DrinkerBiddle&Reath LLP

C. Baird Brown
215-988-3338 Direct
215-988-2757 Fax
baird.brown@dbr.com

Law Offices
One Logan Square, Ste. 2000
Philadelphia, PA
19103-6996

(215) 988-2700 phone
(215) 988-2757 fax
www.drinkerbiddle.com

CALIFORNIA
DELAWARE
ILLINOIS
NEW JERSEY
NEW YORK
PENNSYLVANIA
WASHINGTON D.C.
WISCONSIN

February 26, 2016

VIA ELECTRONIC FILING AND HAND DELIVERY

David J. Collins
Executive Secretary
Maryland Public Service Commission
William Donald Schaefer Tower
6 St. Paul Street, 16th Floor
Baltimore, MD, 21202

Re: State of Maryland Public Service Commission—ML#180913—Comments in Response to Baltimore Gas and Electric Company's December 18, 2015, Public Purpose Microgrid Proposal

Dear Secretary Collins:

This firm represents The Microgrid Resources Coalition ("MRC"). The MRC is pleased to submit its enclosed Comments in Response to Baltimore Gas and Electric Company's December 18, 2015, Public Purpose Microgrid Proposal.

Please feel free to contact me directly at the telephone number above.

.

Very truly yours,

C. Baird Brown
Attorney for the MRC

Established 1849

STATE OF MARYLAND
PUBLIC SERVICE COMMISSION

ML#180913

COMMENTS BY THE MICROGRID RESOURCES COALITION IN RESPONSE TO BALTIMORE GAS AND ELECTRIC COMPANY'S DECEMBER 18, 2015, PUBLIC PURPOSE MICROGRID PROPOSAL

Dated: February 26, 2016

1. Introduction

The Microgrid Resources Coalition ("MRC") hereby files its comments in connection with Baltimore Gas and Electric Company's Public Purpose Microgrid Proposal (the "Proposal") filed on December 18, 2015. The MRC neither opposes nor wishes to comment directly on the merits of the Proposal beyond praising the effort to explore microgrid deployment options. Instead, the MRC makes this filing in response to the Public Service Commission's ("Commission") request for comments from "any other interested party" addressing matters related to the Proposal and other "previously identified issues,"[1] including microgrid-related policy issues raised by (a) the Resiliency Through Microgrids Task Force Report issued June 23, 2014 ("Task Force Report") and (b) prior Commission proceedings.[2]

The Proposal responds in part to issues raised and recommendations made in the Task Force Report. To the extent that the commission will be addressing policy issues discussed in the Task Force Report for the first time and may be setting precedent for microgrid development in Maryland, the MRC wishes to address several broad implications of the report as background for the Commission's planning for the implementation of microgrids. To avoid confusion in this regard, the MRC respectfully suggests that the Commission open a separate docket to address and collect comments pertaining to the microgrid-related policy issues raised by the Task Force Report and prior Commission proceedings that may otherwise be tangential to the merits of the Proposal itself. It also respectfully requests that the Commission not make broad policy determinations in this docket without an opportunity for a wider discussion of the issues.

The MRC is a consortium of leading microgrid owners, operators, developers, suppliers, and investors formed to advance microgrids through advocacy for laws, regulations and tariffs that support their access to markets, compensate them for their services, and provide a level playing field for their deployment and operations. In pursuing this objective, the MRC intends to

---

[1] Commission, *Letter to Daniel W. Hurson, BGE Legal Department, and other Interested Parties*, ML#180913, (January 16, 2016).

[2] *See, e.g.*, Commission, *In the Matter of the Merger of Exelon Corporation and PEDCo Holdings*, Inc., Case No. 9361, Order No. 86990 (May 15, 2015) ("Prior Order").

remain neutral as to the technology deployed in microgrids and the ownership of the assets that form a microgrid. The MRC's members are currently engaged in a variety of microgrid-related activities with connection to PJM service territory generally, and Maryland specifically.[3]

The MRC applauds Maryland's recent efforts towards facilitating deployment of microgrids. Microgrid development has the potential to:

- empower customers to deploy distributed generation and energy management resources to achieve cleaner, more economic energy strategies; and
- play a companion role in the revitalization of grid infrastructure to produce a resilient, self-healing grid.

