Cool Cities Recommendations to Baltimore County Council

Cool Cities Working Group

Baltimore County Advisory Commission on Environmental Quality

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EXECUTIVE SUMMARY

In response to a request from Councilman S.G. Samuel Moxley, Chair of the Baltimore County Council, the Baltimore County Advisory Commission on Environmental Quality (CEQ) reviewed the Sierra Club's Cool Cities program – a national effort designed to empower residents and local leaders to implement smart energy solutions, save money, and build a cleaner, safer future. The Cool Cities program is a high level program that aims to protect the Earth's climate and promote sustainable development. The major components of the Cool Cities program include: (1) conducting a greenhouse gas (GHG) emissions inventory; (2) greening vehicles; (3) increasing energy efficiency of facilities and equipment; and (4) using and supporting renewable energy.

During review of the Cool Cities program, the CEQ learned of another prominent climate protection initiative – the International Council for Local Environmental Initiatives (ICLEI). ICLEI provides technical consulting, training, and information services to build capacity, share knowledge, and support local government in the implementation of local sustainable development programs. Through its efforts, ICLEI works with local governments to generate political awareness of key issues, establish plans of action toward defined, concrete, measurable targets, work toward meeting these targets through the implementation of projects, and evaluate local and cumulative progress toward sustainable development.

The CEQ believes County commitment to sustainability is the first step in achieving desired results. While the specifics of which approach Baltimore County chooses are important, *the CEQ believes the imperative is for the County to select and implement an agreed-upon course of action to reduce greenhouse gas emissions and promote sustainable practices for County operations, facilities, and citizenry*. This approach will serve well the interests of Baltimore County in keeping with the initiatives of the County Executive and County Agencies for Green Renaissance, the County's recognition as a Nature-Friendly Community, endorsement of the Builders for the Bay program, implementation of the Stream Restoration program, and receipt of a gold award Chesapeake Bay Partner Community, among others.

Deciding on whether to join Cool Cities, ICLEI, or both, is an important decision for Baltimore County as the resulting choice will help chart the future of the County. Cool Cities provides public exposure for participation in the program through the national campaign and will bring Baltimore County into a coalition of other jurisdictions that are simultaneously working towards a common goal of environmental sustainability. Joining the Cool Cities program will send a distinct message to the Executive and Legislative Offices of Maryland that Baltimore County is actively pursuing sustainable practices to reduce the County's environmental footprint. Participation in ICLEI will provide these benefits as well.

ICLEI membership comes with the added benefit of hands on technical assistance. ICLEI promotes a participatory, long-term, strategic planning process that addresses local sustainability while protecting global common goods. Cool Cities may be a good starting point but ICLEI will provide the much needed long term visioning as well. ICLEI is broad in scope and has the infrastructure required to guide and to assist Baltimore County in the development and implementation of a wider variety of sustainability programs. That said, the CEQ recommends the County:

(1) Join the International Council for Local Environmental Initiatives (ICLEI) to receive technical assistance and other support services. Membership fees are $3,000 - $4,000 per year.
(2) Create a County structure to develop and implement a comprehensive policy to address the climate change and sustainability. To achieve this, the County would:
    - Establish a County policy to guide the Sustainability Program;
    - Designate a Director of the County Sustainability Program;

- Establish a Public-Private Sustainability Workgroup, which would work with the Director of the County Sustainability Program and ICLEI in implementing specific program components. Suggested participants on the Workgroup include, at a minimum, representatives from the Office of Budget and Finance, Purchasing Bureau; the Department of Public Works Bureaus of Building and Equipment Services, Engineering and Construction, and Traffic Engineering and Transportation Planning; the Office of Planning; and the Department of Environmental Protection and Resource Management, among others.

(3) At a minimum, include in the County Sustainability Program, the core programs of Sierra Club's Cool Cities:
- Conduct a GHG emissions inventory;
- Green the County's fleet of vehicles and consider GHG emissions in the transportation planning process;
- Increase energy efficiency of County owned and operated facilities and equipment; and
- Procure and foster the use of renewable energy, credits, and technologies.

(4) Encourage, educate, and incentivize County employees and citizens to conserve energy. Design and implement a public outreach and education program about ways that citizens can reduce GHG emissions.

BACKGROUND

In response to a request from Councilman S.G. Samuel Moxley, Chair of the Baltimore County Council, the Baltimore County Advisory Commission on Environmental Quality (CEQ) reviewed the Sierra Club's Cool Cities program – a national effort designed to empower residents and local leaders to implement smart energy solutions, save money, and build a cleaner, safer future. The Cool Cities program is a high level program that aims to protect the Earth's climate and promote sustainable development. The major components of the Cool Cities program include: (1) conducting a greenhouse gas (GHG) emissions inventory; (2) greening vehicles; (3) increasing energy efficiency of facilities and equipment; and (4) using and supporting renewable energy.

During review of the Cool Cities program, the CEQ learned of another prominent climate protection initiative – the International Council for Local Environmental Initiatives (ICLEI). ICLEI provides technical consulting, training, and information services to build capacity, share knowledge, and support local government in the implementation of local sustainable development programs. Through its efforts, ICLEI works with local governments to generate political awareness of key issues, establish plans of action toward defined, concrete, measurable targets, work toward meeting these targets through the implementation of projects, and evaluate local and cumulative progress toward sustainable development.

Jurisdictions across the United States are instituting policies and programs geared towards sustainability. Both the Cool Cities and ICLEI approaches could provide Baltimore County with the basis and information needed to begin development of a County-wide sustainability program. The CEQ believes County commitment to sustainability is the first step in achieving desired results. While the specifics of which approach Baltimore County chooses are important, *the CEQ believes the imperative is for the County to select and implement an agreed-upon course of action to reduce greenhouse gas emissions and promote sustainable practices for County operations, facilities, and citizenry*. This approach will serve well the interests of Baltimore County in keeping with the initiatives of the County Executive and County Agencies for Green Renaissance, the County's recognition as a Nature-Friendly Community, endorsement of the Builders for the Bay program, implementation of the Stream Restoration program, and receipt of a gold award Chesapeake Bay Partner Community, among others.

This report provides a brief overview of Cool Cities and ICLEI and some of the programs related to them. While the scientific community has evaluated the issues related to global climate change and sustainability at length, the intent of this report is to provide a glimpse into the issues facing Baltimore County and in no way serves as an exhaustive literature search. References are made where appropriate and more detail is available upon request to the CEQ.

COOL CITIES AND ICLEI CLIMATE PROTECTION PROGRAMS

In absence of clear federal policy on global warming and the environmental and health impacts relating to it, in the summer of 2005, the U.S. Conference of Mayors unanimously passed a resolution supporting the U.S. Mayors Climate Protection Agreement (USCPA). Signatories of this Agreement committed to reducing global warming carbon dioxide pollution in their cities to seven percent below 1990 levels by 2012. As of June 2007, over 540 mayors from 50 states, representing over 67 million Americans, have signed the USCPA.

Cool Cities

In response to the USCPA, the Sierra Club developed and publicized the Cool Cities program, which proposes ways to protect the Earth's climate and promote sustainable development. The Cool Cities

campaign is focused on getting communities around the country to make commitments to curb global warming and then follow through by putting smart energy solutions to work to meet these goals. Ten Maryland cities (including Baltimore City) and three Maryland counties (Howard, Montgomery, and Queen Anne's) have signed the Cool Cities agreement. The three counties that have signed the pledge have agreed to create an inventory of GHG emissions from county government operations, reduce county government GHG emissions by various means, and pledged to urge the federal government to reduce GHG emissions in various sectors of the economy under federal control. On a state level, Maryland has established programs to address three components of the Cool Cities Program: green vehicles, energy efficiency, and renewable energy.

International Council for Local Environmental Initiatives (ICLEI)

ICLEI's mission is to improve the global environment through local action. On the issue of climate change, for example, ICLEI provides resources, tools, peer networking, best practices, and technical assistance to help local governments measure and reduce greenhouse gas emissions in their communities. ICLEI USA runs three primary programs: Cities for Climate Protection®, Climate Resilient Communities, and Communities 21. Information on how to become a member of ICLEI is available online, including membership fees, at http://www.iclei.org/us. The Seven Maryland jurisdictions that are members of the ICLEI are Annapolis, Chevy Chase, College Park, Montgomery County, Mount Ranier, Prince Georges County, and Takoma Park.

After the CEQ researched the fundamentals of ICLEI, CEQ representatives facilitated a meeting between Baltimore County Government and ICLEI representatives on August 9, 2007. Attendees included David Carroll of Baltimore County Department of Environmental Protection and Resource Management, (representing County Executive James Smith), Councilman Vincent Gardina of the 5th District (representing Baltimore County Council), Rex A. Wright, Ray Davis, and Russell S. Donnelly (representing the CEQ) and Kim Lundgren (representing ICLEI). During the meeting, Ms. Lundgren illustrated the function of the ICLEI Program and highlighted the phased implementation of the program, incorporation and assimilation of existing local government efforts into the program, and the subsequent benefits of ICLEI's programmed implementation for Baltimore County.

