Metropolitan Washington Council of Governments

# BUILT ENVIRONMENT AND ENERGY ADVISORY COMMITTEE (BEEAC)

Meeting Summary: April 19, 2018

**BEEAC Members IN Attendance:**
Gina Mathias, Takoma Park (Chair)
Kate Walker, City of Falls Church
Tim Stevens, City of Falls Church, Sierra Club
Chris Somers, Arlington County
Dyan Backe, City of Gaithersburg (*)
Mati Bazurto, City of Bowie (*)
Bill Eger, City of Alexandria
Najib Salehi, Loudoun County
Lisa Orr, Frederick County (*)
Dawn Hawkins-Nixon, Prince George's County DoE (*)
Susan Stillman, Community Enhancement Commission Vienna (*)
Rachel Healy, WMATA
Daniel Lee, WMATA

**Additional Attendees:**
Robert Stewart, Pepco
Scott Sklar, Stella Group/GWU
David Reed, Schneider Electric
Taylor Sloane, Fluence Energy
Sosina Tadesse, DC Government
Whitman Fulton, ConnectDER
Michele Peterson, Honeywell
Da-Wei Huang, MWAA

**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 February 15, 2018 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's 100 percent renewable electricity opt-in campaign is going to launch within the next month. Clean Choice Energy will be their partner and is providing a large discount. The goal is to encourage 25 percent of residential accounts to switch to 100 percent renewable electricity.

*Da-Wei Huang, MWAA –*

- MWAA recently finalized demand response program contract with CPower.
- Looking into distributed generation assets including battery storage options.

*Rachel Healy, WMATA –*

- WMATA is gathering recommendations from energy audit for implementation.

*Daniel Lee, WMATA –*

- There have been LED lighting upgrades on trains.
- WMATA entered contract with water treatment plants to improve efficiency of chillers.

*Bill Eger, City of Alexandria –*

- The City of Alexandria continues to update its action plan, which serves as their sustainability plan. The update is in two phases. Phase 1 should be finished this fall and Phase 2 should be finished in June 2019.
- On April 2, the Solarize Alexandria campaign launched and will run until May 31. This is a cooperative purchasing program for distributed solar energy resources.
- April 28, Earth Day celebrations to be held in Alexandria.

*Kate Walker, City of Falls Church –*

- The City will be undertaking a comprehensive update to natural resources plan to be approved in February 2019.
- Also, launched Solarize campaign in the City.
- Earth Day celebrations to include activities (e.g. stenciling on hydrophobic spray on sidewalks for the children).
- Arbor Day coming up. It is the City's 40th year as a Tree City. Falls Church was the first City in Virginia to celebrate it.
- The City is looking into impacts of fats, oils and grease in sewers.

*Mati Bazurto, City of Bowie –*

- The City Earth Day events every weekend for the month of April.
- Bowie held a successful ecofair on April 14.

- Groundbreaking of a new solar farm, which will produce 60 percent of the City's energy is set for mid-May.

*Lisa Orr, Frederick County –*

- The County is continuing power retrofit program.
- After May 31st, Lisa Orr will be transitioning out of the county government and will be working with a small, environmental non-profit called Mountainside Education and Enrichment. She will also continue working as the Sustainability Coordinator for the City of Burkittsville.

*Dawn Hawkins-Nixon, Prince George's County*

- The County is continuing to work towards expanding the urban tree canopy and has a number of tree planting projects going on this month.
- There are a number of cleanup activities going on in the next two weekends to reduce litter in and around Prince George's County.

*Dyan Backe, City of Gaithersburg –*

- February 20, the mayor and council opted into the Montgomery County benchmarking ordinance.

*Susan Tillman, Vienna*

- Solarize campaign launched.

*Daniel White, DOEE –*

- Solar For All initiative – working on achieving 100,000 households to take part – reducing bills for customers by 30 percent by 2032. For the initial phase, the initiative aims to get 100 megawatts of solar installed in the District between now and 2019.

