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Ms. Brinda Westbrook-Sedgwick
Public Service Commission
Of the District of Columbia Secretary
1325 G Street NW, Suite 800
Washington, DC 20005

Re: FORMAL CASE NO. 1163, IN THE MATTER OF THE INVESTIGATION INTO THE REGULATORY FRAMEWORK OF MICROGRIDS IN THE DISTRICT OF COLUMBIA

To the Commission:

I am providing these comments in response to the Notice of Inquiry of 17 July 2020 as a private citizen and a long-time resident of the District of Columbia. I have worked as a Microgrid Architect, developing projects and policies across most of the states in the Northeast, with some involvement nationally and internationally, and of course with much of my focus here at home in the District. Having been involved in this field since 2004, I believe I have longer experience, on a greater variety of projects, than anyone else in DC. I am not a lawyer, and do not speak the language of lawyers. All I can offer is real-world experience of what actually works commercially, and therefore what the regulations can look like, while still realizing the benefits microgrids can offer. I hope these comments convert that hard-earned experience into something helpful to the Commission.

One prefatory note about the frame through which I view the question of appropriate regulation. These comments do not provide any description of the benefits of microgrids. First, this NOI did not ask for that information. Second, a voluminous literature already documents those benefits. Third, and most important, the focus of my comments are for commercially developed microgrids. (Microgrids owned or operated with Pepco's participation are a separate and interesting question, but can be approached within existing regulations.)

If a commercial site doesn't offer significant benefits to end-users and investors, it simply won't get built. So for any real case, we're talking about microgrids that by definition offer improvements to energy costs, reliability and resiliency, and/or sustainability. Most of those benefits also accrue to the broader community, even if some are not monetized today – for example, a cluster of users that can continue to provide critical services during a regional blackout, or the carbon reductions from integrating cleaner distributed generation. Even a project that at worse merely reduces utility bills for the particular end-users served by that microgrid, by definition still offers economic development benefits to the District as a whole, by making our community a cheaper place to live and do business.

I therefore take serious, concrete benefits as a given within this framework. In that case, any particular regulatory burden should only be imposed on the basis of some over-riding justification. Otherwise, in a nascent market that must already overcome a lot inertia and business-as-usual, any "nice-to-have" regulations would simply deny District residents those benefits. I can personally attest to the fact that

today's environment of regulatory uncertainty has deterred multiple projects that would have otherwise provided significant benefits. I sincerely hope that the swift result of this proceeding will be to remove such barriers.

(1) What regulations or policies should the Commission consider for microgrids? Should a light touch regulatory framework be considered? What components would be included in such framework?

Light-touch regulation is an appropriate near-term framework for microgrids in the District. For long-term approaches, see the conclusion to these comments below.

Within a light-touch framework, different categories of microgrid may be compatible with different regulatory elements. I will describe candidate categories below. But first, it is important to communicate why the categories and regulations most be clear and predictable: from a commercial perspective, measures that require case-specific approvals represent a regulatory failure.

Early-stage project development is funded essentially by pure risk equity, whether from the site host, government grant, or outside investors. Such funds are extremely expensive and scarce, with very long payback periods under the best of circumstances. Contingent or discretionary regulatory determinations usually require submissions with project details. Those details aren't known at the beginning, and the expense of making the submission can't be justified at the beginning, so the regulatory outcome won't be known until later in the process. But "later in the process" won't happen, because the risk of disapproval will scare off that pre-development funding.

For this reason, any categorization or applicability of regulations should be based solely on clear objective criteria, safe-harbor specifications, or deterministic check-lists. I urge the Commission to tailor regulatory requirements with this reality in mind. Clear criteria and regulatory certainty are essential to enable significant investment in clean energy infrastructure to support our communities. Too much discretion, or contingency, or the potential for lengthy delay, means no investment.

The only realistic alternative is to follow in the footsteps of several other jurisdictions and offer ongoing funding for early-stage development – at least $100k per site for a screening study, and on the order of $500k for more extensive development, to get to the point where regulatory hurdles can be cleared and private capital can take over. In my opinion, the first path is the better deal for District ratepayers (even though I might personally benefit more from the latter).

Matching microgrid categories with appropriate regulations

These recommended categories are differentiated by the appropriate level of regulation they would see. Other characteristics such as size, ownership, or crossing public roads might seem relevant, but do not ultimately drive decisions about how much protection end-users need from the Commission.