Moving Forward

Deciding on whether to join Cool Cities, ICLEI, or both, is an important decision for Baltimore County as the resulting choice will help chart the future of the County. Cool Cities provides public exposure for participation in the program through the national campaign and will bring Baltimore County into a coalition of other jurisdictions that are simultaneously working towards a common goal of environmental sustainability. Joining the Cool Cities program will send a distinct message to the Executive and Legislative Offices of Maryland that signify Baltimore County is actively pursuing sustainable practices to reduce the County's environmental footprint. Participation in ICLEI will provide these benefits as well.

ICLEI membership comes with the added benefit of hands on technical assistance. ICLEI promotes a participatory, long-term, strategic planning process that addresses local sustainability while protecting global common goods. Cool Cities may be a good starting point but ICLEI will provide the much needed long term visioning as well. ICLEI is broad in scope and has the infrastructure required to guide and to assist Baltimore County in the development and implementation of a wider variety of sustainability programs. That said, the CEQ recommends the County:

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    - Establish a Public-Private Sustainability Workgroup, which would work with the Director of the County Sustainability Program and ICLEI in implementing specific program components. Suggested participants on the Workgroup include, at a minimum, representatives from the Office of Budget and Finance, Purchasing Bureau; the Department of Public Works, Bureaus of Building and Equipment Services, Engineering and Construction, and Traffic Engineering and Transportation Planning; the Office of Planning; and the Department of Environmental Protection and Resource Management, among others.

If the County accepts and implements the above two recommendations, then the CEQ believes joining the Sierra Club's Cool Cities program is not imperative at this time. Additional information regarding the U.S. Mayors Climate Protection Agreement, Sierra Club's Cool Cities program, and ICLEI can be found in Attachment 1.

COOL CITIES PROGRAM COMPONENTS

In response to Councilman S.G. Samuel Moxley's request to review the Sierra Club's Cool Cities program, the CEQ documented the components of the Cool Cities program and associated them with current County practices as possible within the limited operating constraints of the CEQ. While these four components do not comprise a comprehensive sustainability program, they do provide a foundation for consideration and it is imperative that the County consider them for implementation in the overall County Sustainability Program.

Conduct a Greenhouse Gas Emissions Inventory

A greenhouse gas (GHG) emissions inventory provides baseline data to decision-makers regarding the current status of the region's emission sources and sinks. The inventory also includes an assessment of energy use and other socioeconomic activity that contributes to the generation of GHG emissions. Decision-makers can use the information generated by the inventory to evaluate existing programs and policies, define emission reduction targets, and monitor and redefine targets and strategies in the future. Citizens can utilize the information to learn about their collective carbon footprint and become empowered with information to make better decisions about environmental issues.

Currently, a GHG emissions inventory is planned for Baltimore County and internal County Government operations. Pat Brady, a Master's Degree student at Towson University, will be conducting a Clean Air and Climate Protection GHG Emissions Inventory for Baltimore County as part of her studies. In Ms. Brady's work, the County has an unprecedented opportunity to address one of the key components of the Cool Cities program. Thus, the CEQ recommends the County:

(1) Support current GHG emissions inventory efforts by providing the necessary data, expertise, and material for a successful outcome; and
(2) Utilize the information generated by the inventory as the baseline data for formulating County policy and programs.

While the management of air quality is a state level effort, the CEQ identified many programs instituted at the County level where GHG emissions are already being minimized. For example, the Department of Environmental Protection and Resource Management (DEPRM):

- Utilizes "Urban Forest Effects," a computer model that calculates the structure, environmental effects and values of urban forests;
- Participates in TreeMendous Maryland, an program for homeowner associations, environmental groups, and schools to enhance community open spaces and rights-of-ways, school grounds and neighborhood parks by planting trees;
- Instituted the Growing Home Campaign, a partnership between Baltimore County, local nurseries and garden centers, and homeowners to encourage planting new trees;
- Implemented a Rural Reforestation Program where the County is working with owners of larger tracts of land to place areas of their land back into forested land cover;
- Participates in the Montreal Process Criteria and Indicators, a global, federal, state, and county partnership for Forest Sustainability;
- Participates in the Maryland Green Schools which recognizes Maryland schools that include environmental education in the curricula, model best management practices at the school and address community environmental issues, including air quality; and
- Instituted a Land Preservation program to ensure the permanent protection of the significant agricultural, natural, and scenic resources of the land.

On a national scene, New York City, Palo Alto, California, and Keene, New Hampshire are leading the country with their efforts. In a report on New York City's effort, Mayor Michael Bloomberg stated:

> This greenhouse gas inventory is a critical first step in reducing our contribution to global carbon dioxide levels. By identifying the largest sources of greenhouse gases, showing trends that may need correction, and showing impacts of actions taken to date, we can design our strategies for achieving our reduction target. Working together with our partners in the public, private, and nonprofit sectors, New York City will do what we do best: lead by example.

Additional information about conducting a GHG emissions inventory can be found in Attachment 2.

Green the County Fleet of Vehicles

According to the U.S. Environmental Protection Agency (EPA), driving a car is the single most polluting activity that most of us do. Reducing the number of vehicles in operation in Baltimore County, increasing vehicle efficiency and fleet efficiency, and using hybrid/alternative fuel vehicles will decrease carbon dioxide (the major GHG) emissions associated with driving. Additionally, greening the County's vehicles will save the County money on fuel and maintenance costs, and reduce asthma-triggering pollutants, thus improving the health of County residents. Many actions can be taken to maximize fleet efficiency. To achieve this, the CEQ recommends the County:

(1) Conduct an inventory of all fleet vehicles;
(2) Set and measure realistic goals for reducing fleet energy use and GHG emissions;
(3) Develop and adopt a comprehensive fleet policy (e.g., optimize vehicle use, downsize vehicles, purchase alternative vehicles and fuels, incorporate efficiency into bid specifications); and
(4) Encourage and incentivize carpooling, use of mass transit, biking, walking, and telecommuting for County employees and citizens.
(5) Consider GHG emissions in the transportation planning process.

While the CEQ could not identify details of the County's efforts to green its vehicle fleet, the CEQ did learn that hybrid cars were added to the fleet. Similarly, jurisdictions around the country have implemented strategies and policies to reduce GHG emissions from vehicles and there exists a plethora of literature on greening fleets. For example, the Clean Fleet Guide features tools to help fleets make "green" vehicle and fuel decisions including specifications on available alternative fuel and advanced technology vehicles, tools to perform cost analyses based on specific locations, and information on other technologies that can help improve fuel economy. Denver City and County are leading the country with their efforts, as noted in a recent report:

> The City and County of Denver operates a combined fleet of 3,500 vehicles. Denver enacted the "Green Fleets" executive order on Earth Day in 1993. Denver is providing public leadership, saving the City money, managers operate their fleets more efficiently, we benefit from an environmental perspective, and we provide an example to private companies.
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> Managers of Denver City fleets must purchase the most cost-effective and lowest emission vehicle possible that still meet the operational requirements of the agency. In order to accomplish this goal fuel efficiency standards are included in procurement specifications. The Green Fleets review process also includes "right-sizing" fleets by reducing vehicle size and eliminating old and underused vehicles. The effectiveness of the program is measured by fleet energy use and CO2 emissions. Originally the program set targets of 1% and 1.5% annual average reductions in fuel expenditures and CO2 emissions, respectively.

Additional information regarding fleet greening can be found in Attachment 3.

Increase Energy Efficiency of County Facilities and Equipment

The United States is a highly developed and industrialized society and uses a lot of energy - in homes, in businesses, in industry, and for traveling between all these different places. The industrial sector uses about one-third of the total energy. The residential and commercial sectors combined use even more than this - 40 percent of all energy. These two sectors include all types of buildings, such as houses, offices, stores, restaurants, and places of worship. Energy used for transportation accounts for more than a quarter of all energy.

Using modern strategies, technologies, and efficiencies, Baltimore County has the opportunity to increase energy efficiency, enhance performance, reduce energy costs, lower GHG emissions, and improve the health of residents. This can be accomplished by modifying the methods and means of constructing and operating buildings, vehicles, and County operated equipment such as traffic lighting.

