

Built Environment and Energy Advisory Committee (BEEAC) and Multi-Sector Working Group (MSWG) Energy & Environment Subgroup

Joint Meeting Summary: March 19, 2015

Members and Alternates in Attendance:

Michelle Vigen, Montgomery County (Chair)
Bill Eger, City of Alexandria (Vice-Chair)
Emil King, District Department of the Environment (Vice-Chair)
Joan Kelsch, Arlington County
Cecily Beall, District Department of the Environment
Kate Johnson, District Department of the Environment
Sosina Tadesse, District Department of the Environment
Noel Kaplan, Fairfax County
Kambiz Agazi, Fairfax County
Garrick Augustus, Fairfax County
Ellen Eggerton, Fairfax County (by phone)
William Marsh, Fairfax County (by phone)
Lisa Orr, Frederick County (by phone)
Richard Fink, City of Greenbelt
Dyan Backe, City of Gaithersburg
Alan Brewer, Loudoun County
Jeff Bond, Prince George's County
Akosua Dosu, Prince George's County
Erica Bannerman, Prince George's County (by phone)
Said Said, Prince William County
Eirca Shingara, City of Rockville
Gina Mathias, City of Takoma Park
Doris McLeod, Virginia Department of Environmental Quality (by phone)
Jim Ponticello, Virginia Department of Transportation (by phone)
Steve Schaff, Chesapeake Sustainable Business Coalition
Jon Miller, Flywheel Development
Craig Schultz, ICF International
Lauren Pederson, ICF International
Rachel Healy, Washington Metropolitan Area Transit Authority

COG Staff in Attendance:

Leah Boggs, COG DEP
Amanda Campbell, COG DEP
Maia Davis, COG DEP
Isabel Ricker, COG DEP
Steve Walz, COG DEP
Robert Griffiths, COG DTP
Eulalie Gower-Lucas, COG DTP
Daivamani Sivasailam, COG DTP
Greg Goodwin, COG-Community Planning

1. Call to Order and Approval of February 19, 2015 Meeting Summary

Michelle Vigen, BEEAC Chair

A motion to approve the February meeting summary was made and seconded, and the meeting summary was approved with no changes.

2. Jurisdiction Roundtable Updates

Local Government Jurisdictions

Rockville is working with COG and Community Power Network on a solar co-op project that will be launching on April 18th and continuing throughout the summer. There are 30 residents signed up already. The co-op is open to Montgomery County as well as City of Rockville residents.

Fairfax County is working on two significant environmental reviews to inform the Planning Commission's work. The studies look at and make recommendations to the County on building energy technology and electric vehicle charging infrastructure. This process will inform County policy and decision making on how to apply these concepts during the planning and zoning processes.

The County Executive budget proposal, released at end of February, includes over half a million dollars in environmental programs. Fairfax is planning to grow its energy efficiency education and outreach programs, including green purchasing, watershed protection, and starting a green partners program to recognize businesses for sustainable practices.

Greenbelt recently completed a GHG inventory for government operations using ICLEI's GPC protocol. The results show a 55% reduction in CO₂e emissions below 2005 levels, which they believe is due to the city's commitment to wind power.

Prince William County has now upgraded 14 parking lots to LED lighting, saving about 520 MW per year. They have started to use new modular replacement bulb for which the payback is 3 years. The county is also in negotiations with NOVEC about installing a solar PV system to power County facilities, potentially up to a 1 MW system.

WMATA has about half-way completed their parking garage LED lighting project. This uses an energy savings performance contract so it is essentially self-financing. They are also nearing completion of the regenerative braking study for US DOT. The project has been very successful so far, and WMATA is looking to integrate the regenerative braking technology into system upgrades and maintenance. WMATA is also completing a solar potential assessment to identify the total solar PV capacity that could be installed on-site. In order to reach their 30% renewable energy by 2020 goal, they will also need to purchase some off-site renewables to make up the difference.

Frederick County recently won over \$700,000 in Clean Energy Communities grant funding from MEA to fund their Power Saver Retrofits program. This will enable the County to do energy retrofits, up to \$800 per house, for 100-125 low to moderate income households, with no homeowner cost share.

