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October 25, 2021

By Electronic Filing

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

Re: RM40-2020-01 and Formal Case No. 1050

Dear Ms. Westbrook-Sedgwick:

Attached for electronic filing in the referenced matters, please find the Chesapeake Solar & Storage Association's ("CHESSA") D.C. Interconnection Study and Final Report. The findings of this Report were presented during the October 19, 2021, meeting of the RM40 Working Group.

Should you have any questions, please contact me.

Sincerely,

/s/ Eric J. Wallace

Eric J. Wallace

Attachment

cc: Service List (via e-mail delivery)

October 25, 2021

By Electronic Filing

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

Re: ***RM40-2020-01, IN THE MATTER OF 15 DCMR CHAPTER 40 – DISTRICT OF COLUMBIA SMALL GENERATOR INTERCONNECTION RULES***
and
FORMAL CASE NO. 1050, IN THE MATTER OF THE INVESTIGATION OF IMPLEMENTATION OF INTERCONNECTION STANDARDS IN THE DISTRICT OF COLUMBIA

Dear Secretary Westbrook-Sedgwick:

Members of the Chesapeake Solar & Storage Association ("CHESSA") have reported pervasive delays in Pepco's interconnection processing of large solar projects in the District of Columbia. Delays have been of concern for a few years and have not shown signs of improvement in 2021. CHESSA retained CleanGrid Advisors to compile detailed information on delayed projects from its members, analyze that information as well as other statistics on interconnection, and calculate the financial burdens experienced by interconnecting customers, solar developers, project owners, and community solar subscribers due to the delays.

Twenty case studies compiled for the report reveal pervasive interconnection delays across the solar project lifecycle. The financial losses in foregone SREC revenue and foregone savings to customers, including Solar for All subscribers, totaled $1,600,000 across the twenty projects.

Reasons for interconnection delays reveal Pepco's inefficiency in executing established processes, processes that are not well designed, and an apparent lack of urgency on Pepco's part in bringing solar energy projects online as quickly as possible for the benefit of its

customers and of all residents of the District of Columbia. Action must be taken to assure that Pepco's processes are well designed and executed, with timeliness and consistency that assures solar systems ready to operate are operating for the benefit of all stakeholders.

The attached study concludes with three potential remedies to address these interconnection delays. These remedies form a starting point for a discussion.

Remedy #1. For utility regulators to establish and monitor service quality, they need information on service delivery. With respect to solar interconnection in the District of Columbia, the performance data currently being collected is not capturing adequate information across the interconnection process or across all types of interconnections. The District of Columbia Public Service Commission ("Commission") should expand its collection of information to monitor the entire interconnection process for all classes of solar installations.

Remedy #2. Armed with the information from this study and further routine reporting, the Commission should establish more rigorous requirements for Pepco's interconnection processing, regularly review conformance, and cause Pepco to undertake corrective action on deficiencies. It is unclear why Pepco has continued to report delayed CREF processing for three years without addressing those failures. Firmer Commission oversight appears to be warranted.

Remedy #3. Given the vital role that interconnection plays in achieving the District's greenhouse gas reduction and renewable energy goals, an effective process for lodging complaints and seeking corrective action at the Commission would be warranted. It is CleanGrid Advisors' understanding that an "ombudsman" role for interconnection issues has been proposed to the Commission in other forums. This study supports establishing such a role at the Commission.

Respectfully,

Jason Sorter
Executive Director
Chesapeake Solar & Storage Association

Attachment / Study of District of Columbia Interconnection Processes

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Study of District of Columbia Interconnection Processes

Financial Burdens of Interconnection Delays for Large Solar Projects in D.C.

Members of the Chesapeake Solar and Storage Association ("CHESSA") have reported pervasive delays in Pepco's interconnection processing of large solar projects in the District of Columbia. Delays have been of concern for a few years and have not shown signs of improvement in 2021. CHESSA retained CleanGrid Advisors to compile detailed information on delayed projects from its members, analyze that information as well as other statistics on interconnection, and calculate the financial burdens experienced by interconnecting customers, solar developers, project owners, and community solar subscribers due to the delays.