Energy efficiency programs usually have an initial cost that is more than offset by years of lower energy costs. Education and maintenance programs can be instituted with little or no additional costs and can generate 2-5% savings. Building and street lighting retrofits have an initial cost that is recovered in savings in 3-7 years and produce savings for 15 years or more. It is not unusual to save 15-25% on energy after a comprehensive energy audit and action plan. Using Leadership in Energy and Environmental Design (LEED) for new construction adds 0-2% to the construction cost that are recovered in the first three years of operation through energy lowered consumption and operating costs. To achieve results, the CEQ recommends the County:

(1) Perform energy audits on all existing buildings and implement recommendations of audits (e.g., maintain equipment according to specifications, install energy efficient lighting, low flow plumbing fixtures and waterless urinals);
(2) Construct all new county buildings using the LEED (Leadership in Energy and Environmental Design) rating system;
(3) Purchase only Energy Star equipment and appliances;
(4) Encourage energy conservation by county employees through education; and
(5) Reduce the energy consumption from street and traffic lights by installing LED lights on all new traffic lights, systemically retrofitting existing traffic lights with LED's, specifying energy efficient street lighting for new streetlights, and retrofitting existing streetlights with energy efficient lights.

Baltimore County is acting to improve energy efficiency in its new buildings, fleet, and traffic lights. For example, some new buildings are being constructed using the US Green Buildings LEED (Leadership in Energy and Environmental Design) rating system, and traffic lights are being retrofitted with energy efficient LED lights. The State of Maryland, Baltimore City, Harford, Anne Arundel, and Carroll Counties employ energy service companies – companies that provide comprehensive energy services. A national example follows. Attachment 4 provides additional resource information on energy efficiency.

> Salt Lake City, Utah has dramatically reduced its energy costs by aggressively pursuing energy efficiency measures. The city saves over $32,000 a year on its energy costs as a result of installing 861 light emitting diode (LED) traffic signals. The city plans to expand this program to all of its 1630 red and green lights, which is expected to save over 500 tons of heat-trapping carbon dioxide (CO2) pollution each year with annual cost savings of $53,000. The city has also found that LED signals require less maintenance than conventional lighting.
>
> The city has replaced the conventional incandescent bulbs in its city and county office buildings with more energy efficient compact fluorescent bulbs (CFLs). These bulbs use much less energy and last significantly longer, saving the city over $33,000 a year and reducing CO2 emissions by 344 tons per year.

Use and Support Renewable Energy

Using renewable energy (e.g., wind, solar) can provide many benefits to the County, including making use of secure, and replenishable resources (e.g., the sun, wind), reducing dependence on non-renewable energy, reducing the production of carbon dioxide and other GHG, and creating new jobs in renewable energy industries. To achieve results in this area, the CEQ recommends Baltimore County prompt the Baltimore Regional Cooperative Purchasing Committee (BRCPC) and its members to:

(1) Join the EPA Green Power Partnership – a national partnership that assists organizations in buying green power, and earning valuable recognition for their efforts;
(2) Increase the amount of the BRCPC aggregated electricity needs with renewable power to 10% in three years and increase the percentage of renewable power supply to 20% after five years;
(3) Increase the number of Renewable Energy Credits (RECs) purchased above the mandated amounts for suppliers; and
(4) Investigate the feasibility of installing solar electric and solar thermal systems at county-owned buildings by piloting three facilities in the next 3 years.

Baltimore County is a member of the Baltimore Metropolitan Council (BMC), an organization of the Baltimore region's elected executives, representing Baltimore City and Anne Arundel, Baltimore, Carroll, Harford and Howard counties. Through that organization Baltimore County participates in regional interests, and collaborates on strategies, plans and programs. The Baltimore Regional Cooperative Purchasing Committee (BRCPC) is a standing committee of the BMC and the Energy Board, the energy subcommittee. Once a new natural gas strategy is successfully implemented, the Energy Board is preparing to move into other energy procurements such as vehicle and physical plant fuels.

Beginning in February, 2006, BRCPC collectively bought in block purchases from the Pennsylvania-Maryland-Jersey (PJM) day ahead and from the real-time markets a total of $31,548,603.00 in electricity. The average KWh price was $.07946, which was $.01506 below the projected budget and significantly lower than the Standard Offer Service price of $.112 KWh. Included in the purchases were nine block purchases, three buys for capacity, and the purchase of Recycled Energy Credits needed to meet the state mandate for licensed suppliers.

EPA's Green Power Partnership, a voluntary program, helps to increase the use of green power among leading U.S. organizations. The program encourages organizations to purchase green power as a way to reduce the environmental impacts associated with conventional electricity use. There are currently hundreds of Partner organizations buying billions of kilowatt-hours of green power annually. These purchases help drive the development of additional green power resources nationwide. Combined, these green power purchases amount to 570 million kilowatt-hours (kWh) annually, out of approximately 4,000 billion kilowatt hours generated. Below are examples of regional energy purchase at the city and county level. Attachment 5 provides more details on renewable energy.

Municipality	Action
Washington, DC	In December, 2006**,** the Washington Suburban Sanitary Commission (WSSC) committed to a 10-year wind power purchase to meet one-third of the agency's overall electricity use. The 70 million kWh annual purchase, equivalent to 30 MW of wind energy capacity, makes WSSC the number one local government user of renewable energy in the United States, according to the U.S. Environmental Protection Agency's Green Power Partnership. WSSC is contracting with Constellation NewEnergy to purchase power from a new wind farm to be constructed in Somerset County, Pa. The arrangement involves paying a fixed price over 10 years, which WSSC estimates will save the agency $20 million dollars over the life of the contract while also providing long-term electricity price stability.
Montgomery and Prince Georges County, MD	In May 2005, Montgomery County signed a contract with Washington Gas Energy Services and its wind energy supplier, Community Energy, to supply 5% of a multi-jurisdictional group's power with wind-energy resources. The contract applies to six county agencies, 11 municipalities and Prince George's County. This group agreed to purchase 38,411,780 kilowatt-hours per year for two years. The wind power will be generated in West Virginia. In early 2006, County Executive Douglas Duncan recommended that Montgomery County increase its own green power purchases by an additional 5 percent.
Philadelphia, PA	In May, 2007, Philadelphia Mayor John Street announced a sustainability plan for the city which includes using renewable energy to meet 100% of the electricity needs of City Hall. The city will purchase 8.5 million kWh of wind energy through the PECO Wind program at a cost of 2.0¢/kWh. The city will also investigate the feasibility of installing solar electric and solar thermal systems at city-owned buildings.
Fairfax County, VA	In May 2007, Fairfax County entered into a three-year contract to purchase more than 24 million kilowatt-hours (kWh) of wind energy through the Virginia Energy Purchasing Governmental Association. By the end of the contract term, wind power will account for 10% of the county's annual electricity consumption.

CONCLUSIONS

Climate change is a serious environmental threat that needs direct and immediate attention. In the absence of clear federal guidelines for GHG emissions reductions, many state and local jurisdictions have taken it upon themselves to evaluate their GHG emissions and implement a variety of strategies to reduce them and promote sustainability.

Two programs have emerged as the leaders for promoting the reduction in GHG emissions at the local level – the Sierra Club's Cool Cities Program and International Council for Local Environmental Initiatives (ICLEI). While the Cool Cities Program focuses on policy change, ICLEI focus is on the dissemination of implementation material that promotes specific short- and long-term actions. With this in mind, the CEQ recommends that Baltimore County:

(1) Join the International Council for Local Environmental Initiatives (ICLEI) to receive technical assistance and other support services. Membership fees are $3,000 - $4,000 per year.
(2) Create a County structure to develop and implement a comprehensive policy to address the climate change and sustainability. To achieve this, the County would:
    - Establish a County policy to guide the Sustainability Program;
    - Designate a Director of the County Sustainability Program;
    - Establish a Public-Private Sustainability Workgroup, which would work with the Director of the County Sustainability Program and ICLEI in implementing specific program components. Suggested participants on the Workgroup include, at a minimum, representatives from the Office of Budget and Finance, Purchasing Bureau; the Department of Public Works Bureaus of Building and Equipment Services, Engineering and Construction, and Traffic Engineering and Transportation Planning; the Office of Planning; and the Department of Environmental Protection and Resource Management, among others.
(3) At a minimum, include in the County Sustainability Program, the core programs of Sierra Club's Cool Cities:
    - Conduct a GHG emissions inventory;
    - Green the County's fleet of vehicles and consider GHG emissions in the transportation planning process;
    - Increase energy efficiency of County owned and operated facilities and equipment; and
    - Procure and foster the use of renewable energy, credits, and technologies.
(4) Encourage, educate, and incentivize County employees and citizens to conserve energy. Design and implement a public outreach and education program about ways that citizens can reduce GHG emissions.

