GOVERNMENT OF THE DISTRICT OF COLUMBIA Office of the Attorney General



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Public Advocacy Division Social Justice Section

ELECTRONIC FILING

March 2, 2021

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

Re: RM40-2020-01 -- In the Matter of 15 DCMR Chapter 40 –District of Columbia Small Generator Interconnection Rules.

Formal Case No. 1050 – In the Matter of Investigation and Implementation of Interconnection Standards in the District of Columbia.

Dear Ms. Westbrook-Sedgwick:

On behalf of the Department of Energy and Environment, please find enclosed its Motion for Leave to File Reply Comments to Second Notice of Proposed Rulemaking in the above-captioned proceedings. If you have any questions regarding this filing, please do not hesitate to contact the undersigned.

Respectfully submitted,

KARL A. RACINE Attorney General

By: <u>/s/ Brian Caldwell</u> BRIAN CALDWELL Assistant Attorney General (202) 727-6211 – Direct

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BEFORE THE PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

In the Matter of 15 DCMR Chapter 40 -	-)	
District of Columbia Small Generator)	RM40-2020-01
Interconnection Rules.)	
In the Matter of Investigation of)	
Implementation of Interconnection)	Formal Case No. 1050
Standards in the District of Columbia.)	

MOTION OF THE DEPARTMENT OF ENERGY AND ENVIRONMENT FOR LEAVE TO FILE REPLY COMMENTS TO SECOND NOTICE OF PROPOSED RULEMAKING

Pursuant to Rule 105.8 of the Public Service Commission of the District of Columbia's (Commission) Rules of Practice and Procedure, 15 D.C.M.R. §105.8, the Department of Energy and Environment (DOEE), by and through the Office of the Attorney General, hereby moves the Commission for Leave to File Reply Comments in response to comments filed by interested stakeholders, in particular the Potomac Electric Power Company (Pepco), in response to the Commission's Second Notice of Proposed Rulemaking (Second NOPR) published in the above-captioned proceedings.¹ DOEE's proposed Reply Comments are attached hereto. For reasons discussed below, good cause exists to grant the relief sought in this Motion.

Like the First Notice of Proposed Rulemaking (First NOPR)² issued in this proceeding, the Second NOPR proposes amendments to the Commission's Small Generator Interconnection Rules (SGIR).³ As set forth in the Second NOPR, the amendments were intended to address: (1) distribution system upgrade costs for Community Renewable Energy Facilities (CREF); (2) timelines for small generator interconnection; and (3) a timeframe for advanced inverter

¹ Vol. 67 – No. 53 (*rel*. December 25, 2020).

² Vol. 67 – No. 15 (*rel*. April 10, 2020).

³ 15 D.C.M.R. 4000 et. seq.

deployment and the implementation of the *IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces* (IEEE 1547-2018 Standard).⁴ In response to the Second NOPR, the following interested stakeholders, in addition to DOEE, filed Comments on February 16, 2021: Pepco; the Office of People's Counsel for the District of Columbia; D.C. Climate Action; and Joint Solar Advocates.⁵ Although the Commission specifically provided an opportunity for interested stakeholders to file Reply Comments on the First NOPR,⁶ the Second NOPR did not expressly invite Reply Comments.

As the District government agency charged with implementing the District's clean energy laws and policies, DOEE believes that the streamlining of Distributed Energy Resource (DER) interconnection and DER integration in general, are essential and may determine the success or failure of the District's local solar policy, programs (including Solar For All), and grid modernization goals. However, in DOEE's view, several of the amendments to the SGIR proposed by Pepco in their Comments on the Second NOPR have the potential to cause significant harm to the solar market in the District of Columbia. Further, Pepco's proposed amendments may hinder the District's ability to achieve mandated targets such as the solar carve-out contained in the Renewable Portfolio Standards.⁷

Permitting DOEE leave to file the attached Reply Comments to the Second NOPR will assist the Commission in understanding how and why Pepco's proposed amendments might negatively impact solar development in the District of Columbia. Further, granting DOEE's

⁴ Supra, FN 1.

⁵ On Jan. 21, 2021, Pepco filed a Motion for Enlargement of Time to File Comments, which the Commission granted in Order No. 20693 (*rel.* Jan. 29, 2021).

⁶ RM-40-2020-01 / F.C. 1050, Public Notice, ¶ 2 (*rel.* May 14, 2020).

⁷ The Clean Energy Omnibus Amendment Act of 2018, pg. 2-3.

Motion will provide the Commission with a more robust record upon which to base its decision on this important matter.

WHEREFORE, DOEE respectfully moves the Commission for leave to file its attached Reply Comments to the Second NOPR.

Respectfully submitted,

KARL A. RACINE Attorney General

KATHLEEN KONOPKA Deputy Attorney General Public Advocacy Division

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<u>/s/ Brian Caldwell</u> BRIAN CALDWELL (D.C. Bar No. 979680) Assistant Attorney General Office of the Attorney General for the District of Columbia 400 Sixth Street N.W., 10th Floor Washington, D.C. 20001 202-445-1952 (mobile) Brian.caldwell@dc.gov

March 2, 2021

Attorneys for the Department of Energy and Environment

BEFORE THE PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

In the Matter of 15 DCMR Chapter 40 –)	
District of Columbia Small Generator	RM40-2020-01	
Interconnection Rules)	
In the Matter of Investigation of)	
Implementation of Interconnection)	Formal Case No. 1050
Standards in the District of Columbia.)	

DEPARTMENT OF ENERGY AND ENVIRONMENT'S REPLY COMMENTS IN RESPONSE TO SECOND PROPOSED RULEMAKING RM40-2020-01

Pursuant to the Public Service Commission of the District of Columbia's (Commission) Public Notice published in the District of Columbia Register on December 25, 2020,¹ and Order No. 20693,² the Department of Energy and Environment (DOEE), on behalf of the District of Columbia Government (the District), respectfully submits these Reply Comments on the Second Notice of Proposed Rulemaking (Second NOPR) published by the Commission in the abovecaptioned proceeding.

I. BACKGROUND

The Second NOPR amends the Small Generator Interconnection Rules (SGIR) in Chapter 40 of Title 15 of the District of Columbia Municipal Regulations (DCMR). The stated purpose of the Second NOPR is to address the following: (1) distribution system upgrade costs for Community Renewable Energy Facilities (CREF); (2) timelines for small generator interconnection; and (3) a timeframe for advanced inverter deployment and the implementation

¹ Vol. 67 – No. 53.

² RM40-2020-01 (*rel.* Jan. 29, 2021).

of the *IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces* (IEEE 1547-2018 Standard).³ This Second NOPR follows extensive comments filed in response to the First Notice of Proposed Rulemaking (First NOPR)⁴, from DOEE, Center for Renewable Integration (CRI), Joint Solar Advocates (JSA), Potomac Electric Power Company (Pepco), and DC Climate Action (DCCA). Subsequently, on February 16, 2021, DOEE, Pepco, JSA, the DC Office of the People's Counsel (OPC), and DCCA provided Comments in response to the Second NOPR. DOEE submits the following reply comments in response to comments submitted by these parties in the Second NOPR.

II. SUMMARY OF DOEE'S REPLY COMMENTS

DOEE supports continual updates and improvements to the SGIR that are paired with adequate enforcement to ensure that Distributed Energy Resource (DER) interconnection and integration continues apace to put the District on track to meet its decarbonization and solardriven economic development goals. DOEE appreciates the work of other stakeholders, including Pepco, to achieve continual improvements to the interconnection process. DOEE notes that Pepco has made significant advancements in both the Level 1 and Level 2 interconnection process and looks forward to continuing to work with Pepco as a partner in further improvements as the District modernizes its electric distribution system (EDS).

The purpose of this current round of amendments to the SGIR is to address what have been significant setbacks to the interconnection of larger systems, including CREFs, due to delays in the interconnection process and a lack of transparency and predictability of

³ Supra, note 1, ¶1.

⁴ Vol. 67 – No. 15 (*rel*. April 10, 2020).

interconnection costs. DOEE believes that several proposed changes to the SGIR by Pepco in response to the Second NOPR would cause significant harm to the local solar market in DC and be particularly prejudicial toward CREFs. These proposals and their expected impacts are summarized in the table below. DOEE asks the Commission to reject these proposals from Pepco, which, if enacted, DOEE believes would make it more difficult for the District to reach the mandated carve-out under the Clean Energy Omnibus Amendment Act of 2018.

Finally, DOEE notes that Pepco proposed in Formal Case No. 1166 that the Commission allow Pepco to procure, own, and deploy a host of DER, including CREFs.⁵ DOEE believes the Commission should view any recommendations by Pepco that would have the effect of increasing CREF interconnection timelines or increasing costs to customer-owned CREFs with scrutiny and consistently seek alignment between Pepco's stated interests in owning CREFs and the interests of private CREF developers. The objective would be to address a potential conflict of interest. See also Section VII below.

Pepco Proposal	Impact on Solar	Harm to CREF, NEM,
	Interconnection	or Both
Removal of the public queue	Reduce transparency in the	Both
language	interconnection process for both	
	timelines and costs	
Treatment of a Virtual CREF	Remove gains from	CREF, VCREF in
(VCREF) meter as an	implementing VCREF by	particular
interconnection facility	treating any project that requires	
	a generation meter to be subject	
	to the same extended	
	timeframes as a project that	
	requires construction	

⁵ Formal Case No. 1166, *In the Matter of the Investigation into Energy Storage and Distributed Energy Resources in the District of Columbia*, Pepco's Comments in Response to the Commission's Notice of Inquiry in Formal Case 1166, pg. 17 (Nov. 16, 2020).

Pepco Proposal	Impact on Solar	Harm to CREF, NEM,
	Interconnection	or Both
Barring VCREF under 20kW	Remove gains from	CREF, VCREF in
from interconnection under	implementing VCREF by	particular
Level 1	treating meters as	
	interconnection facilities and	
	subjecting VCREF to extended	
	timelines	
Amendments to the Level 2	Overhaul of the SGIR that	Both
interconnection process to allow	could delay solar	
for changes to design of	interconnection for projects	
interconnection facilities and/or	larger than 20 kW of capacity	
distribution system upgrades		
after Approval to Install (ATI)		
has been issued, thereby		
delaying the receipt of the		
interconnection agreement		
Amendments to the IEEE 1547-	Favor generation curtailment	Both
2018 language to favor direct	over autonomous functionalities	
control and curtailment of solar	that can support increased	
generation	hosting capacity	
Reduction to size of projects	Reduce the District's effective	Both
that can connect under Level 2	hosting capacity, relying instead	
	on arbitrary size limits	
CREFs should pay a monthly	Treats CREFs as customers	CREF
customer charge	instead of generators as	
	intended in the Community	
	Renewable Energy Amendment	
	Act and harm the CREF market	
	in the District	

For ease of organization, DOEE has divided these reply comments into four sections: (1)

Transparency; (2) Interconnection processes, timelines, and enforcement; (3) IEEE 1547-2018

Standard; and (4) Responses to proposals that would deny or otherwise harm DER

interconnection. In Attachment A, DOEE provides its proposed modifications as a redline to the

SGIR published in the Second NOPR.⁶

⁶ In its Initial Comments on the Second NOPR, DOEE erroneously submitted Appendix A without the changes in redline.

III. TRANSPARENCY

This section will focus on the following topics: (A) Public queue; and (B) Itemized costs and construction timeline estimates.

A. Public Queue

In its Comments on the Second NOPR, Pepco argues that the provision of a public queue would be "unlawful."⁷ However, Pepco has not identified which of the items in the public queue would be unlawful under D.C. Code § 34-1507 or any other provision of the D.C. Code. DOEE provided Reply Comments to the First NOPR that outline the lawfulness of the public queue, which are incorporated by reference.⁸ DOEE's Reply Comments to the First NOPR are included as Attachment B (w/o attachments).

Pepco also argued in its Comments to the Second NOPR that the provision of the public queue would remove the need for other reporting:

"To the extent that the Commission does require that Pepco create a public queue and explains how such public disclosure is lawful, the Commission should reduce the reporting requirements to which the Company is currently obligated. In addition, the Commission should strike the reporting requirements in new Subsection 4005.8(c), as they are directly duplicative of the information required in the public queue. Should the Commission determine that the public queue is not appropriate, the reporting in Subsection 4005.8(c) would be appropriate. Finally, should the Commission require Pepco to create a public queue and explain how such public disclosure is lawful, there is no need for Pepco to continue to update and evolve its publicly available maps—such as the hosting capacity map and the solar heat map—since much of this information would duplicate information in the public queue. Because the reporting, the public tools and maps and the public queue provide duplicative information, customers should not be required to pay the cost of Pepco preparing the many reports and updating and evolving public tools and

⁷ Pepco Comments on the Second NOPR, pg. 2-6

⁸ DOEE Reply Comments on the First NOPR, pg. 5-7

maps that provide the same information that will be publicly available in the new queue."⁹

In its Reply Comments in response to the First NOPR, DOEE detailed how the public queue would beneficially supplement, rather than duplicate, the existing tools that Pepco provides.¹⁰ DOEE incorporates these comments by reference. Additionally, DOEE requests that the Commission reject the request by Pepco to cease updating its hosting capacity and solar mapping tools. As the Commission implements grid modernization, additional data sharing and visibility will become even more important to enable customer DER to provide both energy and grid services. To remove a tool such as the hosting capacity map, rather than to continue to improve and update the tool, would represent a step backward, not forward, towards modernizing the District of Columbia's EDS. The public queue on its own would not provide information regarding solar hosting capacity. Taking such an action would put DC squarely behind other states such as California. For reference, the California Public Utilities Commission (CPUC) recently ordered updates and changes to improve upon hosting capacity analysis, including the addition of other DER such as electric vehicles and improvements to the methodology.¹¹

B. Itemized Costs and Construction Timeline Estimates

DOEE agrees with the following comments by OPC in response to the Second NOPR:

"OPC ... recommends that along with the technical explanation that a proposed cost estimate and timeline of project completion should be provided to the Interconnection Customer if distribution upgrades are needed. Therefore, if the Interconnection Customer requests a scoping meeting, said meeting shall be comprised of all relevant parties with a

⁹ Pepco Comments on the Second NOPR, pg 5-6

¹⁰ Attachment B, pg. 8

¹¹ See CPUC Ruling: "Administrative Law Judge's Ruling on Joint Parties' Motion for an Order Requiring Refinements to the Integration Capacity Analysis." Jan 27, 2021.

https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M361/K810/361810169.PDF

comprehensive list of facts, which shall include estimated costs and a proposed timeline for completion of the project."¹²

DOEE also agrees with OPC's request that the final cost letter be itemized.¹³

C. Cost Envelopes

JSA has argued that the proposed 50% cost envelope for the initial cost estimate for interconnection facilities or EDS upgrades is too large: "[W]e request rather than a 50% accuracy threshold, the threshold for differences between the initial and final cost letter should be narrowed to 10% and 25% accuracy. This change would help developers accurately budget for project costs."¹⁴ DOEE agrees with JSA and incorporates by reference DOEE's Initial Comments to the First NOPR regarding the cost envelope and comparisons to other states.¹⁵ DOEE's Initial Comments in response to the First NOPR are included as Attachment C (w/o attachments).

IV. INTERCONNECTION PROCESSES, TIMELINES, AND ENFORCEMENT

This section will elaborate on the following topics: (A) VCREF; (B) Changes to design after ATI has been issued.

A. VCREF

The stakeholders in the RM-9 Working Group (RM-9 WG) and *Formal Case 1050* have developed the concept of the VCREF to avoid extended interconnection timelines due to the need for interconnection facilities or EDS upgrades that result from connecting a CREF in front of the meter. Pepco's proposal that would require a utility-owned generation meter for VCREF,

¹² OPC's Comments on the Second NOPR, pg. 3

¹³ Ibid.

¹⁴ JSA Comments on the Second NOPR, pg. 4

¹⁵ DOEE Initial Comments on the First NOPR, pg. 8.

and for that meter to be included in the Interconnection Facilities Cost Matrix,¹⁶ would undo these gains. A generation meter (regardless of ownership) should not be considered an interconnection facility, should not be included in the Interconnection Facilities Cost Matrix, and should not require an extended timeline to ATI. DOEE submitted reply comments to the First NOPR regarding the treatment of CREF meters in interconnection timelines that are incorporated by reference.¹⁷ DOEE requests that the Commission reject changes to the SGIR that would treat metering equipment as an interconnection facility, given that it would remove a more streamlined option for CREF interconnection (interconnection behind the meter as a VCREF).

DOEE also disagrees with Pepco's proposal that would bar all VCREFs from interconnecting as Level 1 systems.¹⁸ VCREFs that meet the 20 kW size threshold and do not require interconnection facilities and/or EDS upgrades should be able to take advantage of the streamlined Level 1 interconnection process.

Taken together, DOEE believes that treating a VCREF generation meter as an interconnection facility and barring small VCREF from benefitting from the expedited Level 1 interconnection process would reverse nearly all gains from the use of VCREF. DOEE requests that the Commission maintain the SGIR in a manner that treats the interconnection of systems based on their technical and operational attributes and does not penalize the interconnection of a generator simply because of its billing arrangement.

¹⁶ Pepco comments on the Second NOPR, pg. 9-10

¹⁷ DOEE reply comments on the First NOPR, pg. 13-14

¹⁸ Pepco comments on the Second NOPR, pg. 10

B. Changes to Design after ATI has been Issued

In Pepco's comments in response to the Second NOPR, it argues that the interconnection agreement should not be provided with ATI, and instead: "Until the final cost letter is issued, designs can change, and the agreement technically would not be final."¹⁹ The SGIR does not currently contain a provision for changing the design of interconnection facilities or EDS upgrades after ATI has been issued. To make this change would represent a significant overhaul of the SGIR, allowing for last-minute changes or requirements for interconnection that could present significant delays. As the Commission continues to modernize and standardize interconnection procedures in line with the District's climate goals and mandates, the introduction of additional opacity and variability to the process proposed by Pepco would represent an unacceptable change.

DOEE also notes that Maryland's SGIR, where Pepco also operates, does not delay the interconnection agreement and requires the issuance of said agreement at the same time the electric distribution company notifies the customer that it is approved to interconnect (with or without additional facilities or upgrades).²⁰ The relevant section of the Code of Maryland Regulations (COMAR) is included as Attachment D.

V. IEEE 1547-2018 STANDARD

DOEE agrees with both JSA's²¹ and DCCA's²² requests for stakeholder participation in the Commission's roll-out of the IEEE 1547-2018 Standard.

¹⁹ Pepco Comments on the Second NOPR, pg. 11

²⁰ Maryland COMAR Chapter 20.50.09

²¹ JSA Comments on the Second NOPR, pg. 2-3

²² DCCA's Comments on the Second NOPR, pg. 2-4

DOEE disagrees with Pepco's proposed changes to the language in the SGIR that would favor generation curtailment,²³ and incorporates DOEE's reply comments to the First NOPR by reference.²⁴

VI. RESPONSES TO PROPOSALS THAT WOULD DENY OR OTHERWISE HARM DER INTERCONNECTION

This section will elaborate on the following topics: (A) Size Limits; (B) CREF Customer charges.

A. Interconnection Size Limits

Pepco has proposed to reduce the maximum size of a project that can interconnect under Level 2 from 2 MW to down to 250 kW, in order to align the SGIR to a unilaterally proposed technical standards document that has not been put forward for stakeholder input or Commission approval.²⁵ DOEE requests that the Commission maintain the existing language for eligibility for Level 2 interconnection and incorporates DOEE's reply comments to the First NOPR by reference.²⁶ DOEE requests that the Commission reject any proposal that would artificially reduce solar hosting capacity in the District of Columbia.

B. CREF Customer Charges

Pepco has proposed to assess a monthly customer charge to CREF systems by treating CREFs as customers rather than as generators.²⁷ DOEE incorporates by reference its reply comments to the First NOPR, in which DOEE demonstrated that CREFs are generators under the Community Renewable Energy Amendment Act of 2013 and that the community solar tariff in

²³ Pepco's Comments to the Second NOPR, pg. 12

²⁴ Attachment B, pg. 18-21

²⁵ Pepco's comments on the Second NOPR, pg. 14-16

²⁶ Attachment B, pg. 31-34

²⁷ Pepco's comments on the Second NOPR, pg. 17-18

Maryland does not include a customer charge.²⁸ DOEE has reviewed the most updated Pepco Maryland Tariff schedule, and finds that there is still no provision for a customer charge for a functioning community solar system.²⁹

VII. PEPCO'S INTEREST IN CREF OWNERSHIP MAY NOT ALIGN WITH THE INTERESTS OF NON-UTILITY OWNED CREFS

As noted at the outset, Pepco has publicly expressed its interest in, and desire to, "procure, own, and deploy various DERs that could include investments, such as community solar projects, that support the distribution system."³⁰ Pepco believes that "[i]n this manner, renewable generation facilities could be more rapidly developed in the District of Columbia, and greater DER access could be provided to low- and moderate-income customers."³¹ Regardless of Pepco's representation that, as the District of Columbia's monopoly electric distribution utility, it is better positioned to roll out community solar projects than private developers or governmental and nonprofit entities, there would appear to be a competitive benefit to Pepco if amendments to the SGIR were implemented that would have the effect of increasing the costs and timeframes for non-utility customers to develop CREFs.³² But as highlighted in DOEE's Reply Comments and Table of Pepco proposals above, Pepco's proposed amendments to the SGIR seem designed to do exactly that.³³ The Commission should rightly consider the impact of its proposed amendments to the SGIR on the larger market for solar development in the District of Columbia.

²⁹ Pepco Maryland Tariff Schedule, accessed February 23, 2021:

²⁸ Attachment B, pg. 27-30 and Attachment D

https://www.pepco.com/MyAccount/MyBillUsage/Documents/MD%20Pepco%20Current%20Rate%20Schedule%2 0effective%20010121%20EmPower%20MD%20Surcharge.pdf

³⁰ F.C. 1166, Pepco's Comments in Response to Notice of Inquiry, at pg. 17 (Nov. 16, 2020).

³¹ Id.

³² DOEE believes that Pepco's ownership of CREF is unlawful under the Retail Competition Act of 1999. See DOEE's comments in response to the Commission's Notice of Inquiry in *Formal Case 1166*.

³³ e.g. adding a \$400/month customer charge for CREF, reducing the size of projects that can interconnect without a full study.

VIII. CONCLUSION

DOEE appreciates the efforts made by the parties, including Pepco, to improve the interconnection process in the District of Columbia. However, much work remains to be done to expedite compliance with the District's local solar mandate and local solar economic development goals. DOEE requests that the Commission reject Pepco's proposed changes to the SGIR discussed herein that would make interconnection to the EDS more difficult and costly and looks forward to working with Pepco, a Commission-convened Advanced Inverter Working Group, and the RM-9 WG to address outstanding issues.

Chapter 40, DISTRICT OF COLUMBIA SMALL GENERATOR INTERCONNECTION RULES of Title 15 DCMR, PUBLIC UTILITIES AND CABLE TELEVISION, is amended to read as follows:

CHAPTER 40 DISTRICT OF COLUMBIA SMALL GENERATOR INTERCONNECTION RULES

Section	
4000	Purpose and Applicability
4001	Interconnection Requests, Fees, and Forms
4002	Applicable Standards
4003	Interconnection Review Levels
4004	Level 1 Interconnection Reviews
4005	Level 2 Interconnection Reviews
4006	Level 3 Interconnection Reviews
4007	Level 4 Interconnection Reviews
4008	Technical Requirements
4009	Disputes
4010	Waiver
4011	Supplemental Review
4012	Applicant Options Meeting
4013-4098	[Reserved]
4099	Definitions

4000 PURPOSE AND APPLICABILITY

4000.1 This chapter establishes the District of Columbia Small Generator Interconnection Rules ("DCSGIR") which apply to facilities satisfying the following criteria:

- (a) The total Nameplate Capacity of the Small Generator Facility is equal to or less than twenty (20) megawatts ("MW").
- (b) The Small Generator Facility is not subject to the interconnection requirements of PJM Interconnection.
- (c) The Small Generator Facility is designed to operate in parallel with the Electric Distribution System.

4001 INTERCONNECTION REQUESTS, FEES, AND FORMS

4001.1 Interconnection Customers seeking to interconnect a Small Generator Facility shall submit an Interconnection Request using a standard form approved by the Commission to the Electric Distribution Company ("EDC") that owns the Electric

Distribution System ("EDS") to which interconnection is sought. The EDC shall establish processes for accepting Interconnection Requests electronically.

- 4001.2 The Commission shall determine the appropriate interconnection fees, and the fees shall be posted on the EDC's website and listed in the EDC's tariffs. There shall be no application fee for submitting a Level 1 Interconnection Request.
- 4001.3 In circumstances where standard forms and agreements are used as part of the interconnection process defined in this document, electronic versions of those forms shall be approved by the Commission and posted on the EDC's website. The EDC's Interconnection Request forms shall be provided in a format that allows for electronic entry of data.
- 4001.4 The EDC shall allow an Interconnection Request to be submitted through the EDC's website. The EDC shall allow electronic signatures to be used for Interconnection Request.
- 4001.5 In accordance with Subsection 4003.2 herein, Interconnection Customers may request an optional Pre-Application Report from the EDC to get information about the Electric Distribution System conditions at their proposed Point of Common Coupling without submitting a completed Interconnection Request form.
- 4001.6 The EDC shall assign each complete Interconnection Requests a queue position based on when it is deemed complete. The EDC shall maintain a single queue, which includes all Interconnection Requests which have been assigned a queue position. The queue information which pertains to Levels 2, 3, and 4 Interconnection Requests shall be available publicly, shall be sortable by feeder, and be updated at least monthly. Information to be included in the publiclyavailable queue is shown in Attachment A.
- 4001.7 The EDC shall maintain on its website an Interconnection Facilities Cost Matrix ("Interconnection Facilities Cost Matrix") as defined in Section 4099. The Interconnection Facilities Cost Matrix will be updated annually by April 1st of each year, and may be updated up to twice annually. The EDC shall file a Notice with the Commission of the Interconnection Facilities Cost Matrix it intends to post not less than fourteen (14) days prior to its posting, on the EDC website. The Notice shall specify the intended effective date of the Interconnection Facilities Cost Matrix. Each proposed update should be publicly posted for a ten (10)-day objection period. If no objections are filed with the Commission, the updated Interconnection Facilities Cost Matrix shall be made final. If two or more objections are received by the Commission pertaining to a certain cost item, the updated Interconnection Facilities Cost Matrix shall be postponed pending resolution of the objectionable cost data. In the event of any dispute or postponement, the filed and approved copy of the Interconnection Facilities Cost Matrix is controlling.

4002 APPLICABLE STANDARDS

- 4002.1 Unless one or more of the following standards are waived by the EDC, a Small Generator Facility must comply with the following standards, as applicable:
 - (a) Institute of Electrical and Electronics Engineers ("IEEE") 1547 Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces;
 - (b) IEEE 1547.1 Standard Conformance Test Procedures for Equipment Interconnecting Distributed Energy Resources with Electric Power Systems and Associated Interfaces;
 - (c) IEEE 1547.2 Application Guide for IEEE Standard 1547 for Interconnecting Distributed Resources with Electric Power Systems;
 - (d) Underwriters Laboratories ("UL") 6142 Standard for Small Wind Turbine Systems; and
 - (e) UL 1741 Standard for Inverters, Converters and Controllers for Use in Independent Power Systems. UL 1741 compliance must be recognized or certified by a Nationally Recognized Testing Laboratory as designated by the U.S. Occupational Safety and Health Administration. Certification of a particular model or a specific piece of equipment is sufficient. It is also sufficient for an inverter built into a Generating Facility to be recognized as being UL 1741 compliant by a Nationally Recognized Testing Laboratory.
- 4002.2-4002.4 [RESERVED]
- 4002.5 The Interconnection Equipment shall meet the requirements of the most current approved version of each document listed in Subsection 4002.1, as amended and supplemented at the time the Interconnection Request is submitted.
- 4002.6 Nothing herein shall preclude the need for an on-site Witness Test or operational test by the Interconnection Customer.
- 4002.7 Advanced Inverters

To comply with IEEE 1547-2018:

- (a) After January 1, 2022, any Small Generator Facility requiring an inverter that submits an interconnection request shall use an Advanced Inverter with either a default or a site-specific EDC required inverter settings profile, as determined by the EDC.
- (b) Any Small Generator Facility may replace an existing inverter that was purchased prior to January 1, 2022, with an inverter of equal or greater ability than the original inverter, for use at the Small Generator Facility.

