ENERGY AND AIR QUALITY CONFERENCE:
LOCAL GOVERNMENTS AND BUSINESSES LEADING BY EXAMPLE

Hosted by the Metropolitan Washington Council of Governments

APRIL 5, 2004

Meeting Notes

The purpose of the conference was to explore new territory in meeting our regional air quality challenges and to forge new pathways toward solutions that come from how we use energy --- the energy and air quality interface. The conference also provided a forum to share best practices and celebrate some of the best examples of forward looking programs by MWCOG's members and the business community.

Stuart Freudberg, Director of the Department of Environmental Programs for the Metropolitan Washington Council of Governments (MWCOG), opened the meeting by welcoming speakers and participants and thanking the generous sponsors of the meeting: the U.S. EPA, the DC Energy Office, and Washington Gas Energy Services. He provided a review of the objectives of the program, to provide a forum for:

- local government and private sector decision-makers to show leadership in using energy solutions to address air quality problems
- looking forward to the policy and technology horizon to help identify future directions
- identifying short term innovative actions that local government and private sector decision makers can take now to address air quality problems using energy solutions.

The Key Questions of the meeting were:

1. What energy technologies and policies can help us, both in the near term, and in the future as we plan for communities that have a high quality of life, a clean environment, secure and reliable energy sources, and vibrant economies?

2. What resources are available to us, in terms of:

- **Human resources (expertise)**
- **Technical resources (tools)**
- **Financial / other resources that can help us put ideas into action? And,**

3. How can the MWCOG begin to take action to harness these energy technologies and policies to help us meet our regional air quality goals?

The goal of the meeting was to explore answers to these questions, identify solutions, and begin to take steps towards making these solutions a reality. Notes from the meeting sessions follow, with links and resources concluding this document.

Opening Remarks

Chuck Clinton, Director, District of Columbia Energy Office, introduced the session theme: "perspectives on the role of local governments and business in driving clean energy/clean air innovations. He noted that the integration of federal agencies, state officials, local governments, the private sector, and the environmental community, using a regional approach, is a truly groundbreaking way to address energy and air quality issues.

Mark Ginsberg, Member of the Board of Directors for the Office of Energy Efficiency and Renewable Energy, US DOE, spoke about and the role that the Department of Energy is playing in developing and deploying clean energy technologies that improve air quality, noting in particular the role of business and local government innovations. He noted that EERE has increased funding for critical research, development, and deployment activities for energy efficiency, green buildings, renewable energy, and sustainable mobility. A technology optimist, he noted that the pace is accelerating for the development of at technologies that can help face these challenges.

> "This conference has focused on leadership by example. Demonstrating leadership is the most important thing that government should be doing, and is the critical first step to success in seeing these technologies contribute to clean air in our communities".
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> *– Mark Ginsberg, Member of the Board of Directors for the Office of Energy Efficiency and Renewable Energy, US DOE*

Rob Brenner, the EPA Deputy Assistant Administrator for the Air and Radiation, discussed Federal support for innovative strategies at the state, local, and regional level. Mr. Brenner began by noting that strong regulatory programs are needed, and that these can be improved when they are augmented with innovative programs that are tailored to effectively solve specific air quality problems. He described the EPA's commitment to innovative programs such as partnerships, community programs, new technologies, and innovative rules and guidance. in addition, there are synergies created where these programs overlap. U.S. EPA programs such as the Acid Rain Trading program, Energy Star, and School Bus USA drive policy and technology innovations that effectively achieve real air quality improvements.

The Hon. Nancy Floreen, Montgomery County Council member, began by noting how significant improvements in air quality are achieved through energy efficiency and clean energy technologies. However, as the region grows demographically and economically, its air quality problems worsen. Over-reliance on behavior modification is not going to help: we need realistic programs to address the problem. This has a number of benefits: cutting edge companies that innovate in the face of these challenges help to keep the region's economy strong and vibrant.

Success Stories: Regional Case Studies In Energy and Air Quality Leadership

The Hon. Nancy Floreen, Montgomery County Council member, introduced a session that provided case studies of local government and business success stories in energy and air quality leadership in the Metropolitan Washington region.

