Metropolitan Washington Council of Governments

BUILT ENVIRONMENT AND ENERGY ADVISORY COMMITTEE (BEEAC)

Meeting Summary: February 15, 2018

BEEAC Members IN Attendance:
Gina Mathias, Takoma Park (Chair)
Kate Walker, City of Falls Church
Tim Stevens, City of Falls Church, Sierra Club
Joan Kelsch, Arlington County
Kevin Milsted, Prince William County
Dyan Backe, City of Gaithersburg (*)
Lindsey Shaw, Montgomery County (*)
Mati Bazurto, City of Bowie (*)
Bill Eger, City of Alexandria
Najib Salehi, Loudoun County
Erica Shingara, City of Rockville (*)
Lisa Orr, Frederick County (*)
Emma West, WMATA

Additional Attendees:
Peter Langbein, PJM (*)
Peter Shogren, Fairfax County
Da-Wei Huang, Reagan National Airport
Walid Daniel, DMME
Bruce Campbell, Cpower/AEMA
William Marsh, Fairfax County
Jenn Hatch, DOEE
Helen Reinecke-Wilt, Arlington County (*)

COG Staff:
Leah Boggs, COG DEP
Jeff King, COG DEP
Maia Davis, COG DEP
Amanda Campbell, COG DEP
Tim Masters, COG DEP

(*) Indicates participation by phone

1. Call to Order and Introductions

Gina Mathias, City of Takoma Park, BEEAC Chair

Chair Gina Mathias called the meeting to order and attendees introduced themselves in person and by phone.

2. Approval of December 14, 2017 Meeting Summary

Gina Mathias, City of Takoma Park, BEEAC Chair

The meeting summary was approved by committee members.

3. COG Updates/Announcements/Jurisdiction Roundtable

BEEAC Committee Members

Jurisdictional updates included:

Gina Mathias, City of Takoma Park –

- City of Takoma Park aims to switch over to 100% renewable energy in an opt-in basis and has put out a request for proposal for renewable energy projects. At least four energy companies are planning to submit responses to the RFP with the goal of starting project development in the early spring.

Kevin Milsted, Prince William County –

- Prince William County is increasing its efforts to retrofit county facilities with LED lighting.
- They enrolled in a generator demand response program for four of their county buildings.

Bill Eger, City of Alexandria –

- The City of Alexandria is in the first phase of updating its action plan, which serves as their sustainability plan. The first phase should be finished in June. Second phase will begin in August.

Kate Walker, City of Falls Church –

- The City of Falls Church's Environmental Sustainability Council held a panel meeting to inform the economic development project near the high school at the west end of the city.

Joan Kelsch, Arlington County -

- Community energy plan put together five years ago – going to do an update starting this spring.
- PACE program is now up and running in Arlington. It's the first one in Virginia.

Peter Shogren, Fairfax County –
New energy database for users to see energy consumption for any Fairfax county government building and department throughout the county. Fairfax County Energy Dashboards have summaries using utility bill data for the last three or four years.

Mati Bazurto, City of Bowie –

- Recently installed the solar panels on Kent Hill. Now in the process of developing a solar array on the outskirts of Bowie.
- Bowie is looking to create an ordinance for EV infrastructure, particularly with charging stations in mind. There are some bills in the Maryland legislature that are pending. Once done, they will look at a regulatory approach to decide locations of charging stations.

Dyan Backe, City of Gaithersburg –

- Tuesday, February 20, the mayor and council should hopefully opt into the Montgomery County benchmarking ordinance. If they adopt the ordinance then benchmarking would be applicable and required in Gaithersburg, beginning with the 2019 submittal date.

Lindsey Shaw, Montgomery County –

- Montgomery County Solar Coop – if someone lives in Montgomery County and wants solar panels on their home this is a potential avenue.
- Maryland is setting up a battery storage coop – if someone already has solar panels on their home and want to add battery backup storage, there is a coop starting up for that, as well as State level incentives that are being paired with that as well – a tax credit.
- Registration has opened for the 2018 Montgomery County Energy Summit. There will be 17 education sessions. It will be in the Silver Springs Civic building. Government and Non-profit attendees get the early bird rate, up until the day before the summit.
- Montgomery County Green Bank is about to launch their first financing product for businesses that don't fall into the utility incentive program and are not able to take advantage of commercial PACE.
- Benchmarking law – recently Montgomery County did their first public disclosure of private building data, group one building data, 250,000 square feet or greater - data released last week.