- (c) <u>The Commission, The EDC shall establish with the support of a stakeholder</u> working group, will establish default EDC required inverter settings profiles for Advanced Inverters pursuant to Subsection 4002.7(e)₁₇ and shall publish the The default EDC required inverter settings profile <u>shall be published by</u> the Commission as a technical addendum to the SGIR and on the EDC's website prior to January 1, 2022.
- (d) To the extent reasonable, pursuant to any modifications required by Subsection 4002.7(e), all EDC required inverter settings profiles shall be consistent with applicable Advanced Inverter recommendations from PJM Interconnection, LLC.
- (e) A default EDC required inverter settings profile shall be established by an EDC to optimize the safe and reliable operation of the Electric Distribution System, and shall serve the following objectives:
 - (1) The primary objective is to incur no involuntary real power inverter curtailments incurred during normal operating conditions and minimal real power curtailments during abnormal operating conditions.
 - (2) The secondary objective is to enhance Electric Distribution System hosting capacity and to optimize the provision of grid support services.
- (f) A site-specific EDC required inverter settings profile may be established by an EDC as necessary to optimally meet objectives established in Subsection 4002.7(e).
- (g) All default EDC required inverter settings profiles will be documented in the interconnection agreements.
- (h) A list of acceptable Advanced Inverters shall be published on the EDC's website prior to January 1, 2022.

4003 INTERCONNECTION REVIEW LEVELS

4003.1 The EDC shall review Interconnection Requests using one (1) or more of the four (4) levels of review procedures established by this chapter. The EDC shall first use the level of agreement specified by the Interconnection Customer in the Interconnection Request form. If a Small Generator Facility fails a screen at any level, the EDC may elect to complete the evaluation at the current level, if safety and reliability are not adversely impacted, or at the next appropriate level. The

		may not impose additional requirements not specifically authorized unless the and the Interconnection Customer mutually agree to do so in writing.
4003.2		Interconnection Customer requests a Pre-Application Report from the EDC, quest shall include:
	(a)	Contact information (name, address, phone and email).
	(b)	A proposed Point of Common Coupling, including latitude and longitude, site map, street address, utility equipment number (<i>e.g.</i> , pole number), meter number, account number or some combination of the above sufficient to clearly identify the location of the Point of Common Coupling.
	(c)	Generation technology and fuel source (if applicable).
	(d)	A three hundred dollar (\$300) non-refundable processing fee.
4003.3	inform	each Pre-Application Report requested, which includes the requisite nation and fee, the EDC shall furnish a report, within ten (10) business days eipt of the completed Pre-Application Report request, which:
	(a)	Advises the Interconnection Customer that the existence of "Available Capacity" in no way implies that an interconnection up to this level may be completed without impacts since there are many variables studied as part of the interconnection review procedures.
	(b)	Informs the Interconnection Customer that the Electric Distribution System is dynamic and subject to change.
	(c)	Informs the Interconnection Customer that data provided in the Pre- Application Report may become outdated and not useful at the time of submission of the complete Interconnection Request.

- (d) Includes the following information, if available:
 - (1) Total Capacity (MW) of substation/area bus or bank and distribution circuit likely to serve proposed Point of Common Coupling.
 - (2) Allocated Capacity (MW) of substation/area bus or bank and distribution circuit likely to serve proposed Point of Common Coupling.
 - (3) Queued Capacity (MW) of substation/area bus or bank and distribution circuit likely to serve proposed Point of Common Coupling.

- (4) Available Capacity (MW) of substation/area bus or bank and distribution circuit most likely to serve proposed Point of Common Coupling.
- (5) Whether the proposed Small Generator Facility is located on an area, spot or radial network.
- (6) Substation nominal distribution voltage or transmission nominal voltage if applicable.
- (7) Nominal distribution circuit voltage at the proposed Point of Common Coupling.
- (8) Approximate distribution circuit distance between the proposed Point of Common Coupling and the substation.
- (9) Relevant Line Section(s) peak load estimate, and minimum load data, when available.
- (10) Number of protective devices and number of voltage regulating devices between the proposed Point of Common Coupling and the substation/area.
- (11) Whether or not three-phase power is available at the proposed Point of Common Coupling and/or distance from three-phase service.
- (12) Limiting conductor rating from proposed Point of Common Coupling to the electrical distribution substation.
- (13) Based on proposed Point of Common Coupling, existing or known constraints such as, but not limited to, electrical dependencies at that location, short circuit interrupting capacity issues, power quality or stability issues on the circuit, capacity constraints, or secondary networks.
- (14) The Pre-Application Report need only include pre-existing data. The EDC is not obligated in its preparation of a Pre-Application Report to conduct a study or other analysis of the proposed project in the event that data is not available. If the EDC cannot complete all or some of a Pre-Application Report due to lack of available data, the EDC will provide the potential Applicant with a Pre-Application Report that includes the information that is available and identify the information that is unavailable. Notwithstanding any of the provisions of this Section, the EDC shall, in good faith, provide Pre-Application Report data that represents the best available information at the time of reporting.

(e) As an alternative to information required pursuant to § 4003.3(d), the EDC may elect to perform a power flow-based study providing the Interconnection Customer with the maximum size distributed energy resource (DER) that can be installed at a specified location without Distribution System Upgrades and the constraint encountered precluding installation of a larger system without upgrades. EDC shall make available, upon request, a copy of its power flow-based study for each Interconnection Customer to the Commission.

4004 LEVEL 1 INTERCONNECTION REVIEWS

- 4004.1 For Level 1 Interconnection Review, the EDC shall use Level 1 procedures for evaluation of all Interconnection Requests to connect inverter-based Small Generator Facilities.
- 4004.2 For Level 1 Adverse System Impact screens, the EDC shall evaluate the potential for Adverse System Impacts using the following screens, which must be satisfied:
 - (a) The Small Generator Facility has a Nameplate Capacity of twenty (20) kW or less.
 - (b) For interconnection of a proposed Small Generator Facility to a Line Section on a Radial Distribution Circuit, the aggregated generation on the Line Section, including the proposed Small Generator Facility and all other generator facilities capable of coincidental export of energy on the Line Section, shall not exceed the anticipated minimum load on the Line Section, as determined by the results of a power flow-based study performed by the EDC to evaluate the impact of the proposed Small Generator Facility. If such results are unavailable, the aforementioned aggregate generating capacity shall not exceed fifteen percent (15%) of the Line Section's annual peak load as most recently measured at the substation or calculated for the Should the EDC have previously identified the Line Section. aforementioned Line Section as exceeding fifteen percent (15%) of the Line Section's annual peak load, the EDC shall use its best efforts to complete a power-flow based study to evaluate the impact of the proposed Small Generator Facility as described herein. The EDC shall not fail the Small Generator Facility based solely on the application of the fifteen percent (15%) peak load limitation if the EDC has valid power flow-based study results that can be used to evaluate the impact of the proposed Small Generator Facility.
 - (c) When a proposed Small Generator Facility is to be interconnected on a single-phase shared Secondary Line, the aggregate generation capacity on the shared Secondary Line, including the proposed Small Generator Facility, may not exceed twenty (20) kW.

- (d) When a proposed Small Generator Facility is single-phase and is to be interconnected on a transformer center tap neutral of a two hundred forty (240) volt service, its addition may not create an imbalance between the two (2) sides of the two hundred forty (240) volt service of more than twenty percent (20%) of the nameplate rating of the service transformer.
- (e) For interconnection of a Small Generator Facility within a Spot Network or Area Network, the aggregate generating capacity including the Small Generator Facility may exceed fifty percent (50%) of the network's anticipated minimum load if the EDC determines that safety and reliability are not adversely impacted. If solar energy small generator facilities are used, only the anticipated daytime minimum load shall be considered. The EDC may select any of the following methods to determine the anticipated minimum load:
 - (1) The network's measured minimum load in the previous year, if available;
 - (2) Five percent (5%) of the network's maximum load in the previous year;
 - (3) The Interconnection Customer's good faith estimate, if provided; or
 - (4) The EDC's good faith estimate, if provided in writing to the Interconnection Customer, along with the reasons why the EDC considered the other methods to estimate minimum load inadequate.
- (f) No construction of facilities by the EDC on its own system other than metering is required in order to accommodate the Small Generator Facility.
 - (1) If the Interconnection Request requires the construction of Interconnection Facilities or Distribution System Upgrades to accommodate the Small Generator Facility, the EDC shall continue its evaluation using Level 2 procedures, commencing at Subsection 4005.4(a)(1), and the EDC shall notify the Interconnection Customer that it is continuing its evaluation using Level 2 procedures, with an extended timeline of twenty-five (25) business days to Approval to Install.
- (g) The EDC may use results from a valid power flow-based study performed to evaluate the impact of the proposed Small Generator Facility, provided such results are not used to fail any of the Subsections 4004.2 (c), (d), or (e) screens. EDC shall make available upon request a copy of its power flowbased study for each applicant to the Commission.
- (h) If a Small Generator Facility fails a Level 1 Adverse System Impact screen, the EDC may elect to complete the evaluation at Level 1, if safety and reliability are not adversely impacted, or at the next appropriate level.

- 4004.3 The Level 1 Interconnection Review shall be conducted in accordance with the following procedures:
 - (a) The EDC shall, within five (5) business days after receipt of Part 1 of the Interconnection Request, notify the Interconnection Customer in writing or by electronic mail of the review results, which shall indicate that the Interconnection Request is complete or incomplete, and what materials, if any, are missing.
 - (b) When an Interconnection Request is complete, the EDC shall assign the Interconnection Request a Queue Position.
 - (c) Within five (5) business days after the EDC acknowledges receipt of a complete Interconnection Request, the EDC shall notify the Interconnection Customer of the Level 1 Adverse System Impact screening results. If the proposed interconnection meets all of the applicable Level 1 Adverse System Impact screens or the EDC determines that the Small Generator Facility can be interconnected safely and reliably to its system, the EDC shall provide the Interconnection Customer with an Approval to Install.
 - (d) The EDC will provide an EDC-executed Interconnection Agreement within three (3) business days of issuing the Approval to Install.
 - (e) Unless extended by mutual agreement of the Interconnection Customer and the EDC, within six (6) months of receiving an Approval to Install or six (6) months from the completion of any upgrades, whichever is later, the Interconnection Customer shall provide the EDC a completed Level 1 PART II Small Generator Facility Interconnection Certificate of Completion Form, including the signed inspection certificate.
 - (f) The EDC may, within ten (10) business days of receiving a completed Level 1 PART II - Small Generator Facility Interconnection Certificate of Completion Form and the inspection certificate from the Interconnection Customer, conduct a Witness Test at a time mutually agreeable to the Interconnection Customer and the EDC. If the Witness Test fails to reveal that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes, the EDC shall offer to redo the Witness Test at the Interconnection Customer's expense at a time mutually agreeable to the Interconnection Customer and the EDC. If the EDC determines that the Small Generator Facility fails the inspection it must provide a written explanation detailing the reasons and any standards violated. If the EDC does not perform the Witness Test within ten (10) business days or other time as is mutually agreed to by the Interconnection Customer and the EDC, the Witness Test is deemed waived.

- (g) The EDC shall provide the Interconnection Customer with the Authorization to Operate within twenty (20) business days of receiving a completed Level 1 PART II - Small Generator Facility Interconnection Certificate of Completion Form, including the signed inspection certificate. An Interconnection Customer may begin interconnected operation of a Small Generator Facility provided that there is an Interconnection Agreement in effect, the EDC has received proof of the electrical code official's approval, the Small Generator Facility has passed any Witness Test by the EDC, and the EDC has issued the Authorization to Operate
- (h) The EDC may require photographs of the site, Small Generator Facility components, meters, or any other aspect of the Interconnection Facilities as part of the Level 1 Interconnection Review process, provided that failure to provide a photo in a timely manner will not be a reason for the EDC to deem an Interconnection Request incomplete.
- 4004.4 [RESERVED]
- 4004.5 [RESERVED]
- 4004.6 The EDC, at its sole option, may approve the Interconnection Request provided that such approval is consistent with safety and reliability. If the EDC cannot determine that the Small Generator Facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards, the EDC shall provide the Interconnection Customer with detailed information on the reason(s) for failure in writing. In addition, the EDC shall either:
 - (a) Notify Interconnection Customer that the EDC is continuing to evaluate the Small Generator Facility under Supplemental Review if the EDC concludes that the Supplemental Review might determine that the Small Generator Facility could continue to qualify for interconnection pursuant to Level 2; or
 - (b) Offer to continue evaluating the Interconnection Request under Level 4.
- 4004.7 If, on an annual basis, the EDC fails to issue at least ninety percent (90%) of all Authorizations to Operate and Approval to Install in the Level 1 interconnection process (as specified within the timeline(s) stipulated in Subsection 4004.3), it shall be required to develop a corrective action plan.
 - (a) The corrective action plan shall describe the cause(s) of the EDC's noncompliance with Subsection 4004.7, describe the corrective measure(s) to be taken to ensure that the standard is met or exceeded in the future, and set a target date for completion of the corrective measure(s). To the extent automation is an element of the corrective measure(s), this should be described in the plan.

- (b) Progress on current corrective action plans shall be included in the EDC's Small Generator Interconnection Annual Report.
- (c) The EDC shall report the actual performance of compliance with Subsection 4004.7 during the reporting period in the Small Generator Interconnection Annual Report of the following year.

4005 LEVEL 2 INTERCONNECTION REVIEWS

- 4005.1 For a Level 2 Interconnection Review, the EDC shall use the Level 2 procedures for an Interconnection Request.
- 4005.2 For Level 2 Adverse System Impact screens, the EDC shall evaluate the potential for Adverse System Impacts using the following screens, which must be satisfied:
 - (a) The Small Generator Facility Nameplate Capacity rating does not exceed the limits identified in the table below, which vary according to the voltage of the line at the proposed Point of Common Coupling. Small Generator Facilities located within two and a half (2.5) miles of a substation and on a main distribution line with a minimum six hundred (600)-amp capacity are eligible for Level 2 Interconnection Review under higher thresholds.

Line Capacity	Level 2 Eligibilit	Level 2 Eligibility	
	Regardless of location	On \geq 600 amp line and \leq 2.5 miles from substation	
<u><</u> 4 kV	< 1 MW	< 2 MW	
4.1 kV – 14 kV	< 2 MW	< 3 MW	
15 kV – 30 kV	< 3 MW	< 4 MW	
31 kV - 60 kV	\leq 4 MW	\leq 5 MW	

(b) For interconnection of a proposed Small Generator Facility to a Radial Distribution Circuit, the Small Generator Facility aggregated with all other generation capable of coincidental exporting energy on the Line Section may not exceed the anticipated minimum load on the Line Section, as determined by the results of a power flow-based study performed by the EDC to evaluate the impact of the proposed Small Generator Facility. If such results are unavailable, the aforementioned aggregate generating capacity shall not exceed fifteen percent (15%) of the Line Section annual peak load, as most recently measured at the substation or calculated for the Should the EDC have previously identified the Line Section. aforementioned Line Section as exceeding fifteen percent (15%) of the Line Section's annual peak load, the EDC shall use its best efforts to complete a power-flow based study to evaluate the impact of the proposed Small Generator Facility as described herein. The EDC shall not fail the Small Generator Facility based solely on the application of the fifteen percent (15%) peak load limitation if the EDC has valid power flow-based study

results that can be used to evaluate the impact of the proposed Small Generator Facility.

- For interconnection of a proposed Small Generator Facility within a Spot or (c) Area Network, the proposed Small Generator Facility shall utilize an inverter-based equipment package and use a minimum import relay or other protective scheme that will ensure power imported from the EDC to the network will, during normal EDC operations, remain above twenty percent (20%) of the minimum load on the network transformer based on historical data, or will remain above an import point reasonably set by the EDC in good faith. For interconnection of a proposed Small Generator Facility within an Area Network, the proposed Small Generator Facility shall utilize an inverter-based equipment package and adhere to a maximum aggregate export level of eighty percent (80%) of the generation level that would cause reverse flow on a network transformer, or will remain below an export point reasonably set by the EDC in good faith. At the EDC's discretion, the requirement for minimum import relays or other protective schemes may be waived.
- (d) The proposed Small Generator Facility, in aggregation with other generation on the distribution circuit, may not contribute more than ten percent (10%) to the distribution circuit's maximum Fault Current at the point on the high voltage (primary) level nearest the Point of Common Coupling.
- (e) The proposed Small Generator Facility, in aggregate with other generation on the distribution circuit, may not cause any distribution protective devices and equipment (including substation breakers, fuse cutouts, and line reclosers), or EDC customer equipment on the Electric Distribution System, to exceed ninety percent (90%) of the short circuit interrupting capability. The Interconnection Request may not receive approval for interconnection on a circuit that already exceeds ninety percent (90%) of the short circuit interrupting capability.
- (f) The proposed Small Generator Facility's Point of Common Coupling may not be on a transmission line.
- (g) The Small Generator Facility complies with the applicable type of interconnection, based on the table below. This screen includes a review of the type of electrical service provided to the Interconnecting Customer, including line configuration and the transformer connection to limit the potential for creating over-voltages on the EDC's Electric Distribution System due to a loss of ground during the operating time of any anti-islanding function. This screen does not apply to Small Generator Facilities with a gross rating of 11 kVA or less.

Primary Distribution Line Configuration	Type of Interconnection to be Made to the Primary Circuit	Results/Criteria
Three-phase, three-wire	Any type	Pass Screen
Three-phase, four-wire	Single-phase, line-to-neutral	Pass Screen
Three-phase, four-wire (For any line that has such a section, or mixed three wire and four wire)	All Others	To pass, aggregate Small Generator Facility Nameplate Capacity must be less than or equal to 10% of Line Section peak load

- (h) When the proposed Small Generator Facility is to be interconnected on single-phase shared Secondary Line, the aggregate generation capacity on the shared Secondary Line, including the proposed Small Generator Facility, shall not exceed sixty-five percent (65%) of the transformer nameplate power rating.
- (i) When a proposed Small Generator Facility is single-phase and is to be interconnected on a transformer center tap neutral of a two hundred forty (240)-volt service, its addition may not create an imbalance between the two sides of the 240-volt service of more than twenty percent (20%) of the nameplate rating of the service transformer.
- (j) A Small Generator Facility, in aggregate with other generation interconnected to the distribution low-voltage side of a substation transformer feeding the electric distribution circuit where the Small Generator Facility proposes to interconnect, may not exceed 20MW in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity (*e.g.* three (3) or four (4) transmission voltage level buses from the Point of Common Coupling), or the proposed Small Generator Facility shall not have interdependencies, known to the EDC, with earlier-queued Interconnection Requests.
- (k) Except as permitted by the modified Level 2 review process in Subsection 4005.6, no construction of facilities by the EDC on its own system other than metering shall be required to accommodate the Small Generator Facility.
- (1) The EDC may use results from a valid power flow-based study performed to evaluate the impact of the proposed Small Generator Facility, provided

such results are not used to fail any of the Subsection 4005.2 (c), (d), (e), (f), (g), (h), (i), or (j) screens.

(m) If a power-flow analysis is performed based on Subsections 4005.2 (b) or
 (l), the EDC shall make available upon request a copy of its power flow-based study for each applicant to the Commission.

4005.3 [RESERVED]

- 4005.4 The Level 2 Interconnection Review shall be conducted in accordance with the following procedures:
 - (a) The EDC shall, within five (5) business days after receipt of Part 1 of the Interconnection Request, acknowledge, in writing or by electronic mail, receipt of the Interconnection Request, indicating whether it is complete or incomplete, and the appropriate application fee.
 - (1) If the Interconnection Request requires the construction of Interconnection Facilities or Distribution System Upgrades, the following additional information will be required to be submitted with the application. Provision of the additional information does not preclude challenging the findings in accordance with Subsection 4005.4(a)(2).
 - (A) Electrical room drawings. Such drawings may be omitted for the CREF initial application submission, but could be required by the EDC upon confirmation of the CREF location by the Interconnection Customer and the EDC.
 - (B) Meter locations.
 - (C) Initial proposed interconnection drawings.
 - (2) If the EDC requires the construction of <u>Interconnection Facilities or</u> Distribution System Upgrades during the Interconnection Request process, the EDC shall provide a <u>written</u> technical explanation that reviews the need for the identified facilities and/or upgrades. The EDC shall demonstrate that required functionalities are not satisfied by employing IEEE STD 1547 certified and UL 1741 SA listed equipment.

If requested by the Interconnection Customer, and agreed to by the Interconnection Customer and the EDC, a Modified Level 1/2 Scoping Meeting shall be held within ten (10) business days, or other mutually agreed to time, after the EDC has notified the Interconnection Customer that Interconnection Facilities and/or a Distribution System Upgrade are being required by the EDC. The Modified Level 1/2 Scoping Meeting shall take place in person, by

telephone, or electronically by a means mutually agreeable to the Interconnection Customer and the EDC. The purpose of this meeting shall be to review the Interconnection Request, existing studies relevant to the Interconnection Request, the conditions at the proposed location, the results of the Level 1 or Level 2 Adverse System Impact screening criteria, and a technical explanation in which the EDC reviews the need for the aforementioned facilities and/or system upgrade.

- (b) When the Interconnection Request is deemed incomplete, the EDC shall provide a written list detailing all information that must be provided to complete the request. The Interconnection Customer shall have ten (10) business days after receipt of the list to revise the Interconnection Request to include the requested information and resubmit the Interconnection Request or request an extension of time to provide such information. If the Interconnection Request is not resubmitted with the requested information within ten (10) days, the Interconnection Request shall be deemed withdrawn. The EDC shall notify the Interconnection Request whether the request is complete or incomplete. The EDC may deem the request withdrawn if it remains incomplete.
- (c) When an Interconnection Request is complete, the EDC shall assign a Queue Position.
- (d) Unless Subsection 4005.6 applies, within fifteen (15) business days after the EDC notifies the Interconnection Customer that it has received a completed Interconnection Request, the EDC shall evaluate the Interconnection Request using the Level 2 screening criteria and notify the Interconnection Customer whether the Small Generator Facility meets all of the applicable Level 2 Adverse System Impact screens. If the proposed interconnection meets all of the applicable Level 2 Adverse System Impact screens and the EDC determines that the Small Generator Facility can be interconnected safely and reliably to the Electric Distribution System, the EDC shall provide the Interconnection Customer an Approval to Install. The EDC shall provide an EDC-executed Interconnection Agreement within three (3) business days after notification of Level 2 issuance of the Approval to Install.
 - If Distribution System Upgrade(s) are required, the Interconnection Customer will be notified at this time that the modified process in 4005.6 has been triggered., with an extended timeline of twenty-five (25) business days to Approval to Install.
- (e) Unless extended by mutual agreement of the Interconnection Customer and the EDC, within twenty-four (24) months of receiving an Approval to Install or six (6) months of completion of any Distribution System Upgrades,

whichever is later, the Interconnection Customer shall provide the EDC with the signed Level 2-4 Part II – Small Generator Interconnection Certificate of Completion, including the signed inspection certificate. An Interconnection Customer shall communicate with the EDC no less frequently than every six (6) months regarding the status of a proposed Small Generator Facility to which an Interconnection Agreement refers.

- (f) The EDC may conduct a Witness Test within ten (10) business days of receiving the completed Level 2-4 Part II - Small Generator Facility Interconnection Certificate of Completion and the signed inspection certificate from the Interconnection Customer, conduct a Witness Test at a time mutually agreeable to the Interconnection Customer and the EDC. If the Witness Test fails to reveal that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes, the EDC shall offer to redo the Witness Test at the Interconnection Customer's expense at a time mutually agreeable to the Interconnection Customer and the EDC. If the EDC determines that the Small Generator Facility fails the inspection it must provide a written explanation detailing the reasons and any standards violated. If the EDC does not perform the Witness Test within ten (10) business days or other such time as is mutually agreed to by the Interconnection Customer and the EDC, the Witness Test is deemed waived.
- (g) An Interconnection Customer may begin interconnected operation of a Small Generator Facility provided that there is an Interconnection Agreement in effect, the EDC has received proof of the electrical code official's approval, the Small Generator Facility has passed any Witness Test by the EDC, and the EDC has issued the Authorization to Operate. <u>The EDC shall issue the Authorization to Operate within twenty (20) business</u> <u>days of receipt of required documentation 4005.4(e)</u>. Evidence of approval by an electric code official includes a signed inspection certificate.
- (h) The EDC may require photographs of the site, Small Generator Facility components, meters, or any other aspect of the Interconnection Facilities as part of the Level 2 Interconnection Review process, provided that failure to provide a photo in a timely manner will not be a reason for the EDC to deem an Interconnection Request incomplete.
- 4005.5 [RESERVED]
- 4005.6 Modifications to Level 2 Interconnection Review Process:
 - (a) If the Interconnection Request requires the addition of Interconnection Facilities that fall within the Interconnection Facilities Cost Matrix, as described in Subsection 4001.7<u>only</u>, the following process shall be followed for the Approval to Install. Subsection 4005.4(d) does not apply.

- (1) If the only Interconnection Facilities required in the Interconnection Request are captured in one or more of the categories in the Interconnection Facilities Cost Matrix, the Interconnection Customer will be responsible only for the applicable Interconnection Facilities cost(s) from the Interconnection Facilities Cost Matrix.
- (2) The cost(s) from the Interconnection Facilities Cost Matrix will be final costs.
- (3) The EDC shall issue the final cost letter, which shall contain only the applicable cost(s) from the Interconnection Facility Cost Matrix and will be provided concurrently with the Approval to Install, and shall be provided within twenty-five (25)fifteen (15) business days after the Interconnection Request is deemed complete.
- (3)(4) (5) If the Interconnection Facilities are not captured in the Matrix, the EDC shall provide an itemized cost letter that includes a detailed list of interconnection facilities, breaking out unit costs for equipment, labor, operation and maintenance.
- (b) If the Interconnection Request requires the addition of Interconnection Facilities and the Interconnection Facilities Cost Matrix is not applicable or requires the addition of Distribution System Upgrades, the following process shall be followed for the Approval to Install. Subsection 4005.4(d) does not apply.
 - (1) The estimated cost letter shall be provided within twenty-five (25) business days after the Interconnection Request is deemed complete.
 - (2) The EDC will provide a cost estimate based on a forty percent (40%) design that is accurate within +/- fifty percent (50%)twenty-five percent (25%) concurrently with the Approval to Install.
 - (3) Unless extended by mutual agreement of the Interconnection Customer and the EDC, the Interconnection Customer must agree to the cost estimate and the operational requirements and execute the Interconnection Agreement within ten (10) business days of receiving the Approval to Install.
 - (4) Once the Interconnection Customer has approved the cost letter and operational requirements, the Interconnection Customer is responsible for the costs the EDC incurs designing or constructing Interconnection Facilities or Distribution System Upgrades if the Interconnection Customer decides not to move forward with the interconnection of the Small Generator Facility.
 - (5) Within <u>sixty (60)thirty (30)</u> business days after the EDC notifies the Interconnection Customer that it has received a completed Interconnection Request, the EDC will issue a final cost letter based

on one hundred percent (100%) design. The cost letter will include a detailed list of necessary Distribution System Upgrades and an itemized final cost, breaking out <u>unit costs for equipment, labor</u>, <u>operation and maintenance, and taxes</u>, total materials cost, and total labor cost for completing such upgrades. The final cost letter will also indicate the milestones for completion of the Interconnection Customer's installation of its Small Generator Facility and the EDC's completion of any Distribution System Upgrade, and these milestones will be incorporated by reference into the Interconnection Agreement. Upon receipt of the Interconnection Customer's written approval of the final cost letter, the EDC shall provide to the Interconnection Customer an invoice for the final costs within ten (10) business days.

- (6) If the Interconnection Customer changes the design of the interconnection of the Small Generator Facility in response to the EDC amending site-specific operating or other requirements, the project shall retain its eligibility for interconnection, including its place in the interconnection queue.
- If the Interconnection Customer changes the design of the (7) interconnection of the Small Generator Facility without prompting by the EDC, in a manner that results in a Material Modification, at any point, the estimated cost letter, Approval to Install, Interconnection Agreement, and final cost letter, as applicable, may be void. The Interconnection Customer shall notify the EDC of the requested design changes and if, in the reasonable judgement of the EDC, a reevaluation of the estimated and/or final cost letter is required, EDC will provide Interconnection Customer within ten (10) business days of receipt of the Interconnection Customer's notice an estimate of the time required to re-evaluate the costs and a request for all required technical data related to the proposed changes. Interconnection Customer may either (i) accept the additional time and cost to complete the re-evaluation, (ii) withdraw the proposed changes, or (iii) proceed with a new Interconnection Request for such changes. Interconnection Customer shall provide EDC written notice of its election within ten (10) business days following Interconnection Customer's receipt of EDC's estimated additional time.
- (6)(8) If the Interconnection Customer changes the design of the interconnection of the Small Generator Facility and the proposed modification is determined not to be a Material Modification, then the EDC shall notify the Interconnection Customer in writing that the modification has been accepted and that the Interconnection Customer shall retain its eligibility for interconnection, including its place in the interconnection queue.