Attachment 1. General Information

A. The U.S. Mayors Climate Protection Agreement (http://www.usmayors.org/climateprotection/)

WHEREAS, the U.S. Conference of Mayors has previously adopted strong policy resolutions calling for cities, communities and the federal government to take actions to reduce global warming pollution; and
WHEREAS, the Inter-Governmental Panel on Climate Change (IPCC), the international community's most respected assemblage of scientists, has found that climate disruption is a reality and that human activities are largely responsible for increasing concentrations of global warming pollution; and
WHEREAS, recent, well-documented impacts of climate disruption include average global sea level increases of four to eight inches during the 20th century; a 40 percent decline in Arctic sea-ice thickness; and nine of the ten hottest years on record occurring in the past decade; and
WHEREAS, climate disruption of the magnitude now predicted by the scientific community will cause extremely costly disruption of human and natural systems throughout the world including: increased risk of floods or droughts; sea level rises that interact with coastal storms to erode beaches, inundate land, and damage structures; more frequent and extreme heat waves; more frequent and greater concentrations of smog; and
WHEREAS, on February 16, 2005, the Kyoto Protocol, an international agreement to address climate disruption, went into effect in the 141 countries that have ratified it to date; 38 of those countries are now legally required to reduce greenhouse gas emissions on average 5.2 percent below 1990 levels by 2012; and
WHEREAS, the United States of America, with less than five percent of the world's population, is responsible for producing approximately 25 percent of the world's global warming pollutants; and
WHEREAS, the Kyoto Protocol emissions reduction target for the US would have been 7 percent below 1990 levels by 2012; and
WHEREAS, many leading U.S. companies that have adopted greenhouse gas reduction programs to demonstrate corporate social responsibility have also publicly expressed preference for the U.S. to adopt precise and mandatory emissions targets and timetables as a means by which to remain competitive in the international marketplace, to mitigate financial risk and to promote sound investment decisions; and
WHEREAS, state and local governments throughout the United States are adopting emission reduction targets and programs and that this leadership is bipartisan, coming from Republican and Democratic governors and mayors alike; and
WHEREAS, many cities throughout the nation, both large and small, are reducing global warming pollutants through programs that provide economic and quality of life benefits such as reduced energy bills, green space preservation, air quality improvements, reduced traffic congestion, improved transportation choices, and economic development and job creation through energy conservation and new energy technologies; and
WHEREAS, mayors from around the nation have signed the U.S. Mayors Climate Protection Agreement which, as amended at the 73rd Annual U.S. Conference of Mayors meeting, reads:

The U.S. Mayors Climate Protection Agreement A. We urge the federal government and state governments to enact policies and programs to meet or beat the target of reducing global warming pollution levels to 7 percent below 1990 levels by 2012, including efforts to: reduce the United States' dependence on fossil fuels and accelerate the development of clean, economical energy resources and fuel-efficient technologies such as conservation, methane recovery for energy generation, waste to energy, wind and solar energy, fuel cells, efficient motor vehicles, and biofuels; B. We urge the U.S. Congress to pass bipartisan greenhouse gas reduction legislation that includes 1) clear timetables and emissions limits and 2) a flexible, market-based system of tradable allowances among emitting industries;

and C. We will strive to meet or exceed Kyoto Protocol targets for reducing global warming pollution by taking actions in our own operations and communities such as: 1. Inventory global warming emissions in City operations and in the community, set reduction targets and create an action plan. 2. Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities; 3. Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling and public transit; 4. Increase the use of clean, alternative energy by, for example, investing in "green tags", advocating for the development of renewable energy resources, recovering landfill methane for energy production, and supporting the use of waste to energy technology; 5. Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save money; 6. Purchase only Energy Star equipment and appliances for City use; 7. Practice and promote sustainable building practices using the U.S. Green Building Council's LEED program or a similar system; 8. Increase the average fuel efficiency of municipal fleet vehicles; reduce the number of vehicles; launch an employee education program including anti-idling messages; convert diesel vehicles to bio-diesel; 9. Evaluate opportunities to increase pump efficiency in water and wastewater systems; recover wastewater treatment methane for energy production; 10. Increase recycling rates in City operations and in the community; 11. Maintain healthy urban forests; promote tree planting to increase shading and to absorb CO2; and 12. Help educate the public, schools, other jurisdictions, professional associations, business and industry about reducing global warming pollution.

NOW, THEREFORE, BE IT RESOLVED that The U.S. Conference of Mayors endorses the U.S. Mayors Climate Protection Agreement as amended by the 73rd annual U.S. Conference of Mayors meeting and urges mayors from around the nation to join this effort.

BE IT FURTHER RESOLVED, The U.S. Conference of Mayors will work in conjunction with ICLEI Local Governments for Sustainability and other appropriate organizations to track progress and implementation of the U.S. Mayors Climate Protection Agreement as amended by the 73rd annual U.S. Conference of Mayors meeting.

B. Cool Cities, Cool Counties, and ICLEI Members*

Cool Cities http://coolcities.us/state.php?state=MD	**Cool Counties** http://coolcities.us/fullStory.php?storyID=6&mode=view	**ICLEI Members** **Cities for Climate Protection Campaign Participants** (August 2007) http://www.iclei.org/documents/USA/members/ICLEI_Members_August_2007.pdf
Annapolis	Howard County (signed US MCPA)	Annapolis
Baltimore City	Montgomery County	Chevy Chase
Chestertown	Queen Anne's County	College Park
Chevy Chase		Montgomery County
Gaithersburg		Mount Rainier
Hyattsville		Prince George's County
Kensington		Takoma Park
Rockville		
Sykesville		
Takoma Park		

*For specifics and examples of policies, actions, and best practices, refer to the **Climate Action Handbook** by ICLEI (Local Governments for Sustainability) and the city of Seattle, which is a resource guide on climate protection, and the **U.S. Conference of Mayors Best Practices Guide(1/07)**. (http://www.usmayors.org/uscm/best_practices/EandEBP07.pdf

Attachment 2. Conduct a Greenhouse Gas Emissions Inventory Support Documentation

A. GHG Inventory Examples

Many examples of GHG inventories from cities are available online. For example, see:

- NYC - http://www.nyc.gov/html/om/pdf/ccp_report041007.pdf
- Palo Alto, CA - www.city.palo-alto.ca.us/greenribbon/documents/GRTF.pdf
- Keene, NH - http://www.ci.keene.nh.us/planning/ghgreport.pdf

The National Association of Clean Air Agencies (NCAA) represents air pollution control agencies in 54 states and territories and over 165 major metropolitan areas across the U.S.: http://www.4cleanair.org/about.asp.

B. Greenhouse Gas Emissions Inventory History

- No clear Federal policy regulates GHG emissions.
- Governor O'Malley signed Regional Greenhouse Gas Initiative 4/07.
- MD Department of Natural Resources is completing a GHG inventory
- 1990 Inventory of MD GHG available at http://www.mde.state.md.us/assets/document/Air/1990%20Greenhouse%20Gas%20Inventory.pdf
- EPA developed a model for conducting GHG Emissions for national and state levels based on IPCC criteria so that standardized national and global comparisons can be conducted.
- ICLEI and NACAA developed Clean Air and Climate Protection (CACP), a software product designed specifically to help local governments with their GHG inventory. EPA has made this product available to local government officials. CACP software can help local officials:
    - Create an inventory and forecast emissions of criteria air pollutants – nitrogen oxides, sulfur oxides, carbon monoxide, volatile organic compounds and coarse particulate matter – and GHGs.
    - Evaluate policies to reduce emissions of these pollutants.
        - Prepare emission reduction action plans.
    - Monitor progress towards goals
- Some difficulty performing local emissions inventory because data are not readily available for the local level.

C. Biography of Pat Brady, GHG Inventory Coordinator

Pat Brady will be conducting a Greenhouse Gas Emissions Inventory for Baltimore County as her thesis project with faculty advisor Brian Fath, PhD (CEQ member). Ms. Brady is in the second year of the Master's Program at Towson University in the Environmental Science Department. She is an intern at Baltimore County DEPRM working with Don Outen in the Policy/Research/Education Section. Ms. Brady may be contacted via telephone at 908-797-4107 or electronically, pbra6994@hotmail.com.

D. GHG Inventory Data Needs

Emissions audits for the community and government internal operations based on energy consumption and waste production will be conducted on data from 2004. This will provide the information necessary

for the county to: (1) lead the community by their own example of reducing emissions resulting from internal operations and; (2) to set targets for emissions reductions for the community and put in place policies and programs to meet those goals.