Prince George's County recently won a \$400,000 Smart Energy Communities grant from MEA for energy efficiency upgrades for County facilities. They are also working with COG and Community Power Network on a solar co-op project for several communities, and working with MEA on converting the County's solar permitting to an online portal that will interface with the homeowner, installer, MEA grant program, and potentially utility

interconnection. The County was selected for a free initial fleet assessment from Vision Fleet, which will evaluate the costs and benefits of converting the County's light duty fleet to electric vehicles.

Montgomery County has been working on PACE-enabling legislation, which should be heading to Council soon. They will be putting on an event with AOBA and DC PACE to help lenders and mortgage backers become comfortable with the program and lender consent agreements. Montgomery and Prince George's County also recently reached a settlement agreement with Exelon and Pepco on the proposed merger. This includes additional ratepayer benefits, funding for a green bank, and a few other significant concessions. Reach out to Michelle Vigen or Erica Bannerman if you have questions.

COG is organizing a panel on the region's solar PV work at CEEPC next week highlighting the large-scale solar project commitments by DC and Montgomery County. There will also be a discussion on PACE financing, and on establishing a regional PACE workgroup. The second year of the Climate and Energy Awards program will be launching soon and will also feature a business award category this year.

There is a US DOE technical assistance (TA) opportunity currently open to Climate Action Champions (CAC). COG is planning to submit one or two applications, as soon as possible, as the awards are being given on a rolling basis. Thus far, CAC participants in the region have expressed a lot of interest in an LED street lighting assessment that would evaluate cost-benefit or ROI of different conversion approaches, and assist the region with LED street light tariff revisions. An Electric Grid Infrastructure Vulnerability Assessment was the second most requested TA project. If any BEEAC members or other have suggestions or project preferences, please contact Maia.

COG partnered with Vision Fleet to provide four free initial fleet assessments to evaluate potential for converting to electric light duty vehicles for DC, Prince George's, City of Fredrick and City of Alexandria. Vision Fleet will present the results for two jurisdictions at an EV workgroup meeting on April 1. GWCCC is working with NREL to offer a similar analysis, which will also be discussed at the April 1 meeting. COG is hoping that these opportunities will help inform decisions on converting to EV or AFVs and potentially lead to a regional cooperative purchase.

3. Project Updates, Upcoming Meetings and BEEAC Adjournment

- CEEPC meeting – March 25
- DOE Climate Action Champions TA Webinars
- BEEAC Planning Call – April 2
- EV Working Group Meeting – April 1
- BEEAC Meeting – April 16

4. Multi-Sector Working Group (MSWG) Energy & Environment Subgroup Segment

Brief Welcome and Introductions *Steve Walz, COG Staff*

The goal of today's Energy & Environment subgroup meeting is to finish the list of strategies for the consultant to evaluate, and to flesh out implementation actions, the percentage of improvements to evaluate, timeframe, and viability of the strategies – “no regret,” mid-term, or stretch. COG has selected ICF International as the consultant for the project. The contract is still being finalized, but two representatives from ICF are attending the meeting to learn more about the project and hear the discussion. Before the discussion of the MSWG list, we will have a presentation on an innovative net zero development in the region.

5. Net Zero Main Street: Mount Rainier Community Project

John Miller, Flywheel Development

Flywheel Development is an urban redevelopment and consulting firm based in DC. Most of their projects are in Prince George's County and Mt. Rainier specifically. They see net zero as an opportunity set a clear target for the built environment that achieves meaningful climate action. Buildings today are much greener and communities are more sustainable than a decade ago, but there is a long way to go before we get to 'sustainability.'

Mt. Rainier is a streetcar suburb community on the edge of DC. It has a small urban core with an area plan which makes it attractive for developers such as Flywheel. They have done multiple projects in the town, including an abandoned lot on which they built four net zero townhomes, and a proposal for a Net Zero Main Street project.

The four net zero townhomes were built to passive house standard, which allows you to get to net zero when you add renewable energy generation. Each house has two solar panels, insulation, and specialized HVAC equipment. Net zero development is not as expensive or difficult as many think, it just requires specific design and construction parameters.