The MRC also strongly supports the evolution of electric distribution companies in Maryland ("EDCs") to support the achievement of these microgrid potentials, and we favor incentive compensation for EDCs to support those initiatives. In anticipation of a new docket, the MRC respectfully offers an overview of concerns raised by the Task Force Report.

2. **Microgrids Have Multiple Benefits**

The Task Force Report focuses primarily on the resiliency dimension of microgrid deployment and the development of what it calls "public purpose microgrids."[4] While resiliency is a primary benefit provided by microgrids, the MRC believes that an exclusive focus on this benefit actually limits the ability of microgrids to achieve resiliency goals and fails to recognize that a microgrid undertaken solely for resiliency purposes is unlikely to be self-funding in any meaningful way. The economic, resiliency and environmental benefits of microgrids are mutually reinforcing. For instance, microgrids can provide products and services to EDCs and PJM resulting in revenue streams to support the development of more robust and resilient systems. Microgrids implemented to meet environmental goals in a carbon constrained world

[3] The Microgrid Resources Coalition is actively engaged in advancing the understanding and implementation of microgrids across the country, including in Maryland. MRC members hold significant energy assets connected to the PJM grid, provide energy generation and supply services, and are exploring the potential for microgrid construction and ownership in Maryland. Members of the MRC include: Anbaric, ICETEC, Concord Engineering, The International District Energy Association, NRG, and Princeton University.

[4] *See*, Task Force Report at i.

help the economic and resilience goals of the grid. Serving one or more customers with significant thermal loads through the same microgrid can buttress resiliency by sharing system capital and operating costs and permitting the coordinated management, and market optimization, of thermal and electrical loads. In order to achieve widespread resiliency benefits at the lowest cost, Maryland should take advantage of all of the functions of microgrids.

The Task Force Report also adopts a definition of the term "microgrid" that is focused entirely on the microgrid's ability to island from the larger grid and act as a local control area.[5] While we agree with the Task Force Report definition to the extent that it describes a microgrid serving as a micro control area,[6] we believe that the definition ignores microgrids' ability to sell services to the larger grid and the opportunity for smart co-management of electric and thermal loads. The proposed docket should explore a variety of potential microgrid configurations and purposes and the ability of those purposes to be mutually supporting.

3. **Microgrids Empower Customers**

First and foremost, microgrids empower customers. Customers have multiple energy needs, including high-quality, reliable, low-cost electricity, but also heating, cooling, hot water, and steam for specialized processes. They have choices of energy sources, including gas, electricity, geothermal, solar, and biomass, and through thermal and electric storage and equipment optionality (such as steam vs. electric chillers) can optimize among those sources. Customer decisions about usage of other utilities, such as water and sewer services, are often integrated in the decisions about energy use. Those uses may soon expand to include wide use of electric or plug-in hybrid vehicles. Customers also frequently have non-monetary goals, such as

---

[5] *See, id.* at 1, 7. ("A 'microgrid' is a collection of interconnected loads, generation assets, and advanced control equipment, installed across a defined geographic area, that is capable of disconnecting from the macrogrid (the utility scale electric distribution system) and operating independently. A microgrid operates within a clearly defined electrical boundary that can act as a single controllable entity with respect to the grid and can connect and disconnect from the grid to enable it to operate in both grid-connected or island mode.")