(Note: the concrete examples offered here do not imply any participation or interest from the sites named, and are provided simply for the purposes of illustration.)

Category 1: Voluntary acceptance of full regulation, including rate-making

Any microgrid that meets the statutory definition of a public utility should have the ability to voluntarily accept the same regulations that Pepco currently follows, including Commission oversight of tariffs in return for a guaranteed rate of return.

Category 2: Campus Systems

The Commission's NOI quotes the statutory definition of an electric company, and notes the exception for an "internal distribution system". This exception is applied today in two different contexts. First, a master-metered or sub-metered building or connected cluster of buildings (for example, CityCenterDC). Second, a campus that owns its own electric distribution network. For example, Howard University has a single point of connection to Pepco's grid, with University-owned medium-voltage feeders then distributing electricity, including across public streets, to all users on campus. Incidentally, those users can include some minor commercial customers, from the coffee cart in the lobby to the campus book store.

A "campus" microgrid would reflect the same idea as the existing exception, applying to:

- Any *single* building, without size limitation
- A well-defined small number of physically *contiguous* buildings (capped at e.g. six buildings)
- A well-defined small number of "large sophisticated users" (see below) *within a clear boundary*
- Any of the above, plus participation by a non-contiguous end-user that is a *public entity*.

Although likely to be a minority of microgrids, the last case is worth explaining. Consider for example a large new mixed-use development on U St NW that decides to implement a microgrid with a strong resiliency component, i.e. that is designed to stay up and running during a broader utility outage. Such a microgrid should be able to run a wire to the nearby 3rd District police station, or to Engine Company 9, to keep that critical infrastructure available to the community during an emergency, without being moved into an entirely different regulatory category. Any commercial arrangements for providing that emergency service should not require Commission oversight, since the agencies involved are sophisticated entities with structured decision-making, with the resulting terms being necessarily transparent and subject to Council (or if it's a Federal agency, then Congressional) oversight.

<u>Definition of "large sophisticated users":</u>
These users can be assumed to be capable of evaluating the terms of any proposed microgrid, without need of consumer protection from the Commission. They are used to dealing with complex transactions, and have formalized internal decision-making processes with oversight or audits. Even if the required expertise isn't in-house, these users have high enough energy costs to justify hiring experts. An end user would be in this category if they are a single managing entity meeting any one of a set of simple objective criteria such as:

- Over 500kW peak electricity demand
- Over 100 master-metered residential units
- Over 100,000 sf gross building area

As one example, consider a hospital that contracts for on-site power generation. The hospital relies on bi-lateral contracts, and does not rely on the Commission to back-stop those contracts today. Patients of course who see energy charges bundled into their medical bills have no say and no regulatory recourse. Now if two neighboring hospitals decide to share the output of generation sited on one of

their properties, and enter into various contracts to gain the benefits of that arrangement, why should the regulatory situation be any different? Earlier discussions have often taken for granted that there is a bright line between single-user and multi-user microgrids, but that assumption seems unwarranted. If they are the commercial equivalent of "consenting adults", with access to similar level of expertise as the Commission itself, then they are able to evaluate the risks and rewards for themselves. Thus who the users are, determines more about the need for regulation.

As a second example, the owner or manager of any commercial building owner or any master-metered apartment building already has a strong and immovable incentive to avoid passing along increased energy costs that aren't accompanied by other compelling benefits – if they do, they can't charge as much rent. Within that example, note that commercial or residential renters in a master-metered building don't have consumer choice today, and limited ability to bring complaints to the Commission. The Commission has already determined that these conditions are acceptable, so the regulatory burden for a microgrid should not be any stricter, especially since microgrids also offer other significant benefits to both participants and the broader community.

Summary of "very light-touch" regulation for Campus Microgrids:
Just as buildings and campuses falling under the "internal distribution system" exception have not required any Commission oversight to date, so too Campus Microgrids have specific characteristics that should not require direct Commission regulation.

The one potential area ripe for greater oversight, as noted in the NOI's Question (2), is NESC code compliance for medium-voltage gear. No public agency is currently responsible for inspection or code enforcement for such equipment, since DCRA's authority is currently limited to low-voltage equipment. Just as the Commission employs inspectors for natural gas infrastructure, it may be appropriate to firm up the Commission's capability for ensuring medium-voltage safety. Other state regulators, for example in California and Oregon, have a similar system. In the near term, an outside contractor could fulfill the safety inspection and compliance role, or certification from a neutral 3rd party such as UL could be sufficient. For the longer term, in-house expertise could also empower the Commission to take a stronger role in arbitrating issues such as interconnection disputes.