The net zero main street project (3300 Rhode Island Avenue) includes three buildings acquired by Prince George's County. Flywheel submitted a design concept to the County that combined solar PV and green roofing. These two seemingly competitive roof uses actually have synergies: the soil acts as ballast for the solar panels and cools the roof through evapotranspiration, allowing the solar to achieve 5-15% higher efficiencies. Eagle Bank partnered with them on the project and completely underwrote the concept. They also partnered with the local Ace Hardware, which was excited about the net zero aspect. The development would have also included an office for a local community group and a restaurant/cafe.

Net zero construction means that all of the work on the project will be green jobs. It is also low-impact development: they design the projects to be storm water neutral or positive with permeable surfaces, green roofing, cisterns, tree rehabilitation, native plants and bioswales in the public right-of-way. For more information contact John at: jmiller@flywheeldevelopment.com or see their website www.flywheeldevelopment.com.

Discussion

In response to a question about the hurdles in getting approvals for net zero projects, John responded that the projects do cost a bit more but create higher long term value for the property. There are some education barriers for contractors and permitting/code officials, but it is becoming more understood and practicable.

In response to a question about the storm water neutral/positive design features, John explained that they set up a small HOA to maintain the alley between the row homes, and a third party landscape firm does the maintenance.

A question was asked about the difference in incentive or willingness to do net zero between residential versus commercial customers. Homeowners are more willing to pay a premium for being green and the increase in long term appraisal value than businesses that rent their space. On the other hand, the commercial tenants in Mt. Rainer did really care about the net zero aspect of the project. Their typical project cost is 15-18 per square foot for office/tenant space, and net zero adds an incremental cost of less than 10%.

It was noted that this is a promising collaboration between Prince George's County departments, city planners, private developers and tenants/community members. What can local governments do to move this effort forward? Planned unit developments (PUDs) are a good way to encourage sustainability objectives and net zero can be included in the comprehensive plan. Other options are to change entitlement processes and site plans,

give developers extra density or expedite the permit process. Incentive programs that give developers extra density for achieving certain environmental standards, like Arlington's green building program, work quite well.

Arlington's program now includes an energy performance requirement and allows developers to get additional density for net zero projects. Most projects achieve LEED gold or above. Other opportunities include using PACE financing to give property owners a tax cut tied to observed or benchmarked energy performance. This is not currently permitted in VA by state law, but they are interested in doing it in the future.

Local governments can also help to further the proof of concept through pilot projects and requesting proposals for net zero projects. Prince George's County Redevelopment Authority is doing this at several sites. DHCD is starting a Living Building Challenge Design Competition, including 25 teams designing for 10-15 row homes in Ward 7.

6. 2012 Regional Greenhouse Gas Inventory

Steve Walz, COG Staff

Steve presented an initial update to the regional greenhouse gas inventory, and an assessment of the different methodologies used in the 2005 and 2012 inventories. We have revised the GHG inventory published in 2008 report using the newer MOVES 2010a model. The previous model was not well suited to GHG inventories. There are other methodological differences that make the inventories not exactly comparable. COG would like to do an informal peer-review of the inventories and methodologies and welcomes all comments and reviewers.

Based on the data we have, it appears that the region met its 2012 goal to reduce GHG to the 2005 emissions level or lower! The results show that we have reduced emissions from 74.02 MMtCO₂e in 2005 to 69.88 MMtCO₂e in 2012. This is a change from 16.02 MtCO₂e/capita in 2005 to 13.30 MtCO₂e/capita in 2012. There are not many changes to the sector proportions, which gives us a higher confidence in the results.

Differences in methodology:

- Airline miles: 2005 used a crude estimate, while the 2012 approach assigned passenger miles to origin jurisdiction to capture only trips from passengers in COG region by.
- RCI Fuels: the residential, commercial, industrial fuels category also includes non-road sources like: lawn mowers, construction equipment and, boats. In 2012 we used the proportion of households in each jurisdiction to do down-scale from state level data.
- Power Plants: In 2005, the inventory used WRI's method of allocating power plant emissions using a proportion for delivery to the COG region. In 2012 we used the actual electricity consumption numbers from utilities and EPA's EGRID subgroups for DC+MD and VA.
- Wastewater: in 2005 we used the EPA State Inventory Tool and in 2012 the ICLEI Wastewater emissions estimation tool based on treatment technology and population.
- HFCs: both inventories use total US HFC emissions from scaled to the region. In 2005 it was scaled by employment, in 2012 by population.