For the **Community Analysis**, the following data are needed for 2004:

1. Waste Disposal
    a. Names and Locations of Landfills (active and inactive)
    b. Type and Amount of Waste
    c. Disposal Technology
    d. Percent of Methane Collect (if any)
2. Residential
    a. Number of households
    b. Amount of electricity consumed (kWh)
    c. Additional fuel type and units (i.e. coal, tons)
3. Commercial
    a. Number of establishments
    b. Number of square feet of Floor Area
    c. Number of employees
    d. Amount of electricity consumed (kWh)
    e. Additional fuel type and units (i.e. coal, tons)
4. Industrial
    a. Number of establishments
    b. Number of square feet of Floor Area
    c. Number of employees
    d. Amount of electricity consumed (kWh)
    e. Additional fuel type and units (i.e. coal, tons)
5. Transportation
    a. Vehicle Miles Traveled by Fuel Type and by Vehicle Type
6. Other
    a. Emissions from Industrial sector – Paper/Pulp, Cement
    b. Other sources of CO2, Methane, Nitrous Oxide, HFCs, PFCs, Sulfur Hexafluoride

For the **County Government Analysis** the following data are required for 2004:

1. Buildings
    a. Name of Building
    b. Number of Occupants
    c. Operating Hours
    d. Total number of square feet
    e. Amount of electricity consumed (kWh) and cost
    f. Additional fuel consumed type and cost (e.g. coal, tons)
2. Vehicle Fleet
    a. Miles traveled in each fuel and vehicle type class
    b. Cost per fuel type and vehicle type
3. Employee Commute
    a. Miles traveled in each fuel and vehicle type class
    b. Cost per fuel type and vehicle type
4. Streetlights
    a. Number of Streetlights

   b. Amount of electricity consumed (kWh) and cost
   c. Additional fuel consumed type and cost (e.g. coal, tons)
5. Water/Sewer
   a. Output in 1000 gal.
   b. Amount of electricity consumed (kWh) and cost
   c. Additional fuel consumed type and cost (e.g. coal, tons)
6. Waste
   a. Amount of waste
   b. Method of disposal
   c. Waste disposal charges
   d. Percent of Methane recovery
   e. Composition of the waste stream in percentages
7. Other
   a. Other sources of CO2, Methane, Nitrous Oxide, HFCs, PFCs, Sulfur Hexafluoride

Attachment 3. Green the County Fleet of Vehicles Support Documentation

A. Maryland State Programs Addressing Green Vehicles

Program	Branch/ Funding Source	*Description*	Website
EXECUTIVE ORDER 01.01.2001.02 Sustaining Maryland's Future with Clean Power, Green Buildings and Energy Efficiency	Legislative/ Executive Order	Alternative Fuel Vehicles Goal: Consistent with the goals of the Chesapeake 2000 Agreement, the State shall revise fleet policy and purchasing guidelines to offer more flexibility in purchasing, where practical, low emission and alternative fuel vehicles for its fleet. The State shall ensure that for fleet units operating bi-fuel or flex-fuel vehicles (vehicles that operate on either motor gasoline or an alternative fuel, as defined by the Federal Energy Policy Act) an average of 50% of the fuel used by those vehicles shall be alternative fuel. The State shall help develop the refueling and maintenance infrastructure required to make certain types of alternative fuel vehicles practical and may provide technical assistance and other incentives to use clean technology, where practical, in State transit fleets	http://www.dsd.state.md.us/comar/01/01.01.2001.02.htm
Clean Cars Act (HB 131 / SB 103)	Legislative/ Executive Order	Under the regulations, auto manufacturers would be required to reduce the emissions of greenhouse gases by their fleets by around 30% by 2016.	http://www.greencarcongress.com/2007/02/maryland_assemb.html
Maryland Energy Administration	Alternative Fuel Vehicle Rebate Program + Special Funding	The Maryland Energy Administration (MEA) has a limited amount of money to help offset the purchase of alternative fuel shuttle and school buses. The rebate will pay up to $10,000 of the incremental cost of purchasing an alternative fuel shuttle+RC bus. Local governments and private parties that have specific projects in mind and are look for financial assistance should call Michael Li at 410-260-7183 to explore the possibility of attaining funding.	http://www.energy.state.md.us/programs/transportation/index.html
Maryland Energy Administration	Tips for energy efficiency for transportation	Fuel economy and efficiency are concerns for all of us who drive. There are practices that help in maximizing fuel use which every driver should know: speed, AC, idling, gas & oil	http://www.energy.state.md.us/energyinformation/energyefficiency/transportation/index.html
MDE	AFV Alternative Fuel Vehicle	Examples of AFV Users in MD: MDE, •Catonsville Community College, •Airport Super & BWI Shuttle, •Montgomery & Prince George's County	http://www.mde.state.md.us/assets/document/AFV.pdf
Maryland's Fleet Management Office	Maryland Facilities Management	Officials Look to Trade SUVs for Alternative-Fuel Vehicles	http://www.newsline.umd.edu/business/specialreports/energy/guzzlerchoke012403.htm
Schools - K-12	Montgomery County Public Schools	Carpool rules/share parking permit; no fee, funding thru fines	http://www.mcps.k12.md.us/departments/facilities/greenschoolsfocus/pdf/MCPS_CarpoolingPolicy.pdf
College Campus Program	Higher Education	Campus Presidents Climate Commitment: Frostburg State University, Mount St. Mary's University, University of Maryland, College Park, McDaniel College, Saint John's University, Montgomery County Community College, Goucher College. d. Encourage use of and provide access to	http://www.presidentsclimatecommitment.org/html/commitment.php#top

Program	Branch/ Funding Source	*Description*	Website
		public transportation for all faculty, staff, students and visitors at our institution	
College Campus Program	Higher Education	The University of Maryland's student body passed a similar measure, a $12 fee increase that will be used to convert the campus energy supply to entirely clean energy sources.	http://www.fmlink.com/News/Articles/news.cgi?display=article&id=22594
College Campus Program	Higher Education	Univ. of Maryland Partners with Flexcar to Reduce Campus Car Use	http://www.greencarcongress.com/2006/05/univ_of_marylan.html
The Climate Registry	MDE	THE CLIMATE REGISTRY is a multi-state and tribe collaboration aimed at developing and managing a common greenhouse gas emissions reporting system with high integrity that is capable of supporting various greenhouse gas emission reporting and reduction policies for its member states and tribes and reporting entities. It will provide an accurate, complete, consistent, transparent and verified set of greenhouse gas emissions data from reporting entities, supported by a robust accounting and verification infrastructure	http://www.theclimateregistry.org/index.html
MD Transportation Incentives	Terminal Infrastructure Grant Program	This program will make awards to the installation of biodiesel infrastructure at Maryland terminals. Please read the complete guidelines and then fill out the application. Applications are due May 1, 2007.	http://www.energy.state.md.us/financial/transportation.htm
MD Transportation Incentives	Biofuels Grant Program	This program will make awards for the installation of ethanol and biodiesel refueling infrastructure at commercial refueling stations. Please read the complete guidelines and then fill out the application.	http://www.energy.state.md.us/financial/transportation.htm
MD Transportation Incentives	Alternative Fuels	Federal Income Tax Credits exist for the installation of alternative fuel systems. The infrastructure development provision was part of the 2005 Energy Policy Act and provides a 30% federal income tax credit, up to $30,000 per property, to install alternative fuel dispensing systems. This program is not currently accepting applications.	http://www.energy.state.md.us/financial/transportation.htm
Environment MD	Non-Profit	***The Clean Cars Program; How States Are Driving Cuts in Global Warming Pollution – p. 5 emissions reduction with Clean Car Program***	http://www.environmentmaryland.org/uploads/gX/nc/gXncIbVNN9X0V_pkiBSyHA/CleanCarsandGlobalWarming.pdf
Renewable Fuels Promotion Act of 2005	Renewable Fuels Incentive Board	Ethanol and biodiesel producers may apply to the Renewable Fuels Incentive Board for ethanol and biodiesel production credits. To be eligible for the credits, the producer must first apply to the Board and receive certification as a producer. Credits may be offered to certified producers of ethanol or biodiesel in Maryland for ethanol or biodiesel produced on or after December 31, 2007. The Board may not pay a credit for ethanol or biodiesel produced after December 31, 2017. Ethanol production credits are as follows: a) $0.20 per gallon of ethanol produced from small grains such as wheat, rye, triticale, oats, and hulled or hull-less barley; and b) $0.05 per gallon of ethanol produced from other agricultural products. The Board may not certify ethanol production credits	