Case studies of large commercial solar projects constructed in the District of Columbia between 2018 and 2021 show ***total time frames from initial interconnection application to operation averaging over a year.***

Delays in the final stages of the project life cycles across twenty case studies caused ***financial losses of over $1,600,000 to project owners and customers.***

Twenty case studies compiled for this report reveal pervasive interconnection delays across the project lifecycle. Of particular concern are delays in Pepco's issuance of Authorizations to Operate ("ATO"), the final step in the interconnection process. These delays range from two months to over a year *after* projects have been deemed ready to operate by DCRA inspectors. The financial losses in foregone SREC revenue and lost savings to customers, including Solar for All subscribers, range from $8,000 to over $380,000 per project. **Across the twenty case studies compiled, total losses amount to $1,600,000.**

Reasons for interconnection delays in ATO reveal Pepco's inefficiency in executing established processes, processes that are not well designed, and an apparent lack of urgency on Pepco's part in bringing solar energy projects online as quickly as possible for the benefit of its customers and of all residents of the District of Columbia.

While other parties can be responsible for delays in bringing solar systems online, the overwhelming majority of delays identified were caused by Pepco's processes and processing. This report does not purport to provide a comprehensive summary of all large solar projects operating or awaiting operation in the District, but the magnitude of financial burdens experienced by the twenty projects documented cannot be written off as atypical or minor cases.

Project data collected for this report, together with data reported by Pepco to the District of Columbia Public Service Commission over the past three years, also indicate delays in earlier phases of the interconnection process. While this report does not compute financial losses associated with those delays, those delays also deprive customers of energy cost savings, project owners of SREC revenues, and the District of reduced greenhouse gas emissions.

Action must be taken to assure that Pepco's processes are well designed and executed, with timeliness and consistency that assures solar systems ready to operate are operating for the benefit of all stakeholders.

Construction Process and Characterization of Delays

Delays can occur at many stages in the interconnection process. This study analyzes timeframes between four important milestones in the solar project lifecycle:

- Submission of an Interconnection Application by a customer
- Completion of the interconnection review by Pepco and issuance of an Approval to Install ("ATI")
- DCRA completing its inspection of the fully operational solar system (electrical and building inspections / Temporary Pending Final ("TPF") approval)
- Issuance of Authorization to Operate ("ATO") by Pepco

Table 1 summarizes interconnection timeline data for 20 large solar projects installed over the past three years.

Table 1
Interconnection Timeframes

Case Study	Capacity (kW)	Phase I days	Phase II days	Phase III days	Total Days
1	233	129	214	360	703
2	1,150	62	123	151	336
3	1,050	62	124	152	338
4	1,150	N/A	N/A	184	
5	120	23	107	116	246
6	40	30	62	413	505
7	160	132	98	169	399
8	33	92	21	124	237
9	83	62	40	156	258
10	125	89	115	81	285
11	200	159	78	200	437
12	130	22	139	130	291
13	233	327	42	203	572
14	172	18	174	137	329
15	101	34	51	253	338
16	67	22	20	141	183
17	800	86	88	63	237
18	72	27	21	103	151
19	500	426	235	213	874
20	200	188	139	133	460
Total	6,619				
Average		105	100	174	
Benchmark		30		30	
Range		18 - 426		63 - 413	

Phase I - Interconnection Study
Phase II - Project Construction
Phase III - Project Authorization to Operate

Phase I - Interconnection Study

The first phase of the project life cycle begins with the customer submitting an Interconnection Application to Pepco and ends when Pepco has reviewed the application, provided an estimate of interconnection costs, and provided ATI if the customer accepts Pepco's conditions. In the cases of some large projects, Pepco's ATI is "conditional" pending receipt and review of further project details, but construction may proceed.