Tim Masters, Legislative Update –

The Climate and Energy Legislative Committee (CELC) has been looking at bills in session in DC, Maryland and Virginia. The committee comments on bills that have direct impacts on member jurisdictions.

Virginia –

CELC commented on:

- an electric vehicle House bill and Senate bill regarding EV infrastructure – both passed in their respective houses
- a bill regarding replacement of outdoor lighting with LEDs – failed in the House
- on a bill that requires an electricity supplier to credit excess electricity to a school board for schools generating more electricity than they consume – passed in the House
- on a bill authorizing municipal renewable energy, net metered projects on government facilities – failed in the House

Other bills worth mentioning:

- There were some community solar bills, most of which have been continued to 2019.
- A few third party PPA bills. One passed – a pilot program. Another was continued to 2019.
- Big, controversial Virginia utility bill – passed in the Senate. In the House, it was passed with an amendment that had specific language to eliminate additional charges to ratepayers.

Maryland –

Process is a bit different and there is little to report, currently. CELC commented on:

- A bill pertaining to a change of date for when the Public Service Commission has to report the progress of RPS implementation – passed the Senate

Other bills worth mentioning:

- A few bills related to reserved parking spaces for EVs, as well as charging infrastructure deployment have been proposed. CELC will be holding a call in the coming week to discuss these bills further and see whether they will provide comment on any of them.
- A few renewable energy bills – six bills pertaining to the RPS in Maryland. There are others related to the standards themselves that the committee may comment on moving forward.
- The Clean Energy Jobs Act.

Yesterday, an energy storage bill from last year was enacted – it provides a tax credit for certain costs of installing battery storage systems. Maryland is the first state in the country to do this.

DC –

- Mayor Dowser has signed the public EV infrastructure expansion act of 2017.

Next week there will be another legislative committee call to discuss legislation, as the Maryland legislation session continues. If any of COG's members have legislation that they are interested in commenting on, they are advised to take it up with one of the members of the legislative committee. Members on the DC side include Mary Cheh, Edward Yim, Austina Casey, Stephen Gyor. On the Maryland side: Mary Lehman, Leta Mach, Al Carr, Roger Berliner, Erica Bannerman, and Veronique Marier. On the Virginia side: Penny Gross, Dan Sze, Sheryl Bass, Bob Lazaro, and Dale Medearis.

Amanda Campbell, Resiliency Update –
As a follow-up to the sustainable communities leadership academies, COG has been working on a resiliency framework for the region. In the next few weeks, COG will be updating BEEAC members about this and looking for input regarding possibilities to formalize the resiliency collaboration that the region has.

4. COG Sustainability Report

Amanda Campbell, COG

COG has been looking at their organization and their building from a sustainability perspective. The report is being finalized and should be provided electronically in a few weeks. Currently, COG is presenting findings of the draft report to the climate committees and hope to bring it to CEEPC and the COG Board this summer, after which COG can start implementing more sustainability actions which are ongoing. COG chose to use the Global Reporting Initiative (GRI) framework, which is a corporate sustainability disclosure system. The focus was on the environmental disclosures in this system. COG is a one third owner of the CPAS building and there are two other building owners. There are some things that can be controlled in COG's space, while others are controlled by the building – COG works with them through participation on the main building management committee, and those decisions must be made as a whole.