- (7)(9) The EDC will provide an EDC-executed Interconnection Agreement within three (3) business days of issuing the Approval to Install.
- (c) The EDC shall design, procure, construct, install, and own any Distribution System Upgrades for a CREF. The Distribution System Upgrades costs shall be allocated as follows, subject to availability of funding.
 - (1) The total Distribution System Upgrade costs for shared allocation as described above shall be capped at \$200,000500,000 per calendar year. Costs paid by EDC for CREF Distribution System Upgrades shall be tracked as a regulatory asset and recovered in its next base rate case as distribution plant.
 - (2) If funding is available, Distribution System Upgrade cost responsibility shall be assigned as follows:
 - (A) For Distribution System Upgrade costs of \$50,000 or less, fifty percent (50%) of the costs shall be paid for by the CREF Interconnection Customer and fifty percent (50%) of the costs paid for by the EDC.
 - (B) For Distribution System Upgrade costs of over \$50,000, the portion paid by the EDC shall be capped at \$25,000. The CREF Interconnection Customer shall pay the balance of the Distribution System Upgrade costs after the EDC portion has been subtracted.
 - (3) If the annual funding is exhausted and thus no longer available, the CREF shall pay one hundred percent (100%) of costs.
- 4005.7 When a Small Generator Facility is not approved under a Level 2 review, the EDC, at its sole option, may approve the Interconnection Request provided such approval is consistent with safety and reliability and shall provide the Interconnection Customer an Approval to Install after the determination. If the EDC cannot determine that the Small Generator Facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards, the EDC shall provide the Interconnection Customer with detailed information on the reason(s) for failure in writing. In addition, the EDC shall either:
 - (a) Notify Interconnection Customer that the EDC is continuing to evaluate the Interconnection Request under Supplemental Review if the EDC concludes that the Supplemental Review might determine that the Small Generator Facility could continue to qualify for interconnection pursuant to Level 2; or
 - (b) Offer to continue evaluating the Interconnection Request under Level 4.

- 4005.8 On an annual basis, if the EDC fails to issue at least ninety percent (90%) of all Authorizations to Operate and Approval to Install in the Level 2 interconnection process (as specified within the timeline(s) specified in Subsections 4005.4 and 4005.6), and it shall be required to develop a corrective action plan.
 - (a) The corrective action plan shall describe the cause(s) of the EDC's noncompliance with Subsection 4005.8, describe the corrective measure(s) to be taken to ensure that the standard is met or exceeded in the future, and set a target date for completion of the corrective measure(s). To the extent automation is an element of the corrective measure(s), this should be described in the plan.
 - (b) Progress on current corrective action plans shall be included in the EDC's Small Generator Interconnection Annual Report.
 - (c) The EDC shall report the actual performance of compliance with Subsection 4005.8 during the reporting period in the Small Generator Interconnection Annual Report of the following year, including milestones for the number of Interconnection Requests in total, number and percentage meeting timeline requirements for Approval to Install, estimated cost letter, final cost letter, and Authorization to Operate, as they pertain to certain sections of Level 2 procedures:
 - (1) Unmodified (Subsection 4005.4 (c)),
 - (2) <u>Modified, Cost MatrixInterconnection Facilities Only</u> (Subsection 4005.6 (a), and
 - (3) <u>Modified, Cost Matrix Not ApplicableEDS Upgrades</u> (Subsection 4005.6 (b)).
- 4005.9On an annual basis, the EDC will submit a report summarizing the Modified Level1/2 Scoping Meetings that have been held, including:
 - (a) Number of meetings held
 - (b) Subject of meetings
 - (c) Outcome of meetings including:
 - (1) Number of meetings which resulted in a change to the technical or <u>operating requirements</u>
 - (2) Number of meetings which resulted in no change to the technical or <u>operating requirements</u>

4006 LEVEL 3 INTERCONNECTION REVIEWS

4006.1 The EDC shall use Level 2 Interconnection Review procedures for evaluating Level 3 Interconnection Requests provided the proposed Small Generator Facility has a Nameplate Capacity rating not greater than 20MW and uses reverse power relays, minimum import relays, or other protective devices to assure that power may never be exported from the Small Generator Facility to the EDC's electrical distribution system. An Interconnection Customer proposing to interconnect a Small Generator Facility to a spot or Area Network is not permitted under the Level 3 review process.

4007 LEVEL 4 INTERCONNECTION REVIEWS

- 4007.1 The EDC shall use the Level 4 Interconnection Review procedures for evaluating Interconnection Requests when:
 - (a) The Interconnection Request was not approved under a Level 1, Level 2, or Level 3 Interconnection Review and the Interconnection Customer has submitted a new Interconnection Request for consideration under a Level 4 Interconnection Review or requested that the rejected Interconnection Request be treated as a Level 4 Interconnection Request; and
 - (b) The Interconnection Request does not meet the criteria for qualifying for a review under Level 1, Level 2, or Level 3 Interconnection Review procedures.
- 4007.2 The Level 4 Interconnection Review shall be conducted in accordance with the following process:
 - (a) Within five (5) business days from receipt of Part I of an Interconnection Request or transfer of an existing request to a Level 4 Interconnection Request, the EDC shall notify the Interconnection Customer whether the request is complete.
 - (1) If the Interconnection Request requires the construction of Interconnection Facilities or Distribution System Upgrades, the following additional information could be required by the EDC for submission with the application:
 - (A) Electrical room drawings.
 - (B) Meter locations.
 - (C) Initial proposed interconnection drawings.
 - (2) If the EDC requires the construction of Distribution System Upgrades during the Interconnection Request process, the EDC shall provide a technical explanation that justifies the need for the

identified facilities and/or upgrades. The EDC shall demonstrate that required functionalities are not satisfied by employing IEEE STD 1547 certified and UL 1741 SA listed equipment.

- (b) When the Interconnection Request is deemed not complete, the EDC shall provide the Interconnection Customer with a written list detailing information required to complete the Interconnection Request. The Interconnection Customer shall have twenty (20) business days to revise the Interconnection Request to include the requested information and resubmit the Interconnection Request, or the Interconnection Request shall be considered withdrawn. The Interconnection Customer and the EDC may agree to extend the time for receipt of the revised Interconnection Request. The EDC shall notify the Interconnection Customer within five (5) business days of receipt of the revised Interconnection Request whether the Interconnection Request is complete. The EDC may deem the Interconnection Request withdrawn if it remains incomplete.
- (c) When an Interconnection Request is complete, the EDC shall assign a Queue Position.
- (d) The following procedures shall be followed in performing a Level 4 Interconnection Review:
 - By mutual agreement of the Interconnection Customer and the EDC, the Scoping Meeting, interconnection feasibility study, interconnection impact study, or Facilities Study provided for in a Level 4 Interconnection Review and discussed in this paragraph may be waived;
 - (2)If agreed to by the Interconnection Customer and the EDC, a Scoping Meeting shall be held within ten (10) business days, or other mutually agreed to time, after the EDC has notified the Interconnection Customer that the Interconnection Request is deemed complete, or the Interconnection Customer has requested that its Interconnection Request proceed after failing the requirements of a Level 2 Interconnection Review or Level 3 Interconnection Review. The Scoping Meeting shall take place in person, by telephone, or electronically by a means mutually agreeable to the Interconnection Customer and EDC. The purpose of the Scoping Meeting shall be to review the Interconnection Request; existing studies relevant to the Interconnection Request; the conditions at the proposed location including the available Fault Current at the proposed location, the existing peak loading on the lines in the general vicinity of the proposed Small Generator Facility, and the configuration of the distribution line at the proposed Point of Common Coupling; and the results of the Level 1, Level 2 or Level 3 Adverse System Impact screening criteria;

- (3) When the Interconnection Customer and EDC agree at a Scoping Meeting that an interconnection feasibility study shall be performed, and if the Interconnection Customer and EDC do not waive the interconnection impact study, the EDC shall provide to the Interconnection Customer, no later than five (5) business days after the Scoping Meeting, an Interconnection System Feasibility Study Agreement, including an outline of the scope of the study and a nonbinding good faith estimate of the cost and time to perform the study;
- (4) When the Interconnection Customer and EDC agree at a Scoping Meeting that an interconnection feasibility study is not required, and if the Interconnection Customer and EDC agree that an interconnection system impact study shall be performed, the EDC shall provide to the Interconnection Customer, no later than five (5) business days after the Scoping Meeting, an Interconnection System Impact Study Agreement, including an outline of the scope of the study and a nonbinding good faith estimate of the cost to perform the study; and
- (5) When the Interconnection Customer and EDC agree at the Scoping Meeting that an interconnection feasibility study and interconnection system impact study are not required, the EDC shall provide to the Interconnection Customer, no later than five (5) business days after the Scoping Meeting, an Interconnection Facilities Study Agreement including an outline of the scope of the study and a nonbinding good faith estimate of the cost to perform the study.
- (6) The EDC may elect to perform one or more of these studies concurrently.
- (e) Any required Adverse System Impact studies shall be carried out using the following guidelines:
 - (1) An interconnection feasibility study shall include the following analyses and conditions for the purpose of identifying and addressing potential Adverse System Impact to the EDC's Electric Distribution System that would result from the interconnection:
 - (A) Initial identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection;
 - (B) Initial identification of any thermal overload or voltage limit violations resulting from the interconnection;
 - (C) Initial review of grounding requirements and system protection;

- (D) Description and nonbinding estimated cost of facilities required to interconnect the Small Generator Facility to the EDC's Electric Distribution System in a safe and reliable manner; and
- (E) Additional evaluations, at the expense of the Interconnection Customer, when an Interconnection Customer requests that the interconnection feasibility study evaluate multiple potential Points of Common Coupling.
- (2) An interconnection system impact study shall evaluate the impacts of the proposed interconnection on both the safety and reliability of the EDC's Electric Distribution System. The study shall identify and detail the Adverse System Impacts that result when a Small Generator Facility is interconnected without project modifications or Distribution System Upgrades, focusing on the Adverse System Impacts identified in the interconnection feasibility study or potential impacts including those identified in the Scoping Meeting. The interconnection system impact study shall consider all Small Generator Facilities that, on the date the interconnection system impact study is commenced, are directly interconnected with the EDC's Electric Distribution System, have a pending higher Queue Position to interconnect to the system, or have a signed Interconnection Agreement.
 - (A) A distribution interconnection system impact study shall be performed when a potential Electric Distribution System Adverse System Impact is identified in the interconnection feasibility study. The EDC shall send the Interconnection Customer an Interconnection System Impact Study Agreement within five (5) business days of transmittal of the interconnection feasibility study report. The agreement shall include an outline of the scope of the study and a good faith estimate of the cost to perform the study. The impact study shall include:
 - (i) A load flow study;
 - (ii) Identification of Affected Systems;
 - (iii) An analysis of equipment interrupting ratings;
 - (iv) A protection coordination study;
 - (v) Voltage drop and flicker studies;
 - (vi) Protection and set point coordination studies;

- (vii) Grounding reviews; and
- (viii) Impact on system operation.
- (B) An interconnection system impact study shall consider the following criteria:
 - (i) A short circuit analysis;
 - (ii) A stability analysis;
 - (iii) Alternatives for mitigating Adverse System Impacts on Affected Systems;
 - (iv) Voltage drop and flicker studies;
 - (v) Protection and set point coordination studies; and
 - (vi) Grounding reviews.
- (C) The final interconnection system impact study shall provide the following:
 - (i) The underlying assumptions of the study;
 - (ii) The results of the analyses;
 - (iii) A list of any potential impediments to providing the requested interconnection service;
 - (iv) Required distribution upgrades; and
 - A nonbinding good faith estimate of cost and time to construct any required Distribution System Upgrades.
- (D) The Interconnection Customer and EDC shall use an Interconnection System Impact Study Agreement approved by the Commission.
- (3) The Facilities Study shall be conducted as follows:
 - (A) Within five (5) business days of completion of the interconnection system impact study, the EDC shall transmit a report to the Interconnection Customer with an Interconnection Facilities Study Agreement, which includes an outline of the scope of the study and a nonbinding good faith estimate of the cost and time to perform the study;

- (B) The Facilities Study shall estimate the cost of the equipment, engineering, procurement and construction work including overheads needed to implement the conclusions of the interconnection feasibility study and the interconnection system impact study to interconnect the Small Generator Facility. The Facilities Study shall identify:
 - (i) The electrical switching configuration of the equipment, including transformer, switchgear, meters and other station equipment;
 - (ii) The nature and estimated cost of the EDC's Interconnection Facilities and Distribution System Upgrades necessary to accomplish the interconnection; and
 - (iii) An estimate of the time required to complete the construction and installation of the facilities;
- (C) The Interconnection Customer and EDC may agree to permit an Interconnection Customer to separately arrange for a third party to design and construct the required Interconnection Facilities. The EDC may review the design of the facilities under the Interconnection Facilities Study Agreement. When the Interconnection Customer and EDC agree to separately arrange for design and construction and to comply with security and confidentiality requirements, the EDC shall make all relevant information and required specifications available to the Interconnection Customer to permit the Interconnection Customer to obtain an independent design and cost estimate for the facilities, which shall be built in accordance with the specifications;
- (D) Upon completion of the Facilities Study and with the agreement of the Interconnection Customer to pay for the Interconnection Facilities and Distribution System Upgrades identified in the Facilities Study, the EDC shall issue the Approval to Install; and
- (E) The Interconnection Customer and EDC shall use an Interconnection Facilities Study Agreement approved by the Commission.
- Upon completion or waiver of procedures defined in Subsection 4007.2 (c) as mutually agreed by the Interconnection Customer and EDC and the EDC determines that the Small Generator Facility can be interconnected safely and reliably to the Electric Distribution System, the EDC shall provide the

Interconnection Customer with an Approval to Install. If the Interconnection Request is denied, the EDC shall provide a written explanation;

- (g) When Distribution System Upgrades are required, the interconnection of the Small Generator Facility shall proceed according to milestones agreed to by the Interconnection Customer and EDC in the Interconnection Agreement. The Authorization to Operate <u>shall be issued within twenty (20)</u> business days of completion of the followingmay not be issued until:
 - (1) The milestones agreed to in the Interconnection Agreement are satisfied;
 - (2) The Small Generator Facility is approved by electric code officials with jurisdiction over the interconnection;
 - (3) The Interconnection Customer provides a Certificate of Completion to the EDC. Completion of local inspections may be designated on inspection forms used by local inspecting authorities; and
 - (4) There is a successful completion of the Witness Test per the terms and conditions found in the Standard Agreement for Interconnection of Small Generator Facilities, unless waived.
- (h) The EDC may require photographs of the site, Small Generator Facility components, meters or any other aspect of the Interconnection Facilities as part of the Level 4 Interconnection Review process, provided that failure to provide a photo in a timely manner will not be a reason for the EDC to deem an Interconnection Request incomplete.
- 4007.3 An interconnection system impact study is not required when the interconnection feasibility study concludes there is no Adverse System Impact, or when the study identifies an Adverse System Impact, but the EDC is able to identify a remedy without the need for an interconnection system impact study.
- 4007.4 The Interconnection Customer and EDC shall use a form of Interconnection Feasibility Study Agreement approved by the Commission.

4008 TECHNICAL REQUIREMENTS

4008.1 Unless one or more of the listed standards are waived by the EDC, a Small Generator Facility must comply with the technical standards listed in Subsection 4002.1, as applicable.¹

¹ The PJM Manual, PJM Manual 14G, "Generation Interconnection Requests" Attachment C, which is available at: https://www.pjm.com/-/media/documents/manuals/m14g.ashx, shall be used as a guide (but not a requirement) to detail and illustrate the interconnection protection requirements that are provided in IEEE Standard 1547.

- 4008.2 When an Interconnection Request is for a Small Generator Facility that includes multiple energy production devices at a site for which the Interconnection Customer seeks a single Point of Common Coupling, the Interconnection Request shall be evaluated on the basis of the aggregate Nameplate Capacity of multiple devices.
- 4008.3 When an Interconnection Request is for an increase in capacity for an existing Small Generator Facility, the Interconnection Request shall be evaluated on the basis of the new total Nameplate Capacity of the Small Generator Facility.
- 4008.4 The EDC shall maintain records of the following for a minimum of three (3) years:
 - (a) The total number of and the Nameplate Capacity of the Interconnection Requests received, approved, and denied under Level 1, Level 2, Level 3, and Level 4 reviews;
 - (b) The number of Interconnection Requests that were not processed within the timelines established in this rule;
 - (c) The number of Scoping Meetings held and the number of feasibility studies, impact studies, and Facility Studies performed, and the fees charged for these studies;
 - (d) The justifications for the actions taken to deny Interconnection Requests; and
 - (e) Any special operating requirements required in Interconnection Agreements that are not part of the EDC's written and published operating procedures applicable to Small Generator Facilities.
- 4008.5 The EDC shall provide a report to the Commission containing the information required in Subsection 4008.4, paragraphs (a)-(c) within ninety (90) calendar days of the close of each year.
 - (a) The EDC shall include the total amount of solar energy from solar energy systems meeting the requirements of D.C. Official Code § 34-1432(e)(1) for which interconnection requests have been submitted in the previous six (6) months in its Quarterly Interconnection Report filed in accordance with Commission Order No. 18575.
 - (b) The EDC shall provide a public and confidential list of final interconnection approvals for renewable generators (name, address, capacity (DC and AC), and system type) on the 15th of each month, for the previous month interconnections.
- 4008.6 The EDC shall designate a contact person and contact information on its website and the Commission's website for submission of all Interconnection Requests and from whom information on the Interconnection Request process and the EDC's Electric Distribution System can be obtained regarding a proposed project. The

information shall include studies and other materials useful to an understanding of the feasibility of interconnecting a Small Generator Facility at a particular point on the EDC's Electric Distribution System, except to the extent that providing the materials would violate security requirements or confidentiality agreements, or otherwise deemed contrary to District or federal law/regulations. In appropriate circumstances, the EDC may require a confidentiality agreement prior to release of information.

- 4008.7 When an Interconnection Request is deemed complete, a modification other than a minor equipment modification that is not agreed to in writing by the EDC, shall require submission of a new Interconnection Request, with the exception of a change in design subject to EDC re-evaluation as specified in Subsection 4005.6(b)(7).
- 4008.8 When an Interconnection Customer is not currently a customer of the EDC at the proposed site, the Interconnection Customer, upon request from the EDC, shall provide proof of site control evidenced by a property tax bill, deed, lease agreement, or other legally binding contract.
- 4008.9 To minimize the cost of interconnecting multiple Small Generator Facilities, the EDC or the Interconnection Customer may propose a single Point of Common Coupling for multiple Small Generator Facilities located at a single site. If the Interconnection Customer rejects the EDC's proposal for a single Point of Common Coupling, the Interconnection Customer shall pay the additional cost, if any, of providing a separate Point of Common Coupling for each Small Generator Facility. If the EDC rejects the customer's proposal for a single Point of Common Coupling without providing a written technical explanation, the EDC shall pay the additional cost, if any, of providing a separate Point of Common Coupling for each Small Generator Facility.
- 4008.10 Small Generator Facilities shall be capable of being isolated from the EDC. For all Small Generator Facilities interconnecting to a Primary Line, the isolation shall be by means of a lockable, visible-break isolation device accessible by the EDC. For all Small Generator Facilities interconnecting to a Secondary Line, the isolation shall be by means of a lockable isolation device whose status is clearly indicated and is accessible by the EDC. The isolation device shall be installed, owned and maintained by the owner of the Small Generator Facility and located between the Small Generator Facility and the Point of Common Coupling. A Draw-out Type Circuit Breaker with a provision for padlocking at the draw-out position can be considered an isolation device for purposes of this requirement.
- 4008.11 The Interconnection Customer may elect to provide the EDC access to an isolation device that is contained in a building or area that may be unoccupied and locked or not otherwise readily accessible to the EDC, by installing a lockbox provided by the EDC that shall provide ready access to the isolation device. The Interconnection Customer shall install the lockbox in a location that is readily accessible by the EDC, and the Interconnection Customer shall permit the EDC to

affix a placard in a location of its choosing that provides clear instructions to the EDC's operating personnel on access to the isolation device. In the event that the Interconnection Customer fails to comply with the terms of this subsection and the EDC needs to gain access to the isolation device, the EDC shall not be held liable for any damages resulting from any necessary EDC action to isolate the Interconnection Customer.

- 4008.12 Any metering necessitated by a Small Generator Facility interconnection shall be installed, operated, and maintained in accordance with applicable tariffs. Any such metering requirements shall be clearly identified as part of the Interconnection Agreement executed by the Interconnection Customer and the EDC. The EDC is not responsible for installing, operating, or maintaining customer-owned meters.
- 4008.13 [RESERVED]
- 4008.14 [RESERVED]
- 4008.15 The Interconnection Customer shall design its Small Generator Facility to maintain a composite power delivery at continuous rated power output at the Point of Common Coupling at a power factor within the power factor range required by the EDC's applicable tariff for a comparable load customer. The EDC may also require the Interconnection Customer to follow a voltage or VAR schedule if such schedules are applicable to similarly situated generators in the control area on a comparable basis and have been approved by the Commission. The specific requirements for meeting a voltage or VAR schedule shall be clearly specified in Attachment 3 of the "District of Columbia Small Generator Interconnection Rule Level 2-4 Standard Agreement for Interconnection of Small Generator Facilities". Under no circumstance shall these additional requirements for reactive power or voltage support exceed the normal operating capabilities of the Small Generator Facility.
- 4008.16 For retail interconnection non-exporting Energy Storage devices, the load aspects of the storage devices will be treated the same as other load from customers, based on incremental net load.
- 4008.17 Interconnection of Energy Storage facilities should comply with IEEE Standard 1547 technical & test specifications and requirements.
- 4008.18 The Energy Storage overcurrent protection (charge/discharge) ratings from inverter nameplate shall not exceed EDC capabilities.
- 4008.19 In front of the meter Energy Storage exporting systems will be subject to Level 4 review requirements.
- 4008.20 When a Microgrid reconnects to the EDC, the Microgrid must be synchronized to the grid, matching: (1) voltage, (2) frequency, and (3) phase angle. This should require an asynchronous interconnection.

- 4008.21 At all interconnection levels, the power conversion system performing energy conversion/control at the Point of Common Coupling must be equipped to communicate system characteristics over secured EDC protocol.
- 4008.22 Inverters shall meet the safety requirements of UL 1741 and 12 months after the publication of UL 1741 SA (Supplement A) utility-interactive inverters shall meet the specifications of UL 1741 SA.

4009 <u>TIMELINE EXTENSIONS AND DISPUTES</u>

4009.1 The EDC shall make reasonable efforts to meet all timelines set by these Interconnection Procedures. If the EDC cannot meet a timeline, the EDC shall notify the Applicant in writing within one (1) Business Day after the missed deadline. The notification shall explain the reason for the EDC's failure to meet the deadline and provide an estimate of when the step will be completed. The EDC shall keep the Applicant updated of any changes in the expected completion date. The Applicant may request in writing the extension of one timeline set by these Interconnection Procedures. The requested extension may be for up to one-half of the time originally allotted (e.g., a ten (10) Business Day extension for a twenty (20) Business Day timeframe). The EDC shall not unreasonably refuse this request. If further timeline extensions are necessary, the Applicant may request an extension in writing to the Interconnection Ombudsperson, who shall grant or deny the request, if it is reasonable, within three (3) Business Days."

> A party shall attempt to resolve all disputes regarding interconnection as provided in the DCSGIR promptly, equitably, and in a good faith manner.

- 4009.2 In the event of a dispute, the disputing Party shall provide the other Party a written Notice of Dispute containing the relevant known facts pertaining to the dispute, the specific dispute and the relief sought, and express notice by the disputing Party that it is invoking the procedures under this Section. A copy of the notice shall also be sent to Commission. The non-disputing Party shall acknowledge the notice within three (3) Business Days of its receipt and identify a representative with the authority to make decisions for the non-disputing Party with respect to the dispute. When a dispute arises, a party may seek immediate resolution through complaint procedures available through the Commission by providing written notice to the Commission and the other party stating the issues in dispute.
- 4009.3 If the dispute is principally related to one or both Parties' compliance with timelines specified in these Interconnection Procedures or associated agreements, the Parties shall seek assistance from the Commission if the Parties cannot mutually resolve the dispute within eight (8) Business Days.

If the dispute is not principally related to one or both Parties' compliance with a timeline then the non-disputing Party shall provide the disputing Party with all relevant regulatory and/or technical details and analysis regarding any EDC interconnection requirements under dispute within ten (10) Business Days of the

date of the notice of dispute. Within twenty (20) Business Days of the date of the notice of dispute, the Parties' authorized representatives shall meet and confer to try to resolve the dispute. Parties shall operate in good faith and use best efforts to resolve the dispute. If a resolution is not reached in thirty (30) Business Days from the date of the notice of dispute, either (1) a Party may request to continue negotiations for an additional twenty (20) Business Days, or (2) the Parties may by mutual agreement make a written request for mediation to the Commission. At any time, either Party may file a complaint before the Commission pursuant to its rules. If neither Party elects to seek assistance from the Commission, or if the attempted dispute resolution fails, then either Party may exercise whatever rights and remedies it may have in equity or law consistent with the terms of these procedures. When disputes relate to the technical application of the DCSGIR, the Commission may designate a technical consultant to resolve the dispute. Upon Commission designation, the Interconnection Customer and EDC shall use the technical consultant to resolve disputes related to interconnection. Costs for a dispute resolution conducted by the technical consultant shall be established by the technical consultant and subject to review by the Commission.

- 4009.4 Pursuit of dispute resolution shall not affect an Interconnection Customer with regard to consideration of an Interconnection Request or an Interconnection Customer's Queue Position.
- 4010 WAIVER
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4011 SUPPLEMENTAL REVIEW

Within twenty (20) business days of determining that Supplemental Review is appropriate, the EDC shall perform Supplemental Review using the screens set forth below, notify the Interconnection Customer of the results, and include with the notification a written report of the analysis and data underlying the EDC's determinations under the screens.

(a) Where twelve (12) months of Line Section minimum load data is available, can be calculated, can be estimated from existing data, or can be determined from a power flow model, the aggregate Small Generator Facility Nameplate Capacity on the Line Section is less than one hundred percent (100%) of the minimum load for all Line Sections bounded by automatic sectionalizing devices upstream of the proposed Small Generator Facility. If the minimum load data is not available, or cannot be calculated or estimated, the aggregate Small Generator Facility Nameplate Capacity on the Line Section is less than thirty percent (30%) of the peak load for all Line Sections bounded by automatic sectionalizing devices upstream of the proposed Small Generator Facility.

- (1) The type of generation used by the proposed Small Generator Facility will be taken into account when calculating, estimating, or determining circuit or Line Section minimum load relevant for the application of this screen. Solar photovoltaic (PV) generation systems with no battery storage use daytime minimum load (*e.g.*, 8 a.m. to 6 p.m.), while all other generation uses absolute minimum load.
- (2) When this screen is being applied to a Small Generator Facility that serves some onsite electrical load, all generation will be considered as part of the aggregate generation. If a Small Generator Facility uses Energy Storage without energy production equipment, and incorporates controls which limit Energy Storage discharge schedule to periods that are fixed and known to the EDC, the EDC shall consider the Energy Storage discharge schedule when calculating, estimating, or determining circuit or Line Section minimum load relevant for the application of this screen
- (b) In aggregate with existing generation on the Line Section:
 - (1) The voltage regulation on the Line Section can be maintained in compliance with relevant requirements under all system conditions;
 - (2) The voltage fluctuation is within acceptable limits as defined by IEEE Standard 1453 or Good Utility Practice similar to IEEE Standard 1453; and
 - (3) The harmonic levels meet IEEE 519 limits at the Point of Common Coupling.
- (c) The locations of the proposed Small Generator Facility and the aggregate Small Generator Facility Nameplate Capacity on the Line Section do not create impacts to safety or reliability that cannot be adequately addressed without application of Level 4 Interconnection Review procedures. The EDC may consider the following factors and others in determining potential impacts to safety and reliability in applying this screen.
 - (1) Whether the Line Section has significant minimum loading levels dominated by a small number of customers (*i.e.*, several large commercial customers).
 - (2) If there is an even or uneven distribution of loading along the feeder.
 - (3) If the proposed Small Generator Facility is located in close proximity to the substation (*i.e.*, < 2.5 electrical line miles), and if the distribution line from the substation to the Small Generator Facility is composed of large conductor/feeder section (*i.e.*, 600A class cable).