At this stage we only have the region wide inventory, but hope to have the data broken out for the ten major jurisdictions soon to enable comparisons to jurisdictions' GHG inventories.

Discussion:

BEEAC members noted that it would be very helpful to break the inventory results down in more detail to better enable local government staff to use the information. Analysis to pin-point what is responsible for the drop would be especially helpful. Major questions for COG staff to look into include: what is the relative impact of power sector fuel switching versus building efficiency increases? What was the impact of population growth and

VMT per capita? What was the impact of the recession, and as the regional economy recovers will the drop in GHG disappear?

Members asked what the on-road transportation increase was due to. It is a combination of population growth, congestion, and larger reductions in other sectors. Additionally the model MOVES 2010a does not include CAFE standards or Tier 3 fuels. When we revise the inventory using MOVES 2014, the on-road emissions estimates will likely drop significantly.

A breakdown by residential, commercial, industrial, and public government emissions would be quite helpful. To facilitate this, governments should provide data directly to COG on electricity and gas consumption, fleets, etc. BEEAC members were interested in seeing the glide path between 2005 and 2012, and how the 2012 number may change the path forward to the 2020 and 2050 goals.

Members recommended that COG also track water consumption on million gallon basis and show the energy use impacts of water consumption in the inventory. It was not shown separately in the inventory to avoid double counting because it is reflected in the energy sector already, but it could be calculated separately. Water utilities could provide consumption data to COG like the energy utilities do. Tracking the cost and energy, used by the water sector would be helpful to educate the public and businesses on water conservation.

7. Energy & Environment Subgroup Discussion

Steve Walz, COG Staff

Based on the subgroup's discussion at the February meeting, COG staff developed a second version of the strategy list divided into eight areas as follows:

- Location Efficiency
- New Buildings Design and Construction
- Existing Buildings Renovation and Retro-commissioning
- Building Operations and Maintenance
- Public and Private Built Infrastructure
- Energy Source and Supply
- Resource Recovery, Conservation and Management
- Awareness and Education

Discussion and Suggestions:

- Add to location efficiency: open space preservation policies as a tool
- Suggestions for New Buildings Design and Construction
 - Would be helpful to have separate commercial, government and residential goals for all the strategies
 - Define "net zero" – on site, or do RECs qualify?
 - Include water conservation in this category
 - LEED gets to non-energy metrics that could be desirable, rather than a pure energy standard. Interim goals, perhaps achieving Energy Star, would also be helpful.
 - Add enforcement of building codes to ensure expected savings are actually achieved. Virginia jurisdictions can't adopt more stringent codes, but they can work on enforcement.
 - Hard numbers on cost savings and GHG reductions will be important in order to get buy-in from elected officials and the public
 - Use performance-based rather than prescriptive goals
- For existing buildings: Do not separate construction/building and operations & maintenance efficiency improvements, some buildings will reach efficiency in different ways. It may be more effective and

easier to assess improvement using the current (2012) performance per square foot as a baseline and setting a standard of improvement.

- Add an interim goal to spur short term action
- Include training and education as a tool for each of the strategies
- On infrastructure: 5% efficiency improvements might not be aggressive enough
- For Energy Source and Supply: add targets for equipment, small/non-EGU point sources, and add district energy as a tool
- For Resource Recovery, Conservation and Management: add net zero waste as a strategy and waste to energy, methane recovery as tools
- On Awareness and Education: green procurement can span both commercial and public sector. It would be good to work on fully leveraging ESPCs to achieve many of these goals.

COG staff will send an updated strategy list to the group. Please send Amanda and/or Steve any additional comments. Regular updates will be provided as we work with the consultant to begin the evaluation.

8. Review Revised Draft Qualitative Evaluation Framework

Amanda Campbell, COG Staff

A revised evaluation framework has been posted to the subgroup and BEEAC websites:

<http://www.mwcog.org/uploads/committee-documents/bF1WXI1b20150318150834.pdf>. Feedback on this is also welcome.

9. Adjourn

Next MSWG Energy & Environment subgroup meeting: March 13, 2:00-3:30pm, by conference call.