Jim Caldwell, Director of the Montgomery County Department of Environmental Protection, presented some of the challenges that Montgomery County faced in using a wind power purchase, coupled with energy efficiency improvements, as part of its air quality planning. They engaged in this

> "Obviously, the cost of the wind purchase was greater than the cost of buying conventional electricity. However, when we looked at the cost of a range of other NOx control strategies, we found that the wind power and efficiency options were among the most effective, were the least expensive to implement, and in the case of our energy efficiency investments, actually saved us a little money." - *Jim Caldwell, Director, Montgomery County DEP*

project to achieve compliance with the Clean Air Act, to reduce ground-level ozone by reducing precursors (NOx and VOC), and to safeguard federal transportation dollars that would be placed in jeopardy if the air quality in the county was diminished. Although much of the ozone precursors come from power generation farther west, Montgomery County decided to tackle some of the air quality problems in its back yard. the wind purchase, from the Mountaineer Wind Farm in West Virginia, reduced local air pollutants, but at a price premium from conventional electricity. Montgomery County and the Maryland Department of the Environment worked together to adopt an appropriate strategy acceptable by the EPA with the use of Maryland's "set aside" program, and the wind energy purchase was included in a March 2004 SIP package as a cost effective control measure. Wind has also been included as a strategy in MWAQC's Gold Book for other jurisdictions to adopt.

John Morrill, Arlington County's Energy Manager, detailed the incentives and regulations that Arlington County has used to ensure that new developments are LEED certified. LEED is a voluntary certification program by the U.S. Green Building Council that certifies environmentally friendly design, construction, and operation. of new buildings. Arlington also worked to ensure that existing buildings maximize their energy efficiency. Strategies included mandating green buildings for county government, providing green building incentives for private developers, implementing energy-efficiency improvements in existing buildings, increasing FAR for developers, and providing other incentives as part of Arlington's urban planning around high-density transit corridors.

Arlington built Virginia's first LEED certified building, the Langston-Brown High School and Community Center, a LEED Silver project. When developers are not certifying LEED for their buildings, they still need LEED-trained personnel on-site and are required to perform efficiency reporting and scoring. If LEED certification is being sought, the developer posts a bond that is released when the USGBC issues certification. If the project does not meet the certification, bond is forfeited to the County.

In 1999, Arlington government had 50 occupied buildings totaling 1.49 million sf, using 25.4million kWh per year. By 2003, those same 50 buildings used 9.6% less electricity (saving 2.4 million kWh). During 1997 and 2003, Arlington built, bought, or leased 11 buildings totaling 265,000 sf, using over 6 million kWh/yr.

Jim Gorby, Fleet Administrator for Fairfax County, outlined the county's efforts to integrate high-efficiency vehicle strategies such as deploying Hybrid drive vehicles, engaging in diesel exhaust opacity testing to screen for problems, investing in diesel engine retrofits for school buses and public transit buses, favoring the procurement of low-emissions HDDE, continuing their evaluations of alternative fuels, and complying early with air quality and efficiency standards in the county fleet. He notes that when dealing with new technologies, he insists on EPA standards and certification to avoid making ineffective investments for the fleet.

> "The decisions we make about our environment will not only affect our lives, they will also affect our children's lives. In the end, it's all about 'Heir' Quality."
> - *Jim Gorby, Fairfax County Fleet Administrator*

For next steps, Fairfax County's fleet plans to evaluate technologies for the next phases of procurement and deployment, including examining after-treatments and fuel additives for engines, planning the right sequence of retrofits, continuing to evaluate alternative fuels, investigate light diesels (cars), deploy emerging hybrids, and provide information on their lessons learned for other fleets.

Sharon Subadan, Fleet Services Chief for Montgomery County, outlined her agency's technology-neutral approach to innovation. In addition to procurement strategies, Montgomery County has also made investments in alternative fuels (such as natural gas and ethanol blends) that it has made available to the public as well. She noted that working on regional approaches with other jurisdictions has been key to developing successful new projects. Their fleet includes 91 flex-fuel (ethanol) vehicles; 6 hybrid-electric sedans, 12 compressed natural gas (CNG) vans & light trucks, and 42 CNG buses. On May 21, 2002, they opened an ethanol fueling station in

Gaithersburg, and intend to include 10% of light equipment purchases as flex-fuel vehicles in each fiscal year. The replacement of 18 diesel buses with new CNG buses reduced the County emissions from transit fleet by 30.22 tons per year, and a CNG fast-fueling station is under construction.