COG alone has about 125 staff. The building is 260,000 square feet. The energy supply is electricity-based. Achievements at the building level – water use and electricity use over the last few years have decreased. The benefits of several building improvements are being seen, such as lower energy use due to improvements to the HVAC system, the instalment of LED lights and more efficient water fixtures in bathrooms. Additionally, the building has a green roof, and also a green seal certified cleaning service. The building recycles 300 pounds of waste per day. Achievements at the COG level – there are good purchasing policies in place for paper and stationary. 80% of employees use alternative forms of travel to work. COG recycles their electronics. COG started a CSA benefit last

year. COG's fleet considers lifecycle cost and includes an electric vehicle and a hybrid as part of the three-vehicle fleet. There are two EV chargers. There is also a bicycle rack.

Some of the challenges – there are approximately 1,200 pounds of trash per day produced by the whole building. There is around a 20% recycling rate. COG's electricity mix is just the basic program through WGL Energy. The building has a higher energy use intensity than average for DC office buildings. Paper use isn't completely tracked. COG refresh is starting this year.

Recommendations at a higher level - Expanding sustainability outreach and communication and education among the employees, implementing sustainable meeting management policies, expanding access to sustainable transportation alternatives, purchasing more renewable energy, gather more data and explore deeper sustainability options such as solar panels on the roof, looking at the trade-offs between green roofs and solar panels. Developing the criteria for making these decisions will be important in this process. Obviously, cost is a factor and employee health and wellbeing, productivity, and the work of staff need to all be balanced. COG is aiming to finalize the report with CEEPC in July – it will be presented to CEEPC in March.

There is a building management team and COG's facilities director is the contact person on that team. Suggestions that COG has made about improving certain systems and looking at life cycle costs and energy savings over time has provided leadership and the building management team are receptive to those kinds of ideas. For example, the green cleaning, LED lighting, and striving for energy star certification were all suggestions that COG presented to the management team with some success.

The catering services that COG has procured in the past has focused on locally-grown food. Often it is a matter of cost. COG looks at locally-grown or locally-sourced or sustainable/organic produce – and has tested a few different sources. COG is also looking at a few different things as part of the renovations on the second and third floors, such as support for composting. COG has minimized the amount of food ordered for meetings. Encouraging staff and members to bring their own cutlery is also a great way to reduce waste.

5. GHG Emission Inventory

Maia Davis, COG

Staff are now preparing to present the draft GHG inventories to CEEPC and provide time for members to give feedback. The reason COG is doing a 2015 inventory and conditioning the 2005 and 2012 inventories is because COG is part of a national grant team under the US Department of Energy (DOE) C-LEAP program to develop inventories using the latest methodologies for community level inventories, and also to develop a GHG Drivers of Change model and toolkit to help local governments look at what the drivers of change in their local communities and inventories are.

Since October, COG has been working to align the inventory, not just with the US Community Protocol, but also with the Global Protocol. Some new non-utility fuel methodologies have been tested, as well as agriculture and rail methodologies. This time COG has 2005 draft inventories complete as well. COG entered all ClearPath entries for jurisdictions based on recalculations of updated global warming potential factors. ClearPath is the online tool used to calculate GHG inventories. COG has an umbrella account with all the local governments accounts within it. COG will provide a final spreadsheet for each jurisdiction's main local government inputs and results of each

inventory for each year. They will also provide fact sheets. In the summer, COG will release a report that talks about regional results.

The results for the region show that there has been a reduction in GHG emissions from 2005. Although, in 2015 GHG emissions increased slightly above the 2012 inventory. Wastewater data is still being updated and will be updated soon. Agriculture data will also be updated with a good methodology in place. Those will be included by the time of the CEEPC review. There are also some draft rail calculations in the 2012 and 2015 data because that is required for the Global Protocol.

The Drivers of Change model provides a waterfall chart depicting the change across inventory years. Weather, population growth, and growth in commercial buildings are the three major increases in the model that were identified. The major reasons for decreases in emissions include Vehicle Miles Travelled (VMT) per person reductions, decreases in on road transportation emissions, and the electricity fuel mix. The impact of local programs can also be seen with this model. The impacts of local programs can be calculated in the model to show how much impact a program has had compared to population growth and other factors. There is a tool in ClearPath that allows the user to test scenarios and forecasts. Since COG's members are already entered in ClearPath, they can go into the scenario tool and select the latest inventory and enter possible scenarios in there. COG is looking for feedback on these inventories. The current numbers will be final unless the COG team is contacted over the next month.