[6] The MRC defines a microgrid as a local electric system or combined electric and thermal system that: (1) includes retail load and the ability to provide energy and energy management services needed to meet a significant proportion of the included load on a non-emergency basis; (2) is capable of operating either in parallel or in isolation from the electrical grid; and (3) when operating in parallel, can provide some combination of energy, capacity, ancillary or related services to the grid.

decreasing their carbon footprint. Customers generally are the only ones that can effectively make integrated choices between energy sources, between modes of operation, and between monetary and non-monetary goals for their energy usage. Microgrids can be deployed in a wide variety of configurations capable of providing a range of services that can be tailored to customer requirements.

4. Microgrid Performance

Microgrids achieve energy efficiency levels far superior to conventional generation thanks to their ability to employ sophisticated and flexible technology in response to specific load configurations. Using cogeneration to serve balanced electric and thermal loads, microgrids can achieve generation efficiencies above 80%, compared to around 30% to 50% for conventional generation. In addition, including renewable energy allows microgrids to undertake flexible hybrid generation operations. Using electric and thermal storage capabilities, a microgrid can provide local management of variable renewable generation, particularly on-site solar. By "smart" management of thermal loads, microgrids can effectively use buildings themselves as thermal storage to manage load shape. These and similar efficiency and energy management strategies not only save money but also significantly reduce the environmental impact of providing energy services.

In addition, customers served by microgrids typically make substantial investments in energy efficiency. They adopt passive measures that reduce energy consumption, and more efficient HVAC and other systems that, when coupled with sophisticated controls, allow them to manage their load shape as well as further reduce load. These investments are made to operate in tandem with their generating and thermal generating systems. The microgrid context makes them economic.

5. Microgrid Services to the Grid

The same flexibility that provides benefits to their hosts makes microgrids uniquely suited to create efficiencies for the grid. Microgrids moderate power prices and grid congestion by efficiently shifting load to times of lower demand and pricing and by locating generation closer to loads. Microgrids can make it economically feasible to place generating capacity in congested areas of the grid and, from a planning perspective, can reduce contingencies that

threaten grid stability. Through fine tuning its own generation and load, a microgrid can shape its system profile to not only provide traditional demand response or ancillary services, but a wide variety of load and generation modification services ("Profile Products") to the grid pursuant to long term contracts with the EDC, a third party, or in response to real-time dispatch or market signals. Microgrid Profile Products can be unique, customizable solutions to localized planning and operational challenges. Microgrids employing multiple energy management technologies can simultaneously provide multiple services using multiple dynamic objective functions. Microgrid resources make the operation of the grid more competitive and provide EDCs and PJM with advanced capabilities to ensure distribution network reliability and service quality.

6. **Regulation of Multi-Customer Microgrids**

The Task Force Report acknowledged that many single customer microgrids are already operating in Maryland.[7] The Maryland Public Utilities code definition of Electric Company excludes on-site generation[8] and allows for continued expansion of single customer microgrids, including ones operated by a designee of the owner.[9] The Task Force Report, however, concluded that multi-customer microgrids including "New Asset Microgrids" ("NAMs"), which involve new non-EDC distribution assets, and "Local Microgrid Operators" ("LMOs"), which utilize existing EDC assets, may not be undertaken without new statutory authority.[10] While we agree that a NAM could not construct developer-owned distribution lines that cross public rights of way under existing statutory authority, we respectfully disagree with the remaining conclusions of the Task Force Report. The Maryland Public Utilities code defines "electric company" as an entity which "physically transmits or distributes" electricity to a retail customer, subject to certain important exceptions.[11] The two key exceptions for the purpose of discussing

---

[7] *See*, Task Force Report at 7-8.

[8] *See*, Md. PUA § 1-101(h).

[9] *See*, Md. PUA § 1-101(h)(2)(i)(2); Md. PUA § 1-101(h)(2)(iii).

[10] Task Force Report at 38-39, 43-44.