Chuck Clinton, Director, District of Columbia Energy Office explained the ways that the District was learning about, and investing in, green buildings and green roofs for its own use and for the planned hotel for the new Convention Center, working with faith and community groups, investing in Energy Star equipment, requiring alternative fuels for flex-fuel vehicles, creating a 5-year plan for energy efficiency, and investing Congestion Management and Air Quality funding dollars in compressed natural gas fueling stations.

The Hydrogen Economy And A Sustainable Energy Future

Stuart Freudberg introduced the session, which was aimed at providing a long-view glimpse of the energy future for local communities. This session was intended to details what these communities should expect, and what pitfalls to avoid, in planning over the long term.

Dr. Joe Romm, the Executive Director of the Center for Energy and Climate Solutions, recently published a book titled The Hype About Hydrogen. He discussed the lessons from his research for how local governments and businesses should – and should not - plan for the Hydrogen Economy. Noting that "Hydrogen, as an energy technology, has gotten ahead of itself by about 20 or 30 years", he urged local governments and businesses interested in investing in large-scale hydrogen deployment to wait until the technology and policy hurdles have been overcome. He noted that many of the strategies described during the local government session were the right direction to take while an answer is found to whether the technological and economic challenges of large-scale hydrogen can be overcome.

Jay Wrobel of the Gas Technologies Institute began the lunch presentation by providing the context for a presentation on the GTI entry into an international contest on sustainable urban design. The design entry focused on the Tijuana / San Diego region, and examined solutions to urban sprawl, natural resource depletion, congestion, air pollution, scarce water supplies, affordable housing, marketplace dysfunction, and public ignorance. The DVD examined a vision for a sustainable future for this are in 100 years, including the use of renewable energy, energy efficiency, sustainable mobility, and waste minimization and management. (This DVD is available from Miles Keogh of the Global Environment and Technology Foundation, mkeogh@getf.org.)

Special Presentations: Recognition of Local Government Energy and Air Quality Leadership; Energy and Environmental School Presentations

Awards were presented to a number of jurisdictions that have shown leadership in the integration of innovative energy strategies in their air quality planning. Awardees included:

Arlington County, VA: *For their outstanding efforts in green infrastructure development and deployment of energy efficiency techniques*

Takoma Park, MD: *For their outstanding efforts in energy resources management and commitment to renewable energy*

Montgomery County, MD: *For their innovation to developing wind energy purchasing strategies and commitment to deploying clean fuel transportation technologies*

Maryland National Capitol Park and Planning Commission, Prince George's County, MD: *For their outstanding efforts in energy resources management and commitment to renewable energy*

The District of Columbia Energy Office: *For their outstanding efforts in greening the nation's capitol and commitment to fostering environmentally friendly energy strategies*

Fairfax County, VA: *For their outstanding efforts and commitment to deploying clean fuel transportation technologies*

Congratulations to the awardees!

Sharon Cooke of the DC Energy Office introduced the session following the award presentations, which included students from two schools demonstrating the leadership being shown by students in the wise management of our energy resources.

Students from DC Public Schools demonstrated an energy check-up in the meeting room, using techniques that are part of a program operated by the DC Energy Office since 2002. Sharon Cooke of the DC Energy Office explained that the students took home energy messages and energy awareness skills. When bills in participating students' homes were analyzed subsequently, those homes had seen substantial decreases in their gas and electricity use.

Montgomery County's Poolesville High School students presented the results of their energy program, which focused on energy audits and recommendations for computers and vending machines. In this student-led program, savings of about 70,000 kWh were identified and $5000 was saved in the first semester alone. In addition, air quality testing by students identified indoor air quality issues that needed resolution.

Cutting Edge Technologies and Best Practices for Buildings and Distributed Generation

Hank Habicht, CEO of the Global Environment and Technology Foundation, notes that in his work on national energy policies, there are a number of technologies that still require additional research, development, and testing before they can make a significant difference in our air quality. He introduced presenters for two technologies that, in his words, "are ready for prime time": green buildings and solar power generation.