Most large solar projects submit Level 2 interconnection applications, appropriate for projects 2 MW or less on radial distribution circuits or spot area networks (see D.C. Small Generator Interconnection Rules DCMR 15-4005.2(a) for detailed size limits). Under DCMR 15-4005.4, the Level 2 interconnection review is required to take place quickly and efficiently. Pepco has five (5) business days to review an application for completeness, and when the application is complete, fifteen (15) business days to notify the customer of the results.[1,2]

As shown in Table 1, however, while Pepco completed this initial phase in less than 30 calendar days[3] for 6 of the 20 projects reviewed, the majority of projects took much longer for an average of 105 days.

Phase II - Project Construction

Once ATI has been issued, construction on the solar project can begin. The construction phase is completed when DCRA inspects the system for code compliance, issuing their approvals (or a "Temporary Pending Final" approval in cases where a new electric service line must be extended as with many Community Renewable Energy Facilities "CREFs"). After receiving these approvals, projects are ready to operate as soon as Pepco provides ATO.

As shown in Table 1, while construction times vary with project size as would be expected, this phase of the overall process moves faster, on average, than either of the phases that are Pepco's responsibility.

Phase III - Permission to Interconnect

The final phase of the project life cycle begins with the completion of solar project construction and ends with Pepco's issuance of ATO. ATO allows the project to begin to produce electricity interconnected with Pepco's distribution system, whether used on-site in a net metered configuration or operating as a CREF.

D.C. regulations presume that this final phase will take place very quickly, within 10 business days. Upon receiving a customer's Certificate of Completion with signed inspection certificate, Pepco may perform a Witness Test of the system's operation within 10 days. If the system passes the test, or if Pepco decides not to conduct the test, the customer should receive the ATO (see DCMR 15-40005.4). As shown in Table 1, however, this final phase of the process is

[1] Note that Pepco is subject to similar interconnection review timeframes in Maryland (See Code of Maryland 20.50.09.10.B and E).
[2] In Order 20911 in RM40-2020-01 issued on August 11, 2021, these required timelines were maintained.
[3] Table 1 figures are derived from counting calendar days. 30 calendar days are roughly equivalent to 20 business days.

taking an astonishing 63 to 413 days. Rather than being the shortest phase of the process, as regulations anticipate, this final phase is the most time consuming and takes almost as long as Phases I and II combined.

As detailed later in this report, delays in issuing ATO are very financially consequential to project developers, owners and customers. All costs to construct the solar system have been incurred and power is ready to flow, but revenues, savings, and environmental benefits are not yet being realized by any party.

Reasons for Delays

Detailed information collected from solar developers document a range of reasons why Pepco delays issuance of ATO. The breadth of these reasons indicate that Pepco's processing of interconnections should be thoroughly reviewed with a process improvement focus and actions taken to eliminate inefficiencies across many process steps.

Among the specific delays noted across 20 case studies are:

- Delays in Pepco providing required telemetry equipment
- Delays by Pepco in scheduling point-to-point telemetry tests and witness tests
- Pepco imposing additional interconnection and operating requirements after systems are constructed
- Delayed communication between Pepco and DCRA
- Delays by Pepco in issuing invoices and processing payment for interconnection costs

Financial Losses

Table 2 shows the range of financial losses and cumulative losses across the 20 case studies. Financial losses range from approximately $10,000 to nearly $400,000 per project for total losses of $1,600,000 for the 20 case studies assembled.[4,5]

Losses computed assume that issuing ATO more than 30 calendar days after construction is complete is unwarranted, though this benchmark is more generous than regulations require.

[4] SREC sales losses were computed using a history of monthly SREC prices maintained by CleanGrid Advisors from publicly available sources.

[5] User benefit losses computed based on contract structure. D.C. utility rates are from U.S. EIA District of Columbia State Electricity Profile Table 8 for calendar year 2019 (most recent data available).