[11] *See*, Md. PUA § 1-101(h): "Electric company" means a person who physically transmits or distributes electricity in the State to a retail electric customer.

microgrids are (1) an owner or lessee entity that supplies electricity and electric supply services to occupants of a building solely for use by the occupants ("landlord-tenant" exemption[12]); and (2) any on-site generation.[13] Even though the scope for NAMs is fairly constrained, microgrids that serve newly developed industrial, commercial or multi-family projects would typically be developed on commonly owned land and would be eligible for one of these exceptions.[14] These are a potentially significant source of new microgrids. By contrast, we believe that LMOs do not face significant statutory hurdles.

As the Task Force Report indicates, a microgrid that serves multiple EDC Customers sits "on top of" the grid.[15] The EDC generally owns and maintains the wires and franchise rules raise hurdles to a microgrid adding new ones.[16] The EDC interconnects any included generation in the microgrid as it would any other generation, taking into account the overall controls provided by the microgrid. The EDC meters and bills its customers and retains the duty to serve as the provider of last resort. It serves its customers in ways that do not fundamentally change with the superposition of the microgrid except when the microgrid is in island mode. In grid connected mode the load of the included customers may be self-provided by individual

---

(2) "Electric company" does not include:
(i) the following persons who supply electricity and electricity supply services solely to occupants of a building for use by the occupants:
1. an owner/operator who holds ownership in and manages the internal distribution system serving the building; or
2. a lessee/operator who holds a leasehold interest in and manages the internal distribution system serving the building;
(ii) any person who generates on-site generated electricity; or
(iii) a person who transmits or distributes electricity within a site owned by the person or the person's affiliate that is incidental to a primarily landlord-tenant relationship.

[12] *See*, Md. PUA § 1-101(h)(2)(iii).

[13] *See*, Md. PUA § 1-101(s):"On-site generated electricity" means electricity that:…
(2) is generated at a facility owned or operated by an electric customer or operated by a designee of the owner who, with the other tenants of the facility, consumes at least 80% of the power generated by the facility each year.

[14] *See*, Md. PUA § 1-101(h).

[15] Task Force Report at vi, 56, and 58. ("For LMOs, EDCs will continue to own underlying distribution assets and will be subject to the PSC's traditional ratemaking process. LMOs will be a service provider on top of those assets, similar to a competitive electricity supplier").

[16] Task Force Report at 43-44.

customers within the microgrid, or met by the developer or third party who is a licensed Electricity Supplier who in turn may purchase at wholesale from included generation. This is essentially unchanged by the existence of the microgrid. It is also essentially unchanged in island mode in the sense the EDC's wires are still providing the distribution function.

7. Public Purpose Microgrid Planning

The Task Force Report's conclusions with regard to the planning of public purpose microgrids are directed toward ensuring that (1) microgrids are "situated in population centers where they are best able to serve the public in emergency situations,"[17] and (2) local governments and emergency managers adequately coordinate with microgrid providers for services during outages.[18] That recommendation is appropriate as far as resiliency is concerned, but fails to take into account the role that the additional benefits of microgrids, as identified above, play in developing a full range of siting criteria for microgrid planning.

For these reasons, the planning process for microgrid-related policymaking should include identification of places where support for the grid is needed *in addition to* resiliency opportunities. We believe that development or procurement by EDCs of microgrid services sufficient to provide such support should involve encouragement of creative proposals with diverse structures.

8. Long Term Contracts Can Also Support Microgrids

The Task Force Report seems to ignore the possibility of long term contracts supporting microgrid deployment in favor of tariffs alone. For instance, the Task Force Report recommends a tariff study be conducted to examine how to value distributed generation systems and microgrids and to serve as a starting point for the Commission to develop tariffs for microgrids.[19] In contrast to tariffs, we identify two possible ways that the Commission could encourage proposals for the types of creative solutions discussed above to be brought forward during the planning process.

---

[17] *See,* Task Force Report at 20.

[18] *See, id.* at 21.

[19] Task Force Report at 18, 50-52.