**Tim Masters, Legislative Update –**

The Legislative Committee has been tracking legislation in the Virginia and Maryland General Assemblies, as well as in the DC Circuit. The General Assembly of Virginia began its Reconvened Session on April 18. The House and Senate will now be considering the Governor's actions on certain bills. In Maryland, April 28 is the final date for bills to be presented to the Governor. The Governor will then have until May 28 to sign or veto bills.

DC

Last month, Mayor Bowser signed the Electric Vehicle Public Infrastructure Expansion Act of 2017. It establishes an EV charging station pilot program and will place at least 15 publicly available charging stations in DC by January 1, 2019. The act also requires the DC Department of Transportation to report results of that program to the council. Also, earlier this month, a committee report was filed for the Solar Cooperative Association Expansion Amendment Act of 2017 and it had its first reading in the Council of the District of Columbia. This bill clarifies that homeowners associations and cooperative housing associations may not disallow owners from installing or using solar energy unless the prohibition is expressed in the association's articles of incorporation.

Maryland

Three EV bills: 1) EV reserved parking spaces, 2) EV charging infrastructure, and 3) HOV lanes for EVs and hybrids. The first two bills received unfavorable reports from the Environment and Transportation Committee. The third bill has been passed in the House and Senate. Three solar

facility bills: 1) solar photovoltaic recycling, 2) decommissioning and restoration of solar electricity generating facilities, and 3) notice of sale or transfer of solar facilities. The first bill received an unfavorable report by the Economic Matters Committee. The second bill was withdrawn. The Legislative Committee opposed those bills, as they established funds and surcharges. The committee felt that decommissioning was the facility owner's responsibility. The third bill passed the House. The Legislative Committee supported this bill.

Virginia
Regional Greenhouse Gas Initiative (RGGI) bill – prohibits Governor or any state agency from adopting regulations establishing a carbon cap and trade program or bringing about the states participation in a regional carbon market without approval of the House and Senate. This bill was passed, but Governor Northam has vetoed it. The Legislative Committee wrote a comment letter urging the Governor to veto this bill. Electric utility regulation bill – undoes a 2015 law that temporarily froze ratepayer rates for both Dominion Energy and Appalachian Power. They will have to refund customers some of those overearnings and some of the savings resulting from the recent federal tax cuts. The bill also mandates new spending on energy efficiency programs. This bill allows Dominion Energy to bury roughly 4,000 miles of powerlines at the ratepayer's expense. It allows utilities to write off certain costs. It also allows rate increases to pay for grid modernization efforts and renewable energy projects.

Amanda Campbell, Climate and Energy Leadership Awards –
COG is opening the application period for the Climate and Energy Leadership Awards on Earth Day. The application process will be the same as last year. COG is encouraging government organizations, NGOs, and education institutions to apply for the awards.

Leah Boggs, Fleets for the Future Update –
Accomplished primary goal of awarding and aggregating a bid for vehicles. Three vendors were awarded. There is a rider clause allowing other jurisdictions to put in vehicle purchases as well. The project has been granted an extension of six months with the likelihood of additional funds for administration being granted. This provides more time for putting out the aggregate infrastructure bid. Announcement of bid for vendors' response should be in May.

## 4. Solar Market Series Workshop 3: Technical Implications – Interconnection, Vehicle-to-Grid (V2G), Solar with Battery Storage and Microgrids

*Facilitated discussion about the technical considerations related to solar/PV systems, to include interconnection processes and timelines, the role of electrified transportation systems integrated with renewable-based vehicle charging systems, solar and battery storage, and microgrids.*
(Regional Action Plan link: Table 3, local actions 2c, 2d, 2h)

*Facilitator: Scott Sklar, The Stella Group*
*Robert Stewart, PEPCO*
*Taylor Sloan, Fluence Energy*
*David Reed, Schneider Electric*

*Scott Sklar, The Stella Group*
Microgrid capacity has grown from 4393 MW in 2014 to 12,000 MW today. GTM Research estimates that there are 19,000 MW of microgrid capacity today. The Energy Storage Association reports that grid-scale battery storage was 3.4 GW by the end of 2017, currently there are 6 GW of

battery storage installed, which is projected to increase somewhere between 25 and 40 GW by 2022. Codes and standards are beginning to evolve around both these technologies. For instance, The Institute of Electrical and Electronics Engineers (IEEE) issued its draft standard for specification of microgrid controllers (Std 2030.7). The Department of Defense is expected to spend over $1 billion on microgrid projects by 2026. There is a lot of growth in microgrids, as well as mandates and incentives for utility-scale battery banks. There are many different drivers by state legislatures, utility commissions, and the industry. The main drivers are fourfold: 1) power quality, 2) load management, 3) power liability, and 4) the shift from a grid approach to a more integrated and distributed system.