6. PJM Demand Response Program

Facilitated discussion on the implications of rule changes and implications and opportunities for local governments and large building portfolios.
(2017-2020 Regional Climate and Energy Action Plan Local Actions: 1j, 1k, 1l, 1m)

Peter Langbein, Manager, Demand Response Operations, PJM (via webinar)
Bruce Campbell, Board Member, Advanced Energy Management Alliance
Walid M. Daniel, Manager, Utilities and Performance, VA Department of Mines, Mineral and Energy

Peter Langbein, Manager, Demand Response Operations, PJM (via webinar)
Peter Langbein's team focuses on demand response (DR) at PJM, including policy, implementation, and administration and operation of resources in the PJM market. PJM operates a wholesale electricity market. Its members perform different roles, including electric distribution companies (EDCs), load serving entities (LSEs) and curtailment service providers (CSPs). LSEs are responsible for serving a loan for customers and CSPs are responsible for customers that do the actual load reductions, if they are participating in different wholesale markets. Because there are different retail market structures, this structured framework provides a lot of flexibility where one member may access the EDC, own the distribution system, serve the load as an LSE, and act as the CSP, doing different types of DR activity with their customers for PJM wholesale market obligations. One entity may do all three or there may be three completely different entities performing those three functions in various retail markets. PJM interfaces with those three different entities (EDCs, LSEs, and CSPs) and not directly with retail customers.

In the wholesale market, there are a variety of opportunities available for DR today. DR can participate in all of PJM's main wholesale markets, be it the energy market, which can include day ahead commitments or real-time dispatch. In the capacity market, there are requirements to respond and ensure the reliability of the grid or PJM has three different ancillary services, including day ahead scheduling reserves (the ability to respond within 30 minutes), synchronized reserve (10

minute spend market – either generation or DR can produce power and reduce load within 10 minutes), or regulation (the real-time movement of a resource – management of frequency control).

In the capacity market, DR participation has had many changes. PJM has transitioned away from having both annual and summer products to having an annual capacity performance' product only. PJM still has a product where a customer can reduce load in the summer and fulfill their commitment, but it is transitioning toward the requirement of generators producing power throughout the year and DR would need to reduce load year-round. There is the ability to leverage aggregation and have different customers do different things in different seasons and the ability to aggregate them into an annual capability. There is also the ability for DR resources in the summer to be able to aggregate with other types of resources (e.g. wind, battery, etc.).

Other changes include economic DR, which is the participation of DR resources in the energy and ancillary services market when it is economically feasible. PJM's entire energy market is moving from an hourly settlement, meaning average hourly locational marginal pricing (LMP) or wholesale clearing price, to "five-minute settlements". This is expected to be implemented in April this year. Additionally, PJM has price caps in the energy market. This is part of a FERC order that PJM received for all resources and this is how it gets applied to DR resources.

Emergency DR (also called 'load management') are the resources that have capacity commitments. PJM has test requirements for an emergency DR and if PJM does not dispatch these resources in a year, then they are required to test for an hour. Review of those test requirements is being discussed. PJM also has price responsive demand, which is really another way to reduce capacity costs. This is where customers guarantee that their load will be down when energy prices go up. Lastly, there is a lot of discussion around distributed energy resources (DER), which is reflective of behind-the-meter generation or storage. PJM is looking at facilities that have things like behind-the-meter generation and storage and reviewing the existing process, especially where the DR has capability beyond serving that native load to provide that output to the wholesale market.

Q: There are schools participating in demand reduction programs and one of the things that makes that possible is that they can do it in the summer when there are no students. Will the changes discussed have an immediate effect on the way that schools can participate in these programs?
A: If schools are participating in the capacity market today and if they cannot participate outside the summer period, then the schools would need to be aggregated with other types of customers or other types of capacity resources to be able to compile that annual capability that is now required by all resources in the capacity market. If they could not do that individually and could not aggregate with anybody, then there would not be an option in the capacity market for those schools. That capacity market requirement is now an annual requirement up at the wholesale level for the CSP and all their customers.