- (4) If the proposed Small Generator Facility incorporates a time delay function to prevent reconnection of the generator to the Electric Distribution System until system voltage and frequency are within normal limits for a prescribed time.
- (5) If operational flexibility is reduced by the proposed Small Generator Facility, such that transfer of the Line Section(s) of the Small Generator Facility to a neighboring distribution circuit/substation may trigger overloads or voltage issues.
- (6) If the proposed Small Generator Facility utilizes certified antiislanding functions and equipment.
- (d) Modifications to the Electric Distribution System required by interconnections based on the Supplemental Review shall be treated in the following manner:
 - (1) If the Interconnection Request requires only Interconnection Facilities to the Electric Distribution System, a non-binding good faith cost estimate and construction schedule for the Interconnection Facilities to the Electric Distribution System, along with an Approval to Install, shall be provided within fifteen (15) business days after notification of the Supplemental Review results.
 - (2) If the Interconnection Request requires more than the addition of Interconnection Facilities, the EDC may elect to provide a nonbinding good faith cost estimate and construction schedule for such Distribution System Upgrades within thirty (30) business days after notification of the Supplemental Review results, or the EDC may notify the Interconnection Customer that the EDC will need to complete a Facilities Study under Level 4 Interconnection Review to determine the cost estimate and construction schedule for necessary Distribution System Upgrades.
- (e) If the proposed interconnection meets all of the applicable Adverse System Impact screens and the EDC determines that the Small Generator Facility can be interconnected safely and reliably to the Electric Distribution System, the EDC shall provide the Interconnection Customer an Approval to Install
- (f) An Interconnection Customer that receives an Approval to Install shall provide the Small Generator Interconnection Part II Certificate of Completion and signed inspection certificate in the following timeframes:
 - For Level 1 Interconnection Requests: Unless extended by mutual agreement of the Interconnection Customer and EDC, within six (6) months of receipt of the Approval to Install or six (6) months from the completion of any Distribution System Upgrades, whichever is

later, the Interconnection Customer shall provide to the EDC the Level 1 Small Generator Interconnection Part II – Certificate of Completion, including the signed inspection certificate.

- (2) For Level 2 and 3 Interconnection Requests: Unless extended by mutual agreement of the Interconnection Customer and EDC, within twenty-four (24) months from an Interconnection Customer's receipt of the Approval to Install or six (6) months of completion of any Distribution System Upgrades, whichever is later, the Interconnection Customer shall provide to the EDC the Level 2-4 Small Generator Interconnection Part II – Certificate of Completion, including the signed certificate of inspection. An interconnection customer shall communicate with the EDC no less frequently than every six (6) months regarding the status of a proposed small generator facility to which an Interconnection Agreement refers.
- (g) The EDC may conduct a Witness Test within ten (10) business days' of issuing the Authorization to Operate at a time mutually agreeable to the Interconnection Customer and EDC. If a Small Generator Facility initially fails the test, the EDC shall offer to redo the Witness Test at the Interconnection Customer's expense at a time mutually agreeable to the Interconnection Customer and EDC. If the EDC determines that the Small Generator Facility fails the Witness Test it must provide a written explanation detailing the reasons and any standards violated.
- (h) Upon EDC's issuance of the Authorization to Operate, an Interconnection Customer may begin interconnected operation of a Small Generator Facility, provided that there is an Interconnection Agreement in effect, the Small Generator Facility has passed any Witness Test required by the EDC, and that the Small Generator Facility has passed any inspection required by the EDC. Evidence of approval by an electric code official includes a signed inspection certificate.
- (i) As an alternative to the Supplemental Review procedures prescribed in this section, the EDC may elect to perform a power flow-based study, providing the Interconnection Customer with the results and the required mitigation, if necessary. The EDC shall make available, upon request, a copy of its power flow-based study for each applicant to the Commission within thirty (30) days after analysis completion.
- (j) The EDC may require photographs of the site, Small Generator Facility components, meters or any other aspect of the Interconnection Facilities as part of the Supplemental Review process.

4012 APPLICANT OPTIONS MEETING

If the EDC determines the Interconnection Request cannot be approved without evaluation under Level 4 Interconnection Review, at the time the EDC notifies the Interconnection Customer of either the Level 1, 2 or 3 Interconnection Review, or Supplemental Review, results, it shall provide the Interconnection Customer the option of proceeding to a Level 4 Interconnection Review or of participating in an applicant options meeting with the EDC to review possible Small Generator Facility modifications or the screen analysis and related results, to determine what further steps are needed to permit the Small Generator Facility to be connected safely and reliably. The Interconnection Customer shall notify the EDC that it requests an applicant options meeting or that it would like to proceed to Level 4 Interconnection Review in writing within fifteen (15) business days of the EDC's notification or the Interconnection Request shall be deemed withdrawn. If the Interconnection Customer requests an applicant options meeting at a mutually agreeable time within the next fifteen (15) business days.

4013-4098 [RESERVED]

4099 DEFINITIONS

- 4099.1 When used in this chapter, the following terms and phrases shall have the following meaning:
 - "Adverse System Impact" means a negative effect, due to technical or operational limits on conductors or equipment being exceeded, that compromises the safety and reliability of the Electric Distribution System.
 - "Advanced Inverter" means inverter(s) with a digital architecture, bidirectional communications, and software that enables functionalities providing autonomous grid support and enhance system reliability, along with the capability to adjust their operational set points in response to the changing characteristics of the grid through dedicated communications protocols and standards. The advanced inverter must enable, at the minimum, the following functionalities, as defined in IEEE Standard 1547-2018: dynamic and real power support, voltage ride-through, frequency ride-through, voltage support, frequency support, and ramp rates.
 - "Affected System" means an electric system not owned or operated by the Electric Distribution Company reviewing the Interconnection Request that may suffer an Adverse System Impact from the proposed interconnection.
 - "Area Network" means a type of Electric Distribution System served by multiple transformers interconnected in an electrical network circuit, which is generally used in large metropolitan areas that are densely populated. Area networks are also known as grid networks. Area network has the same meaning as the term distribution secondary grid networks in Section 9.2 of IEEE Standard 1547.

- "Approval to Install" means written notification that the Small Generator Facility is conditionally approved for installation contingent upon the terms and conditions of the Interconnection Request, and the EDC may provide such conditional approval by furnishing to Interconnection Customer an EDC-executed copy of the Interconnection Agreement.
- "Authorization to Operate" means written notification that the Small Generator Facility is approved for operation under the terms and conditions of the District of Columbia Small Generator Interconnection Rules.
- "Certificate of Completion" means a certificate in a completed form approved by the Commission containing information about how the Interconnection Equipment is to be used, its installation, and local inspections.
- "Commission" means the Public Service Commission of the District of Columbia.
- "Commissioning Test" means the tests applied to a Small Generator Facility by the Interconnection Customer after construction is completed to verify that the facility does not create Adverse System Impacts. The scope of the Commissioning Tests performed shall include the Commissioning Test specified IEEE Standard 1547 Section 11.2.5 "Commissioning tests".
- "Community Renewable Energy Facility" or "CREF" means an energy facility with a capacity no greater than five (5) megawatts that: (a) uses renewable resources defined as a Tier One Renewable Source in accordance with Section 3(15) of the Renewable Energy Portfolio Standard Act of 2004, effective April 12, 2005, (D.C. Law 15-340; D.C. Official Code § 34-1431(15) (2019 Repl.), as amended); (b) is located within the District of Columbia; (c) has at least two (2) Subscribers; and (d) has executed an Interconnection Agreement and a CREF Rider with the Electric Company.
- **"Distribution System Upgrade"** means a required addition or modification to the EDC's Electric Distribution System at or beyond the Point of Common Coupling to accommodate the interconnection of a Small Generator Facility. Distribution upgrades do not include interconnection facilities.
- "District of Columbia Small Generator Interconnection Rule (DCSGIR)" means the most current version of the procedures for interconnecting Small Generator Facilities adopted by the Public Service Commission of the District of Columbia.
- **"Draw-out Type Circuit Breaker"** means a switching device capable of making, carrying, and breaking currents under normal and abnormal circuit conditions such as those of a short circuit. A draw-out circuit breaker can be physically removed from its enclosure, creating a visible break in the circuit. For the purposes of these regulations, the draw-out circuit breaker shall be capable of being locked in the open, draw-out position.

- "Electric Distribution Company" or "EDC" means an electric utility entity that distributes electricity to customers and is subject to the jurisdiction of the Commission.
- "Electric Distribution System" or "EDS" means the facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries from interchanges with higher voltage transmission networks that transport bulk power over longer distances. The voltage levels at which Electric Distribution Systems operate differ among areas but generally carry less than sixty-nine (69) kilovolts of electricity. Electric distribution system has the same meaning as the term Area EPS, as defined in IEEE Standard 1547.
- **"Energy Storage"** means a resource capable of absorbing electric energy from the grid, from a behind-the-meter generator, or other DER, storing it for a period of time and thereafter dispatching the energy for use on-site or back to the grid, regardless of where the resource is located on the electric distribution system. These resources include all types of energy storage technologies, regardless of their size, storage medium (*e.g.*, batteries, flywheels, electric vehicles, compressed air), or operational purpose.
- **"Facilities Study"** means an engineering study conducted by the EDC to determine the required modifications to the EDC's Electric Distribution System, including the cost and the time required to build and install such modifications as necessary to accommodate an Interconnection Request.
- **"Fault Current"** means the electrical current that flows through a circuit during an electrical fault condition. A fault condition occurs when one (1) or more electrical conductors contact ground or each other. Types of faults include phase to ground, double-phase to ground, three-phase to ground, phase-tophase, and three-phase. Fault current is several times larger in magnitude than the current that normally flows through a circuit.
- "Generation Meter" means the meter used to capture the level of customergenerated electricity at an Interconnection Customer's premise. The Generation Meter shall be owned, operated, and maintained as distribution plant by EDC, unless the Interconnection Customer is a CREF (see Production Meter).
- **"Good Utility Practice"** means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result of the lowest reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method or act to the exclusion of all others,

but rather to be acceptable practices, methods, or acts generally accepted in the region.

- "Governmental Authority" means any federal, State, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other Governmental Authority having jurisdiction over the Interconnection Customer and EDC, respective facilities, or services provided, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include the Interconnection Customer, EDC or any affiliate thereof.
- **"IEEE Standard 1547"** refers to the Institute of Electrical and Electronics Engineers, Inc. (IEEE) Standard 1547 (2018) "Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces," as amended and supplemented at the time the Interconnection Request is submitted.
- **"IEEE Standard 1547.1"** refers to the IEEE Standard 1547.1 (2015) "Conformance Test Procedures for Equipment Interconnecting Distributed Energy Resources with Electric Power Systems," as amended and supplemented at the time the Interconnection Request is submitted.
- **"Interconnection Customer"** means a person or entity that has submitted either an Interconnection Request to interconnect a Small Generator Facility to the EDC's Electric Distribution System or a pre-application report to get information about EDC's electrical distribution system at a proposed Point of Common Coupling.
- **"Interconnection Equipment"** means a group of equipment, components, or an integrated system connecting an electric generator with a Local Electric Power System or an Electric Distribution System that includes all interface equipment including switchgear, protective devices, inverters, Production <u>Meter(s)</u>, or other interface devices. Interconnection equipment may be installed as part of an integrated equipment package that includes a generator or other electric source.
- **"Interconnection Facilities**" means facilities and equipment required by the EDC to accommodate the interconnection of a Small Generator Facility. Collectively, Interconnection Facilities include all facilities and equipment between the Small Generator Facility and the Point of Common Coupling, including modification, additions, or upgrades that are necessary to physically and electrically interconnect the Small Generator Facility to the Electric Distribution System. Interconnection Facilities are sole use facilities and do not include Distribution System Upgrades, Generation Meter(s), Production Meter(s), or Usage Meter(s).

- **"Interconnection Facilities Cost Matrix"** means the matrix maintained on the EDC's website that contains fixed-cost Interconnection Facilities projects associated with specific categories of facilities and lists the installation cost of such Small Generator Interconnection Facilities. Projects included in the matrix are limited in scope, and thus the matrix does not cover all possible types of Interconnection Facilities.
- "Interconnection Request" means an Interconnection Customer's application and interconnection agreement, in a form approved by the Commission, requesting to interconnect a new Small Generator Facility, or to increase the capacity or modify operating characteristics of an existing approved Small Generator Facility that is interconnected with the EDC's Electric Distribution System.
- "Interconnection System Impact Study" means a study performed by the EDC which evaluates the impacts of the proposed interconnection on both the safety and reliability of the EDC's Electric Distribution System. The study seeks to identify and detail the Adverse System Impacts that result when a Small Generator Facility is interconnected without project modifications or Distribution System Upgrades, focusing on EDC-identified or potential Adverse System Impacts.
- "Line Section" means that portion of the EDC's Electric Distribution System connected to an Interconnection Customer, bounded by automatic sectionalizing devices or the end of the distribution line.
- **"Local Electric Power System" or "Local EPS"** means facilities that deliver electric power to a load that are contained entirely within a single premises or group of premises. Local electric power system has the same meaning as the term Local Electric Power System defined in IEEE Standard 1547.
- "Material Modification" means a modification that has a material impact on the cost or timing of processing an Application with a later queue priority date or a change in the Point of Interconnection. A Material Modification does not include, for example, (a) a change of ownership of a Generating Facility, (b) a change or replacement of generating equipment that is a like-kind substitution in size, ratings, impedances, efficiencies, or capabilities of the equipment specified in the original Application, or (c) a reduction in the output of the Generating Facility of 10% or less.
- "Microgrid" means a collection of interconnected loads, generation assets, and advanced control equipment, installed across a limited geographic area and within a defined electrical boundary that is capable of disconnecting from the larger Electric Distribution System. A Microgrid may serve a single customer with several structures or serve multiple customers. A Microgrid can connect and disconnect from the distribution system to enable it to operate in both interconnected or island mode.

- "Modified Level 1/2 Scoping Meeting" means a meeting between representatives of the Interconnection Customer and EDC conducted for the purpose to review the Interconnection Request, existing studies relevant to the Interconnection Request, the conditions at the proposed location, and the results of the Level 1 or Level 2 Adverse System Impact screening criteria, and a technical explanation in which the EDC describes the need for Interconnection Facilities and/or Distribution System Upgrade to accommodate the Interconnection Request.
- "Nameplate Capacity" means the maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer and is usually indicated on a nameplate physically attached to the power production equipment.
- "Nationally Recognized Testing Laboratory" or "NRTL" means a qualified private organization that meets the requirements of the Occupational Safety and Health Administration's (OSHA) regulations. NRTLs perform independent safety testing and product certification. Each NRTL shall meet the requirements as set forth by OSHA in the NRTL program.
- **"Parallel Operation" or "Parallel"** means the sustained state of operation over one hundred (100) milliseconds, which occurs when a Small Generator Facility is connected electrically to the Electric Distribution System and thus has the ability for electricity to flow from the Small Generator Facility to the Electric Distribution System.
- **"PJM Interconnection"** means the regional transmission organization that is regulated by the Federal Energy Regulatory Commission and functionally controls the transmission system for the region that includes the District of Columbia.
- **"Point of Common Coupling"** means the point where the Small Generator Facility is electrically connected to the Electric Distribution System. Point of common coupling has the same meaning as defined in IEEE Standard 1547.
- "Primary Line" means a distribution line rated at greater than six hundred (600) volts.
- **"Production Meter"** means the Generation Meter used to capture the level of customer-generated electricity at an Interconnection Customer's premise, when the Interconnection Customer is a CREF. The Production Meter shall be owned by the CREF and read by the EDC, D.C. Official Code § 34-1518.²

² D.C. Official Code § 34-1518 (2019 Repl.).

- "Production Test" is defined in IEEE Standard 1547.
- "Queue Position" means the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, that is established based upon the date and time of receipt of the complete Interconnection Request by the EDC.
- **"Radial Distribution Circuit"** means a circuit configuration where independent feeders branch out radially from a common source of supply. From the standpoint of a utility system, the area described is between the generating source or intervening substations and the customer's entrance equipment. A radial distribution system is the most common type of connection between a utility and load in which power flows in one direction from the utility to the load.
- "Scoping Meeting" means a meeting between representatives of the Interconnection Customer and EDC conducted for the purpose of discussing alternative interconnection options, exchanging information including any Electric Distribution System data and earlier study evaluations that would be reasonably expected to impact interconnection options, analyzing information, and determining the potential feasible points of interconnection.
- **"Secondary Line"** means a service line subsequent to the Primary Line that is rated for six hundred (600) volts or less, also referred to as the customer's service line.
- **"Shared Transformer"** means a transformer that supplies secondary source voltage to more than one customer.
- "Small Generator Facility" means the equipment used by an Interconnection Customer to generate or store electricity that operates in parallel with the Electric Distribution System and, for the purposes of this standard, is rated at twenty (20) MW or less. A Small Generator Facility typically includes an electric generator, Energy Storage, prime mover, and the Interconnection Equipment required to safely interconnect with the Electric Distribution System or Local Electric Power System as mutually agreed between the Interconnection Customer and EDC of the Interconnection Request.
- "Spot Network" means a type of Electric Distribution System that uses two or more inter-tied transformers to supply an electrical network circuit. A Spot Network is generally used to supply power to a single customer or a small group of customers. Spot network has the same meaning as the term distribution secondary Spot Networks defined in Section 9.3 of IEEE Standard 1547.
- "Standard Agreement for Interconnection of Small Generator Facilities, Interconnection Agreement, or Agreement" – means a set of standard

forms of Interconnection Agreements approved by the Commission which are applicable to Interconnection Requests pertaining to small generating facilities. The agreement between the Interconnection Customer and the EDC, which governs the connection of the Small Generator Facility to the EDC's Electric Distribution System, as well as the ongoing operation of the Small Generator Facility after it is connected to the EDC's Electric Distribution System.

- "UL Standard 1741" means Underwriters Laboratories' standard titled "Inverters Converters, and Controllers for Use in Independent Power Systems," as amended and supplemented at the time the Interconnection Request is submitted.
- **"Usage Meter"** means the meter furnished by the EDC used to capture the level of electricity consumption at an Interconnection Customer's premise. The Usage Meter shall be owned, operated, and maintained as a distribution plant by the EDC.
- "Witness Test" means verification (either by an on-site observation or review of documents) by the EDC that the installation evaluation required by IEEE Standard 1547 Section 11.2.4 and the Commissioning Test required by IEEE Standard 1547 Section 11.2.5 have been adequately performed. For Interconnection Equipment that has not been certified, the Witness Test shall also include the verification by the EDC of the on-site design tests as required by IEEE Standard 1547 Section 11.2.4 and verification by the EDC of Production Tests required by IEEE Standard 1547 Section 11.2.4 and verification by the EDC of Production Tests required by IEEE Standard 1547 Section 11.2.4. All tests verified by the EDC are to be performed in accordance with the applicable test procedures specified by IEEE Standard 1547.1.

1. Any person interested may submit written comments on this NOPR not later than thirty (30) days after publication of this Notice in the *D.C. Register* addressed to Brinda Westbrook-Sedgwick, Commission Secretary, Public Service Commission of the District of Columbia, 1325 G Street, N.W., Suite 800, Washington, D.C. 20005 and sent electronically on the Commission's website at <u>https://edocket.dcpsc.org/public/public comments</u>. Copies of the proposed rules may be obtained by visiting the Commission's website at <u>www.dcpsc.org</u> or at cost, by contacting the Commission Secretary at the address provided above. Persons with questions concerning this NOPR should call (202) 626-5150 or send an email to <u>psc-commissionsecretary@dc.gov</u>.

ATTACHMENT A – Queue Requirements

The EDC shall maintain an interconnection queue, available in a sortable spreadsheet format, which it shall update on at least a monthly basis. Information on Interconnection Requests shall be retained in the queue for three (3) years. The date of the most recent update shall be clearly indicated.

The queue should include, at a minimum, the following information on each Level 2, 3, and 4 Interconnection Request.

- 1. Queue number
- 2. Facility capacity or capacity range (kW)
- 3. Primary fuel type (*e.g.*, solar, wind, bio-gas, etc.)
- 4. Secondary fuel type (if applicable)
- 5. Exporting or non-exporting
- 6. Zip code
- 7. Substation
- 8. Feeder
- 9. Status (active, withdrawn, interconnected, etc.)
- 10. Date Interconnection Request deemed complete
- 11. Date of notification of Adverse Impact Screen results (Levels 2-3)
- 12. Adverse Impact Screen results for Levels 2-3 (pass or fail, and if fail, identify the screens failed and if Interconnection Facilities and/or Distribution System Upgrades are being required)
- 13. Date of notification of Supplemental Review results (if applicable)
- 14. Supplemental Review results (pass or fail, and if fail, identify the screens failed)
- 15. Date of notification of Interconnection System Impact Study results (if applicable)
- 16. Date of notification of Facilities Study results and/or construction estimates (if applicable)
- 17. Date EDC-executed Interconnection Agreement is provided to Customer
- 18. Date Interconnection Agreement is signed by both parties
- 19. Date of notification of Authorization to Operate
- 20. Final interconnection cost paid to EDC

Level 1 Interconnection Request Application Form and Agreement

Interconnection Customer Contact Information:

Name				
Mailing Address:				
City:	State: Zip Code	:		
Telephone (Daytime):	(Mobile):			
Facsimile Number:	E-Mail Address:			
	(if different from Customer Contact			
Name:				
-	State:	-		
	(Mobile):			
Facsimile Number:	E-Mail Address:			
Mailing Address:	State:			
	(Mobile):			
	E-Mail Address:			
Mailing Address: City:	t from Equipment Contractor): State: (Mobile):	Zip Code:		
	E-Mail Address:			
License number:				
Active License? Yes No				
Active License: Tes NO				

Facility Information ((building where the small generator f	<u>facility is located):</u>	
Electric Distribution C	company (EDC) Serving Facility Site: _		
Electric Supplier (if dif	fferent from EDC):		
Account Number of Fa	acility site (existing EDC customers):		
	lding where the small generator facil		
	State:		
		r	
Small Generator Faci	<u>ility Information</u>		
	Model:		
· ·	_(kW)(kVA) (AC Volts)		
	ty: (kW) (kVA)		
Prime Mover:	Photovoltaic 🗌 Reciprocatin		
Energy Source:	Solar Wind Hydro Dies	sel 🗌 Natural Gas 🗌	
	Fuel Oil 🗌 🗌 Energy S	Storage	
	Other		
Is the inverter lab certi	fied? Yes		
•	cturer's cut sheet showing listing and la 1 listing. If no, facility is not eligible f		listing
Intent of Generation/	Storage (choose one)		
Generator (or PV Pane	el) Manufacturer, Model #:		
Number of Generators	(or PV Panels):		
Type of Tracking if PV	/: Fixed 🗌 Single Axis 🗌 Double	e Axis 🗌	
Array Azimuth if PV:	° Array Tilt if PV:	0	
Shading Angles if PV	at E, 120°, 150°, S, 210°, 240°, W (Sepa	arate with comas:°	
Offset Load (Unit v	will operate in parallel, but will not exp	port power to EDC).	
Net Energy Meter Customer Net Energy	ing (Small generator facility will exponent	ort power pursuant to District of Col	umbia
Community Renew	vable Energy Facility (interconnection v	with EDC).	

Export Power (CG SPP Schedule) (Unit will operate in parallel and will export power, but does not fit the criteria established in the District of Columbia Customer Net Energy Metering Contract for net metering).

Note: if Unit will operate in parallel and participate in the PJM market(s), unit will need to obtain an interconnection agreement from PJM.

Back-up Generation (Units that temporarily parallel for more than 100 milliseconds).

Note: Backup units that do not operate in parallel for more than 100 milliseconds do not need an interconnection agreement.

Energy, Capacity, Load Reduction and/or Synchronized Reserve Markets: Ves No

PJM Demand Response Market Participant (System will not export energy):

Regulation Market: Yes No (if no, would have to re-apply in future if change to frequency regulation)

Estimated Commissioning Date:

Insurance Disclosure

The attached terms and conditions contain provisions related to liability, and indemnification and should be carefully considered by the interconnection customer. The interconnection customer is not required to obtain general liability insurance coverage as a precondition for interconnection approval; however, the interconnection customer is advised to consider obtaining appropriate insurance coverage to cover the interconnection customer's potential liability under this agreement.

Customer Signature

I hereby certify that: 1) I have read and understand the terms and conditions which are attached hereto by reference and are a part of this agreement; 2) I hereby agree to comply with the attached terms and conditions; and 3) to the best of my knowledge, all of the information provided in this application request form is complete and true.

Interconnection Customer Signature: _____

Title: Date:_____

Conditional Agreement to Interconnect Small Generator Facility

By its signature below, the EDC has determined the interconnection request is complete, and that the Small Generator Facility has the Approval to Install. This approval is contingent upon the attached terms and conditions of this agreement, the return of the attached Certificate of Completion duly executed, and the verification of electrical inspection and successful witness test or EDC waiver thereof.

EDC Signature:	Date:
U -	

Printed Name:______ Title:______

Terms and Conditions for Interconnection

- (1) **Construction of the Small Generator Facility**. The interconnection customer may proceed to construct (including operational testing not to exceed two (2) hours) the Small Generator Facility once the conditional agreement to interconnect a Small Generator Facility has been signed by the EDC.
- (2) **Final Interconnection and Operation.** The interconnection customer may operate the Small Generator Facility and interconnect with the EDC's electric distribution system once all of the following have occurred:
 - (a) Electrical Inspection: Upon completing construction, the interconnection customer will cause the Small Generator Facility to be inspected by the local electrical wiring inspector with jurisdiction who shall establish that the Small Generator Facility meets the requirements of the National Electrical Code.
 - (b) Certificate of Completion: The interconnection customer shall provide the EDC with a completed copy of the Certificate of Completion, including evidence of the electrical inspection performed by the local authority having jurisdiction. The evidence of completion of the electrical inspection may be provided on inspection forms used by local inspecting authorities. The interconnection request shall not be finally approved until the EDC's representative signs the Certificate of Completion.
 - (c) The EDC has either waived the right to a Witness Test in the interconnection request, or completed its Witness Test as per the following:
 - (i) Within ten (10) business days of receiving the notice of the anticipated start date, at a time mutually agreeable to the parties, the EDC may conduct a Witness Test of the Small Generator Facility to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes.
 - (ii) If the EDC does not perform the Witness Test within the ten (10) day period or other time as is mutually agreed to by the parties, the Witness Test is deemed waived.
- (3) **IEEE 1547.** The small generator facility is installed, operated, and tested in accordance with the requirements of IEEE Standard 1547 (2018), "Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces," as amended and supplemented, at the time the interconnection request is submitted.
- (4) **Access.** The EDC shall have direct, unabated access to the metering equipment of the small generator facility at all times. The EDC shall provide reasonable notice to the customer when possible prior to using its right of access.
- (5) **Metering.** Any required metering shall be installed pursuant to appropriate tariffs and tested by the EDC pursuant to the EDCs meter testing requirements.

- (6) **Disconnection.** The EDC may temporarily disconnect the small generator facility upon the following conditions:
 - (a) For scheduled outages upon reasonable notice;
 - (b) For unscheduled outages or emergency conditions;
 - (c) If the small generator facility does not operate in the manner consistent with this agreement;
 - (d) Improper installation or failure to pass the Witness Test;
 - (e) If the small generator facility is creating a safety, reliability or a power quality problem; or
 - (f) The interconnection equipment used by the small generator facility is de-listed by the Nationally Recognized Testing Laboratory that provided the listing at the time the interconnection was approved.
- (7) **Indemnification**. The parties shall at all times indemnify, defend, and save the other party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other party's action or inactions of its obligations under this agreement on behalf of the indemnifying party, except in cases of gross negligence or intentional wrongdoing by the indemnified party.
- (8) **Limitation of Liability**. Each party's liability to the other party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever.
- (9) **Termination**. This agreement may be terminated under the following conditions:
 - (a) By interconnection customer The interconnection customer may terminate this application agreement by providing written notice to the EDC.
 - (b) By the EDC The EDC may terminate this agreement if the interconnection customer fails to remedy a violation of terms of this agreement within thirty (30) calendar days after notice, or such other date as may be mutually agreed to prior to the expiration of the thirty (30) calendar day remedy period. The termination date can be no less than thirty (30) calendar days after the interconnection customer receives notice of its violation from the EDC.
- (10) Modification of Small Generator Facility. The interconnection customer shall provide written notification to the EDC before making any modifications to the Small Generator Facility. The EDC will determine if the modifications are minor or non-minor in nature. Written authorization from the EDC is required for non-minor changes if the EDC determines that the interconnection customer's modifications may have a significant impact on the safety or reliability of the Electric Distribution System. If the interconnection customer makes such modifications without the EDC's prior written authorization the EDC shall have the right to temporarily disconnect the Small Generator Facility until such time as the EDC reasonably concludes the modification poses no threat to the safety or reliability of its Electric Distribution System.
- (11) **Permanent Disconnection.** In the event the agreement is terminated, the EDC shall have the right to disconnect its facilities or direct the customer to disconnect its Small Generator Facility.