One way is through EDC RFPs that arise from the EDC's planning activity and are needed to meet urgent priorities. The MRC believes RFPs can be valuable if they identify problems and broad parameters for solutions, but do not seek to impose particular technology solutions. Private respondents to RFPs will often have more information about technical solutions than the EDC. In addition, because microgrid providers may themselves be major customers or have long relationships with major customers, they may well have more information than the EDC about the economics of solutions that depend on optimizing one or more customers' systems to respond to the EDC's planning and operational needs while also serving the customer's needs.

The MRC also suggests the consideration of a process for unsolicited proposals from microgrid providers to meet needs identified in an EDC's distribution system plan. In particular, we suggest a model based on Virginia's Public Private Transportation Act, which allows private developers to make unsolicited proposals to resolve transportation system issues identified in state and regional transportation plans. This statute permits, but does not require that unsolicited projects be bid out before they are awarded, in the discretion of the relevant public planning agency. In this context, we assume that the Commission would either directly approve or give policy guidance on when an EDC would be permitted to proceed with a non-competitive procurement based on factors such as the quality of the proposal and the urgency of the need. This has been a successful model in Virginia for over 20 years.

Whether the EDC initiates an RFP or responds to an unsolicited proposal, the result will be negotiated contractual arrangements that form a "partnership" between the EDC and the microgrid provider. This "EDC/private partnership" is analogous to public/private partnerships that are often used to provide crucial infrastructure for municipal services and transportation. These contractual arrangements spell out not only the infrastructure to be constructed but also the terms of operation including the services to be provided by a microgrid and the compensation for those services – essentially a negotiated tariff. It will be important not to force such arrangements into a rigid set of service definitions. As discussed above, microgrids can provide Profile Products that are at least as varied as can be provided by a generator, including rapid response, steady state operation, timed ramping, and providing regulation around any agreed

load and/or generation profile. These "Distribution Support Solutions" can be designed to meet the particular needs of the distribution system in emergencies or in daily operation.

As an example, an EDC could accept proposals from three microgrids to provide generation/load reduction to support a substation during critical periods as an alternative to distribution system reinforcement. The contract could call for response in a local crisis (not just peak system demand) and require that maintenance schedules between the three resources be coordinated. Such contracts can also specify specific liquidated damages for non-performance, which can provide a much finer tuned response than permanent adjustment of demand charges. As an overall observation, the grid pays demand response the cost of its inconvenience. It pays generators for meeting grid needs. A microgrid gets paid for sophisticated flexibility in simultaneously meeting grid and customer needs. More broadly, EDC/private partnership contracts could allocate the risks and benefits of long term investment appropriately among the parties. While the contract may provide specific payments for services that are guaranteed for the financing term of the project, the investment will also be supported by value provided to microgrid customers, and ratepayers bear less risk of stranded assets. EDC/private partnership projects would attract more risk-taking capital from third parties and also more patient capital from certain customers than utilities can attract.[20] Under this construct, payments by the EDC for microgrid Distribution Support Solutions would be fully recoverable from ratepayers.[21]

9. **Conclusion**

The MRC thanks the Commission for considering the establishment of a separate docket to examine the conclusions of the Task Force Report and the regulatory issues facing microgrid deployment in Maryland. We hope the brief discussion of issues and initial feedback presented

---

[20] As a general matter, long-term contracts for Distribution Support Solutions will support financing of microgrid assets in a way that PJM markets cannot. A long-term contract allows the EDC to take responsibility for a portion of the invested capital, but only to the extent that the microgrid actually delivers the services.

[21] One important corollary is that to the extent that a microgrid is not providing specific grid support services pursuant to a contract (or offering them in other PJM or EDC markets) it must be free to optimize value for its customer or customers. That value is supporting the capital investment. It is not the job of the microgrid to optimize the grid – rather it is the job of the microgrid to provide contracted services when called upon by PJM or the EDC.

in these comments help to highlight some of the Commission's options to foster microgrid deployment.