

Energy Committee Report
Howard County Commission
On the Environmental & Sustainability

August 18, 2007

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I. Sustainable Energy Strategy for Howard County

The charge of this committee was to consider strategies and policies that will reduce the greenhouse gas emissions associated with energy use in Howard County. The County Executive has signed on to the Mayors Climate Protection Agreement, committing Howard County to reducing its greenhouse gases. Furthermore, Governor Martin O’Malley has joined the Regional Greenhouse Gas Initiative, committing Maryland fossil fuel electricity generators to certain reductions of CO2 emissions; and created an Executive Order that includes a reduction of Maryland’s greenhouse gas emissions to 1990 levels by 2020 and 80% of 2006 levels by 2050. The Energy Committee recommends that Howard County establish aggressive, meaningful, and achievable greenhouse gas emissions reduction goals to fulfill its commitment to the Mayor’s Climate Protection Agreement and to show support for and do our part to achieve the Governor’s greenhouse gas reduction targets. The Committee recommends the following greenhouse gas goals:

- I. Howard County should reduce its greenhouse gas emissions to 7% below 1990 levels by 2012;
- II. Howard County should establish a long-range strategy and to reduce its greenhouse gas emissions by 80 percent of 2006 levels by 2050.

As part of its commitment to the Mayor’s Climate Action Agreement, Howard County will conduct a detailed inventory of greenhouse gas emissions, both those associated with energy and non-energy sources. The Energy Committee has developed a quick estimate of those emissions based on commonly used energy resources to help better understand the scale and impact of the proposed reductions. We estimate that the county will need to reduce its annual CO2 emissions by 856,000 tons of CO2. This is the equivalent of removing just under 150,000 cars from the road.

Table 1. <u>Estimate of Howard County CO2 Emissions from Energy Sources</u>		
	Energy Use	Tons of CO2 emissions
Electricity (2006 MWh)	3,226,000	2,250,000
Natural Gas (2006 Dth)	6,174,369	361,200
Gasoline (2004 Thousand Gal.)	122,000	1,193,400
Total 2006		3,804,600
Estimated Total 1990		3,170,000
7% Annual Reduction Target by 2012		856,500
CO2 emissions from electricity based on regional average as reported in electricity suppliers environmental disclosure label, 1395 lbs/MWh. Gasoline calculated by estimated Vehicle Miles Traveled for Howard County in 2004 (3,172 Million VMT) and assuming an average fuel economy of 26 miles per gallon.		

The committee considered opportunities to reduce energy use in buildings and transportation sectors, as well as a strategy to develop renewable energy resources within the county. The recommendations are organized within those 3 target areas. The Energy Committee recommends a strategy based on the following principles:

1. County Government leads by example;
2. County Government provides its citizens and business with the information, tools, and incentives, along with targeted mandates to reduce energy use; and
3. County Government aggressively pursues partnership and funding opportunities.

The committee also considered specific targets and goals that might be appropriately used as part of an overall monitoring and reporting initiative designed to support the County Executive's overall mission to reduce greenhouse gas emissions. The following goals are recommended for the consideration of the County Executive and County Council:

Energy Use in Buildings (2007 as benchmark)

Goal 1 - County Government will reduce non-renewable energy use in buildings by 10 percent by 2010, 15 percent by 2015, and 20 percent by 2020.

Goal 2 - County Government will commit to purchase 5 percent of its electricity from renewable energy sources (including Renewable Energy Credits) by 2010, 10 percent by 2015, and 20 percent by 2020. 50% of these renewable energy sources will be Maryland generated.

Goal 3 - Residential and Commercial Sectors will reduce the use of non-renewable energy use by 5 percent by 2010, 10 percent by 2015, and 15 percent by 2020.

Energy Use in Transportation Systems (2007 as benchmark)

Goal 4 - County government will reduce non-renewable transportation fuel use 10% by 2010, 25 percent by 2015 and 50 percent by 2020.

Goal 5 - Residential/Commercial/Industrial sectors will reduce non-renewable transportation fuel use 10 percent by 2010, 20 percent by 2015 and 40 percent by 2020.

Goal 6 - Increase the use of renewable transportation fuels to 10 percent by 2010, 25 percent by 2015, and 50 percent by 2020.

Goal 7 - The County will establish an alternative fuels strategy and purchasing policy that includes consideration for siting alternative fuels stations.

Energy Generation

Goal 8- Identify and develop energy projects (methane landfill gas/solar energy/sewage digestion) within the county to offset 5 percent of County energy use with renewable energy installations by 2020.

Goal 9 – Stimulate economic development and new job creation through investments in alternative fuel resources, e.g., cellulosic ethanol, biodiesel.

It is expected that specific reduction goals will need to be re-evaluated periodically, to ensure that greenhouse gas reduction goals are being met.