- (12) **Disputes.** Each party agrees to attempt to resolve all disputes regarding the provisions of these interconnection procedures pursuant to the dispute resolution provisions of the District of Columbia Small Generator Interconnection Rules.
- (13) **Governing Law, Regulatory Authority, and Rules.** The validity, interpretation and enforcement of this agreement and each of its provisions shall be governed by the laws of the District of Columbia. Nothing in this agreement is intended to affect any other agreement between the EDC and the interconnection customer. However, in the event that the provisions of this agreement are in conflict with the provisions of the EDC's tariff, the EDC tariff shall control.
- (14) **Survival Rights**. This agreement shall continue in effect after termination to the extent necessary to allow or require either party to fulfill rights or obligations that arose under the agreement.
- (15) Assignment/Transfer of Ownership of the Small Generator Facility: This agreement shall terminate upon the transfer of ownership of the Small Generator Facility to a new owner unless the transferring owner assigns the agreement to the new owner and so notifies the EDC in writing prior to the transfer of electric service.
- (16) **Definitions**. Any capitalized term used herein and not defined shall have the same meaning as the defined terms used in the District of Columbia Small Generator Interconnection Rule.
- (17) **Notice**. Unless otherwise provided in this agreement, any written notice, demand, or request required or authorized in connection with this agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

(If Notice is sent to the Interconnection Customer):

Use the contact information provided in the agreement for the interconnection customer. The interconnection customer is responsible for notifying the EDC of any change in the contact party information, including change of ownership.

(If Notice is sent to the EDC)

Use the contact information provided on the EDC's web page for small generator interconnection.

DISTRICT OF COLUMBIA SMALL GENERATOR INTERCONNECTION RULE LEVEL 2-4 STANDARD AGREEMENT FOR INTERCONNECTION OF SMALL GENERATOR FACILITIES

This Agreement is made and entered into this ___ day of ____, by and between ____, a ____ organized and existing under the laws of _____, (''Interconnection Customer,'') and _____, a ____, existing under the laws of _____,

("EDC"). The Interconnection Customer and the EDC each may be referred to as a "Party," or collectively as the "Parties."

<u>Recitals</u>:

Whereas, Interconnection Customer is proposing to, install or direct the installation of a Small Generator Facility, or is proposing a generating capacity addition to an existing Small Generator Facility, consistent with the Interconnection Request completed by Interconnection Customer on _____; and

Whereas, the Interconnection Customer will operate and maintain, or cause the operation and maintenance of the Small Generator Facility; and

Whereas, Interconnection Customer desires to interconnect the Small Generator Facility with the EDC's Electric Distribution System.

Now, therefore, in consideration of the promises and mutual covenants set forth herein, and other good and valuable consideration, the receipt, sufficiency and adequacy of which are hereby acknowledged, the Parties covenant and agree as follows:

Article 1. Scope and Limitations of Agreement

- **1.1** This Agreement shall be used for all approved Level 2, Level 3 and Level 4 Interconnection Requests according to the procedures set forth in the District of Columbia Small Generator Interconnection Rules.
- **1.2** This Agreement governs the terms and conditions under which the Small Generator Facility will interconnect to, and operate in Parallel with, the EDC's Electric Distribution System. This Agreement provides the Interconnection Customer with the Approval to Install contingent upon satisfying all terms and conditions.
- **1.3** This Agreement does not constitute an agreement to purchase or deliver the Interconnection Customer's power.
- **1.4** Nothing in this Agreement is intended to affect any other agreement between the EDC and the Interconnection Customer. However, in the event that the provisions

of this Agreement are in conflict with the provisions of the EDC's tariff, the EDC tariff shall control.

1.5 Responsibilities of the Parties

- 1.5.1 The Parties shall perform all obligations of this Agreement in accordance with all Applicable Laws and Regulations.
- 1.5.2 The EDC shall construct, own, operate, and maintain its Interconnection Facilities in accordance with this Agreement, IEEE Standard 1547, the National Electrical Safety Code and applicable standards promulgated by the District of Columbia Public Service Commission.
- 1.5.3 The Interconnection Customer shall construct, own, operate, and maintain its Interconnection Facilities in accordance with this Agreement, IEEE Standard 1547, the National Electrical Code and applicable standards promulgated by the District of Columbia Public Service Commission.
- 1.5.4 Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for the facilities that it now or subsequently may own unless otherwise specified in the attachments to this Agreement. Each Party shall be responsible for the safe installation, maintenance, repair and condition of their respective lines and appurtenances on their respective sides of the Point of Common Coupling.
- 1.5.5 The Interconnection Customer agrees to design, install, maintain and operate its Small Generator Facility so as to minimize the likelihood of causing an Adverse System Impact on an electric system that is not owned or operated by the EDC.

1.6 Metering

The Interconnection Customer shall be responsible for the cost of the purchase, installation, operation, maintenance, testing, repair, and replacement of metering and data acquisition equipment specified in Attachments 4 and 5 of this Agreement.

1.7 Reactive Power

The Interconnection Customer shall design its Small Generator Facility to maintain a composite power delivery at continuous rated power output at the Point of Common Coupling at a power factor within the power factor range required by the EDC's applicable tariff for a comparable load customer. The EDC may also require the Interconnection Customer to follow a voltage or VAR schedule if such schedules are applicable to similarly situated generators in the control area on a comparable basis and have been approved by the Commission. The specific requirements for meeting a voltage or VAR schedule shall be clearly specified in Attachment 3.

Under no circumstance shall these additional requirements for reactive power or voltage support exceed the normal operating capabilities of the Small Generator Facility.

1.8 Capitalized Terms

Capitalized terms used herein shall have the meanings specified in the Definitions section of the District of Columbia Small Generator Interconnection Rules or the body of this Agreement.

Article 2. Inspection, Testing, Authorization, and Right of Access

2.1 Equipment Testing and Inspection

The Interconnection Customer shall test and inspect its Small Generator Facility including the Interconnection Equipment prior to interconnection in accordance with IEEE Standard 1547, IEEE Standard 1547.1, and the technical and procedural requirements in the District of Columbia Small Generator Interconnection Rule. The Interconnection Customer shall not operate its Small Generator Facility in Parallel with the EDC's Electric Distribution System without prior written authorization by the EDC as provided for in Articles 2.1.1 - 2.1.3.

2.1.1 The EDC shall have the option of performing a Witness Test after construction of the Small Generator Facility is completed. The Interconnection Customer shall provide the EDC at least twenty (20) days' notice of the planned Commissioning Test for the Small Generator Facility. If the EDC elects to perform a Witness Test, it shall contact the Interconnection Customer to schedule the Witness Test at a mutually agreeable time within ten (10) business days of the scheduled Commissioning Test. If the EDC does not perform the Witness Test within ten (10) business days of the Commissioning Test, the Witness Test is deemed waived unless the parties mutually agree to extend the date for scheduling the Witness Test. If the Witness Test fails to reveal that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes, the EDC shall offer to redo the Witness Test at the Interconnection Customer's expense at a time mutually agreeable to the parties. If the EDC determines that the Small Generator Facility fails the inspection it must provide a written explanation detailing the reasons and any standards violated. If the EDC does not perform the Witness Test within ten (10) business days or other time as is mutually agreed to by the parties, the Witness Test is deemed waived. After considering the "redo" option, if the Witness Test is still not acceptable to the EDC, the Interconnection Customer will be granted a period of thirty (30) calendar days to address and resolve any deficiencies. The time period for addressing and resolving any deficiencies may be extended upon the mutual agreement of the EDC and the

Interconnection Customer. If the Interconnection Customer fails to address and resolve the deficiencies to the satisfaction of the EDC, the applicable termination provisions of Article 3.3.7 shall apply. If a Witness Test is not performed by the EDC or an entity approved by the EDC, the Interconnection Customer must still satisfy the interconnection test specifications and requirements set forth in IEEE Standard 1547 Section 11.2. The Interconnection Customer shall, if requested by the EDC, provide a copy of all documentation in its possession regarding testing conducted pursuant to IEEE Standard 1547.1.

- 2.1.2 To the extent that the Interconnection Customer decides to conduct interim testing of the Small Generator Facility prior to the Witness Test, it may request that the EDC observe these tests and that these tests be deleted from the final Witness Test. The EDC may, at its own expense, send qualified personnel to the Small Generator Facility to observe such interim testing. Nothing in this Section 2.1.2 shall require the EDC to observe such interim testing or preclude the EDC from performing these tests at the final Witness Test. Regardless of whether the EDC observes the interim testing, the Interconnection Customer shall obtain permission in advance of each occurrence of operating the Small Generator Facility in parallel with the EDC's system.
- 2.1.3 Upon successful completion of the Witness Test, the EDC shall affix an authorized signature to the Certificate of Completion and return it to the Interconnection Customer approving the interconnection and authorizing Parallel Operation. Such authorization shall not be unreasonably withheld, conditioned, or delayed.

2.2 Commercial Operation

The Interconnection Customer shall not operate the Small Generator Facility, except for interim testing as provided in Article 2.1, until such time as the Certificate of Completion is signed by all Parties.

2.3 Right of Access

The EDC shall have access to the disconnect switch and metering equipment of the Small Generator Facility at all times. The EDC shall provide reasonable notice to the customer when possible prior to using its right of access.

Article 3. Effective Date, Term, Termination, and Disconnection

3.1 Effective Date

This Agreement shall become effective upon execution by the Parties.

3.2 Term of Agreement

This Agreement shall become effective on the Effective Date and shall remain in effect in perpetuity unless terminated earlier in accordance with Article 3.3 of this Agreement.

3.3 Termination

No termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination.

- 3.3.1 The Interconnection Customer may terminate this Agreement at any time by giving the EDC thirty (30) calendar days prior written notice.
- 3.3.2 Either Party may terminate this Agreement after default pursuant to Article 6.5.
- 3.3.3 The EDC may terminate upon sixty (60) calendar days' prior written notice for failure of the Interconnection Customer to complete construction of the Small Generator Facility within twelve (12) months of the in-service date as specified by the Parties in Attachment 1, which may be extended by mutual agreement of the Parties which shall not be unreasonably withheld.
- 3.3.4 The EDC may terminate this Agreement upon sixty (60) calendar days' prior written notice if the Interconnection Customer fails to operate the Small Generator Facility in parallel with EDC's electric system for three consecutive years.
- 3.3.5 Upon termination of this Agreement, the Small Generator Facility will be disconnected from the EDC's Electric Distribution System. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of the termination.
- 3.3.6 The provisions of this Article shall survive termination or expiration of this Agreement.
- 3.3.7 The EDC may terminate this Agreement if the Interconnection Customer fails to comply with the Witness Test requirement in Article 2.2.1.

3.4 Temporary Disconnection

A Party may temporarily disconnect the Small Generator Facility from the Electric Distribution System in the event of an Emergency Condition for as long as the Party determines it is reasonably necessary in the event one or more of the following conditions or events occurs:

- 3.4.1 Emergency Conditions - Emergency Conditions shall mean any condition or situation: (1) that in the judgment of the Party making the claim is reasonably likely to endanger life or property; or (2) that, in the case of the EDC, is reasonably likely to cause an Adverse System Impact; or (3) that, in the case of the Interconnection Customer, is reasonably likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Small Generator Facility or the Interconnection Equipment. Under Emergency Conditions, the EDC or the Interconnection Customer may immediately suspend interconnection service and temporarily disconnect the Small Generator Facility. The EDC shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Interconnection Customer's operation of the Small Generator Facility. The Interconnection Customer shall notify the EDC promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the EDC's Electric Distribution System. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of both Parties' facilities and operations, its anticipated duration, and the necessary corrective action.
- 3.4.2 Scheduled Maintenance, Construction, or Repair The EDC may interrupt interconnection service or curtail the output of the Small Generator Facility and temporarily disconnect the Small Generator Facility from the EDC's Electric Distribution System when necessary for scheduled maintenance, construction, or repairs on the EDC's Electric Distribution System. The EDC shall provide the Interconnection Customer with five business days' notice prior to such interruption. The EDC shall use reasonable efforts to coordinate such reduction or temporary disconnection with the Interconnection Customer.
- 3.4.3 Forced Outages With any forced outage, the EDC may suspend interconnection service to effect immediate repairs on the EDC's Electric Distribution System. The EDC shall use reasonable efforts to provide the Interconnection Customer with prior notice. If prior notice is not given, the EDC shall, upon written request, provide the Interconnection Customer written documentation after the fact explaining the circumstances of the disconnection.
- 3.4.4 Adverse Operating Effects The EDC shall provide the Interconnection Customer with a written notice of its intention to disconnect the Small Generator Facility if, based on the operating requirements specified in Attachment 3, the EDC determines that operation of the Small Generator Facility will likely cause disruption or deterioration of service to other customers served from the same electric system, or if operating the Small Generator Facility could cause damage to the EDC's Electric Distribution

System. Supporting documentation used to reach the decision to disconnect shall be provided to the Interconnection Customer upon written request. The EDC may disconnect the Small Generator Facility if, after receipt of the notice, the Interconnection Customer fails to remedy the adverse operating effect within a reasonable time unless Emergency Conditions exist in which case the provisions of Article 3.4.1 apply.

- 3.4.5 Modification of the Small Generator Facility The Interconnection Customer shall provide written notification to the EDC before making any modifications to the Small Generator Facility. The EDC will determine if the modifications are minor or non-minor in nature. Written authorization from the EDC is required for non-minor changes if the EDC determines that the Interconnection Customer's modifications could cause an Adverse System Impact. If the Interconnection Customer makes such modifications without the EDC's prior written authorization the EDC shall have the right to temporarily disconnect the Small Generator Facility until such time as the EDC reasonably concludes the modification poses no threat to the safety or reliability of its Electric Distribution System.
- 3.4.6 Reconnection The Parties shall cooperate with each other to restore the Small Generator Facility, Interconnection Facilities, and EDC's Electric Distribution System to their normal operating state as soon as reasonably practicable following any disconnection pursuant to this section; provided, however, if such disconnection is done pursuant to Article 3.4.5 due to the Interconnection Customer's failure to obtain prior written authorization from the EDC for Non- Minor Equipment Modifications, the EDC shall reconnect the Interconnection Customer only after determining the modifications do not impact the safety or reliability of its Electric Distribution System.

<u>Article 4</u>. Cost Responsibility for Interconnection Facilities and Distribution Upgrades

4.1 Interconnection Facilities

- 4.1.1 The Interconnection Customer shall pay for the cost of the Interconnection Facilities itemized in Attachment 2 of this Agreement if required under the additional review procedures of a Level 2 review or under a Level 4 review. If a Facilities Study was performed, the EDC shall identify the Interconnection Facilities necessary to safely interconnect the Small Generator Facility with the EDC's Electric Distribution System, the cost of those facilities, and the time required to build and install those facilities.
- 4.1.2 The Interconnection Customer shall be responsible for its expenses, including overheads, associated with (1) owning, operating, maintaining, repairing, and replacing its Interconnection Equipment, and (2) its

reasonable share of operating, maintaining, repairing, and replacing any Interconnection Facilities owned by the EDC as set forth in Attachment 2.

4.2 Distribution Upgrades

The EDC shall design, procure, construct, install, and own any Distribution Upgrades. The actual cost of the Distribution Upgrades, including overheads, shall be directly assigned to the Interconnection Customer. The Interconnection Customer may be entitled to financial contribution from any other EDC customers who may in the future utilize the upgrades paid for by the Interconnection Customer. Such contributions shall be governed by the rules, regulations and decisions of the District of Columbia Public Service Commission.

Article 5. Billing, Payment, Milestones, and Financial Security

5.1 Billing and Payment Procedures and Final Accounting (Applies to additional reviews conducted under Levels 2, 3 or 4)

- 5.1.1 The EDC shall bill the Interconnection Customer for the design, engineering, construction, and procurement costs of the EDC provided Interconnection Facilities and Distribution Upgrades contemplated by this Agreement as set forth in Attachment 2, on a monthly basis, or as otherwise agreed by the Parties. The Interconnection Customer shall pay each bill within thirty (30) calendar days of receipt, or as otherwise agreed to by the Parties.
- 5.1.2 Within ninety (90) calendar days of completing the construction and installation of the EDC's Interconnection Facilities and Distribution Upgrades described in the Attachments 1 and 2 to this Agreement, the EDC shall provide the Interconnection Customer with a final accounting report of any difference between (1) the actual cost incurred to complete the construction and installation and the budget estimate provided to the Interconnection Customer and a written explanation for any significant variation; and (2) the Interconnection Customer's previous deposit and aggregate payments to the EDC for such Interconnection Facilities and Distribution Upgrades. If the Interconnection Customer's cost responsibility exceeds its previous deposit and aggregate payments, the EDC shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to the EDC within thirty (30) calendar days. If the Interconnection Customer's previous deposit and aggregate payments exceed its cost responsibility under this Agreement, the EDC shall refund to the Interconnection Customer an amount equal to the difference within thirty (30) calendar days of the final accounting report.
- 5.1.3 If a Party in good faith disputes any portion of its payment obligation pursuant to this Article 5, such Party shall pay in a timely manner all non-

disputed portions of its invoice, and such disputed amount shall be resolved pursuant to the dispute resolution provisions contained in Article 8. Provided such Party's dispute is in good faith, the disputing Party shall not be considered to be in default of its obligations pursuant to this Article.

5.2 Interconnection Customer Deposit

When a Level 4 Interconnection Feasibility Study, Interconnection System Impact Study, or Interconnection Facility Study or a Level 2 Review of Minor Modifications is required under the District of Columbia Small Generator Interconnection Rules, the EDC may require the Interconnection Customer to pay a deposit equal to fifty percent (50%) of the estimated cost to perform the study or review. At least twenty (20) business days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of the EDC's Interconnection Facilities and Distribution Upgrades, the Interconnection Customer shall provide the EDC with a deposit equal to fifty percent (50%) of the estimated cost is in excess of one thousand dollars (\$1,000).

<u>Article 6.</u> Assignment, Limitation on Damages, Indemnity, Force Majeure, and Default

6.1 Assignment

This Agreement may be assigned by either Party upon fifteen (15) business days' prior written notice, and with the opportunity to object by the other Party. Should the Interconnection Customer assign this agreement, the EDC has the right to request that the assignee agree to the assignment and the terms of this Agreement in writing. When required, consent to assignment shall not be unreasonably withheld; provided that:

- 6.1.1 Either Party may assign this Agreement without the consent of the other Party to any affiliate (which shall include a merger of the Party with another entity), of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement;
- 6.1.2 The Interconnection Customer shall have the right to assign this Agreement, without the consent of the EDC, for collateral security purposes to aid in providing financing for the Small Generator Facility. For Small Generator systems that are integrated into a building facility, the sale of the building or property will result in an automatic transfer of this agreement to the new owner who shall be responsible for complying with the terms and conditions of this Agreement.
- 6.1.3 Any attempted assignment that violates this Article is void and ineffective. Assignment shall not relieve a Party of its obligations, nor shall a Party's

obligations be enlarged, in whole or in part, by reason thereof. An assignee is responsible for meeting the same obligations as the Interconnection Customer.

6.2 Limitation on Damages

Except for cases of gross negligence or willful misconduct, the liability of any Party to this Agreement shall be limited to direct actual damages, and all other damages at law are waived. Under no circumstances, except for cases of gross negligence or willful misconduct, shall any Party or its directors, officers, employees and agents, or any of them, be liable to another Party, whether in tort, contract or other basis in law or equity for any special, indirect, punitive, exemplary or consequential damages, including lost profits, lost revenues, replacement power, cost of capital or replacement equipment. This limitation on damages shall not affect any Party's rights to obtain equitable relief, including specific performance, as otherwise provided in this Agreement. The provisions of this Article 6.2 shall survive the termination or expiration of the Agreement.

6.3 Indemnity

- 6.3.1 This provision protects each Party from liability incurred to third parties as a result of carrying out the provisions of this Agreement. Liability under this provision is exempt from the general limitations on liability found in Article 6.2.
- 6.3.2 The Parties shall at all times indemnify, defend, and hold the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or failure to meet its obligations under this Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.
- 6.3.3 Promptly after receipt by an indemnified Party of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in this Article may apply, the indemnified Party shall notify the indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying Party.
- 6.3.4 If an indemnified Party is entitled to indemnification under this Article as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under this Article, to assume the defense of such claim, such indemnified Party may at the expense of the

indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

6.3.5 If an indemnifying Party is obligated to indemnify and hold any indemnified Party harmless under this Article, the amount owing to the indemnified person shall be the amount of such indemnified Party's actual loss, net of any insurance or other recovery.

6.4 Force Majeure

- 6.4.1 As used in this Article, a Force Majeure Event shall mean any act of God, labor disturbance, act of the public enemy, war, acts of terrorism, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment through no direct, indirect, or contributory act of a Party, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure Event does not include an act of gross negligence or intentional wrongdoing.
- 6.4.2 If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, the Party affected by the Force Majeure Event (Affected Party) shall promptly notify the other Party of the existence of the Force Majeure Event. The notification must specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the Affected Party is taking and will take to mitigate the effects of the event on its performance, and if the initial notification was verbal, it should be promptly followed up with a written notification. The Affected Party shall keep the other Party informed on a continuing basis of developments relating to the Force Majeure Event until the event ends. The Affected Party shall be entitled to suspend or modify its performance of obligations under this Agreement (other than the obligation to make payments) only to the extent that the effect of the Force Majeure Event cannot be reasonably mitigated. The Affected Party shall use reasonable efforts to resume its performance as soon as possible.

6.5 Default

- 6.5.1 No default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of a Force Majeure Event as defined in this Agreement, or the result of an act or omission of the other Party.
- 6.5.2 Upon a default of this Agreement, the non-defaulting Party shall give written notice of such default to the defaulting Party. Except as provided in Article 6.5.3 the defaulting Party shall have sixty (60) calendar days from receipt of the default notice within which to cure such default; provided

however, if such default is not capable of cure within 60 calendar days, the defaulting Party shall commence such cure within twenty (20) calendar days after notice and continuously and diligently complete such cure within six months from receipt of the default notice; and, if cured within such time, the default specified in such notice shall cease to exist.

- 6.5.3 If a Party has made an assignment of this Agreement not specifically authorized by Article 6.1, fails to provide reasonable access pursuant to Article 2.3, is in default of its obligations pursuant to Article 7, or if a Party is in default of its payment obligations pursuant to Article 5 of this Agreement, the defaulting Party shall have thirty (30) days from receipt of the default notice within which to cure such default.
- 6.5.4 If a default is not cured as provided for in this Article, or if a default is not capable of being cured within the period provided for herein, the non-defaulting Party shall have the right to terminate this Agreement by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not that Party terminates this Agreement, to recover from the defaulting Party all amounts due hereunder, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this Article will survive termination of this Agreement.

Article 7. Insurance

For Small Generator Facilities, the Interconnection Customer shall carry adequate insurance coverage that shall be acceptable to the EDC; provided, that the maximum comprehensive/general liability coverage that shall be continuously maintained by the Interconnection Customer during the term for non-inverter based systems 500 kW up to 2 MW shall have one million dollars (\$1 million) of insurance, two million dollars (\$2 million) for non-inverter based systems larger than 2 MW up to 5 MW, and three million dollars (\$3 million) for non-inverter systems larger than 5 MW. For inverter-based generating facilities, systems between 1 MW and 5 MW have \$1 million of insurance and systems larger than 5 MW have \$2 million of insurance. The EDC, its officers, employees and agents will be added as an additional insured on this policy.

Article 8. Dispute Resolution

- **8.1** A party shall attempt to resolve all disputes regarding interconnection as provided in this Agreement and the District of Columbia Small Generator Interconnection Rule promptly, equitably, and in a good faith manner.
- **8.2** When a dispute arises, a party may seek immediate resolution through complaint procedures available through the Commission, or an alternative dispute resolution process approved by the Commission, by providing written notice to the Commission and the other party stating the issues in dispute. Dispute resolution

will be conducted in an informal, expeditious manner to reach resolution with minimal costs and delay. When available, dispute resolution may be conducted by phone.

- **8.3** When disputes relate to the technical application of this Agreement and the District of Columbia Small Generator Interconnection Rule, the Commission may designate a technical consultant to resolve the dispute. Upon Commission designation, the parties shall use the technical consultant to resolve disputes related to interconnection. Costs for a dispute resolution conducted by the technical consultant shall be established by the technical consultant, subject to review by the Commission.
- **8.4** Pursuit of dispute resolution may not affect an Interconnection Customer with regard to consideration of an Interconnection Request or an Interconnection Customer's Queue Position.
- **8.5** If the Parties fail to resolve their dispute under the dispute resolution provisions of this Article, nothing in this Article shall affect any Party's rights to obtain equitable relief, including specific performance, as otherwise provided in this Agreement.

Article 9. Miscellaneous

9.1 Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the District of Columbia, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations.

9.2 Amendment

Modification of this Agreement shall be only by a written instrument duly executed by both Parties.

9.3 No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

9.4 Waiver

9.4.1 The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement shall not be

considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

9.4.2 Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from EDC. Any waiver of this Agreement shall, if requested, be provided in writing.

9.5 Entire Agreement

This Agreement, including all attachments, constitutes the entire Agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants that constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement.

9.6 Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

9.7 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

9.8 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

9.9 Environmental Releases

Each Party shall notify the other Party, first orally and then in writing, of the release any hazardous substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Small Generator Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall (1) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than twenty-four (24) hours after such Party becomes aware of the occurrence, and (2) promptly furnish to the other Party copies of any publicly available reports filed with any governmental authorities addressing such events.

9.10 Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

- 9.10.1 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.
- 9.10.2 The obligations under this Article will not be limited in any way by any limitation of subcontractor's insurance.

Article 10. Notices

10.1 General

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

If to Interconnection Customer:

Interconnection Customer:	
Attention:	
Address:	

City:		State:	Zip:
Phone:	Fax:	E-mail:	

If to EDC:

EDC:				
Attention:				
Address:				
City:		State:	Zip:	
Phone:	Fax:		E-mail:	

10.2 Billing and Payment

Billings and payments shall be sent to the addresses set forth below:

If to Interconnection Customer:

Attention:Address:City: State: Zip:	Interconnec	tion Customer: _			
	Attention:				
City: State: Zin:	Address:				
	City:		Sta	ate:	_Zip:

If to EDC:

EDC:		
Attention:		
Address:		
City:	State:	Zip:

10.3 Designated Operating Representative

The Parties may also designate operating representatives to conduct the communications which may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities.

Interconnection Customer's Operating Representative:

Attention:				
Address:				
City:		State:		Zip:
Phone:	Fax:		_E-Mail:	

EDC's Operating Representative:

Attention:			
Address:			
City:	St	ate:	Zip:
Phone:	_Fax:	E-Mail:	

10.4 Changes to the Notice Information

Either Party may change this notice information by giving five (5) business days written notice prior to the effective date of the change.

Article 11. Signatures

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For the Interconnection Customer:
Name:
Title:
Date:
For EDC:
Name:
Title:
Date:

CONSTRUCTION SCHEDULE, PROPOSED EQUIPMENT & SETTINGS

This attachment shall include the following:

- 1. The construction schedule for the Small Generator Facility
- 2. A one-line diagram indicating the Small Generator Facility, Interconnection Equipment, Interconnection Facilities, Metering Equipment, and Distribution Upgrades
- 3. Component specifications for equipment identified in the one-line diagram
- 4. Component settings
- 5. Proposed sequence of operations

DESCRIPTION, COSTS AND TIME REQUIRED TO BUILD AND INSTALL THE EDC'S INTERCONNECTION FACILITIES

The EDC's Interconnection Facilities including any required metering shall be itemized and a best estimate of itemized costs, including overheads, shall be provided based on the Facilities Study.

Also, a best estimate for the time required to build and install the EDC's Interconnection Facilities will be provided based on the Facilities Study.

OPERATING REQUIREMENTS FOR SMALL GENERATOR FACILITIES OPERATING IN PARALLEL

Applicable sections of the EDC's operating manuals applying to the small generator interconnection shall be listed and Internet links shall be provided. Any special operating requirements not contained in the EDC's existing operating manuals shall be clearly identified. The EDC's operating requirements shall not impose additional technical or procedural requirements on the Small Generator Facility beyond those found in the District of Columbia Small Generator Interconnection Rules, except those required for safety.

METERING REQUIREMENTS

Metering requirements for the Small Generator Facility shall be clearly indicated along with an identification of the appropriate tariffs that establish these requirements and an internet link to these tariffs.