*Robert Stewart, PEPCO*
Across all operating companies that make up Pepco Holdings, Inc. (PHI), there are 54,726 energy metered customers as of April 1. This equates to 661 MW of solar. For Maryland and DC there are 20,796 energy metered customers – 214 MW. For DC specifically, there are 3,789 energy metered customers with 41 W of combined solar. They provide hosting capacity, which allows customers and developers to see how much additional capacity there is on the circuit that serves that location, on an address by address level. They are the only mid-Atlantic utility who provides that information today. They provide updates of this data monthly.

During a shoulder month (where the load is down and sun is up) on a local circuit that has high enough penetration of solar, there will be high voltage. If it goes above a certain limit, it can do damage to equipment. The amount of solar must be limited at these times. The distribution system is built to manage the peak. If it is not managed effectively, the system can become overloaded, which necessitates the safe and reliable management of the delivery of energy. To achieve this, Pepco is looking at three technology categories: 1) energy storage, 2) electric vehicles (EVs), and 3) microgrids. There is a lot of growth in electric vehicles. Pepco's concern with EVs is a regional or local problem at the residential transformer. Pepco expects to see a clustering of EVs in different neighborhoods, and this may overload residential transformers, which is what they are beginning to see. Replacing a transformer every time a customer buys an EV would drive customer costs up. Residential off-peak charging is optimal as infrastructure assets are will not be overloaded and will keep costs down.

Pepco is looking at time-of-use and smart charger technology to provide rebates. The smart chargers have a radio and the ability to manage the output of the charger (turning the charge up or down depending on systems capabilities). This, combined with a time-of-use rate, helps customers save money, but they can opt out of this if they prefer. Pepco also wants to look at multi-dwelling units, which are a nationally under-served customer base (i.e. people who live in apartments and condominiums). Addressing needs in apartment buildings and condominiums will require working together with EV charging infrastructure installers to figure out how best to manage loads in these situations with load requirements being analyzed, which can only happen after greater adoption of EVs.

Energy storage is another area that Pepco is working on. If Pepco can operate the technology without owning it they can balance power loads intelligently. Pepco has a number of microgrid projects that are beginning to move - one in Montgomery County and another in Prince George's County. Campus-style microgrids are behind a single meter and can serve multiple buildings. Public purpose microgrids, in contrast, can span miles to interconnect different loads. This keeps the focus on resilience. Providing support for critical infrastructure needs in the event of mass power outages is an area both the local governments and Pepco hope to address. Although Pepco will not own any of these generation assets, power sources include solar (with battery storage) and natural gas.

Something else included in this project is the deferral of an asset. There is a substation over a mile away, which was on schedule for having a capacity upgrade. This is no longer needed with the microgrid in place. The customers who are connected cannot carry all the costs, as these projects are expensive. Need broader customer base to also contribute, as well as other funding sources like grants. There is a lot of dialogue over utility ownership of storage assets and whether utilities can participate in wholesale energy markets.

*Taylor Sloan, Fluence Energy*
Solar plus storage is becoming important for two reasons - 1) mitigating the impacts of climate change and adverse environmental damage and adaptation to climate change, and 2) value deflation of solar power without storage capacity to distribute power when needed. The value deflation of solar is important because without a storage component there is a solar power ceiling at which solar would not be able to contribute more than 20-25 percent of energy in the grid. For cities, counties, or states that have ambitious renewable energy goals, deploying solar alone will not allow for the achievement of those goals. The first reason of adaption to climate change is important because it is already occurring. Resilience in the face of increasing natural disasters that leave many without power is something that is gaining greater attention.