Table 2				
Financial Losses Due to Delays				
Case Study	Phase III delay days	SREC sale losses	User benefit losses	Total losses
1	300	$ 108,600	$ 23,700	$ 132,300
2	121	$ 203,300	$ 66,200	$ 269,500
3	122	$ 188,700	$ 8,800	$ 197,500
4	154	$ 290,300	$ 94,500	$ 384,800
5	86	$ 10,900	$ 3,300	$ 14,200
6	383	$ 30,600	$ 1,500	$ 32,100
7	139	$ 34,900	$ 9,100	$ 44,000
8	114	$ 7,500	$ 2,300	$ 9,800
9	126	$ 17,100	$ 5,000	$ 22,100
10	51	$ 10,900	$ 1,300	$ 12,200
11	170	$ 48,900	$ 14,300	$ 63,200
12	100	$ 18,100	$ 5,500	$ 23,600
13	173	$ 58,300	$ 17,000	$ 75,300
14	107	$ 26,200	$ 7,800	$ 34,000
15	223	$ 32,700	$ 9,500	$ 42,200
16	111	$ 10,800	$ 3,100	$ 13,900
17	33	$ 38,600	$ 1,700	$ 40,300
18	73	$ 6,200	$ 1,800	$ 8,000
19	183	$ 136,000	$ 6,000	$ 142,000
20	103	$ 30,500	$ 8,700	$ 39,200
Total		$ 1,309,100	$ 291,100	$ 1,600,200

Pepco Interconnection Reporting

While the financial losses computed above relate only to delays in Phase III of the construction process (receiving ATO), delays in Phase I (receiving ATI) also deprive customers of energy cost savings, project owners of SREC revenues, and the District of reduced greenhouse gas emissions.

Pepco is required to report certain Phase I timeliness metrics to the District of Columbia Public Service Commission on a quarterly basis. Beginning three years ago with the Q2 2018 report, information on ATI delays for CREF applications specifically was included. While this metric does not cover delays for *all* large projects, CREFs are a major segment of D.C.'s commercial-scale solar market. Table 3 shows that throughout the last three years, CREF projects have

continuously failed to meet deadlines, with 36 of 50 CREF applications delayed on the most recent report.

In each of the last dozen reports, Pepco indicated it was working with other stakeholders to develop appropriate processing timelines, at least for CREF projects. With the high number of delays in the most recent report, it is evident that there has been no progress. The data in these quarterly interconnection reports reinforce the conclusion drawn from the 20 case studies tabulated in this report, that there are widespread, systematic and persistent problems with Pepco's interconnection process that must be addressed.

Table 3 - Interconnection Report Excerpts[6]

Report Date	Excerpt from "Timeliness of Approval to Install" section
July 29, 2021 Quarterly Report Q2 2021	We reviewed 50 CREF applications and 36 of the applications that failed to meet approval deadlines were Community Renewable Energy Facility (CREF) applications. The Company and other stakeholders are working together to develop CREF-specific rules with appropriate timelines through the Commission working group.
March 20, 2021 Annual Report 2020	In 2020, 82 CREF applications failed to meet approval to install deadlines. The Company and other stakeholders are working together to develop CREF- specific rules with appropriate timelines through the Commission working group.
February 1, 2021 Quarterly Report Q4 2020	Nine of the applications that failed to meet approval deadlines were CREF applications. The Company and other stakeholders are working together to develop CREF-specific rules with appropriate timelines through a Commission working group.
October 30, 2020 Quarterly Report Q3 2020	Ten of the applications that failed to meet approval deadlines were Community Renewable Energy Facility (CREF) applications. The Company and other stakeholders are working together to develop CREF-specific rules with appropriate timelines through the Commission working group.
July 30, 2020 Quarterly Report Q2 2020	Twelve of the applications that failed to meet approval deadlines were Community Renewable Energy Facility (CREF) applications. The Company and other stakeholders are working together to develop CREF-specific rules with appropriate timelines through the Commission working group.

[6] Reports are filed in DCPSC Docket FC1050.