Program	Branch/ Funding Source	*Description*	Website
		for more than a total of 15 million gallons per calendar year, of which at least 10 million gallons must be produced from small grains. Biodiesel production credits are as follows: a) $0.20 per gallon of biodiesel produced from soybean oil (the soybean oil must be produced in a facility or through expanded capacity of a facility that began operating after December 31, 2004), and b) $0.05 per gallon for biodiesel produced from other feedstocks (including soybean oil produced in a facility that began operating on or before December 31, 2004. The Board may not certify biodiesel production credits for more than a total of five million gallons per calendar year, of which at least two million gallons must be from soybean oil produced in a facility as described in section a) above. (Reference Maryland Statutes, Agriculture Code 10-1501 through 10-1507)	
Alternative Fuel Vehicle Rebate Program	Maryland Energy Administration	The Maryland Energy Administration (MEA) has a limited amount of money to help offset the purchase of alternative fuel shuttle and school buses. The rebate will pay up to $10,000 of the incremental cost of purchasing an alternative fuel shuttle bus. To receive the rebate: 1. Confirm that funds are available by contacting Michael Li, (410) 260-7183, meainfo@energy.state.md.us. 2. Purchase the vehicle. To see which vehicles qualify, go to: www.ott.doe.gov/epact/epactfuels.shtml 3. Submit the receipt or invoice to MEA along with documentation of the incremental cost. Note: This rebate does not apply to vehicle fleets mandated to comply with the Energy Policy Act of 1992 (EPAct).	http://www.energy.state.md.us/programs/transportation/afvrebate.htm

B. Examples of Other Jurisdictions' Activities

- **Philadelphia's Carsharing for the City Fleet**
  - City of Philadelphia and PhillyCarShare instituted a car-sharing system that includes both local residents and government employees.
  - Replaced 330 municipal vehicles and saved the city $2 million each year.
  - 1,200 citizen vehicles were replaced saving residents $5.5 million in costs and reducing vehicle travel by 8.2 million fewer miles per year.
- **Seattle's Bicycle and Pedestrian Planning**
  - Extensive urban trails network: about 28 miles of shared use paths, 22 miles of on-street, striped bike lanes, and about 90 miles of signed bike routes.

  - City's Department of Transportation has a Bicycle Program that is developing the City's first Bicycle Master Plan to improve and expand the network of shared use paths, bike lanes, signed bike routes, arterials with wide shoulders and pedestrian pathways.
- **Keene's Conversion to Biodiesel**
  - From fire engines to snowplows, all 77 of the vehicles in the City of Keene, New Hampshire's Public Works Department are running smoothly on B20 biodiesel, which performs well in cold temperatures and has improved the air quality inside the fleet maintenance facility.
  - Fleet fueled onsite at the department's pump
  - City has burned more than 4,400 gallons of biodiesel since 2002, which prevents an estimated 12 tons of CO2 from entering the atmosphere annually.
- **New York City**
  - Cutting edge greenfleet law: purchase lowest emission vehicles available and reduce CO2 emissions for the fleet as a whole.
  - Now: over 1,500 hybrid electric vehicles in a fleet of about 13,000 vehicles
  - Replacing older vehicles with hybrids
  - Expanding its network of bike lanes and paths around the city
- **Boston, MA**
  - "clean vehicle" procurement policy: Boston departments are now required to purchase alternative fuel vehicles or vehicles with similar fuel economy, if available in the vehicle class for its intended use.
  - 450 city vehicles that ran on conventional diesel fuel are now using an emission reducing fuel, known as "biodiesel" (an Ultra Low Sulfur Diesel / B5 blend) thereby reducing dependence on foreign fuel and cutting air pollution by 12-20%.
- **Seattle, WA**
  - Mayor launched the "Clean, Green Fleet Plan" in 2003, which included downsizing the city's fleet, replacing older compact sedans with more fuel-efficient gas-electric hybrid cars, and discouraging the purchase of new SUVs
  - New trucks come equipped with technology that automatically turns off the engine while idling, to avoid unnecessary pollution, fuel consumption, and cost.
  - Fleet has cut the use of fossil fuels by 12 percent since 1999, largely by converting to hybrid vehicles and using biodiesel in many of its heavy trucks. These changes have cut global warming pollution by about 2,400 tons - the same as taking more than 500 cars off the road for a year.
- **Charlotte, NC**
  - added 21 hybrids to municipal vehicle fleet; fleet manager demonstrated thousands of dollars in savings over the vehicles lifetimes, due to decreased fuel use, advanced technology, and less maintenance
  - Schools' buses will be running on bio-diesel. This switch will reduce the CO_2 emissions and also reduce asthma triggering pollutants.

C. 13 Steps in Achieving a Green Its Vehicle Fleet (From U.*S. Mayor's Climate Protection Agreement: Climate Action Handbook* published by ICLEI and the City of Seattle)

1. Adopt a comprehensive fleet policy
2. Set and measure realistic goals for reducing energy use, criteria air pollutants, and carbon dioxide emissions for the fleet
3. Conduct an inventory of fleet vehicles
4. Eliminate fleet vehicles

5. Maximize efficiency
6. Optimize vehicle use
7. Downsize vehicles
8. Go with electric drive
9. Consider alternative fuels
10. Encourage carpooling, mass transit, biking, walking, carpooling or telecommuting by municipal employees
11. Incorporate efficiency into bid specifications
12. Encourage similar measures in the community
13. Write a Green Fleets Policy

D. Other Resources for Greening Vehicles

- ICLEI Land Use and Transportation Toolkit http://www.iclei.org
- ICLEI, Cities for Climate Protection Case Study, *Case Study #41: Promoting Energy Efficiency in Municipal Fleets, Denver, USA*, Toronto, Ontario, Canada, 6 pp., 1995.
- Public Technology, Inc., *Greening the Fleet: A Local Government Guide to Alternative Fuels and Vehicles*, Washington, DC, USA, 164 pp., 1997.
- U.S. Department of Energy, National Renewable Energy Laboratory, Alternative Fuels Data Center: http://www.afdc.doe.gov or 1-800-423-1DOE.
- www.greenfleets.org
- Clean Air and Transportation Resources from the U.S. Department of Transportation http://www.italladdsup.gov/resources/index.asp
- National Congestion and Travel Time Data from the Texas Transportation Institute's Urban Mobility Report http://mobility.tamu.edu/ums
- Walking and Bicycle Planning Resources http://www.vtpi.org/documents/walking.php http://www.bikewalk.org
- Travel Matters' Transit Planning Emissions Calculator: Quantify the impact of transit decisions on global warming pollution. An online tool for measuring the emissions impact of making transit buses more fuel efficient. http://www.travelmatters.org
- **EPA's COMMUTER Model:** Examining the Benefits of Transportation and Air Quality Programs Focused on Commuting. A model for quantifying the emissions benefits of strategies to reduce solo commuting. http://www.epa.gov/otaq/stateresources/policy/pag_transp.htm#cp
- The Clean Fleet Guide features tools to help fleets make "green" vehicle and fuel decisions including specifications on available alternative fuel and advanced technology vehicles, tools to perform cost analyses based on specific locations, and information on other technologies that can help improve fuel economy. http://www.eere.energy.gov/fleetguide
- Clean Cities is committed to providing coalitions, fleet managers, and the public with accurate, accessible information. Data on purchasing alternative fuel and advanced technology vehicles to emissions and fuel information. http://www.eere.energy.gov/cleancities/tools_info.html
- EPA Green Fleet FAQ http://www.epa.gov/emissweb/faq.htm
- National Clean Diesel Campaign http://www.cleanfleetsusa.net
- Alternative Fuels Data Center http://www.eere.energy.gov/afdc
- Biodiesel Board – A national non-profit trade association http://www.biodiesel.org
- Pedestrian Planning from the U.S. Department of Transportation http://www.walkinginfo.org/pedsafe
- Walking and Bicycle Planning Resources http://www.vtpi.org/documents/walking.php and http://www.bikewalk.org
- Safe Routes to Schools http://www.saferoutestoschools.org

Attachment 4. Increasing the Energy Efficiency of County Facilities and Equipment Supporting Documentation

A. Federal Guidelines

The Federal Energy Policy Act of 2005 (EPAct 2005) reestablished and extended earlier goals and standards to reduce energy use in existing and new federal buildings. See the Federal Energy Management Program website (http://www1.eere.energy.gov/femp/index.html) for updates.

The Department of Energy's Federal Energy Management Program (FEMP) works to reduce the cost and environmental impact of the Federal government by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at Federal sites.