AS BUILT DOCUMENTS

After completion of the Small Generator Facility, the Interconnection Customer shall provide the EDC with documentation indicating the as built status of the following when it returns the Certificate of Completion to the EDC:

- 1. A one-line diagram indicating the Small Generator Facility, Interconnection Equipment, Interconnection Facilities, Metering Equipment, and Distribution Upgrades
- 2. Component specifications for equipment identified in the one-line diagram
- 3. Component settings
- 4. Proposed sequence of operations

LEVEL 2, LEVEL 3 AND LEVEL 4

INTERCONNECTION REQUEST APPLICATION FORM

Interconnection Customer Cont	act Information:	
Name		
Mailing Address:		
City:	State:	Zip Code:
Telephone (Daytime):	(Mobile):	
Facsimile Number:	E-Mail Address:	
Alternative Contact Information	n (if different from Customer	Contact Information):
Name:		
Mailing Address:		
City:	State:	Zip Code:
Telephone (Daytime):	(Mobile):	
Facsimile Number:	E-Mail Address:	
Equipment Contractor:		
Name: Mailing Address:		
City:		
Telephone (Daytime):	(Mobile):	
Facsimile Number:	E-Mail Address:	
Electrical Contractor (if Different Name:		
Mailing Address:		
City:		
Telephone (Daytime):		
Facsimile Number:	E-Mail Address:	

License number:

Active License? Yes ____ No ____

<u>Electric Service Information for Customer Facility Where Generator Will Be</u> <u>Interconnected:</u>

Electr	ic Distribution Company (EDC) serving Facility site:
Electr	ic Supplier (if different from EDC):
Accou	Int Number of Facility site (existing EDC customers):
Capac	eity:(Amps) Voltage:(Volts)
Туре	of Service: Single Phase Three Phase
If 3 Pl	nase Transformer, Indicate Type
Prima	ry Winding 🗌 Wye 🔲 Delta
Secon	dary Winding 🗌 Wye 🔲 Delta
Trans	former Size: Impedance:
Inten	t of Generation (choose one):
	Offset Load (Unit will operate in parallel, but will not export power to EDC).
	Net Energy Metering (Small Generator Facility will export power pursuant to District of Columbia Customer Net Energy Metering Contract).
	Community Renewable Energy Facility (interconnection with EDC).

Export Power (CG SPP Schedule) (Unit will operate in parallel and will export power but does not fit the criteria established in the District of Columbia Customer Net Energy Metering Contract for net energy metering).

Note: If Unit will operate in parallel and participate in the PJM market(s), Unit will need to obtain an Interconnection Agreement from PJM.

Back-up Generation (Units that temporarily parallel for more than 100 milliseconds).

Note: Backup units that do not operate in parallel for more than 100 milliseconds do not need an Interconnection Agreement.

PJM Demand Response Market Participant (System will not export energy)
Energy, Capacity, Load Reduction and/or Synchronized Reserve Markets: Yes No
Regulation Market: Yes No (if no, would have to re-apply in future if change to frequenc

regulation)

Microgrid: No_ Yes ___; If Yes indicate below any/all Energy Production Equipment/Inverter Information that is to be used.

Requested Procedure Under Which to Evaluate Interconnection Request:

Please indicate below which review procedure applies to the Interconnection Request.

- **Level 2** Certified Interconnection Equipment with an aggregate electric Nameplate Capacity less than or equal to 5 MW. Indicate type of certification below. (Application fee amount is \$500.)
- Level 3 Small generator facility does not export power. Nameplate capacity rating is equal to or less than 20 MW if connecting to a radial distribution feeder. An Interconnection Customer proposing to interconnect a small generator to a spot or Area Network is not permitted under the Level 3 review process. (Application fee amount is \$500.)
- Level 4 Nameplate capacity rating is less than 20 MW and the Small Generator Facility does not qualify for a Level 1, Level 2 or Level 3 review or, the Small Generator Facility has been reviewed but not approved under a Level 1, Level 2 or Level 3 review. (Application fee amount is \$1,000, to be applied toward any subsequent studies related to this application.)

For Level 1, 2, 3 applications before EDC's considering a Level 4 review, the applicant can request a meeting based on "Applicant Options Meeting" section of Chapter 40.

Descriptions for interconnection review categories do not list all criteria that must be satisfied. For a complete list of criteria, please refer to the District of Columbia Small Generator Interconnection Rules.

Small Generator Facility Information:

Energy Produ	iction Equipi	ment/invert	er informa	lion		
Energy Source	: 🗌 Hydro	Wind	Solar	Diesel	Biomass	Natural
Gas						
	Coal	Oil	Other	Solar + E	Energy Storage	Energy
Storage						
Energy Conve	rter Type:] Water Turb	oine 🗌 Wir	nd Turbine	Photovolta	aic Cell
] Steam Turł	oine 🗌 Con	nbustion Turb	ine 🗌 Re	ciprocating
Engine						
		Other				

Generator Type:	\Box S	nchronous	Induction	Inverter	Other
Rating:	_kW	Rating:	kVA	Number of Un	nits:
Rated Voltage:		Volts			
Rated Current:		A	mps		
System Type Tested	d (Total	System): 🗌 Y	Yes 🗌 No; atta	ch product liter	ature

Interconnection components/system(s) to be used in the Small Generation Facility that are lab certified (required for Level 2 and Level 3 Interconnection requests only).

Compo	nent/Syst	tem NR	TL Prov	viding L	abel &	Listing			
1									
2									
3									
4									

Please provide copies of manufacturer brochures or technical specifications.

For Synchronous Machines:

Note: Contact EDC to determine if all the information requested in this section is required for the proposed Small Generator Facility.

Manufacturer:	
Model No Version No	
Submit copies of the Saturation Curve and the Vee Curve	
Salient Non-Salient	
Torque: lb-ft Rated RPM: Field Amper	res: at rated generator
voltage and current and% PF over-excited	
Type of Exciter:	
Output Power of Exciter:	
Type of Voltage Regulator:	Locked Rotor
Current: Amps Synchronous Speed:R	
Winding Connection: Min. Operating Freq./	
Generator Connection: Delta Wye Wye Grou	inded
Direct-axis Synchronous Reactance (Xd)ohms	
Direct-axis Transient Reactance (X'd)ohms	
Direct-axis Sub-transient Reactance (X"d)ohms	
Negative Sequence Reactance: ohms	
Zero Sequence Reactance: ohms	
Neutral Impedance or Grounding Resister (if any):	ohms

For Induction Machines:

Note: Contact EDC to determine if all the information requested in this section is required for the proposed Small Generator Facility.

Manufacturer:
Manufacturer: Model No Version No
Locked Rotor Current: Amps
Rotor Resistance (Rr)ohms Exciting CurrentAmps
Rotor Reactance (Xr)ohms Reactive Power Required:
Magnetizing Reactance (Xm)ohmsVARs (No Load)
Stator Resistance (Rs)ohmsVARs (Full Load)
Stator Reactance (Xs)ohms
Short Circuit Reactance (X"d)ohms
Phases: Single Three-Phase
Frame Size: Design Letter: Temp. Rise:°C.
Reverse Power Relay Information (Level 3 Review Only)
Manufacturer:
Relay Type: Model Number:
Reverse Power Setting:
Reverse Power Time Delay (if any):
Additional Information For Inverter Based Facilities
Inverter Information:
Manufacturer: Model:
Manufacturer: Model: Type: Forced Commutated
Number of Inverters:
Rated Output Watts Volts
Efficiency% Power Factor%
Inverter UL1547 Listed: Yes No
D.C. Source / Prime Mover:
Rating: kW Rating: kVA
Rated Voltage:Volts
Open Circuit Voltage (If applicable):Volts
Rated Current:Amps
Short Circuit Current (If applicable):Amps
Generator (or PV Panel) Manufacturer, Model #:
Number of Generators (or PV Panels):
Type of Tracking if PV: Fixed Single Axis Double Axis
Array Azimuth if PV:° Array Tilt if PV:°
Shading Angles if PV at E, 120°, 150°, S, 210°, 240°, W (Separate with comas:°

Other Facility Information:

One Line Diagram attached: 🗌 Yes

Plot Plan attached: Yes

Estimated Commissioning Date: _____

Customer Signature

I hereby certify that all of the information provided in this application request form is true.

Interconnection Customer Signature:	
Title:	Date:

An invoice will be emailed for the application fee. An application fee is required before the application can be processed. Please verify that the appropriate fee is included with the application:

Application fee included

Amount_____

BEFORE THE PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

In the Matter of 15 DCMR Chapter 40 - 1**District of Columbia Small Generator** Interconnection Rules

RM40-2020-01

DEPARTMENT OF ENERGY AND ENVIRONMENT'S REPLY COMMENTS IN RESPONSE TO PROPOSED RULEMAKING RM40-2020-01

)

Pursuant to the Public Service Commission of the District of Columbia's ("Commission") Public Notice published in the District of Columbia Register on May 22, 2020,¹ the Department of Energy and Environment (DOEE), on behalf of the District of Columbia Government (the District), respectfully submits these reply comments on the April 10, 2020 Notice of Proposed Rulemaking (NOPR) published by the Commission in the above-captioned proceeding.

I. BACKGROUND

The NOPR amends the Small Generator Interconnection Rules (SGIR) in Chapter 40 of Title 15 of the District of Columbia Municipal Regulations (DCMR). The stated purpose of the NOPR is to address the following: (1) distribution system upgrade costs for Community Renewable Energy Facilities (CREF); (2) timelines for small generator interconnection; and (3) a timeframe for advanced inverter deployment and the implementation of the *IEEE Standard for* Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces (IEEE 1547-2018 Standard). The NOPR follows a series of meetings by the RM-9 Stakeholder Working Group to discuss the above topics, although the working

¹ Vol. 67 – No. 21, 005448.

group did not reach consensus on these matters. The NOPR originally requested comments on the proposed amendments to the SGIR within 30 days of their publication in the District of Columbia Register; however, the Commission by Public Notice twice extended the deadline for comments until July 15, 2020.² In addition to DOEE, Centers for Renewable Integration (CRI), Joint Solar Advocates (JSA), Potomac Electric Power Company (Pepco), and DC Climate Action (DCCA) filed sets of initial comments to the NOPR.³ DOEE submits the following reply comments.

II. CONTEXT: THE DISTRICT'S CLIMATE GOALS AND MANDATES

DOEE believes that the outcome of this proceeding, and the streamlining of Distributed Energy Resources (DER) interconnection and DER integration in general, are essential and may determine the success or failure of the District's local solar policy and grid modernization goals. DOEE appreciates the chance to react to the initial comments filed by CRI, JSA, Pepco, and DCCA in this matter. In addition to the need for streamlined interconnection processes to meet the District's solar carve-out under the Renewable Portfolio Standard, (RPS)⁴ DOEE has outlined the importance of streamlined DER interconnection to these goals in the following documents and filings:

• <u>Clean Energy DC</u>

The Clean Energy DC (CEDC) Plan is the District's climate and energy action plan. The CEDC calls for: "updating interconnection studies and procedures for DER based on revised

³ In addition, the D.C. Water & Sewer Authority filed a Motion for Leave to File Comments and Comments on July 17, 2020, however, as of the filing of these Reply Comments, the Commission has not yet ruled on this motion.

² RM40-2020-01, Public Notices issued May 14, 2020, and May 22, 2020.

⁴ The Clean Energy Omnibus Amendment Act of 2018, pg. 2-3

planning methods and to accommodate an expanded volume of requests."⁵ DOEE envisions updated interconnection studies and procedures as part of a larger framework of integrated distribution resource planning to enable an effective grid modernization that can accommodate a significant amount of cost-effective DER.

• Formal Case No. 1050 - In the Matter of the Investigation of the Implementation of Interconnection Standards in the District of Columbia

In Formal Case No. 1050, DOEE filed comments calling for additional transparency in interconnection costs, a strict 20 business day timeline for Pepco to issue Authorizations To Operate (ATO), and improvements to Pepco's hosting capacity analysis.⁶

• Formal Case No. 1130 - In the Matter of the Investigation of the Implementation of Interconnection Standards in the District of Columbia

DOEE has been an active participant in Formal Case No. 1130, and has called for: (1)

streamlining the interconnection process; (2) improvements to Pepco's hosting capacity analysis

methodology; (3) creating a public interconnection queue; (4) new rules governing storage and

systems with islanding capability; (5) automated and fast track interconnection; and (6)

standardized interconnection agreements for microgrids.⁷ DOEE has also provided analyses and

briefings by national experts on grid modernization, describing streamlined, transparent, and

accessible interconnection of DER as a fundamental building block of grid modernization.⁸

⁵ DOEE, Clean Energy DC: The District of Columbia Climate and Energy Action Plan, p. 173

⁶ Written Statement of District Department of the Environment Director Tommy Wells, at pg. 4 (July 21, 2015); Comments by the Department of Energy and Environment on behalf of the District of Columbia Government, at pgs. 1-2 (October 22, 2018).

⁷ District of Columbia Department of Energy and Environment, "*Formal Case No. 1130:* "Initial Comments on Staff Proposed Opinion and Order in Response to Order No. 19984." Pg. 6, 15-18.

⁸ See, for example, an excerpt from Paul De Martini & Lorenzo Kristov, "Distribution Systems in a High Distributed Energy Resources Future", p.8, October 2015, Lawrence Berkeley National Laboratory, https://emp.lbl.gov/sites/default/files/lbnl-1003797.pdf

III. SUMMARY OF DOEE'S INITIAL COMMENTS

As DOEE stressed in its Initial Comments in this proceeding, DOEE supports continual updates and improvements to the SGIR that are paired with adequate enforcement to ensure that DER interconnection and integration continues apace to put the District on track to meet its decarbonization and solar-driven economic development goals. DOEE asks the Commission to reject proposed changes to the SGIR that would delay the achievement of these goals, such as Pepco's proposal to require projects larger than 250 kW to go through a Level 4 interconnection (and therefore, a supplemental review), or Pepco's proposal to alter the "DC – CREF" tariff in a manner that directly conflicts with the District's climate goals and falls outside the scope of an interconnection rulemaking.

For ease of organization, DOEE has divided its Reply Comments into four sections: (1) transparent and non-discriminatory access to the Electric Distribution System (EDS); (2) streamlining of interconnection processes and timelines; (3) modernization; and (4) responses to proposals that would delay or otherwise harm DER integration. Based on DOEE's initial filings, together with the input of comments from other stakeholders, DOEE has provided a redline of the SGIR in the NOPR as Attachment A.

IV. TRANSPARENT AND NON-DISCRIMINATORY ACCESS TO THE ELECTRIC DISTRIBUTION SYSTEM (EDS)

This section will focus on responses to parties' comments regarding transparent and nondiscriminatory access to the EDS, which will include the following topics: (A) public queue, and (B) cost sharing and transparency.

A. Public Queue

As DOEE stated in its Initial Comments, the public queue is required to facilitate fair, non-discriminatory access to the EDS, by ensuring that all developers have access to the same information. This practice is standard in a number of states, including California, New York, Massachusetts, and Hawaii. The use of a public queue is also recommended as a best practice by the Interstate Renewable Energy Council (IREC). As the National Renewable Energy Laboratory (NREL) notes:

Publicly-available data that depict a utility's interconnection application queue can be used by developers to understand a project's position in the overall queue as well as the volume of other projects requesting interconnection at a particular location. Queuing data that include location at the circuit level could also help developers assess the likelihood that upgrades will be needed to accommodate new distributed capacity on a circuit.⁹

Given that EDS upgrade costs have been difficult for solar developers to predict, providing access to public queue data listed in the NOPR would help developers make educated decisions *in advance* of filing an interconnection application.

1. The public queue does not require Pepco to share information about customers.

Pepco, in its initial comments to this NOPR, expressed concern that a public queue would be unlawful and against Commission regulation: "The public queue proposed in the 2020 NOPR would force Pepco to choose between violating a District law and violating Commission regulations. Moreover, Pepco would be forced to choose between violating this regulation and violating 15 D.C.M.R. §308, which contains the same disclosure restrictions as the District

⁹ National Renewable Energy Laboratory, *Review of Interconnection Practices and Costs in the Western States*, April 2018. pg. 37

law."¹⁰ Pepco cites examples of interconnection data that were ordered by the Commission to be submitted confidentially, including: "a list of the names, locations, fuel types, and kW capacities of the Level 2, Level 3 and 4 facilities approved during a reporting year."¹¹

Pepco goes on to state, "[t]he Commission's direction to now provide this same information in a public queue is inconsistent with the law and with Commission precedent." DOEE disagrees, finding that the public queue does not require the "same information" since it does not require the names or locations of customers.

DOEE finds Pepco's interpretation of both D.C. Code § 34-1507 and 15 DCMR § 803 to be overly broad. D.C. Code § 34-1507 states that:

Unless a customer consents in writing, a market participant or the electric company may not disclose information that: (A) Is about the customer; and (B) Was supplied to the market participant or electric company by the customer.¹²

However, none of the twenty (20) items listed in Attachment 1 of the NOPR represent information that is "about the customer." While the examples of confidential filings that Pepco provided contain customer information such as name and location, the public queue would require neither. The public queue would contain a list of DER projects pending interconnection and their attributes, with the feeder as the most granular locational information available. For illustrative purposes, DOEE provides an example of what the District of Columbia public queue would look like in Attachment B.

Regarding DCMR § 803, the regulation reads:

A Utility ... shall not disclose information that reveals the status of the Account of any individual Customer without the Customer's consent or upon dictate of lawful authority;

• • • •

¹⁰ Pepco Initial Comments, pg. 11

¹¹ Pepco Initial Comments, pg. 11

¹² District of Columbia Municipal Code § 34–1507

Unless a Customer consents...the Utility...may not disclose or use Customer information or the Customer's use of service (types and amounts) except to the Commission and in accordance with the Utility['s]...Privacy Policy.¹³

The public queue would not require the collection or dissemination of information that reveals the status of a customer's account, customer identifying information, or a customer's energy consumption data. As such, the public queue does not violate any provision of an existing Commission regulation. If the Commission does find any of the items in the public queue to constitute a type of protected customer information, then those items should be provided in aggregate or as a range of values, thereby preventing the item from becoming a customer identifying information.

2. The public queue should not be costly to maintain.

Another concern that Pepco raised with the public queue is the issue of cost: "the public queue is duplicative and an unnecessary cost to customers."¹⁴ DOEE disagrees with Pepco that a simple spreadsheet would be costly to maintain, especially compared to the suite of complex mapping tools that Pepco currently hosts on its website.

Additionally, Pepco states: "Of the 20 items requested in the public queue, Pepco already provides that information in a form that complies with District law for almost all of them."¹⁵ Since Pepco already collects and disseminates much of the information requested, it should not be a cost-intensive process to compile this information into a single spreadsheet.

¹³ District of Columbia Municipal Regulations Title 15, Chapter 3, §803

¹⁴ Pepco Initial Comments, pg. 2

¹⁵ Pepco Initial Comments, pg. 3

3. The public queue is not duplicative.

DOEE appreciates the work that Pepco has done to make more information available to DER developers and the public. Pepco mentions in its comments several mapping tools that are available, tracking tools for developers once projects are already working their way through the interconnection process, and required reporting to the Commission.¹⁶ However, DOEE notes that these datasets and reports are not a substitute for a public queue. The purpose of such a queue is to add a level of transparency to the interconnection process, by allowing symmetrical access to information about projects in the queue at the feeder level to aid in project siting and estimating interconnection costs. This type of information, in order to have an impact, must be available to developers *before* they apply to interconnect to the EDS.

4. As an alternative, the Commission could host and maintain the public queue.

Given Pepco's discomfort with hosting the public queue, DOEE would like to recommend as a potential alternative that the Commission host the queue on its website and require Pepco to report the required information on a monthly basis.

B. Cost Sharing and Transparency

Cost transparency was a topic of significant discussion in the RM-9 Working Group meetings. DOEE believes that additional transparency will improve the interconnection process by avoiding costs for upgrades that may be unnecessary and will also improve the predictability of necessary interconnection costs.

¹⁶ Pepco Initial Comments, pg. 2-10

1. The Interconnection Facilities Matrix should be completely separate from the SGIR and should be updated no more than annually.

DOEE stated in its Initial Comments:

DOEE disagrees with the way in which the design of the interconnection process in this NOPR has been based on the Interconnection Facilities Cost Matrix. Rather, DOEE strongly believes that the interconnection procedures and timelines should be based on the safety and reliability of the system, not the availability of up-front, and, at this time, arbitrary, cost estimates.¹⁷

DOEE reiterates this point because DOEE and other stakeholders will not have a chance to review or comment on this cost matrix, which will be hosted on Pepco's website. Therefore, Pepco's proposal creates arbitrary interconnection rules that are grounded in opaque cost estimates instead of DER and EDS technical attributes and operating criteria. Moreover, it is fundamentally unfair to build interconnection rules based on cost estimates that are nontransparent, unpredictable, and unavailable for review.

While the Interconnection Facilities Cost Matrix should not be part of the SGIR, DOEE certainly welcomes the additional predictability that could be provided by Pepco hosting a fixed-cost menu on its website for interconnection facilities (or even for EDS upgrades) to provide cost certainty for DER interconnection.

However, in Pepco's initial comments, it has proposed the following: "Pepco has added the words "at least" next to "annually" to allow flexibility in case the Interconnection Facilities Cost Matrix were to need to be updated more than one time in a year."¹⁸ Therefore, Pepco's proposed change would appear to reduce the transparency of the SGIR even further if it continues to include timelines based on the Interconnection Facilities Cost Matrix. If the matrix can be updated at any time, the added potential for variability in both prices and the facilities

¹⁷ DOEE Initial Comments, pg. 6

¹⁸ Pepco Initial comments, pg. 15

included within the matrix removes any additional cost certainty from the inclusion of the matrix in the first place. The interconnection process should not be dependent upon opaque and unpredictable cost estimates shown on Pepco's website that are subject to change and for which there is no Commission oversight or opportunity for informed stakeholder review for reasonableness and accuracy.

DOEE notes that there are guides that may be helpful. NREL has a database of interconnection costs available that may help Pepco and solar developers to quickly estimate the cost of various interconnection facilities and upgrades.¹⁹ In addition, the California Public Utility Commission (CPUC) issued Decision 16-06-052 on June 23, 2016 regarding the development of a "Unit Cost Guide" for each investor-owned utility. The CPUC Order included the following language:

The Utilities will update their Cost Guides annually. Prior to posting updates to the Cost Guide, the Utilities will meet and confer with stakeholders to obtain comment on proposed revisions pursuant to a schedule set forth in the Principles. Overall, the Cost Guides developed by the Utilities will not replace any project-specific study costs, but rather, the Cost Guide is intended to be used as a point of reference for projects that are considering the existing study processes.²⁰

It is important to note that while these Unit Cost Guides are a tool for increasing transparency, they are not intended to alter the interconnection process and timelines. The list of items included covers typical types of facilities and upgrades that could be required for interconnecting DER,

including equipment such as transformers and automatic reclosers. An example of the Unit Cost

Guide for Southern California Edison is included as Attachment C for reference.²¹

 $^{^{19} \ \}underline{https://www.nrel.gov/solar/distribution-grid-integration-unit-cost-database.html}$

²⁰ CPUC Decision 16-06-052, at pg. 7 (*rel.* June 23, 2016).

²¹ <u>https://www.sce.com/sites/default/files/inline-files/Attachment%20A%20-</u>%20Unit%20Cost%20Guide%202019.pdf

2. Cost letters should be itemized.

A crucial step for increasing cost transparency and predictability will be the itemization of cost letters, according to the language in the original NOPR. In Pepco's initial comments, the company stated: "Pepco's systems do not permit itemized breakout of these costs or any of the other costs listed in the 2020 NOPR."²² DOEE does not find this statement to be an adequate reason to prevent more transparency and predictability. A cost estimate is merely a sum of the cost estimate of each constituent item. It strains credulity that providing this one additional layer of information cannot be "permitted". Interconnection Customers have a right to know the unit cost figures of equipment for which they are paying.

3. The Commission should adopt the New York model or a similar framework for the cost sharing of EDS upgrades.

In filing initial comments, both Pepco and JSA raised concerns that the cost-sharing framework for CREFs in the NOPR would not achieve equitable results. The JSA stated: "As currently proposed, those proposing interconnections early in the year would be rewarded while others would not be able to benefit. It is not a practical mechanism for equitable distribution of charges."²³ Pepco also stated:

By capping the aggregate amount of cost that can be socialized, the first movers receive the benefit of the socialized costs, leaving those who enter the queue later with no benefit of cost socialization (i.e., they must pay for their entire project). Therefore, the Commission should either remove the cap all together or should have a per project cap on the amount that would be socialized without limiting the aggregate amount that can be socialized.²⁴

DOEE agrees with Pepco and JSA on this point regarding early movers.

²² Pepco Initial Comments, pg. 19

²³ JSA Initial Comments pg. 10

²⁴ Pepco Initial Comments pg. 12

As DOEE noted in multiple RM-9 Stakeholder Working Group meetings as well as in its Initial Comments, there are other, more equitable cost allocation models available, such as the model used by New York:

In the New York model, the Interconnection Customer who triggers the upgrade pays 100% of the cost, and "the share of the costs paid by subsequent developers would be calculated as the ratio of the total upgrade cost compared to the total AC watts the upgrade serves." A model based on this premise of post-upgrade allocation would promote a non-discriminatory approach.²⁵

DOEE believes the New York allocation model or a similar model to be a more equitable approach than the model proposed in the NOPR. The New York model or a similar approach allows upgrade costs to be allocated based on the amount of hosting capacity that is unlocked through the upgrade so that the costs can be distributed in a pro-rated manner.

DOEE is willing to support a portion of cost share with ratepayer for CREF upgrades, if (1) significant improvements are made in the transparency and predictability of how the costs are allocated, including the implementation of the public queue; (2) a technical justification for any upgrades *and* interconnection facilities are provided ; and (3) itemized cost letters are provided.

V. STREAMLINING OF INTERCONNECTION PROCESS AND TIMELINES

This section will focus on responses to parties' comments regarding the streamlining of interconnection processes and timelines, which includes the following topics: (A) virtual CREFs, and (B) reporting and timeline enforcement.

²⁵ DOEE Initial Comments pg. 10

A. Virtual CREFs

The RM-9 Stakeholder Working Group discussed the need for "virtual" CREFs (VCREF), which follow the same billing procedures as a typical CREF while avoiding the need for interconnection facilities. This should help to streamline the interconnection procedures while simultaneously reducing costs for the interconnection of CREFs, thereby helping the District meet its climate goals and mandates. A VCREF that does not require EDS upgrades will likely need only a Customer Generation Meter for interconnection, which should allow the project to proceed through a streamlined timeline.

The Commission should reject Pepco's proposal to require projects requiring only additional metering equipment to go through an extended interconnection timeline, as this would prejudice VCREFs. DOEE agrees with JSA that VCREFs are "the fastest and most efficient method for CREF interconnection."²⁶ DOEE has submitted previous filings supporting VCREFs, asking the Commission to expedite their implementation.²⁷ In the current iteration of the SGIR, there are three types of interconnection timelines facing a Level 2 interconnection project: (1) projects requiring neither interconnection facilities nor EDS upgrades; (2) projects requiring interconnection facilities only; and (3) projects requiring EDS upgrades. The timelines for Approval to Install (ATI) associated with each of these project types are listed in the chart below, for each of the (1) current SGIR, (2) NOPR, and (3) DOEE's proposed changes:

Project Type	Current Rules – Days to ATI	NOPR – Days to ATI	Proposed by DOEE
1 – No Facilities, No	15	15	15
Upgrades 2 – Facilities Only	15	25	15
3 – Upgrades Required	30	25	25

²⁶ JSA Initial Comments, pg. 2

²⁷ DOEE "Comments in Response to Proposed Rulemaking RM-09-2020-01," at pgs. 2-3 (March 13, 2020).

A VCREF requiring only the installation of a Customer Generation Meter should benefit from a 15-day timeline for ATI, regardless of the timeline scenario adopted, since a Customer Generation Meter does not qualify as an interconnection facility. DOEE agrees with Pepco on this point:

Similarly, Pepco modifies the definition of Interconnection Facilities to make clear that both the Utility Distribution Usage Meter and the Utility Distribution Generation Meter are not Interconnection Facilities.²⁸

Therefore, the Commission should reject Pepco's proposal to force projects requiring merely a generation meter to go through an extended interconnection timeline, which would unfairly prejudice VCREFs and other simple projects that require only generation metering in order to be interconnected.

DOEE does note, however, that the capabilities of DER interconnected with inverter systems can be equipped with sensors and metering technology that are certified as revenue-grade.²⁹ Therefore, DOEE does not support the name change from "Customer Generation Meter" to "Utility Distribution Generation Meter." Additionally, the District of Columbia's CREF statute explicitly requires CREF developers to own and install a "production meter." The statute reads:

(H) The amount of electricity generated each month available for allocation as subscribed or unsubscribed energy shall be determined by a revenue quality production meter installed and paid for by the owner of the community renewable energy facility. It shall be the electric company's responsibility to read the production meter."³⁰

Therefore, to require utility ownership of the generation meter for CREFs would

contradict D.C. Code § 34-1518.01.

²⁸ Pepco Initial Comments, pg. 15.

²⁹ For more detail, see section 6.B.i of this document.

³⁰ D.C. Code § 34–1518.01.

B. Reporting and Timeline Enforcement

Consistent improvement in the interconnection process in the District of Columbia will

require reducing the amount of time that it takes from a project's initial interconnection

application to the point where the interconnection is finalized and the system is operating.