Category 3: Commercial Microgrids

Greater regulation is appropriate for microgrids that extend through non-contiguous areas, that serve a greater variety of end-users, and especially that have direct residential customers. To earn the privilege of light-touch regulation, such microgrids would need to meet clear criteria in at least one of the following three categories, each of which are discussed below:

- Market enforcement
- Public oversight
- Contractual protection for vulnerable users

"Market enforcement"
Less regulation and protection is required if the end-users within a commercial microgrid have an option for where they get their service. For example, the monopoly power of a cable company like Comcast is less of a concern in neighborhoods where RCN offers direct competition. Similarly, in Cleveland the presence of both a publicly-owned municipal utility (Cleveland Public Power) and a regulated investor-owned utility (The Illuminating Company, part of FirstEnergy) provides a commercial check on the rates charged by either. Therefore, if nearby distribution feeders enable end-

users in a microgrid to opt for service from Pepco (or from a different microgrid), then light-touch regulation is justified. "Nearby" could be defined for example as one block, or 400 feet.

A second means of meeting the "market enforcement" criterion applies to large sophisticated users (as defined above) with rental properties. Since they are competing with other similar properties, they would be compelled by the market to drop the rent from what they could otherwise charge, if utility costs are higher. However, to qualify for light-touch regulation, such microgrids should be required to disclose current electricity costs to any prospective tenant, with an explicit comparison to Standard Offer Service.

Rental properties joining a microgrid while continuing to rent to existing tenants should face a modest higher burden to qualify for ligh-touch regulation. End-users could theoretically see increased energy costs from a new microgrid serving their building (though it's questionable why such an unaffordable microgrid would have been implemented). A microgrid owner or operator in this "retrofit" situation should be able to choose from several clearly defined methods that will automatically qualify them for this category:

- Cost constraints – the microgrid could commit not to charge renters more than a fixed amount (e.g. 10%) over Standard Offer Service for a fixed period (e.g. 5 years, corresponding to an average commercial lease). "Premium" offerings, such as reliability or net-zero energy, could result in higher prices, but then one of the other mechanisms would still be available.
- Dispute resolution – the microgrid could provide a mechanism for end-users to object to their energy costs, with the burden of proof on the operator to show that the prices are competitive and reasonable. If the Commission chooses, it could be the forum for such disputes, or they could be decided by an appropriately neutral and qualified arbitrator.
- Opt-out – existing tenants could have the ability to select Pepco service (along with the usual option for commercial retail supply), either through direct service connection, or through a billing mechanism that replicated what the user would have paid under current tariffs.
- Majority vote – consent for the microgrid could be secured through informed, active participation by the intended users, e.g. a referendum administered by a neutral 3rd party.

<u>"Public oversight"</u>

If a Government agency takes responsibility for protecting end-users within a microgrid, then the need for Commission regulation is diminished. For example, if DCHA contracted for a microgrid to serve a publicly-owned property such as Langston Dwellings, that procurement and subsequent service to the residents would be subject to standard agency rules about competition, transparency, Council oversight, and other mechanisms that achieve the same ends as utility regulations. (For co-ops, see Category 4 below.)

Similarly, the resiliency needs at a facility such as the District's 911 call center (Unified Communication Center) could drive the adoption of a publicly-sponsored microgrid on the St Elizabeths campus. Commission intervention would be redundant to the policy decisions made by District agencies that are already under the direct oversight of elected officials, and could potentially interfere with delivering important benefits to the District as a whole.

<u>"Contractual protection for vulnerable users"</u>

In lieu of more burdensome regulations that would impose significant costs and pose even more significant market barriers, the Commission can rely on legally-binding contracts between a microgrid owner or operator and its customers or end-users to implement desired economic arrangements, performance commitments, requirements for disclosure, and a fair dispute-resolution process.

For example, a private contract from a microgrid owner or operator to an end-user can specify quality of service and reliability standards that fulfill the same role as SAIDI and SAIFI requirements for a fully regulated utility. In fact, the private contract approach has some advantages – for example, different users with different reliability needs can contract for premium or discount service, or for service metrics tailored to the individual customer (for some, frequency is more important than duration; for others, power quality problems are just as bad as loss of service). Unlike the regulatory approach, the private contracts can offer liquidated damages if the agreed standards aren't met.