B. Maryland State Programs Addressing Energy Efficiency

Program/Fund	Branch/ Funding Source	Description	Website
Governor's Transition Team Proposal	**MD's Energy - Energy Transition Report 2/2007**	Immediate steps to be taken to prepare Maryland for its energy future:	http://www.governor.maryland.gov/documents/transition/Energy.pdf
EmPOWER MD	**Legislative/ Executive Order - Create a Public Benefit Fund to finance energy efficiency investments**	Residential Energy Efficiency Programs: 7 steps to reducing power consumption 15% by 2015;	http://www.energy.state.md.us/news/EmPOWER_Fact_Sheets.pdf
WAP-Weatherization Assistance	**MD DHCD (Department of Housing and Community Development)**	The program helps eligible low-income households through the installation of energy conservation materials in their dwelling units.	http://www.dhcd.state.md.us/Website/programs/wap/wap.aspx
Community Energy Loan Program	**MEA/MD Energy Administration**	The General Assembly of Maryland authorized the Community Energy Loan Program (CELP) for implementation July 1, 1989. Originally funded with $3.2 million in seed money, CELP provides local governments and nonprofit organizations in the State an opportunity to reduce their operating expenses by identifying and installing energy conservation improvements. specifications, and the actual costs of construction.	http://www.energy.state.md.us/programs/government/communityenergyloan.htm
State Agency Loan Program	**MEA/MD Energy Admin**	The State Agency Loan Program (SALP) was established in 1991, using funds from the Energy Overcharge Restitution Fund (EORF). Through this revolving loan program, the Maryland Energy Administration provides loans to State agencies for cost-effective energy efficiency improvements in State facilities.	http://www.energy.state.md.us/programs/government/stateagencyloan.htm
Energy Audits for Farmers	**MD Energy Admin, NRCS, and the Maryland Department of AgriMEA/ culture**	On July 26, Governor O'Malley announced a new program that provides energy audits for farmers under EmPOWER Maryland. The Maryland Farm Energy Site Assessment Program is a cost-share assistance program funded by the state's Natural Resources Conservation Service (NRCS) and the Maryland Energy Administration.	http://www.eere.energy.gov/state_energy_program/project_brief_detail.cfm/pb_id=1171
EmPower Pilot: Maryland Energy Efficient Affordable Housing Development Program	**MEA, the Department of Housing and Community Development (DHCD) - Grant**	Using a $250,000 grant from MEA, the Department of Housing and Community Development (DHCD) will initiate an affordable housing program to increase the energy efficiency of homes receiving funding assistance from DHCD.	http://www.gov.state.md.us/pressreleases/070809.html
EmPower Pilot:	**MEA Pilot**	MEA will initiate a pilot program to increase existing home	http://www.gov.state.md.u

Program/Fund	Branch/ Funding Source	Description	Website
Improving Energy Efficiency in Existing Homes		energy efficiency through a whole-house approach. The program will train local home remodeling contractors and heating and cooling contractors to evaluate homes using state-of-the-art equipment and recommend comprehensive improvements that will provide the highest energy savings at the lowest cost.	s/pressreleases/070809.html
EmPower: Energy Efficient Lighting:	**Governor Campaign**	On October 3, 2007 Governor O'Malley will kick off a statewide effort with Maryland residents, colleges, schools, businesses, and utilities to promote the Change a Light, Change the World Campaign initiated by the federal energy and environmental agencies.	http://www.gov.state.md.us/pressreleases/070809.html
EmPower: Energy Efficient Lighting for DHR - Office of Home Energy Programs Participants	**MEA + MD Dept Human Resources**	MEA, in coordination with the Maryland Department of Human Resources' Office of Home Energy Programs, will provide 100,000 CFL's to participants in the department's energy assistance programs.	http://www.gov.state.md.us/pressreleases/070809.html
WAP-Weatherization Assistance	**MD DHCD Department of Housing and Community Development**	The program helps eligible low-income households through the installation of energy conservation materials in their dwelling units.	http://www.dhcd.state.md.us/Website/programs/wap/wap.aspx
Community Energy Loan Program	**MEA/MD Energy Administration**	The General Assembly of Maryland authorized the Community Energy Loan Program (CELP) for implementation as of July 1, 1989. Originally funded with $3.2 million in seed money, CELP provides local governments and nonprofit organizations in the State a unique opportunity to reduce their operating expenses by identifying and installing energy conservation improvements.	http://www.energy.state.md.us/programs/government/communityenergyloan.htm
State Agency Loan Program	**MEA/MD Energy Administration**	The State Agency Loan Program (SALP) was established in 1991, using funds from the Energy Overcharge Restitution Fund (EORF). Through this revolving loan program, the Maryland Energy Administration provides loans to State agencies for cost-effective energy efficiency improvements in State facilities.	http://www.energy.state.md.us/programs/government/stateagencyloan.htm

Attachment 5. Use and Support Renewable Energy Supporting Documentation

A. Federal Executive Order - Executive Order 13123

- Issued in 1999
- Intended to improve the Federal government's energy management "in order to save taxpayer dollars and reduce emissions that contribute to air pollution and global climate change" required:
  - federal agencies to increase their use of renewable energy to a percentage determined by the secretary of energy: equivalent of 2.5% of their electricity from renewable resources by 2005
  - 20,000 federal solar roofs by 2010

B. The Federal Energy Policy Act of 2005 (EPAct 2005) reestablished and extended earlier goals and standards to reduce energy use in existing and new federal buildings

- Section 203 requires that, to the extent it is economically feasible and technically practicable, the total amount of renewable electric energy consumed by the federal government during any fiscal year shall not be less than the following:
  - 3% in FY 2007-2009
  - 5% in FY 2010-2012
  - 7.5% in FY 2013 thereafter
- Section 204 establishes a photovoltaic (PV) energy commercialization program for the procurement and installation of PV systems in public and federal buildings. It requires the installation of 20,000 solar-energy systems on federal buildings by 2010. The commercialization program has been appropriated $50 million annually for fiscal years 2006–2010. An evaluation program has been appropriated $10 million annually for fiscal years 2006-2010.

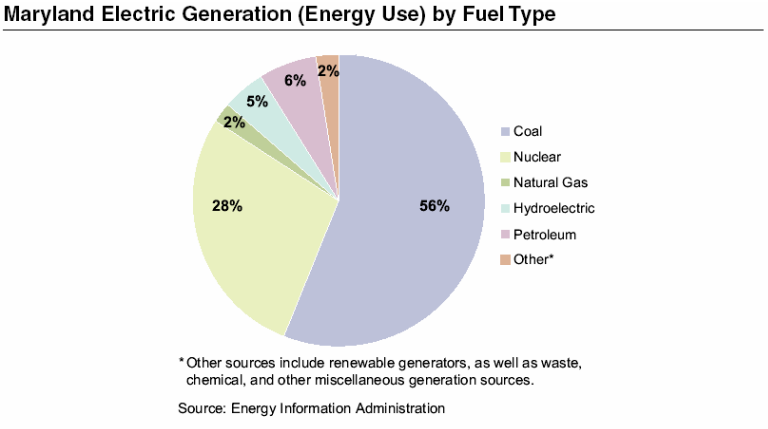
  See the Federal Energy Management Program website (http://www1.eere.energy.gov/femp/index.html) for updates.

C. Maryland State Programs Addressing Renewable Energy

Sources: Energy Information Administration:
http://tonto.eia.doe.gov/state/state_energy_profiles.cfm?sid=MD
The Power Plant Research Program (PPRP): www.dnr.state.md.us/bay/pprp

Does Maryland Generate and Use Renewable Energy?

- Approximately two-thirds of the electricity generated in Maryland comes from combustion of fossil fuels (coal, oil, and natural gas) with nuclear power being the second largest source of electricity.
- Currently, and historically, Maryland does not cover its own consumption of electricity with in-state generation supplies. Maryland, instead, relies significantly on power sources located elsewhere in the PJM region to support its own internal electric power needs.
- The process of burning fossil fuels



produces many different air polluants including nitrogen oxides, sulfur oxides, mercury, volatile organic compounds, and particulates. Air pollutants eventually return to the Earth's surface and are deposited directly on the landscape and in bodies of water – or can be carried into streams, rivers, and larger water bodies, such as the Chesapeake Bay (the largest estuary in the United States), thus affecting a broad array of animal and plant life.

- As of 2001, Maryland generated just less than four percent of its electric energy from hydroelectric and other renewable energy. Most of Maryland's renewable electric energy is supplied from hydroelectric sources. It is unlikely that additional hydropower projects will be developed in Maryland. It has been more than 80 years since the construction of the Conowingo Dam, and the environmental and economic impacts associated with new dam construction would make it difficult to license and permit a new facility.
- Wind power and landfill methane power costs in the Mid-Atlantic are currently in the 4 - 6 cents per kWh range; the cost of other renewable energy technologies is typically higher. Long-term competitive opportunities for green power will develop when the technologies can offer power in the 3 - 4 cent per kWh range.
- **EmPOWER Maryland by Funding Solar Schools In Every County** Maryland is partnering with Maryland businesses to install a solar or other clean energy demonstration project at a school in every county in the State in 2008. Example: Maryland Science Center, Baltimore -- 3 kilowatt wall-mounted photovoltaic (PV) solar energy system and a 9.5 kilowatt roof-mounted PV system. Scheduled to be completed in August 2007. Estimated generation of 14,400 kilowatt hours per year. Example: Frostburg State University, Frostburg –1.8 kW wind generator placed in service on July 6, 2007. Estimated generation of 4,800 kilowatt hours per year.