1. ATO timelines should be clear and enforced.

DOEE supports JSA's assertion that clear timelines should be in place for invoicing and

for ATOs. JSA stated in its Initial Comments:

[T]here should be a timeline for the issuance of an invoice after the Interconnection Customer signs the cost letter. This time should not exceed two (2) business days. After the invoice is paid, there should be a timeline for interconnection and the issuance of Authorization to Operate. This should be twenty (20) business days after the required documentation in section 4005.4(e) is submitted to the EDC.³¹

DOEE agrees with JSA and recommends that the Commission adopt this language. DOEE has

filed comments previously in Formal Case No. 1050 requesting a clear timeline for ATOs of 20

business days.³²

2. Reporting and enforcement should be required for timelines at each interconnection level.

In JSA's Initial Comments, the group stated that the "requirement for corrective action plans should be expanded beyond the ATI timelines for Level 1 applications. This should be a requirement for all interconnection levels and not only for Authorizations to Operate, but also for Approval to Install."³³ DOEE agrees with JSA and requests that the Commission adopt this recommendation.

³¹ JSA Initial Comments, pg. 10

³² District of Columbia Department of the Environment, "*Formal Case No. 1050*: Written Statement of District Department of the Environment Director Tommy Wells" July 21 2015. pg. 4

³³ JSA Initial Comments, pg. 6-7

DOEE also asks the Commission to immediately appoint a staff member as the Interconnection Ombudsperson to provide oversight of the interconnection process, including audits of past interconnection documentation, enforcement of timelines, and dispute resolution. In addition to the Massachusetts example provided by DOEE in its Initial Comments, both New York and California have appointed ombudspersons for dispute resolution or complaints in the interconnection process.³⁴

DOEE has also recommended in its Initial Comments and in Formal Case No. 1130 to preserve Level 1 interconnections as fast-track only, with any modifications to the process requiring a project to go through Level 2, as a first step to moving Level 1 towards a fully automated interconnection process.³⁵

VI. MODERNIZATION

This section will focus on responses to parties' comments regarding grid modernization, which includes the following topics: (A) IEEE 1547-2018 Standard implementation, and (B) communications technologies. DOEE notes that this NOPR does not address the required changes to the SGIR to integrate microgrids (i.e., clear rules for battery storage and islanding), which will need to be undertaken in Formal Case Nos. 1050 and 1163.

³⁴ Both state utility commissions appoint one ombudperson per investor-owned utility

³⁵ DOEE Initial Comments, pg. 22-23

A. IEEE 1547-2018 Standard Implementation

DOEE looks forward to working with the Commission, Pepco, and other stakeholders to implement the IEEE 1547-2018 Standard, including the near-term goal of developing default autonomous inverter settings profiles before January 1, 2022.

1. MDV-SEIA and Pepco should be named as co-organizers of the IEEE 1547-2018 Standard educational workshops along with Commission Staff.

The Commission, in Order No. 20364, stated:

The Commission directs the Staff in conjunction with Pepco to hold educational workshops within 120 days from the date of this Order...relative to the status and progress of the standards' implementation, to inform stakeholders of developments in the implementation of these standards.³⁶

DOEE looks forward to participating in the educational workshops. DOEE staff have

already participated, along with Commission staff, in an educational workshop held by MDV-

SEIA on December 5, 2019, which drew upon considerable technical expertise. CRI noted in its

supplemental comments:

The Commission should note in this regard, that CRI has been participating in forums and discussions on Advanced Inverter deployment in the District sponsored by ...MDVSEIA. The Commission-ordered workshops can build upon MDVSEIA's work, and CRI hopes that Staff will engage stakeholders active in the MDVSEIA process in planning the new workshops.³⁷

Given the significant work that MDV-SEIA has done to date on the IEEE 1547-2018 Standard

implementation, DOEE agrees with CRI that MDV-SEIA is an important entity to organize the

educational workshops alongside Pepco and Commission Staff.

³⁶ Formal Case No. 1130, ¶ 77 (*rel.* June 5, 2020).

³⁷ At pg.4 (July 14, 2020).

2. The Commission should establish the DOEE-requested Advanced Inverter Technical Stakeholder Working Group "AIWG".

In Order No. 20364, the Commission left the door open for the creation of a stakeholder working group: "Upon the completion of the educational workshop on IEEE 1547-2018 Standards, the Commission will consider the need for a technical conference or working group as deemed appropriate."³⁸ DOEE reiterates its request from its Initial Comments for the creation of the AIWG and adoption of the proposed scope of work for the working group.

DCCA, JSA, and CRI in their initial comments each underlined the need for stakeholder participation. DCCA stated in its initial comments:

DCCA supports the roll-out date but believes that the Commission should include a robust stakeholder process starting immediately (in 2020) to ensure that the settings profile chosen aligns with the District's public climate and energy policies and goals, and that the inverter deployment supports other District-specific needs such as the development of a healthy renewables industry sector.³⁹

DOEE supports the comments of DCCA, CRI, and JSA, noting that the creation of the

AIWG and stakeholder engagement in the process is critical. While DOEE believes this pathway proposed by DCCA, CRI, and JSA (which is based on the Maryland process) to be acceptable, DOEE requests that the Commission adopt a process that is Commission and stakeholder-driven. The Commission, together with the AIWG, should draft and adopt the autonomous inverter settings profiles for the District of Columbia for each relevant feeder/circuit type. A Commission and stakeholder driven-engagement process could help assure that all input is adequately evaluated and taken into consideration. This process is in line with the National Association of Regulatory Utility Commissioners (NARUC) resolution published on February 12, 2020. The NARUC resolution includes the following language:

³⁸ *Supra* note 36.

³⁹ DCCA Initial Comments, pg. 5

Whereas IEEE 1547-2018 highlights responsibilities, including determination of performance categories, of State regulators and other authorities governing interconnection requirements;

••••

Whereas successful State implementation of the updated IEEE 1547-2018 will benefit from stakeholder engagement, including electric distribution system operators, DER customers and developers, and bulk power system operators, and identifying and engaging such subject matter experts may take significant lead-time.⁴⁰

IREC also underscored the need for regulator coordination with stakeholders:

State regulators will play an important role in adopting and implementing the new standards, helping ensure that all interests are balanced."⁴¹ IREC also notes: "State implementation of IEEE Std 1547TM-2018 will benefit from fair, balanced and transparent stakeholder processes to ensure that the perspectives of all impacted stakeholders, including consumers adopting DERs, are accounted for and reflected.⁴²

DOEE also recommends that the Commission look to the California Smart Inverter Working

Group as a model, which was created as a joint California Energy Commission and CPUC

initiative.43

3. The Commission should adopt the proposed objectives for advanced inverter settings in the NOPR.

DOEE is concerned with Pepco's interpretation of the IEEE 1547-2018 Standard and

advanced inverter capabilities in Pepco's initial comments in this proceeding, particularly with

the following language: "The reason for having advanced inverters is to give the utility the

ability to curtail generation in order to avoid violations."44 DOEE finds this framing of IEEE

 ⁴⁰ NARUC, "Resolutions Passed By NARUC Board of Directors 2020 Winter Policy Summit" pgs. 1-2
 ⁴¹ IREC, "Smart Inverter Update: New IEEE 1547 Standards and State Implementation Efforts," July 23 2018: https://irecusa.org/2018/07/smart-inverter-update-new-ieee-1547-standards-and-state-implementation-efforts/

⁴² IREC, Making the Grid Smarter: Primer on Adopting the IEEE 1547TM-2018 Standard for Distributed Energy Resources, pg. 4

⁴³ <u>https://www.cpuc.ca.gov/General.aspx?id=4154</u>

⁴⁴ Pepco Initial Comments, pg. 17

1547-2018 Standard-compliant advanced inverters to be fundamentally incorrect and inconsistent with the purpose of the IEEE 1547-2018 Standard. The Standard provides for significant *autonomous* functions that inverter-based DER systems can provide. The adoption of these autonomous inverter settings profiles will allow inverter-based systems to provide support to the EDS by reacting to local measurements of voltage and frequency. DOEE notes that there are several jurisdictions where the reactive power capabilities and voltage regulation performance of advanced inverters are specified as part of the Advanced Inverter Operating Requirements of their respective interconnection rules, including California, Hawaii, and Minnesota.⁴⁵ While the advanced inverters also have the ability to allow for control functionalities, DOEE has recommended that the Commission focus on autonomous functionalities between now and January 1, 2022, to ensure that DER interconnected to the District of Columbia's EDS after that point in time will be able to provide these grid support services and expanded hosting capacity. At that point, additional work will need to be done to determine under what conditions an EDC can implement DER control functionalities and the appropriate contractual language, consumer protections, and tariffs required in these instances.

DOEE disagrees with Pepco's proposed changes to the advanced inverter objectives in Pepco's Initial Comments:

Pepco proposes that the primary objective is "to help support reliability of the system while minimizing the curtailment of real power." By changing the focus of this objective, more customers will be able to interconnect solar projects, and solar hosting capacity will be increased. If the smart inverter functions can only be used when the system is experiencing violations (abnormal operating conditions), the

⁴⁵ (1) CPUC Rule 21 Hh(2), Smart Inverter Generating Facility Design and Operating Requirements, <u>https://www.cpuc.ca.gov/Rule21/;</u> (2) HIPUC Rule 14H, Appendix I Distributed Generating Facility Interconnection Standards Technical Requirements, 4A - Advanced Inverter Generating Facility Design and Operating Requirements, <u>https://www.hawaiianelectric.com/products-and-services/customer-renewable-programs/generateyour-own-power;</u> (3) Minnesota Technical Interconnection and Interoperability Requirement (TIIR), <u>https://mn.gov/puc/assets/TIIR%20w%20CORRECTED%20Interim%20Implementation%20Guidance_tcm14-</u> 431321.pdf.

system will be operating on the edge of stability and very close to voltage violations, not a robust scenario that can support greater hosting capacity.⁴⁶

DOEE believes that Pepco's proposed changes would skew the focus of the implementation of the IEEE 1547-2018 Standard towards curtailment at the expense of the numerous other support functions inverters can provide that may be used to increase hosting capacity (i.e. voltage/frequency ride-through, voltage/frequency regulation). The original NOPR correctly points out that performance categories must be established for both normal and abnormal operations. As IREC notes:

IEEE Std 1547TM-2018 identifies two performance categories relevant to DER grid functionality: the Normal Operating Performance Category and the Abnormal Operating Performance Category. The Normal Operating Performance Category specifies how the DER should perform with regards to voltage control during normal grid operations. The Abnormal Operating Performance Category specifies DER performance during a grid disturbance.⁴⁷

DOEE disagrees with Pepco's framing of the NOPR's objectives, finding that the Commission's original language addresses both normal and abnormal operating conditions. However, Pepco's focus on curtailment at the expense of voltage/frequency ride-through and voltage/frequency regulation results in a narrowly focused generation curtailment strategy instead of one that embraces grid modernization and the grid support functions that advanced inverters can provide under normal operations. This stance taken by Pepco demonstrates a lack of understanding of advanced inverter capabilities that will limit the uptake of renewable energy in the District of Columbia.

DOEE finds that Pepco's mischaracterization of the IEEE 1547-2018 Standard further underscores the need for the Commission to develop District of Columbia default inverter

⁴⁶ Pepco Initial Comments, pg. 16

⁴⁷ IREC, Making the Grid Smarter: Primer on Adopting the IEEE 1547TM-2018 Standard for Distributed Energy Resources, pg. 13

settings that are appended to the SGIR. The first step in the implementation of IEEE Standards will be to deal with the default autonomous settings for inverters that will allow for increased hosting capacity in the interim, while additional regulations are put in place for overseeing control functionalities.

DOEE strongly urges the Commission to maintain the full objectives of IEEE 1547-2018 Standard implementation in the NOPR, and to reject Pepco's proposed alterations that unnecessarily reduces the public benefits of the IEEE 1547-2018 Standard.

4. Inverter settings profiles should be specific to the feeder/circuit type.

DCCA, CRI, and JSA each called for specific language to be added as a tertiary objective: "The tertiary objective is to differentiate requirements between radial circuits, area networks, and spot networks where necessary to maximize DER deployment opportunities and to support achievement of the primary and secondary objectives."⁴⁸ DOEE agrees with DCCA, CRI, and JSA, and finds that a Commission-convened AIWG is the correct forum to continue this discussion. In its Initial Comments, DOEE similarly stated that required inverter settings profiles should be developed for "both radial and network (including spot network) distribution circuits."⁴⁹

5. The Commission should amend the waiver language in 4002.1.

In its initial comments, DCCA points out the following:

We note the waiver in the first sentence of "4002.1" ("Unless waived by the EDC") and assume that it applies only to sub item ".1" of "4002" and does not apply to item "4002.7" on "Advanced Inverters", and that the language in the respective

⁴⁸ CRI Supplemental Comments pg. 5; DCCA Initial Comments pg. 6; JSA Initial Comments Pg. 6

⁴⁹ DOEE initial comments, pg. 18

items presents no contradiction. If this is not the case, the Commission might consider wording clarification to avoid possible confusion.⁵⁰

DOEE agrees with DCCA and asks the Commission to amend the waiver for clarity. DOEE notes that any waiver of the IEEE 1547-2018 Standard by the EDC for an individual DER system should require technical justification.

B. Communications Technologies

As DOEE noted in its Initial Comments, there are ongoing issues with telemetry

requirements which are hampering interconnection of solar facilities in the District of Columbia.

DOEE presented an interim solution in its Initial Comments. Additionally, DOEE wishes to note

that the IEEE 1547-2018 Standard has a standardized communication protocol which can be

addressed by the AIWG and implemented over time. IREC provides a useful summary of what

will be required for the implementation of the Communications portion of the IEEE 1547-2018

Standard:

Transitioning to IEEE Std 1547TM-2018 compliant local DER communications interfaces will require time for widespread deployment of communications infrastructure by grid operators or third parties, and consideration of related issues, including cybersecurity and standardization of communication network performance requirements. The ease and cost of implementing new communication protocols will be highly dependent on the availability of existing infrastructure and a utility's existing capabilities.

For states where the utility may have outdated or inefficient communications systems, regulators will need to carefully consider the cost impact (to all ratepayers and/or to individual DER customers) of updating and/or revamping existing systems to allow for more sophisticated communications to occur with DERs in order to utilize the IEEE Std 1547TM-2018 required capabilities.

To ensure transparency and alignment with IEEE Std 1547TM-2018, states may want to evaluate the deployment of communications and controls infrastructure in

⁵⁰ At pg. 3 (July 15, 2020).

the context of existing or planned Smart Grid, Grid Modernization, Distribution Resource Plan, and/or Integrated Resource Plan proceedings."⁵¹

1. Telemetry, like other interconnection facilities, should require a technical justification and why IEEE and UL compliant inverter-based systems cannot provide the required information to the EDC.

JSA outlined some of the issues that solar developers have been facing with respect to

telemetry requirements in their initial comments:

Pepco has been requiring telemetry and communications equipment to be installed on systems that are larger than 250 kilowatts on Distribution Automation ("DA") feeders. These requirements have not been justified to developers or customers, nor do they seem to be supported by the language in 4005.2(b), and add a tremendous cost to a solar facility. The Joint Solar Advocates call for the Commission to compel Pepco to provide justification for these requirements and convene stakeholders to address alternate solutions to the perceived issues with these types of interconnections.⁵²

DOEE agrees with JSA that a technical justification should be provided for the

requirement of Pepco's telemetry solution, including why inverter systems cannot provide the required data visibility. DOEE notes that, currently, commercially available inverter systems feature communications and sensing capabilities that would avoid the need to integrate utility telemetry equipment into proposed customer generating facilities. DOEE believes that Pepco is improperly imposing its telemetry equipment on generator facilities when commercially available alternatives exist that are more cost effective without detrimentally impacting grid reliability. An example diagram⁵³ of inverter system topology is included in the figure below, where sensors (1) monitor PV system performance, (2) monitor/control battery functions, and (3)

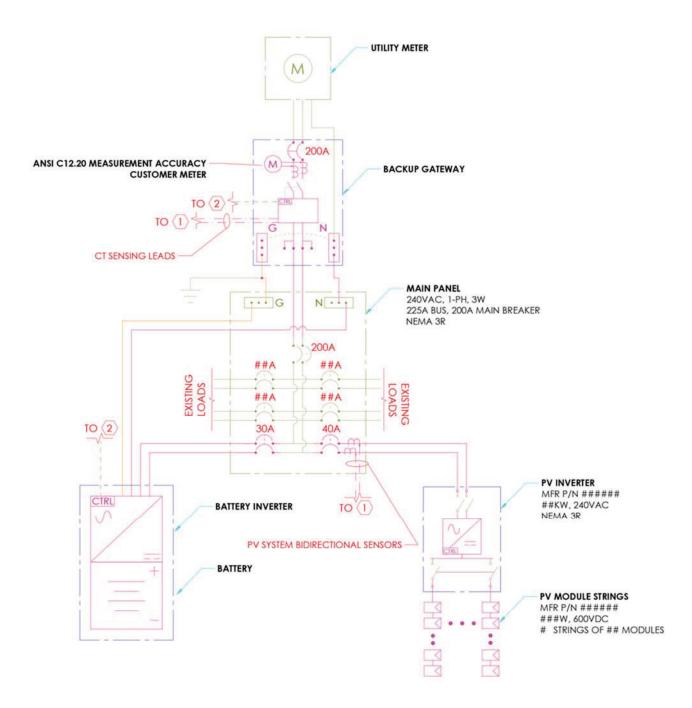
⁵¹ IREC, Making the Grid Smarter: Primer on Adopting the IEEE 1547TM-2018 Standard for Distributed Energy Resources, pg. 21

⁵² At pg. 7 (July 15, 2020).

⁵³ There are several manufacturers that carry these systems that are currently available for installation: (1) <u>https://www.pika-energy.com/files/manuals/pika_islanding_inverter_installation_manual-21.pdf;</u> (2) <u>https://www.tesla.com/sites/default/files/pdfs/powerwall/Powerwall_2_AC_BU_NA-EN_Installation_Manual.pdf;</u> (3) <u>https://www.solaredge.com/us/solaredge/downloads/download/498957A.</u>

monitor/control grid injection. DOEE notes that the backup gateway can monitor multiple current transformer (CT) points and actuate accordingly. The inverter system depicted features the *certified* communications functionalities and monitoring capabilities that Pepco requires at a significantly lower cost.

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VII. RESPONSES TO PROPOSALS THAT WOULD DENY OR OTHERWISE HARM DER INTERCONNECTION

This section will focus on responses to proposals by Pepco in its initial comments which would represent a step backward in the process of implementing DER in the District of Columbia. This list of proposals includes: (A) treatment of CREFs as customers; (B) additional delays in interconnection timelines; and (C) changes to size requirements.

A. Treatment of CREFs as Customers

Pepco has put forth a proposal that would treat CREFs as customers, rather than as generators. DOEE believes that this proposal is inconsistent with the purpose of the CREF legislation. DOEE requests that the Commission reject Pepco's proposal.

1. The Commission should strike Pepco's comments regarding changes to the "DC-CREF" tariff because this proposal was submitted outside of a tariff proceeding.

Pepco has submitted plans to amend its "DC – CREF" tariff within their initial comments to this NOPR.⁵⁴ Amending a tariff falls outside of a rulemaking on the interconnection rules. Pepco's redline of the NOPR provided with their initial comments did not provide any additional language in the SGIR regarding customer charges for CREFs, because this issue is not pertinent to interconnection. These proposed changes to Pepco's "DC-CREF" tariff should not be taken under consideration by the Commission in this proceeding, and would require a Notice of Proposed Tariff.

⁵⁴ Pepco Initial Comments, pg. 21-22

2. CREFs are generators, not customers.

In Pepco's initial comments, they referred to CREFs as customers: "CREFs are a customer on the system, either by agreement with the CREF Owner or with the Subscriber Organization if the CREF owner and the Subscriber Organization are separate entities."⁵⁵

DOEE disputes this framing by Pepco, because CREF facilities are not customergenerators in the way that Net Energy Metering systems are. CREFs are fully exporting systems, and the energy exported becomes the property of the SOS administrator.⁵⁶ They function more akin to independent power producers than to customers. The District Council defined CREFS in the following manner: "Community Renewable Energy Facilities are (CREFs) are facilities that generate electricity from a Tier 1 renewable source."⁵⁷ It is clear from this characterization that the CREF legislation intended for CREFs to act as generators, rather than customers. The District Council made clear that the enabling legislation for these renewable generators would help the District to comply with its local solar carve-out under the RPS: "[T]he Community Renewable Energy Act of 2013 is an important tool that will allow for the creation of CREFs thereby incentivizing the growth in the District's solar capacity."58 In addition to CREFs being a critically important tool in meeting the District's mandated local solar carve-out, these facilities are the only way for residents who rent or lack adequate roof area to access local solar generation. A policy that would hurt the CREF market would increase the barriers to solar access and have a disproportionate impact on the District's most underserved residents, who are less likely to have access to single-family rooftop solar.

⁵⁵ Pg. 21 (July 15, 2020).

⁵⁶ District of Columbia Municipal Regulations, Title 15, Chapter 9, § 906.4

⁵⁷ Council of District of Columbia Committee on Government Operations, "Report on Bill 20-0057, The Communities Renewable Energy Act of 2013." July 2 2013. <u>https://lims.dccouncil.us/downloads/LIMS/29213/Committee_Report/B20-0057-COMMITTEEREPORT.pdf</u>

⁵⁸ Îbid.

Additionally, customer charges are paid to maintain the system by the CREF subscribers, so charging a new customer charge would be double-counting. DOEE also believes that adding an unjustified customer charge to CREFs would work against the District's goal of meeting its local solar carve-out under the RPS. The Pepco proposal to potentially charge a monthly tariff according to the MGT-LV class would result in a customer charge of \$456.76 per month,⁵⁹ which has the potential to harm the District of Columbia's CREF market. DOEE finds that Pepco's proposal is prejudicial to CREFs and should be rejected.

3. Pepco's characterization of the Maryland community solar tariff is misleading.

Pepco stated in its initial comments to this NOPR:

Currently, the bill for a CREF owner/Subscriber Organization in the District is generated and then is manually zeroed out so that District of Columbia CREFs do not pay a customer charge. This is inconsistent with other Pepco Holdings jurisdictions—such as Pepco Maryland—where the community solar owner/Subscriber Organization pays a customer charge for use of the Pepco system and services.⁶⁰

DOEE believes that simply harmonizing billing with other Pepco Holdings jurisdictions is not an

appropriate justification for adding a customer charge in the District of Columbia. Additionally,

the Maryland Pepco Tariff Book does not support Pepco's initial comments. Pepco's "MD-CS"

Tariff in Maryland includes the following language about billing for CREFs, which are referred

to as CSEGs in Maryland:

For billing of any net consumption by a CSEGS, the CSEGS is subject to all tariff provisions applicable under the schedule they are placed. In determining the

⁵⁹ Pepco DC Tariff Book, pg. R-6.6,

https://www.pepco.com/MyAccount/MyBillUsage/Documents/Pepco%20DC%20PEPRADR%20-%20RAD%20Surcharge%20Annual%20True-up-%20effective%20%207.10.17.pdf ⁶⁰ Pg. 21

appropriate Tariff Schedule for a CSEGS, the billing demand will be based on the rated capacity_{AC} of the CSEGS's inverter.⁶¹

According to this Tariff book, most recently updated on July 16, 2020, a CREF in Maryland would only be billed as a customer in the event that it had net consumption in a given month, which would require the CREF to be fully offline and net consumption as a result of the powering of on-site metering or other facilities. Pepco's Maryland Tariff Book is included as Attachment D.

B. Additional Delays in Interconnection Timelines

DOEE has been clear that it will not support changes to the SGIR that result in additional delays or extended timelines for interconnection. Pepco's proposal to delay delivery of the interconnection agreement until Pepco has submitted a final cost letter would unnecessarily delay DER interconnection.

Pepco has proposed in its initial comments to hold off on the provision of the

interconnection agreement until after a final cost letter is produced, which is 60 business days in

the NOPR. DOEE has requested this be reduced to 30 business days. Pepco filed the following

language in its initial comments:

Currently, the section states that Pepco should provide the agreement within three days of the Approval to Install. This works well for projects to which the Interconnection Facilities Cost Matrix applies because there are no design changes beyond the Approval to Install, and the final cost letter is issued with the Approval to Install. Under other circumstances, however, the Approval to Install is issued in advance of the final cost letter. Until the final cost letter is issued, designs can change, and the agreement technically would not be final. Pepco has changed

⁶¹ Pepco Maryland Tariff Book Pepco MD Tariff Book, schedule "MD -CS" effective October 19, 2018. Tariff Book 159th version updated online July 16, 2020.

https://www.pepco.com/MyAccount/MyBillUsage/Documents/MD%20Pepco%20Current%20Rate%20Schedule%2 0effective%2009012020%20SOS%20Type%20II.pdf

"Approval to Install" to "final cost letter" to ensure that the executed agreement is provided when the agreement is final (with the final cost letter).⁶²

This amounts to another unilateral regulatory proposal from Pepco that would change interconnection timelines dependent on the availability of cost information, rather than the safety and reliability of the EDS. The ATI should be provided along an interconnection agreement and initial cost estimate for projects requiring facilities or upgrades, complete with any construction milestones. To push off the provision of this agreement until the final cost letter would introduce impermissible additional delays to interconnection of DER in the District of Columbia based on factors not related to safety or reliability. DOEE disputes Pepco's assertion that "designs can change" after ATI has been issued. At that point, Pepco should not be changing design or operating requirements of the interconnection of a system, and the SGIR as written does not provide for a change to system design after ATI has been issued.

DOEE requests that the Commission reject Pepco's proposed delay in the provision of the interconnection agreement and milestones.

C. Changes to Size Requirements

Pepco has submitted a proposal in its Initial Comments to this NOPR to change system size requirements.

1. Pepco's proposal to alter the maximum system size allowable through the Level 2 interconnection is arbitrary and will delay interconnection of projects larger than 250 kW in the District.

In Pepco's initial comments, it has submitted a proposal as follows:

[M]odify the chart, as shown below, because the regulations, as shown in the 2020 NOPR, disadvantage small customers. The standards below are the Company's

⁶² Pg. 18

current standards created based on experience in the PHI system and will provide greater opportunity for small systems to interconnect with the distribution system.⁶³

The modifications to the chart change the basis of eligibility for a Level 2 interconnection from line capacity to circuit voltage. This represents a move away from determining interconnection based on actual hosting capacity of a line to one that is based on voltage levels that are subject to Pepco's discretion. Under this proposal, no project in the District of Columbia greater than 250 kW would be eligible to interconnect as a Level 2 project and would be forced to go through a Level 4 interconnection (and therefore a lengthy supplemental review process that would delay interconnection by a period of months).

System size eligibility under a Level 2 interconnection is currently between 1-2 MW in the District of Columbia, depending on the line capacity, with the recognition that projects more than 2.5 miles from a substation may need to be smaller due to more limited hosting capacity at greater distances from the substation. This proposal from Pepco would, in addition to reducing the size of solar projects that can interconnect reasonably to the system, also represent a step backward in the District's movement towards energy system modernization. This proposal would override the use of hosting capacity analysis, except in instances where only a small amount of hosting capacity remains on a circuit. This change will reduce the size of projects able to connect in the District of Columbia, which could increase the overall costs of interconnection and delay implementation of projects that could contribute to the RPS carve-out. DOEE is concerned that this proposal will place an undue delay and penalize larger and more cost-efficient solar systems, thereby undermining the District's solar policy. Therefore, DOEE asks the Commission to reject this proposed change.

2. DOEE is unaware of issues facing small systems in the District of Columbia.

Pepco's reduction in system size eligibility is proposed as a solution to issues faced by small projects: "Pepco proposes to modify the chart, as shown below, because the regulations, as shown in the 2020 NOPR, disadvantage small customers."⁶⁴ However, DOEE is unaware of any issue in the District of Columbia regarding the interconnection of small systems at this point in time and requests clarification of Pepco regarding how many Level 1 projects have been rejected in the past 24 months due to insufficient hosting capacity. DOEE has been made aware, by its own work with solar and interactions with several developers, that there are significant interconnection issues in the District of Columbia, but that these issues tend to face projects that are larger than a typical Level 1 residential rooftop system. These issues were catalogued in DOEE's Initial Comments in this proceeding.

DOEE also notes that Pepco, in this proposal to purportedly protects small systems, is referencing its "experience in the PHI system"⁶⁵ as justification for this proposal. The PHI territory is not specific to the District of Columbia, and the characteristics of the Atlantic City distribution network, for example, are very different from the distribution network for the District of Columbia. DOEE believes that experience in the PHI system does not provide significant justification for amending the interconnection rules in a way that would reduce the maximum system size for eligibility to apply for a Level 2 interconnection.

⁶⁴ Pepco Initial Comments, pg. 20.

⁶⁵ Pepco Initial Comments, pg. 20

3. DOEE requests clarification regarding Pepco's hosting capacity map webpage which contains this unapproved proposal for size limits.

DOEE requests clarification from the Commission and Pepco regarding the status of this proposal. Pepco has provided this proposed change to the SGIR in this NOPR, which has not been approved by the Commission and is still in the rulemaking process. However, Pepco's hosting capacity website contains the following language, as if this proposal has already been accepted by the Commission as part of the SGIR:⁶⁶

Radial Distribution Feeders

Please note that the aggregate limit of large distributed energy resources is 3 MW on 12/13 kV, 6 MW on 25 kV, and 10 MW on 34 kV. Any system over 250 kW is considered to be "large." After the aggregate large limit is reached, 250 kW or smaller systems can continue to be added until another circuit or substation violation would be reached.