Report Date	Excerpt from "Timeliness of Approval to Install" section
April 29, 2020 Quarterly Report Q1 2020	Forty-Three of the applications that failed to meet approval deadlines were Community Renewable Energy Facility (CREF) applications. The Company and other stakeholders are working together to develop CREF-specific rules with appropriate timelines through the Commission working group.
January 30, 2020 Quarterly Report Q4 2019	One of the applications that failed to meet approval deadlines was Community Renewable Energy Facility (CREF) applications. The Company and other stakeholders are working together to develop CREF specific rules with appropriate timelines through the Commission working group.
October 30, 2019 Quarterly Report Q3 2019	Seventy-One of the applications that failed to meet approval deadlines were Community Renewable Energy Facility (CREF) applications. The Company and other stakeholders are working together to develop CREF-specific rules with appropriate timelines through the Commission working group.
July 29, 2019 Quarterly Report Q2 2019	Fifty -Two of the applications that failed to meet approval deadlines were Community Renewable Energy Facility (CREF) applications. The Company and other stakeholders are working together to develop CREF-specific rules with appropriate timelines through the Commission working group.
April 25, 2019 Quarterly Report Q1 2019	On January 9, 2019 the Commission issued Order No. 19795 amending Chapter 40 of Title 15 of DCMR- District of Columbia Small Generator Interconnection Rules which … reduced the timeline for Level 2 requests from 20 to 15 business days. Eleven of the applications that failed to meet approval deadlines were CREF applications. The Company and other stakeholders are working together to develop CREF-specific rules with appropriate timelines through the Commission working group.
January 29, 2019 Quarterly Report Q4 2018	Thirteen of the applications that failed to meet approval deadlines were CREF applications. Pepco and other stakeholders filed comments following the May 17, 2018 Interconnection and CREF Technical Conference indicating the need for separate CREF rules to allow appropriate time for technical screenings, and the Commission has scheduled a working group to address rule changes for CREF projects.

Report Date	Excerpt from "Timeliness of Approval to Install" section
October 30, 2018 Quarterly Report Q3 2018	A majority (23) of the applications that failed to meet approval deadlines were CREF applications. Pepco and other stakeholders filed comments following the May 17, 2018 Interconnection and CREF Technical Conference indicating the need for separate CREF rules to allow appropriate time for technical screenings, and the Commission has scheduled a working group to address rule changes for CREF projects.
July 26, 2018 Quarterly Report Q2 2018	Thirty-three percent of the applications that failed to meet approval deadlines were CREF applications. Pepco and other stakeholders filed comments following the May 17, 2018 Interconnection and CREF Technical Conference indicating the need for separate CREF rules to allow appropriate time for technical screenings.

Potential Remedies

The ability of customers to demand service quality and performance from public utilities is limited. Customers cannot choose a different service provider if they are not satisfied, and therefore rely on utility regulators to assure not only that utility service is safe and reliable, but that all services are delivered with quality and consistency. The reliance on regulators is especially acute for businesses like solar developers and installers who interact with utilities repeatedly and rely on effective processes to deliver services to their customers, who are also utility customers.

Remedy #1. For utility regulators to establish and monitor service quality, they need information on service delivery. With respect to solar interconnection in the District of Columbia, the performance data currently being collected is not capturing adequate information across the interconnection process or across all types of interconnections. While this study provides supplemental information, the District of Columbia Public Service Commission ("Commission") should expand its collection of information to monitor the entire interconnection process for all classes of solar installations.

Remedy #2. Armed with the information from this study and further routine reporting, the Commission should establish more rigorous requirements for Pepco's interconnection processing, regularly review conformance, and cause Pepco to undertake corrective action on deficiencies. It is unclear why Pepco has continued to report delayed CREF processing for three years without addressing those failures. Firmer Commission oversight appears to be warranted.

Remedy #3. Given the vital role that interconnection plays in achieving the District's greenhouse gas reduction and renewable energy goals, an effective process for lodging complaints and seeking correcting action at the Commission would be warranted. It is CleanGrid Advisors' understanding that an "ombudsman" role for interconnection issues has been proposed to the Commission in other forums. This study supports establishing such a role at the Commission.

Certificate of Service
Formal Case No. 1050 and RM40-2020-01

I certify that on this 25th day of October, 2021, copies of the foregoing were served on all parties listed on the official service lists for Formal Case No.1050 and RM40-2020-01.

/s/ Eric J. Wallace
Eric J. Wallace