II. Strengths and Weaknesses of Current Howard County Government

Energy Use in Buildings

Strengths

- A. Energy Codes - Howard County currently requires the 2006 International Energy Efficiency and Conservation code for new construction of residential and commercial construction.
- B. Property tax credits are available for residential solar and geothermal energy technologies.

Weaknesses

- A. Inefficient county offices and facilities, as well as the older stock of non-government buildings and homes
- B. No systematic structure for identifying and financing energy efficiency improvements
- C. Information on energy efficient technologies and practices available to residences and businesses is lacking.

Energy Use in Transportation

Strengths

- A. County commitment and recent purchase of hybrid-electric vehicles
- B. Ongoing transportation planning efforts seek to maximize pedestrian pathways.
- C. Availability of bike paths in Columbia

Weaknesses

- A. County comprised of car-oriented communities.
- B. Lack of availability of biofuels.
- C. Bus system is not designed to meet commuter needs; current bus service is inefficient in fuel use due to low ridership.
- D. Bike paths do not connect for easy bike commuting.
- E. County is likely decades away from major rail expansion, with other more pressing regional needs; transportation planning typically underfunded.

III. Recommended Actions

Action 1 – Appoint an Energy Manager, a position in the newly created Office of Environmental Sustainability that will plan, coordinate and monitor energy use in County government and across all sectors within the County. The Energy Manager will

continually evaluate the County's energy consumption practices and will work with County departments and managers to evaluate energy use within County facilities. The Energy Manager will also monitor the effectiveness of County programs, incentives and policies that are established to help reduce consumption of fossil-fuel energy and reduce associated emissions in non-government sectors. The Energy Manager will work with the gas and electric providers, and various state and federal government organizations regarding the availability of financial incentives for clean energy and energy efficiency measures. The Energy Manager will work in conjunction with the Energy Task Force to prepare a strategic plan and annual report for the County Council. Existing energy and transportation related planning functions in the current County government structure would need to be coordinated carefully.

Action 2 - Convene an Energy Task Force comprised of volunteers within the county and chaired by the Energy Manager or the energy representative(s) in the Commission, to oversee the development of a comprehensive Energy Plan within six months. The Energy Task Force will meet quarterly with applicable County Government Officials to review progress toward goals and to identify additional opportunities for achieving energy reductions. The Energy Task Force should include representatives from a broad range of perspectives, including the renewable energy industries, major gas and electric utilities, environmental groups, the local agricultural community, as well as the residential and business communities within Howard County. Members of the Task Force should be asked to commit to a two-year term.

Energy Use in Buildings

Goal 1- County Government will reduce non-renewable energy use in buildings by 10 percent by 2010, 15 percent by 2015, and 20 percent by 2020.

Recommended Actions to Achieve Goals -

Action 3 - Collect data and establish a baseline on all energy consumption in the building sector, characterized by end use as possible.

Action 4- Benchmark building energy use to identify the most energy-inefficient buildings in County Government.

Action 5 – Move forward with an energy audit on Government buildings as part of a comprehensive Energy Performance Contract. Beginning with the most inefficient buildings, implement energy conservation upgrades.

Goal 2- County Government will commit to purchase 5 percent of its electricity from renewable energy sources (including Renewable Energy Credits) by 2010, 10 percent by 2015, and 20 percent by 2020. 50% of these renewable energy sources will be Maryland generated.

Action 6 – Identify sites, partners, and economic impacts of County-owned distributed renewable energy facilities, e.g., Alpha Ridge landfill gas, utility-scale solar energy, etc.

Action 7- Identify eligible resources and geographic preferences (e.g., within PJM regional grid, or in-state) and procure renewable energy credits sufficient to meet the County Goals established above.

Goal 3 - Residential and Commercial Sectors to reduce the use of non-renewable energy use by 5 percent by 2010, 10 percent by 2015, and 15 percent by 2020.

Action 8 – Establish/expand property tax credits for renewable and efficiency technologies.

Action 9 – All new residential construction or substantial rehab to perform to LEED Residential energy standards, or approved equal. Create preferential permitting for residential developers building 10% or more beyond this new energy standard, including fast track permitting and access to housing allocations.

Action 10 – Develop one-stop information section in conjunction with the “Green Central Station”, to give consumers and businesses access to comprehensive information on how to reduce fossil fuel usage.

Energy Use in Transportation

Goal 4 - County government to reduce non-renewable transportation fuel use by 10% by 2010, 25% by 2015 and 50% by 2020.

Action 11- Require purchase of hybrid and/or alternative fuel vehicles for 100 percent of new and fleet replacement purchases, with the exception of emergency and special-use vehicles.

Action 12- Change 100 percent of county-diesel fueling stations to diesel fuels with a minimum of 20 percent biodiesel content (B-20 diesel), with higher contents when seasonally applicable.

Goal 5 - Residential/Commercial/Industrial sectors to reduce non-renewable transportation fuel use 10 percent by 2010, 20 percent by 2015 and 50 percent by 2020.