I believe that users can receive all the advantages of a microgrid and still be protected just as well as utility customers are today, if the Commission establishes a basic framework for what such private contracts must cover, such as:

- Disclosure requirements
- Assistance in understanding what's disclosed and what choices are available
- Quality of service and reliability standards
- Protection against unreasonable cutoff or discontinuation of service
- Dispute resolution process (one that is not tilted in favor of the owner or investors)
- Liability and/or liquidated damages when service requirements are not met

To be absolutely clear, I am not recommending a case-by-case review of contracts before adopting light-touch regulation for a given site. Rather, if the microgrid contracts successfully incorporate these elements from a template published by the Commission, then they should have a "safe harbor" presumption that they have earned this category of light-touch regulation. The Commission would only get involved if someone files demonstrating that a) safe-harbor provisions are not being met; b) for some reason, the usual means for enforcing a legally binding contract are insufficient and the Commission needs to intervene.

<u>Summary of Light-Touch Elements for Commercial Microgrids:</u>

<table>
<tr><td colspan="4">Earn Light-Touch Regulation through any of:</td></tr>
<tr><td colspan="2">Market Enforcement</td><td>Public Oversight</td><td>Private Contracts</td></tr>
<tr><td colspan="2">1. "Nearby" alternative service</td><td>1. Agency rules covering:</td><td>1. Enforceable contracts covering:</td></tr>
<tr><td>2. Large sophisticated users with new renters:</td><td>2. Large sophisticated users with existing renters, any one of:</td><td>Procurement, transparency, oversight</td><td>Disclosure, service commitments, cutoff protection, dispute resolution, liquidated damages</td></tr>
<tr><td>a. Disclose costs, compare to SOS</td><td>a. Commitment to cap rates</td><td></td><td></td></tr>
<tr><td></td><td>b. Forum to hear user objections</td><td></td><td></td></tr>
<tr><td></td><td>c. Opt-out mechanism</td><td></td><td></td></tr>
<tr><td></td><td>d. User referendum</td><td></td><td></td></tr>
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Note that under all these criteria, the Commission should not need to undertake rate regulation, because the Commission has not given microgrid owners or operators any out-of-market ability to raise rates in order to cover costs. They have no guaranteed rate of return and have put their own capital at risk, yet they offer their customers contractually determined energy costs without the ability to increase rates in order to meet investment criteria.

Note also that a Certificate of public convenience and necessity (CPCN) is not part of the Light-Touch approach. The contingency of needing to file for a Certificate, as described above, negates the certainty that commercial investors require. Furthermore, the "necessity" in question isn't that of the District as a whole, it's the need of the end-users being served directly. In the rare case of generation assets focused as much externally as on the microgrid's own users, a threshold might be used– if generation is far more than load, then the system is presumptively being designed for export, so a Certificate could be appropriate. But some amount of generation capacity above load just reflects the need for redundancy in a system that may be designed specifically for resiliency, so that threshold needs to be pretty high – perhaps 100% excess generation (2x total) over peak internal load.

Category 4: Community Microgrids

In this category, light-touch regulation is appropriate because the microgrid is organized via self-determination. A co-op is the easiest example to understand, where the assets are owned by the users themselves, who carry out formal decision-making via a membership body that does not have an independent profit interest. A home owners association, a municipal corporation, an energy improvement district, or other organizational structure might also qualify for a community microgrid, as described below.

The interests of the participants in a community microgrid do not require protection via regulatory intervention by the Commission, because they are the ones deciding the outcomes themselves. Basic safety and standards compliance are of course still needed, just as with any construction project, as would air permits for generation equipment and so on. But the co-op or similar structure would be sufficient for the kinds of economic relations otherwise governed by utility regulation.

To ensure the sufficiency of the communal structure, a template provided by Commission could identify participation, consent, disclosure, and transparency requirements. If the community microgrid successfully incorporates the elements of such a template, then it should have a "safe harbor" presumption that they have earned this category of light-touch regulation.

Note: With assistance from an appropriately qualified party, the Commission should be able to contract for such templates in just a few months, so they should not pose a barrier to implementation.