Harvey Sachs of the American Counsel for an Energy Efficient Economy provided information on how green buildings are moving a critical energy-use sector towards sustainability. He described the ways in which renewable energy still faces more competitiveness challenges than energy efficiency, and that reducing demand is the central step in developing a green building. Looking out to 2020, he sees no show-stopping breakthroughs in energy efficiency technology, but rather, a collection of a large number of incremental successes and improvements.

"Changes in how we operate our buildings may yield greater opportunities for savings than any specific technologies, especially over the long-term. Going for SEER 16 from SEER 13 may be much more expensive and difficult than occasionally turning off your air conditioner, but in the long term the results can be the same."
- *Harvey Sachs, ACEEE*

In the past 30 years, refrigeration energy use has gone down, while the efficiency of furnaces, air conditioning units, and lighting has increased dramatically. This has been the result of implementing standards and incentives for efficiency. There are still many opportunities for cost-effective savings remaining, however, particularly in design measures that are integrated into buildings and in retro-commissioning the energy management ***practices*** in buildings. A bonus benefit is that the jobs created by integrated building efficiency design and building operation are difficult jobs to offshore. Harvey Sachs noted that states are

taking the lead on standards, highlighting a program in Maryland that sets efficiency standards for appliances sold in-state.

Todd Foley from BP Solar introduced his presentation by showing some of the successes that BP has had in deploying solar technologies.

> "Solar power is real, it works, and it is making a difference in communities across the country."
> - *Todd Foley, BP Solar*

He pointed out that BP Solar has its headquarters and manufacturing facility in Frederick, MD. This site is producing panels that have a 40 – 60 year lifetime, are infinitely scaleable, have no emissions, and that create manufacturing, retail, and installation jobs. BP Solar is seeing around 30% - 40% growth per year, and expects to have 700 – 800 MW of installed solar capacity by the end of 2004 worldwide. While California leads the US market with almost 80% of the country's solar power systems, local leaders around the country are moving solar energy forward as an effective and affordable peak power source. Noting that incentives have driven the market for solar, he said that Maryland's incentive program, for example, had been fully subscribed.

Air Quality Planning Tools and Resources for Local Governments

The Hon. Thomas Dernoga, Chair, Metropolitan Washington Air Quality Committee (MWAQC), introduced the session looking at how energy efficiency and clean energy can be harnessed in the interest of our air quality. He explained that knowing that while it seems intuitive that energy use has air quality impacts, air quality planners and decision-makers need to go beyond simple intuition when making decisions about strategies to improve air quality. This session was intended to provide participants information about the air quality benefits from energy conservation measures and illustrate some of the tools for quantifying and using these reductions.

Anna Garcia, Deputy Director of the Ozone Transport Commission, provided her perspectives on air quality benefits from energy efficiency, conservation, and renewable energy actions. Her presentation focused on state leadership and opportunities to integrate these measures in to air quality planning. The State Implementation Plan process is one area where energy efficiency and renewables can be included, as Utah has done with its response to the EPA's Regional Haze Rule. When considering how energy efficiency and renewable energy fit into air quality plans, it is important to remember the four eligibility criteria for SIP measures: quantifiability, enforceability, surplus, and permanence. In addition, EPA includes a voluntary measures protocol in SIP planning for ground-level ozone for transportation, capped at 3%, and a similar protocol exists for stationary sources as well. EPA is also drafting a Non-Traditional Programs policy document for SIPs and is in the 5-year test phase for the voluntary measures protocols.

Supplemental Environmental Projects that use enforcement dollars to fund clean energy projects are another potential avenue for integrating these technologies into air quality planning. One resource for this is the Stepp Foundation (http://www.steppfoundation.org/) that provides assistance matching SEP funds to potential projects.

Texas' Emissions Reduction Plan (TERP) is being included in its SIP for ground level ozone, and includes steps to implement all cost-effective energy measures, reduce electric consumption by the state, and include all emission reductions in the SIP. This is separate from the voluntary measures protocol measures in the Texas SIP.

Bruce Biewald, President of Synapse Energy Economics, provided insight into one tool that is useful for quantifying emission reductions from local government actions. This tool, the OTC Workbook, was developed by Synapse for the Ozone Transport Commission to help local governments prioritize clean energy actions. The Workbook uses a detailed model based on electric power plant dispatch and on the energy savings of various measures to determine the air quality benefits of various actions taken in the OTC Region (including the

Washington DC area), all behind a user-friendly Microsoft Excel spreadsheet format. The model is free and can be downloaded at http://www.otcair.org or at http://www.synapse-energy.com.