Action 13 – Aggressively pursue and investigate the potential for rail transportation connecting Howard County by expansion of TODD (transit oriented development districts) along current rail lines and along future long term planning areas (like Rt. 32 corridor or Rt. 175 to Central Columbia). Incorporate transit options into long range strategy planning. Take increasing leadership role in regional planning groups such as Baltimore Metropolitan Council, to emphasize mass transit over new highway projects. Investigate innovative new transportation solutions such as the Smart Jitney.

Action 14 – Develop an energy benefits package (including grants, stipends, tax breaks), for citizens that make use of efficient/alternative transportation solutions, along with fees to discourage energy wasting practices; provide an incentive to county employees - teachers/fire/police/etc - for hybrid or alternative fuel vehicle purchase.

Action 15 – Conduct a charette with local high school students, the transportation users of the future, to explore transportation options such as transit, carpooling, biking, and the environmental effects of our energy choices.

Action 16 – Aggressively pursue opportunities and new designs for full utilization of existing bus transit routes. This should include studying methods to carry “pass-thru” traffic on major thoroughfares. Explore better efficiencies in existing bus transit, such as smart card commuter pass technology. Expand coordination with neighboring counties, and add new capacity as necessary to reduce travel and wait times.

Action 17 - Work with the Columbia Association to study expansion of bike paths to better connect village centers to workplaces. Evaluate options for connector bike paths along core routes into commercial districts of the county (Columbia Town Center, Gateway). Study overall improvements in bike to work strategies, and identify model biking communities (e.g., Lexington, VA.) to emulate. Investigate further addition of bike lanes to existing county roads, to create bike commuter routes.

Action 18 – Work with developers to incorporate smart transportation strategies maximizing transit in and beyond the opportunity development districts such as the Baltimore-Washington Corridor. Expand the use of TODD’s beyond just at the current rail lines. Undertake major outreach effort to educate citizens about the facts regarding addition of new traffic lanes to existing highways.

Goal 6- Increase the use of renewable transportation fuels to 10 percent greater than current levels by 2010, 25 percent by 2015, and 50 percent by 2020.

Action 19 – Identify locations for alternative fuel fueling stations and seek cost sharing opportunities with station-owners to install new alternative fuels pumps.

Action 20 – Work with car retailers to promote alternative fuel vehicles.

Goal 7- The County will establish an alternative fuels strategy and purchasing policy that includes consideration for siting alternative fuels stations.

Action 21 - Analyze alternative fuel choices available to government fleets and establish a summary of best practices and cost-effective alternative fuel strategies. Aggressively implement per Action 12 above. Investigate “closing the loop” by utilizing waste cooking oil resource in the county for bio-diesel production.

Action 22 - Identify locations and partners for alternative fuel refueling stations, and open stations to the public until private sector fills the demand.

Energy Generation

Goal 8- Identify and develop energy projects (methane landfill gas/solar energy/sewage digestion) within the county to offset 5 percent of County energy use with local, renewable energy installations by 2020.

Action 23 – Analyze county properties and resources to determine best and most economically feasible renewable energy projects, and develop implementation plan. Investigate creative financing options such as Power Purchase Agreements, and maximize use of state and federal cost sharing.

Action 24 – Develop action plan for purchase of Maryland generated Renewable Energy Credits to satisfy remainder of goal.

Goal 9- Stimulate economic development and new job creation through investments in alternative fuel resources, e.g., cellulosic ethanol, biodiesel.

Action 25 – Energy Manager to work with Howard County and other regional Economic Development Authorities to develop plan which may include tax credits, cost sharing strategies and other methods to substantially increase local alternative fuel production.

IV. Assessment of Impact

Benchmarks will need to be identified for both the building and transportation sectors, to determine baseline energy use per sector. This will be the starting point from which energy reduction goals shall be implemented. Building energy use is fairly easy to benchmark, using commonly available statistics. Transportation energy use, however, will require further research to identify accurate benchmarks.

As non-renewable energy use is the vast majority of sources of greenhouse gas emissions in the county, this will have a direct impact on reducing these emissions, and achievement of county goals in this area. Other miscellaneous sources of greenhouse gases, such as industrial chemical and agricultural sources, should be identified as part of coming county climate change assessment efforts. Separate policies may need to be developed in these areas in the near future.

It should be noted that, with the county school system being out of the purview of the efforts of this Commission, reaching energy and greenhouse gas reduction goals may be more difficult to achieve. As well, county energy reduction goals can be mandated and directly affected, whereas private energy use will likely be achieved thru education, encouragement, and incentivization.

V. Implications for Reorganization

The only area of government organization identified by this committee is the appointment of an Energy Manager. This has been coordinated with discussions on an Office of Environmental Sustainability, though our strong recommendation is that this position has the authority to oversee and coordinate with all county departments and intervene when necessary to implement energy reduction goals. Existing energy and transportation related planning functions in the current County government structure would need to be coordinated carefully.