At the Independent System Operator (ISO)-level, a grid that needs capacity and has renewable energy goals can build a solar peaker (which is essentially solar plus storage) instead of building a gas peaker. At the network-level, when a neighborhood installs solar PVs, voltage issues can impact the distribution feeder and storage can solve these issues and provide an option value. At the facility-level, energy storage provides resilience against adverse conditions. For example, a water treatment facility in New Jersey lost power when Hurricane Sandy hit. It could either backup the toilets or discharge untreated sewage into the river. The facility discharged millions of gallons of untreated sewage into the river. Thereafter, the treatment facility decided to install a microgrid that could give them 10 days of power without any outside resources to make sure that those events would not be repeated. The benefits are also felt without any outside disaster, as the facility can do demand reduction when there is a grid connection, thereby saving them money.

*David Reed, Schneider Electric*
Many of the existing energy assets currently in many communities and facilities have a lot of value, but function in a very siloed way. Distributed energy resources installations present viable opportunities to incorporate a microgrids. The technology integrates assets and provides functionality to add new distributed energy resources in a way that allows it to be controlled as one single-based electrical energy infrastructure. This will allow for the capability of determining the best time to buy, sell, store or discharge energy. Once this is developed, the microgrid functions to protect that facility in island mode.

A few trends today include the “three Ds and more E”. Digitization of many components of the economy is making it increasingly beneficial to digitize much of the energy data on the grid via smart meters. Decarbonizing is another factor driving these changes. Decentralization of energy through distributed resources is becoming more cost effective. These are major trends occurring today, alongside the need for more energy. These are the “three Ds more E”.

Montgomery County started working with Schneider Electric and Duke Energy Renewables to take a power purchase agreement with the ability to accommodate combined heat power or other assets advanced controls and the improvements necessary to the building to be able to deliver the power effectively. That’s where the microgrid comes in. All governments tend to be cash poor, even

relatively affluent ones – this was a great way to operationalize those costs, instead of having to draw down on our cap. This approach delivers energy as a service, and the project also allowed for necessary infrastructure upgrades, as well as adding new solar capacity and combined heat power generation projects, and the advanced controls and monitors for islanding the microgrid when required.

The objective of this type of strategy is to monetize the capital expenditure and operating expense over the course of the contract to deliver that as a service back to the particular host client for whatever their necessary needs are to achieve specific goals. The benefit to the host plant is that it gives them tailored solutions for what their needs are, guaranteed outcomes, and the delegation of complexity or the transfer of risk, depending on the type of financial opportunity and the structure for the host clients.

*Comments and Q&A*

Q: Depending on whether a PPA or shared savings or leasing or rate-based approach is taken, and how the project is monetized, how reliability, resiliency, power quality, and load management are valued – is there any silver bullet for these types of projects?
A: Having a client with clear goals and objectives from the very beginning makes it incredibly easy for the developer. Knowing what the project hopes to benefit as well. Joint ownership is also something that may make the process easier.

Q: How can these projects be made more economical, especially as these are usually expensive projects to undertake?
A: The potential frustration is not uncommon in the marketplace. The goals and objectives of the client become important here. A lot of clients are excited about the potential of these technologies, but it's about looking at whatever the energy mix is for the physical plan or for the community, as well as what the long-term goals are. Taking that same initial thought process that couldn't seem to get anywhere, and expanding upon it with the client and with the utility can lead to a much more attractive, financially feasible opportunity. There are also a lot of other costs that need to be included in the analysis (e.g. reduced peak loads, seasonal power rates, the amount of diesel that is relied on, etc.). There are many other factors to consider like continuity of operations and safety. For Montgomery County, it was not about return on investment. The costs were certainly comparable, but adding resiliency was the objective.

## 5. Next BEEAC Meeting and Adjournment

*Gina Mathias, BEEAC Chair*

BEEAC does not have a meeting in May. 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/2018/04/19/built-environment--energy-advisory-committee-beeac-meeting-and-resf-12-energy-work-group-meeting-energy-green-building-renewable-energy/
*The next CEEPC meeting is May 23*
*The next BEEAC meeting is June 21.*