Finally, community microgrids are the most likely to have parts of their distribution infrastructure run through public rights of way, including medium voltage lines, just as several Universities in the District do today. Code compliance mechanisms for this eventuality are described above, under Campus Microgrids. If these wires are not owned, leased, or operated by Pepco, then the Commission might also consider a qualification process for whatever entity takes on operating and maintenance responsibilities, similar to what happens for retail electricity suppliers. Alternatively another agency, such as the DC Office of Contracting & Procurement, could maintain a list of pre-approved contractors, as it currently does for utility work that's part of a DDOT project. Or Pepco's existing process for certifying its own extensive network for approved subcontractors could be relied upon, similar to how

Pepco provides a list of 3rd party engineering firms qualified to conduct Facility Studies under the PJM generator interconnection process.

Category 5: Captive Microgrids

Some microgrids may not meet any of the criteria in the previous Categories – not a single campus, no alternative service nearby, or more than a handful of users who don't qualify as large and sophisticated, with no mechanism for either collective or public-agency oversight, or with contractual protections that don't meet safe-harbor provisions. Users can thus be seen as "captive" to the microgrid, with limited options if prices increase or service degrades.

The primary example focuses on residential owners – i.e. single family homes, or direct-metered owner-occupied residential units. Absent anything that would qualify under the previous categories, a microgrid serving a significant number of such users would presumably be of regulatory interest. Compliance with some form of consumer bill of rights would likely be warranted, as noted in the NOI's Question (3), though preferably a microgrid-appropriate version instead of the current Pepco-centric body of rules. Reliability standards would need to be met, and protection from disconnection offered. If an operating microgrid fails to live up to any of these "medium-touch" standards, the Commission should also provide a forum for consumer complaints and in the worst-case scenario, a back-stop of rate regulation.

Constructing an appropriate set of boundaries and expectations for this category may also be done most productively in the context of considering regulations that permit residential sub-metering, which would likely merit similar protections.

Beyond light-touch regulation

I hope that most of the Commission's immediate concerns are addressed in the proceeding sections. "Light-touch" regulation is probably best considered as an interim approach, adapting existing structures while the energy system involves into new forms, with microgrids as part of that leading edge. In the longer-term evolution of our energy infrastructure, microgrids can help the District fulfill its strategic goals for a low-carbon future, a two-way interactive grid, and a modernized resilient system. While not a universal solution, microgrids also aggregate complexity to create a nested grid that simplifies the management of grid-edge technologies.

Recognizing these features and advantages, the main shortfall of light-touch regulation becomes apparently. The current approach is basically *reacting* to bottom-up development of specific microgrids, and struggling to accept their presence within a system that wasn't designed for neighborhood-scale aggregated DERs. The way to generate far more advantage for the residents and businesses of the District, and to fulfill the mandates of DC law and policy, is for the Commission to begin actively *promoting* microgrids, along with other DERs and NWAs, as a key component of the planning process for dealing with peak demand and load growth, hosting capacity and renewables integration, and more generally where we want our energy system to go.

Pending a more comprehensive approach, relying on light-touch regulation is appropriate, but other matters then need to be considered individually, as summarized below:

- RPS, surcharges, etc. – these existing programs can be handled by current tariffs governing electricity imports at the microgrid's point of common coupling with the larger grid, where it

presents its aggregated demand as a single customer behind a single meter. Since all retail suppliers already have to meet these requirements and pay these surcharges, a microgrid fulfills its obligations through its Pepco and supplier bills. If a microgrid imports only a small percentage of its total consumption, then it might be desirable to shift some of those tariff mechanisms from kWh to kW over the longer term.

- Retail choice – Participating in a microgrid is already a form of retail choice, one that typically carries a broader range of end-user benefits than selecting an alternative supplier. In addition, as noted in the NOI's Question (3), what is typically handled by a customer's choice of 3rd party suppliers can be addressed for imports into the microgrid. If there are multiple customers within the microgrid, they may desire a mechanism such as voting to periodically select the supplier for those imports, or to opt for Standard Offer Service if the majority so chooses (Question (5)).
- Standards for safe design and operation (Question (2)) – these standards are almost entirely addressed by existing regulations from entities other than the PSC – construction codes, air permits, UL certifications, NESC compliance, etc. The one gap, as noted above, is certifying code compliance for medium-voltage systems.
- Special microgrid tariffs will soon be needed to provide fair compensation for services delivered by a microgrid to the larger community via the District-wide distribution system (along with the other half of the same bargain, that ratepayers at large should not be covering mirogrid-specific costs). These might start out as special-case non-tariffed rates, as noted in the NOI's Question (5). But over the medium- and long-term, the current tariff system should evolve to recognize an array of services within an interactive two-way grid.