Q: Would the schools have to try and find someone to aggregate with by themselves. Or would the CSPs help them find somebody?
A: Typically, the CSPs are managing a portfolio of customers and that is one of the things they do. The annual requirement becomes effective starting in 2020/21. In the meantime, that summer product will still be available.

Bruce Campbell, Board Member, Advanced Energy Management Alliance
Bruce Campbell previously worked for Pepco for many years and now works for Cpower, which is a CSP. The Advanced Energy Management Alliance is made up of CSPs, as well as some large

companies, such as Walmart. They work to advance DR in regional transmission organizations (RTOs) and elsewhere.

The capacity market is the biggest element of CSPs' business. PJM is moving to an annual plan construct. CSPs aggregate customers in ways that will maintain some of the benefits and opportunities traditionally seen with the summer-only programs. There are limitations, however. There are not enough customers to offset all the summer peak consumption. Typically, large industrials are responsible for the peak winter loads. This is because their load is higher, but the way loads are measured is different in the summer than in the winter. Many large customers already manage their peak load down in the summer. Looking at that average then becomes the basis for many of the larger industrial customers to reduce their own capacity costs. The winter peak load looks at five peak days in winter, but it looks at the highest load hour on the day of the peak in the system, rather than the hour that the PJM system peaks, as in summer. That creates flexibility for customers to manage their total capacity of contribution. Aggregation allows maximization of the summary or winter capability. The DER element is seen by the industry as the opportunity for business, but also helps serve customers. The CSPs serve that space between the customer and the grid operator. DER requires that interface.

Q: It was an easy thing to do in the summer, but finding offsets during the wintertime is going to be a difficult challenge. Is there an expectation that the program will lose customers?
A: No. PJM is being pressured by states to do something better. They are looking for ways to enhance the summer capability.

Walid M. Daniel, Manager, Utilities and Performance, VA Department of Mines, Mineral and Energy
DMME has gone through a very long procurement process to secure a CSP. They received many applications, but Cpower was selected as the CSP. All the public facilities within the boundaries of the State of Virginia can use this contract and do not have to go through the procurement process. The main concern is the PJM grid system. It is probably the largest one in the United States with about 70 million customers over 15 states. Under this program, many of the customers participate in two major programs: the load program and the energy efficiency program. The load program is to curtail load during high demand, either by generation or reducing loads. Cpower has a subsidiary company that can take these small energy efficiency programs from the past four years, and they add how much load reduction has been created, which is then compensated for.

If a facility participates, they will get up to 85 percent of the earnings. This year DMME is paying $54,000/MW and a facility will get 85 percent.. For the emergency energy payment, the customer gets 75 percent, as it takes a lot more work for Cpower to calculate and qualify these projects. A test requirement is mandatory. Cpower and other companies that are in the demand response business will be finding ways to aggregate accounts and keep this program going. PJM has a big interest because this demand response program has been helping to reduce cost and build new facilities. The energy efficiency program goes through the same pricing process, as the load program.

Under the energy efficiency program last year, there were seven megawatts participating, including a total of 420 projects (including very small projects down to 50W). This year it will likely double to 15 megawatts.

Q: What types of facilities does Cpower work with? Are there parameters on size or type?

A: Any type of facility is eligible. The state has made it easy for all the state entities to join. Most government entities have their own procurement process. This is a great way to cut through some of the bureaucracy.

Q: Does participating in financial incentives for energy efficiency projects with the distribution utility restrict participation in PJM?
A: It can, but depends on whether the utility retains the rights to the energy efficiency measure. These things are not always clear.

7. Next BEEAC Meeting and Adjournment

Gina Mathias, BEEAC Chair

BEEAC solar market series workshop moved from March 15 to April 19. CEEPC is on March 28. Chair Gina Mathias adjourned the meeting.

All meeting materials can be found on the MWCOG website or by clicking the link - https://www.mwcog.org/events/2018/2/15/built-environment-and-energy-advisory-committee-beeac/

The next BEEAC meeting is March 15
The next CEEPC meeting is March 28.