share ideas, and train members to implement common requirements.

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**Susan S. Stephenson**, Senior Policy Analyst  
**Joan E. Walstrum**, Administrative Assistant

**Mid-Atlantic Regional Air Management Association, Inc.**

8600 LaSalle Road, Suite 636

Towson, Maryland 21286

phone 443.901.1882 ~ fax 443.901.1886 ~ [www.marama.org](http://www.marama.org)

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**Susan Stephenson & Susan Wierman**