D. Maryland State Programs Addressing Renewable Energy

Program/fund	Branch/Funding Source	Description	Website
Property Tax Exemption for Residential Solar Energy Systems	HB590/Comptroller	100% property tax exemption for solar energy property	http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=MD20F&state=MD&CurrentPageID=1&RE=1&EE=0
Community Energy Loan Program	Md. Code § 9-2101 et seq	The Community Energy Loan Program (CELP), originally funded in 1989 with $3.2 million in seed money, provides financing for local governments and nonprofit organizations in the State to identify and implement energy conservation improvements.	http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=MD02F&state=MD&CurrentPageID=1&RE=1&EE=0
EmPOWER MD by Funding Solar Schools In Every County	MD is partnering with MD businesses	Our EmPOWER Schools initiative will utilize partnerships with companies such as BP Solar, PacWind, Southwest Wind Power, and Bergey in conjunction with grants from the Energy Administration to install solar and other clean, renewable energy projects on schools in MD.	http://www.energy.state.md.us/news/EmPOWER_Clean_Energy_Schools.pdf
Solar Energy Grant Program	MEA+RC	Senate Bill 485, the Solar Energy Grant Program sponsored by Senator Robert Garagiola went into effect on January1, 2005. This program provides funding for a portion of the costs to install certain qualifying solar energy systems. MEA began taking applications for the third funding cycle on June 1 and is still accepting applications and issuing grants in 2007.	http://www.energy.state.md.us/programs/renewable/solargrant/index.html
Rebuild America	MEA	Rebuild America is a network of hundreds of public-private partnerships across the nation who are saving energy, improving building performance, easing air pollution through reduced energy demand, and enhancing the quality of life through energy efficiency and renewable energy technologies.	http://www.energy.state.md.us/programs/commercial/rebuildamerica/index.html
Governor's Transition	MD's Energy -	MD enacted a Renewable Portfolio Standard	http://www.governor.maryland.gov

Program/fund	Branch/Funding Source	Description	Website
Team Proposal	Energy Transition Report 2/2007Renewables Recommendations	(RPS) in 2004. Requirements are so low and geographic area to purchase is so wide, the current MD RPS is providing very little incentive to construct renewable energy in MD and will most likely be met with 100% existing out-of-state resources cogeneration and distributed generation in MD and present a comprehensive to remove such barriers.	/documents/transition/Energy.pdf
Maryland Executive Order		Maryland's Governor issued an executive order on March 13, 2001 calling for at least 6% of the electricity consumed by state-owned facilities to be generated from "green" energy sources, such as wind, solar, landfill gas, and other biomass resources. The order specifies that no more than 50% of the power procured to meet the requirement come from municipal solid waste facilities. There are no penalties for agencies that do not comply. As of December 2005, 3.7% of the total annual electricity consumption was from green power, primarily biogas generated by Consolidated Energy Solutions. Maryland's green power commitment is 50,000 MWh/annum.	http://www.dsireusa.org/

E. Other Jurisdiction Activity

This table comprises the Top 10 Local Government Partners (as of July 2007) and includes a wide variety of leading organizations such as Fortune 500 companies, local, state, and federal governments, trade associations, as well as colleges and universities (http://www.epa.gov/greenpower/).

Municipality	Green Power Usage (kWh)	% of Total Electricity	Resources	Provider
Los Angeles County Sanitation Districts	196,003,000	57%	Biogas	On-site Generation
City of San Diego, CA	66,618,000	26%	Biogas, Small-hydro, Solar	On-site Generation
City of Austin, TX	64,454,000	7%	Wind	Austin Energy
Montgomery County Wind Buyers	55,575,000	7%	Wind	Washington Gas Energy Services
Austin (TX) Independent School District	45,720,000	27%	Biogas, Wind	Austin Energy
East Bay Municipal	38,800,000	92%	Biogas	On-site generation
NY State Municipal Wind Buyers	31,584,167	20%	Wind	Community Energy
City of Bellingham, WA	25,000,000	100%	Biomass, Solar, Wind	Puget Sound Energy
City of Santa Monica, CA	23,000,000	100%	Biogas	Commerce Energy
City of Boston, MA	22,132,516	12%	Wind	Constellation NewEnergy

A sampling of local renewable energy programs (Source: www.dsireusa.org)

Municipality	State	Action
Scottsdale	AZ	In June 2000, Scottsdale began an annual purchase of 40,500 kWh of solar energy for its Civic Center and Mustang Libraries.
San Diego	CA	On August 7, 2003, San Diego's mayor announced a new green power purchase resolution to install 50 megawatts (MW) of renewable energy in the city over the next decade. The electricity may be generated from photovoltaic (PV) systems, wind turbines, landfill-gas

Municipality	State	Action
		facilities, small hydroelectric generators, geothermal energy systems and other renewable-energy technologies. The goal likely will be met by using 35 MW of solar energy and 15 MW of landfill-gas-to-energy projects.
San Francisco	CA	On November 6, 2001, San Francisco supports renewable energy through bonds to fund solar and wind projects. The legislation allows the City to sell $100 million in revenue bonds to fund solar and wind projects which will supply electricity to city agencies and will authorize the City to raise additional funds for renewable projects without voter approval.
Santa Monica	CA	The City of Santa Monica made history June 1, 1999, as green electricity began powering all municipal facilities -- including the Santa Monica Airport, City Hall and the Santa Monica Pier -- making it the first city in the world to switch to 100% renewable resources to meet the power needs of city facilities. Under the contract, the city purchases approximately 5MW of renewables.
Aspen	CO	In 2005, the City of Aspen set a goal to purchase 75% of the City's energy from renewable sources by 2010. The City plans to increase its supply of renewable energy by ten percent, starting in 2005, at a cost not to exceed $388,800 annually, and to increase renewable energy purchases by over another sixteen percent in 2006, at a cost not to exceed $240,200 annually. Renewable technologies include wind energy and hydroelectric power from existing dams.
Boulder	CO	The City of Boulder purchases a portion of its electricity supply from wind power through Xcel Energy's Windsource program and Renewable Choice Energy, headquartered in Colorado. Boulder buys the power for their municipal buildings. Boulder also recently installed a solar water heating system with 128 thermal panels on one of the municipal pools.
Chicago	IL	The City of Chicago and 48 local government agencies have selected ComEd to supply 10% of their aggregated electricity needs with renewable power. Under the agreement, ComEd will increase the percentage of green power supply to 20% after five years, representing 80 MW of annual renewable power capacity from sources such as wind, solar, small hydro, and landfill gas.
Suffolk County	NY	In April 2005, Suffolk County enacted two bills requiring the county government to purchase electricity generated by renewable-energy resources. The first bill directs the county to purchase 5% of its electricity through LIPA's Green Choice Program, provided that the total additional costs do not exceed $100,000 per year compared to the cost of conventional electricity. However, the cap effectively limits the county to buying 2.5% of its energy from renewable sources.
Rochester	NY	December 2005 - Constellation NewEnergy announced that it has signed a two-year contract to supply electricity to the City of Rochester, New York, including green power. Under the agreement, Constellation NewEnergy will supply 8 megawatts (MW) of peak load to the city with 15% supplied with the company's Green-e certified ElectricGreen product. Rochester's City Hall will be supplied with 100% green power. The city expects to save more than $450,000 over the contract period.
Portland	OR	Portland's Local Action Plan for Global Warming in 2001 established a goal to purchase 100 percent of its municipal facility's electricity from clean, renewable energy generation sources. The short term goal -- 10 percent renewables by 2003 -- has been met through self generation -- including a 200 kW biogas fuel cell, 120 kW biogas microturbines, a 150 kW hydro generator, 10 kW urban wind turbine -- and a large purchase of green tags. Annually, 15,500,000 kWh of Portland's electricity use is now renewable.
Conway, Myrtle Beach, North Myrtle Beach	SC	Myrtle Beach, Conway, and North Myrtle Beach are the first three cities in South Carolina to purchase green power for its municipal facilities by subscribing to Santee Cooper's Green Power program. Under the agreement, Myrtle Beach purchases 155 200-kWh blocks of green power at an extra cost of approximately 2.9¢/kWh, Conway is purchasing 50 200-kWh blocks of electricity per month, and North Myrtle Beach is purchasing 125 200-kWh blocks of electricity per month. The green power is produced by a methane-fueled generating station at the Horry County Solid Waste Authority's landfill.
Salt Lake City	UT	Salt Lake City purchases 1,557 MWh of green power each year through Utah Power's Blue Sky wind power program. Wind power accounts for 21% of the energy used at the City and County Building and the Main Public Library. Although there is an additional cost associated with wind power in Utah, Salt Lake City is able to make the Blue Sky wind power purchase at no additional cost to taxpayers through energy conservation measures implemented at the City and County Building.