Innovative Financing, Support, and Solutions for Implementing Energy Projects

George Nichols, Principal Environmental Planner for MWCOG, introduced the speakers and provided the purpose of the session: to examine tools, funding, technical support, and other resources that are available to help projects move from discussion to deployment.

Gene Dassing of Chevron Energy Solutions presented information about the MW COG Regional Energy Performance Contracting Program and about the benefits of entering into a performance-based contract for making these energy innovations happen. He described how in an energy-savings performance contract (ESPC), the energy savings from the energy efficiency upgrades pay for the upgrades themselves over time. This is useful in situations where capital is not available in a budget for energy efficiency improvements. In this kid of contract, an energy survey is conducted to establish a baseline of current energy use. the facility is inspected by energy auditors who find areas where the energy efficiency can be improved, and the contract is put together for the energy services company to cover the cost of improvements up-front, being repaid over time with the resulting energy savings. Chevron Energy Services is continuing to provide services in the area and to local and state governments elsewhere.

Sue Gander, from the US Environmental protection Agency's State and Local Capacity Building Branch, discussed the various Federal Assistance options available for Local Governments. The State and Local Capacity Building Branch provides assistance to communities in promoting economic development, public heath, and clean energy by providing technical assistance in quantifying benefits, showcasing success stories, and helping states and localities implement new projects. Among the assistance that EPA can provide are policy guidance (such as on how to include energy efficiency and renewable energy in SIPs), technical assistance (such as developing a toolkit for the use of supplemental environmental projects and a tool for mitigation impact screening called "MIST") and other tools (like E-GRID, a tool to help determine the emission reductions from energy efficiency and renewables). EPA also provides partnerships and support through the Green Power Partnership, the Combined Heat and Power Partnership, and Energy Star. The new Community Energy Opportunity Finder, developed in conjunction with the Rocky Mountain Institute, is a tool that correlates energy saved with dollars saved, emission reductions, and jobs created.

A list of links to EPA tools, grants, and partnerships follows at the end of this document.

Maria Frazzini from Washington Gas Energy Services Company provided perspectives on innovative approaches to financing energy projects. Washington Gas Energy Services provides power to communities in the metropolitan Washington area as the largest competitive electricity supplier in the region, and has been engaged in an innovative project to bring wind power to 11,000 local commercial and residential consumers. Through this program, WGES offered power to customers from a supplier with lower rates, but marketed this with 5% wind power included in the supply contract. Consequently, customers were able to purchase some wind power at no additional cost, which was particularly attractive to a number of consumers. Although some of their customers decided to purchase 100% wind, even those only purchasing small percentages of their total electric service from wind-powered sources, when aggregated, this had a large impact, creating 21,661 MWh of emissions-free energy. More information about the program and its subscribers are available at http://www.wges.com.

RESOURCES FROM EPA

Guidance

Voluntary stationary measures policy:
http://www.epa.gov/ttn/oarpg/t1/memoranda/coverpol.pdf

Green Power Partnership:
http://www.epa.gov/greenpower

Combined Heat & Power (CHP) Partnership:
http://www.epa.gov/chp

ENERGYSTAR:
http://www.energystar.gov/government

E-GRID and PowerProfiler:
http://www.epa.gov/cleanenergy/egrid
http://www.epa.gov/cleanenergy/powerprofiler

Financial Opportunities

Final Draft of a Directory of EE/RE and related assistance programs (federal, state, foundation) will be announced over EPA's LISTSERV.

EPA Grants: http://www.epa.gov/ogd/;
http://www.epa.gov/air/grants_funding.html
All Federal Grants: http://www.Grants.gov

Meetings

DOE Energy Smart America 2004: Tools and Solutions for States and Communities
May 11-14, Minneapolis, MN:
http://www.energysmartamerica.org/

EPA Contacts For More Information

Integrating EE/RE into SIPS:
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Supplemental Environmental Projects:
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Urban Heat Island – Mitigation Impact Screening Tool:
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