<u>Click here</u> to access a searchable version of the Hosting Capacity map for radial distribution feeders. Type an address into the search box to locate a specific location.

DOEE asks that the Commission request additional information from Pepco regarding

this discrepancy.

VIII. CONCLUSION

DOEE appreciates all of the efforts made by the parties, including Pepco, to improve the interconnection process in the District of Columbia. However, much work remains to be done, and some of the proposed changes by Pepco may hurt the development of solar in the District of Columbia. Therefore, DOEE respectfully recommends that the Commission adopt DOEE's proposed changes to 15 DCMR Chapter 40 presented in DOEE's Initial and Reply Comments. DOEE asks that the Commission maintain (with DOEE's requested changes) the

⁶⁶ Pepco Hosting Capacity website, accessed 13 August 2020,

https://www.pepco.com/SmartEnergy/MyGreenPowerConnection/Pages/HostingCapacityMap.aspx

proposed text that introduces additional transparency and predictability, streamlined processes, and implements grid modernization, while rejecting proposals that would slow down or otherwise harm DER interconnection. DOEE commends the Commission for this NOPR, which takes additional steps in the direction of a modern and non-discriminatory EDS. DOEE requests that the Commission move quickly to convene the AIWG, and reconvene the RM-9 Stakeholder Working Group where necessary to address outstanding issues.

BEFORE THE PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

In the Matter of 15 DCMR Chapter 40 –) **District of Columbia Small Generator** Interconnection Rules

RM40-2020-01

DEPARTMENT OF ENERGY AND ENVIRONMENT'S COMMENTS IN RESPONSE TO PROPOSED RULEMAKING RM40-2020-01

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On behalf of the District of Columbia Government ("the District"), the Department of Energy and Environment ("DOEE") respectfully submits this comment on the April 10, 2020 Notice of Proposed Rulemaking ("NOPR") published by the Public Service Commission of the District of Columbia ("Commission") in the above-captioned proceeding.

1. Background

The NOPR published on April 10, 2020 amends the Small Generator Interconnection Rules ("SGIR") in Chapter 40 of Title 15 of the District of Columbia Municipal Regulations ("DCMR"). The stated purpose of the NOPR is to address the following: upgrade costs for Community Renewable Energy Facilities ("CREF"), timelines for small generator interconnection, and to establish a timeframe for advanced inverter deployment and the implementation of the IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces ("IEEE 1547-2018 Standard"). The NOPR follows a series of meetings by the RM-9 Stakeholder Working Group to discuss the above topics, although the working group did not reach consensus on these matters.

The NOPR originally requested comments on the proposed amendments to the SGIR within 30 days of their publication in the District of Columbia Register, however, the

Commission by Public Notice twice extended the deadline for comments until July 15, 2020.¹ DOEE timely submits the following comments.

2. Context and Summary of Comments

Updating the SGIR is an issue of great importance in order to develop a modern distribution system. The transparent and timely interconnection of distributed energy resources ("DER") is necessary for the District to meet its solar carve-out under the Clean Energy Omnibus Act of 2018 and other clean energy and climate goals and mandates. Equally important to making improvements to the SGIR, however, is enforcement of the SGIR. Enforcement is particularly urgent given the significant delays and unexpected costs faced by both DOEE and non-DOEE solar projects at times, including where the interconnection process has deviated significantly from the SGIR. Many of the urgent interconnection issues are currently adversely impacting CREFs, and DOEE stated during the RM-9 Stakeholder Working Group meetings that it does not support changes to the rules that would result in a separate process for CREF interconnections. DOEE is unaware of any jurisdiction in the United States that treats CREF interconnections differently from typical net-metered ("NEM") interconnections because the issue of safe and reliable interconnection with the electric distribution system ("EDS") remains the same whether the solar system in question is a CREF or a NEM. While CREF projects have recently faced significant delays, as reported to the Commission in Pepco's Quarterly and Annual Interconnection reporting, these delays do not justify amending the SGIR in a way that would further prejudice or delay the interconnection of CREFs, such as extending the timeframe for projects requiring interconnection facilities, or for projects that require only a generation

¹ RM40-2020-01, Public Notices issued May 14, 2020, and May 22, 2020.

meter. Rather, enforcement of the existing SGIR would represent a major improvement in the CREF interconnection process in the District of Columbia.

DOEE supports amendments to the SGIR that improve transparency, shorten the timeline, enable DER to function as grid assets, and move towards streamlined interconnection in a manner consistent with preserving the safety and reliability of the EDS. Indeed, DOEE requested such improvements in comments it filed in both Formal Case Nos. 1130² and 1050.³ DOEE commends the Commission for proposing changes that will lead to additional transparency, such as the adoption of a public queue and technical justification for EDS upgrades.

Through the RM-9 Stakeholder Working Group meetings and in discussion with solar project developers (including for projects under DOEE's Solar for All program), DOEE is aware that there are significant setbacks in the current interconnection process. Those setbacks include the following:

- Significant delays in receiving both Approval to Install ("ATI") and Authorization to Operate ("ATO");
- A lack of transparency in how the cost of interconnection facilities and distribution system upgrades are calculated;
- Changes to the operating requirements after ATI has already been issued;
- Significant deviation from the SGIR in the interconnection process;
- Burdensome minimum import requirements that could result in unjustified curtailment (especially in redundant circuits that employ network protectors in

² Formal Case No. 1130, Department of Energy and Environment's Initial Comments on Staff Proposed Opinion and Order in Response to Order No. 19984 (October 1, 2019),

https://edocket.dcpsc.org/apis/api/filing/download?attachId=87463&guidFileName=70c5e550-78d2-4d3f-a3cd-3ef5332bfc21.pdf

³ Formal Case 1050, Department of Energy and Environment's Comments to the Notice of Third Proposed Rulemaking by the Public Service Commission of the District of Columbia in RM-40-2017-01 (October 26, 2017).

which load is not transferred between the DER and the EDS) in a momentary make-before-break operation);

- Onerous telemetry requirements that force developers to procure Electric
 Distribution Company ("EDC") proprietary communications equipment at a
 significant cost to enable the remote monitoring (visibility) of DER parameters.
 The vast majority of inverters currently available feature communications
 capabilities that conform to the interoperability protocols specified in the IEEE
 1547-2018 Standard, thus making the requirement to procure a proprietary
 communications module unnecessary and unduly burdensome; and
- Some CREF subscribers that are not receiving their full allocation of credits in a timely manner.

This NOPR addresses some of the issues listed above, while leaving other significant issues unaddressed. In these comments, DOEE reviews each of the proposed amendments to the NOPR and proposes additional amendments to address outstanding issues. DOEE recommends that the Commission adopt DOEE's proposed edits; however, DOEE will also support the reconvening of the RM-9 Stakeholder Working Group to address outstanding issues. Regarding the IEEE 1547-2018 Standard, DOEE commends the Commission for undertaking the important step of setting a timeframe for implementation. However, DOEE insists that the implementation process be driven by technical stakeholders and the Commission. As written, implementation falls entirely under the purview of the EDC without an opportunity for the Commission or stakeholders to weigh in before adoption on January 1, 2022. DOEE proposes instead that the Commission convene an Advanced Inverter Technical Stakeholder Working Group ("AIWG") for approved technical stakeholders to weigh in on the establishment of the default settings for advanced inverters, and that the Commission adopt District-wide default settings.

3. Proposed Amendments to the SGIR in the NOPR

DOEE has divided the NOPR changes into six categories for discussion, namely: (A) public queue; (B) interconnection facilities definition and cost matrix; (C) interconnection application process and costs; (D) interconnection timelines and modifications; (E) advanced inverters and implementation of the IEEE 1547-2018 Standard; and (F) reporting requirements. DOEE addresses each of these categories in more detail below. For recommended edits to the text in the NOPR, DOEE has illustrated deletions in strikethrough text, and additions in red text.

A. Public Queue

DOEE applauds the Commission for including the requirements for a public queue, which will introduce a significant degree of transparency, allowing fair data access to enable a non-discriminatory grid. All DER developers should be operating with the same level of information. The public queue will be an important tool as the District moves towards a high-DER future. DOEE recommends the following changes to the public queue language proposed in Subsection 4001.6:

"The EDC shall assign each completed Application a queue position based on when it is deemed complete. The EDC shall maintain a single queue, which shall may be sortable by feeder. The queue shall be publicly available and updated at least monthly. Projects will remain in the queue for a period of 3 years. Information to be included in the queue is available in Attachment 1."

Rationale: DOEE has recommended these minor edits to ensure that the queue is both publicly available and sortable by feeder. DOEE also requests to amend the language to require that projects remain in queue for 3 years, which is the standard in Maryland, to provide additional visibility for projects that have already interconnected (and may spend only a short period of time in the queue, in the case of Level 1). DOEE also supports the inclusion of

"Attachment 1: Queue Requirements," but recommends changing the title to "Public Queue Requirements." For the sake of transparency, the queue must be publicly available.

B. Interconnection Facilities Definition and Cost Matrix

DOEE does not agree that the Interconnection Facilities Cost Matrix should be included within the SGIR. There is nothing in the rules currently that prohibits an EDC from providing such a matrix in the interest of cost transparency, and DOEE supports Pepco providing a menu of interconnection costs on its website. However, DOEE disagrees with the way in which the design of the interconnection process in this NOPR has been based on the Interconnection Facilities Cost Matrix. Rather, DOEE strongly believes that the interconnection procedures and timelines should be based on the safety and reliability of the system, not the availability of up-front, and, at this time, arbitrary, cost estimates. The matrix is not available for review as part of the SGIR for stakeholder input and is proposed to be maintained on the EDC's website. Under this proposed rule, a small but atypical project with interconnection facilities that fall outside of Pepco's standard menu will be forced to experience an unnecessary delay under the extended interconnection timeline on par with distribution system upgrades, since the inclusion of facilities in the matrix is at the sole discretion of the EDC. Designing the interconnection rules based on this Matrix -- at the sole discretion of the EDC -- will increase the opacity and unpredictability of the interconnection process while adding unnecessary delays.

If the Commission intends to keep the Interconnection Facilities Cost Matrix within the SGIR, DOEE proposes the following changes to the definition of the "Interconnection Facilities Cost Matrix" in Subsection 4099.1:

"Interconnection Facilities Cost Matrix" means the matrix maintained on the EDC's website that contains fixed-cost Interconnection Facilities projects associated with the installation of Small Generator Interconnection Facilities. The

Interconnection Facilities Cost Matrix is not an exhaustive list of Small Generator Interconnection Facilities.

Rationale: The text added by DOEE illustrates that projects that fall under the matrix are

not necessarily the only projects requiring interconnection facilities.

DOEE also recommends the following changes to the definition of "Interconnection

Facilities" in Subsection 4099.1:

"Interconnection Facilities" means facilities and equipment required by the EDC to accommodate the interconnection of a Small Generator Facility. Collectively, Interconnection Facilities include all facilities and equipment between the Small Generator Facility and the Point of Common Coupling, including modification, additions, or upgrades that are necessary to physically and electrically interconnect the Small Generator Facility to the Electric Distribution System. Interconnection Facilities are sole use facilities and do not include Distribution System Upgrades, or-Customer Usage Meters, or Customer Generation Meters.

Rationale: DOEE disputes the inclusion of the Customer Generation Meter under

"Interconnection Facilities." The list of interconnection facilities is intended to delineate projects

that require some construction and necessitate an extended timeframe. Metering equipment

should not be included under the interconnection facilities and should not require an extended

timeframe to implement. This definition will have a significant impact on the interconnection

timeframe, which is addressed further in the Interconnection Timeline and Modifications section.

C. Interconnection Application Process and Costs

Level 1

DOEE recommends the following changes to the NOPR in Subsection 4004.3(a):

"(a) The EDC shall, within five (5) business days after receipt of Part 1 of the Interconnection Request, notify the Interconnection Customer in writing or by electronic mail of the review results, which shall indicate that the Interconnection Request is complete or incomplete, and what materials, if any, are missing.

(1) If the EDC identifies a need to construct EDS Upgrades and/or Interconnection Facilities during the Interconnection Request process, the EDC shall provide a technical explanation that justifies

the need for the additional facilities and/or upgrades. The EDC shall demonstrate that required functionalities are not satisfied by employing IEEE STD 1547 certified and UL 1741 SA listed equipment. The Interconnection Customer shall, within ten (10) business days after receipt of the EDC technical explanation, notify the EDC of any technical challenges to the identified requirements. The EDC will address the challenge and seek a collaborative resolution with the Interconnection Customer within twenty (20) business days after receiving the technical challenge. If the EDC and Interconnection Customer are unable to reach agreement, the parties shall seek remedy with the Commission.

- (2) If the Interconnection Request requires the unchallenged construction of Interconnection Facilities or Distribution System Upgrades, the following additional information will be required to be submitted with the application: Provision of the additional information does not preclude challenging the findings in accordance with Subsection 4004.3(a)(1):
 - (A) Electrical room drawings;
 - (B) Meter locations;
 - (C) Initial proposed interconnection drawings.

(2) If the EDC requires the construction of EDS Upgrades during the Interconnection Request process, the EDC shall provide a technical explanation that justifies the need for the identified facilities and/or upgrades. The EDC shall demonstrate that required functionalities are not satisfied by employing IEEE STD 1547 certified and UL 1741 SA listed equipment."

Rationale: The technical explanation and challenge process outlined by DOEE provides

the Interconnection Customer with an opportunity to collaboratively evaluate the IEEE Standard

1547-2818-compliant technical capabilities of the interconnecting DER system that could more

cost effectively address EDC identified interconnection issues. This approach can result in

avoided EDS upgrades and increased grid flexibility.

The EDC should be able to request these additional items from the Interconnection

Customer, but that step should come after the justification for facilities and upgrades has been

provided to the Interconnection Customer, rather than during the initial stage of the application.

Level 2

DOEE recommends the following changes to the NOPR in Subsection 4005.4(a):

"(a) The EDC shall, within five (5) business days after receipt of Part 1 of the Interconnection Request, acknowledge, in writing or by electronic mail, receipt of the Interconnection Request, indicating whether it is complete or incomplete, and the appropriate application fee.

(1)—If the EDC identifies a need to construct EDS Upgrades and/or Interconnection Facilities during the Interconnection Request process, the EDC shall provide a technical explanation that justifies the need for the additional facilities and/or upgrades. The EDC shall demonstrate that required functionalities are not satisfied by employing IEEE STD 1547 certified and UL 1741 SA listed equipment. The Interconnection Customer shall, within ten (10) business days after receipt of the EDC technical explanation, notify the EDC of any technical challenges to the identified requirements. The EDC shall address the challenge and seek a collaborative resolution with the Interconnection Customer within twenty (20) business days after receiving the technical challenge. If the EDC and Interconnection Customer are unable to reach agreement, the parties shall seek remedy with the Commission.

(2) If the Interconnection Request requires the unchallenged construction of Interconnection Facilities or Distribution System Upgrades, the following additional information will be required to be submitted with the application.

- (A) Electrical room drawings
- (B) Meter locations
- (C) Initial proposed interconnection drawings

(2) If the EDC requires the construction of EDS upgrades during the Interconnection Request process, the EDC shall provide a technical explanation that justifies the need for the identified facilities and/or upgrades. The EDC shall demonstrate that required functionalities are not satisfied by employing IEEE STD 1547 certified and UL 1741 SA listed equipment."

Rationale: Same as Level 1.

DOEE also recommends the following changes to Subsection 4005.4(c):

"(c) When an Interconnection Request is complete, the EDC shall assign a Queue Position. Unless Section 4005.6(c) applies, the Queue Position of an Interconnection Request shall be used to determine the cost responsibility necessary for the Small Generator Facilities to accommodate the interconnection. The EDC shall notify the Interconnection Customer about other higher-queued Interconnection Customer Requests that have the potential to impact the cost responsibility."

Rationale: This text was in the previous iteration of the SGIR (published January 25, 2019) and has been removed from the SGIR in this NOPR. DOEE does not support the removal of this text, given that the queue position still has a role to play in determining the cost responsibility of the Interconnection Customer except in the specific scenario in which the Interconnection Customer is interconnecting a CREF and the \$200,000 annual cap has not been reached. For NEM systems and CREFs beyond the \$200,000 limit, this text in 4005.4(c) will still apply and should remain in the rules. However, DOEE is open to considering alternative frameworks to the cost-causer model, such as the cost allocation model adopted in New York. In the New York model, the Interconnection Customer who triggers the upgrade pays 100% of the cost, and "the share of the costs paid by subsequent developers would be calculated as the ratio of the total upgrade cost compared to the total AC watts the upgrade serves."⁴ A model based on this premise of post-upgrade allocation would promote a non-discriminatory approach. Although the first Interconnection Customer to trigger a violation on a circuit would absorb the initial cost of upgrades, subsequent Interconnection Customers that benefit from the upgrades would reimburse the initial Interconnection Customer in a pro-rated manner, thus sharing the cost between all beneficiaries of the upgrade.

Level 4

DOEE recommends the following changes to the NOPR in Subsection 4007.2(a):

"(a) Within five (5) business days from receipt of Part I of an Interconnection Request or transfer of an existing request to a Level 4 Interconnection Request, the EDC shall notify the Interconnection Customer whether or not the request is complete.

(1) If the EDC identifies a need to construct EDS Upgrades and/or Interconnection Facilities during the Interconnection Request process, the EDC shall provide a technical explanation that justifies the need for the additional facilities and/or upgrades. The EDC shall

⁴ New York Public Service Commission Case 16-E-0560, Order Adopting Interconnection Management Plan and Cost Allocation Mechanism, and Making Other Findings, at pg. 10 (rel. January 25, 2017).

demonstrate that required functionalities are not satisfied by employing IEEE STD 1547 certified and UL 1741 SA listed equipment. The Interconnection Customer shall, within ten (10) business days after receipt of the EDC technical explanation, notify the EDC of any technical challenges to the identified requirements. The EDC shall address the challenge and seek a collaborative resolution with the Interconnection Customer within twenty (20) business days after receiving the technical challenge. If the EDC and Interconnection Customer are unable to reach agreement, the parties shall seek remedy with the Commission."

- (2) If the Interconnection Request requires the unchallenged construction of Interconnection Facilities or Distribution System Upgrades, the following additional information will be required to be submitted with the application.
 - (A) Electrical room drawings
 - (B) Meter locations
 - (C) Initial proposed interconnection drawings

(2) If the EDC requires the construction of EDS upgrades during the Interconnection Request process, the EDC shall provide a technical explanation that justifies the need for the identified facilities and/or upgrades. The EDC shall demonstrate that required functionalities are not satisfied by employing IEEE STD 1547 certified and UL 1741 SA listed equipment."

Rationale: Same as Levels 1-2. DOEE also notes that it is possible for a CREF to fall

under Level 4 interconnection, and therefore the cost allocation language relevant to CREFs should

be included in Level 4 as well.

D. Interconnection Timelines and Modifications

Level 1

DOEE recommends the following changes to Subsection 4004.4:

"(a) If the Interconnection Request requires the addition of Interconnection Facilities that fall within the Interconnection Facilities Cost Matrix, the following process shall be followed for the Approval to Install. Subsection 4004.3(c) does not apply.

(1) The EDC will maintain on its website the Interconnection Facilities Cost Matrix providing the Interconnection Facilities for which the Interconnection Customer is responsible for specific categories of facilities. If the only Interconnection Facilities required in the Interconnection Request are captured in one of the categories in the Matrix:

(2) The Interconnection Customer will be responsible only for the applicable cost in the matrix.

(3) The costs in the Interconnection Facilities Cost Matrix will be final costs.

(4) The final cost letter will contain only the applicable cost in the Interconnection Facility Cost Matrix along with a technical justification as specified in Subsection 4004.3(a)(2) and will be provided concurrently with the Approval to Install.

(5) If the Interconnection Facilities are not captured in the Matrix, the EDC shall provide the itemized breakdown in the final cost letter along with a technical justification as specified in Subsection 4004.3(a)(2).

(6) The Approval to Install and the final detailed cost letter shall be provided within twenty-five (25) fifteen (15) business days after the Interconnection Request is deemed complete.

(b) If the Interconnection Request requires the addition of Interconnection Facilities and the Interconnection Facilities Cost Matrix is not applicable or requires the addition of Distribution System Upgrades, the following process shall be followed for the Approval to Install. Subsection 4004.3(c) does not apply.

(1) The Approval to Install and the final non-itemized initial itemized cost letter shall be provided within twenty-five (25) business days after the Interconnection Request is deemed complete, along with a technical justification specified in Subsection 4004.3(a)(2) and construction timeline.

(2) The EDC will provide a cost estimate based on a forty percent (40%) design that is accurate within \pm fifty percent (50%) twenty-five percent (25%) concurrently with the Approval to Install.

(3) Unless extended by mutual agreement of the Interconnection Customer and the EDC, the Interconnection Customer must agree to the cost estimate and the operational requirements and execute the Interconnection Agreement within ten (10) business days of receiving the Approval to Install.

(4) Once the Interconnection Customer has approved the cost letter and operational requirements, the Interconnection Customer is responsible for the costs the EDC incurs designing or constructing Interconnection Facilities or Distribution System Upgrades if the Interconnection Customer decides not to move forward with the interconnection of the Small Generator Facility.

(5) Within sixty (60) thirty (30) business days after the EDC notifies the Interconnection Customer that it has received a completed Interconnection Request, the EDC will issue a final cost letter based on one hundred percent (100%) design. The cost letter will include a detailed list of necessary EDS upgrades and an itemized cost estimate, breaking out equipment, labor, operation and maintenance and other costs, including overhead, for completing such upgrades. The final cost letter will also indicate the milestones for completion of the Applicant's installation of its Generating Facility and the EDC's completion of any EDS modifications, and these milestones will be incorporated into the Interconnection Agreement.

(6) If the Interconnection Customer changes the design of the interconnection of the Small Generator Facility in response to the EDC amending site-specific operating or other requirements, the project shall retain its eligibility for interconnection, including its place in the interconnection queue.

(7) If the Interconnection Customer changes the design of the interconnection of the Small Generator Facility at any point, without prompting by the EDC, in a manner that results in a Material Modification, the final and estimated cost letters, as applicable, will be void and the EDC will restart the Interconnection Review process.

(8) If the proposed modification is determined not to be a Material Modification, then the Area EPS Operator shall notify the Interconnection Customer in writing that the modification has been accepted and that the Interconnection Customer shall retain its eligibility for interconnection, including its place in the interconnection queue."⁵

Rationale: As mentioned previously, the two tracks in the modified interconnection

process for Level 1 should be based on whether or not the project requires only Interconnection Facilities or instead requires EDS upgrades. The unavailability of a fixed cost quote for certain interconnection facilities should not be in and of itself a technical justification for requiring projects to move into the extended timeline reserved for EDS upgrades. DOEE proposes edits to the text to reflect this point. Additionally, the language for the technical justification has been added for consistency to the interconnection facilities section in 4004.4(a). Cost letters provided with ATI should also include a construction timeline for facilities or upgrades, similar to the NOPR language in Subsection 4005.6(b)(6).

The previous iteration of the SGIR published on January 25, 2019 provided a fifteen (15) business day timeframe for Level 1 interconnection that required additional interconnection facilities, and thirty (30) business days for Level 1 interconnections that required EDS upgrades. DOEE sees no technical justification whatsoever for extending the timeframes for Level 1 interconnection requests that merely require the construction of interconnection facilities. The

⁵ Minnesota Public Utility Commission, *State of Minnesota Distributed Energy Resources Interconnection Process*, pg. 9

main purpose of having Level 1 (less than 20 kW capacity) is to provide a streamlined process, moving toward automated interconnection for simple projects. Thus, DOEE recommends that the Commission keep the timeframe of fifteen (15) business days in the current rules, or reduce it significantly below fifteen (15) business days. Extending the timeline for interconnection of simple DER projects is not acceptable given the District's energy goals and mandates, and sufficient technical justification for doing so has not been provided in the RM-9 Stakeholders Working Group meetings. DOEE supports lowering the timeframe for ATI to twenty-five (25) business days for projects requiring EDS upgrades.

DOEE supports the proposed language establishing a cost envelope, which will reduce surprise costs. However, DOEE finds that the cost envelope of 50% to be too high and recommends reducing it to 25% based on best practices in other states. Binding cost envelopes are required by Massachusetts and are opt-in in California. In Massachusetts, the Interconnection Customer may sign an earlier agreement to limit responsibility to 25% above the initial cost or follow the full timeline for a cost responsibility of only 10% above the initial cost estimate. Oregon and Utah both use a 25% cost estimate for system upgrades. New York has a cost envelope of +/- 25%, while Minnesota requires tracking and reporting of projects that exceed a cost envelope of 20%.⁶ Maryland requires tracking and reporting of any final costs that are greater than 10% of estimates.⁷ DOEE recommends adopting a 25% cost envelope, which is in line with New York, noting that the distribution spot and mesh networks in New York City resemble the grid characteristics found in the redundant networks supplying the District of Columbia.

⁶ National Renewable Energy Laboratory, *New Approaches to Distributed PV Interconnection: Implementation Considerations for Addressing Emerging Issues*, pg. 2-3

⁷ Maryland CoMAR

Similarly, DOEE finds that the timeline for provision of the final, itemized cost letter is too long. Thirty (30) business days -- six (6) weeks -- should provide a sufficient timeframe to develop the final, itemized cost letter, given that there is already an estimate provided for ATI and that the Interconnection Customer has had time to review and challenge the operational requirements. DOEE finds that a timeline of sixty (60) business days -- three (3) months -- will unnecessarily delay the interconnection of DER.

DOEE also suggests revised language regarding changes to the design by the Interconnection Customer. The current language in the NOPR covers any type of design change; this may be overly broad, unfairly penalizing the Interconnection Customer and slowing down the interconnection of DER. Changes to the design that have been prompted by the EDC should not result in a requirement to submit a new application. If the Interconnection Customer does submit a re-design that is unprompted by the EDC and that causes a material modification, only then the Interconnection Customer should submit a new application. DOEE has added additional language to reflect this distinction. DOEE suggests the addition of this language and the following definition from the IREC 2019 Model Interconnection Procedures be included in Section 4099.1:

"**Material Modification**" means a modification that has a material impact on the cost or timing of processing an Application with a later queue priority date or a change in the Point of Interconnection. A Material Modification does not include, for example, (a) a change of ownership of a Generating Facility, (b) a change or replacement of generating equipment that is a like-kind substitution in size, ratings, impedances, efficiencies, or capabilities of the equipment specified in the original Application, or (c) a reduction in the output of the Generating Facility of 10% or less."⁸

Level 2

DOEE recommends the following changes to Subsection 4005.6:

⁸ Interstate Renewable Energy Council, *Model Interconnection Procedures 2019*, Attachment 1 pg. 4.

"(a) If the Interconnection Request requires the addition of Interconnection Facilities that fall within the Interconnection Facilities Cost Matrix, the following process shall be followed for the Approval to Install. Subsection 4005.4(d) does not apply.

(1) The EDC will maintain on its website the Interconnection Facilities Cost Matrix providing the Interconnection Facilities for which the Interconnection Customer is responsible for specific categories of facilities. If the only Interconnection Facilities required in the Interconnection Request are captured in one of the categories in the Cost Matrix:

(2) The Interconnection Customer will be responsible only for the applicable cost in the matrix

(3) The costs in the Interconnection Facilities Cost Matrix will be final costs.

(4) The final cost letter will contain only the applicable cost in the Interconnection Facility Cost Matrix along with a technical justification as specified in 4005.4(a)(2) and will be provided concurrently with the Approval to Install.

(5) If the Interconnection Facilities are not captured in the Matrix, the EDC will provide the itemized breakdown in the final cost letter along with a technical justification as specified in 4005.4(a)(2).

(6) The Approval to Install and the final cost letter shall be provided within twenty-five (25) fifteen (15) business days after the Interconnection Request is deemed complete.

(b) If the Interconnection Request requires the addition of Interconnection Facilities and the Interconnection Facilities Cost Matrix is not applicable or requires the addition of Distribution System Upgrades, the following process shall be followed for the Approval to Install. Subsection 4005.4(d) does not apply.

(1) The Approval to Install and the final non-itemized cost letter shall be provided within twenty-five (25) business days after the Interconnection Request is deemed complete.

(2) The EDC will provide a cost estimate based on a forty percent (40%) design that is accurate within +/- fifty percent (50%)- twenty-five percent (25%) concurrently with the Approval to Install.

(3) Unless extended by mutual agreement of the Interconnection Customer and the EDC, the Interconnection Customer must agree to the cost estimate and the operational requirements and execute the Interconnection Agreement within ten (10) business days of receiving the Approval to Install.

(4) The EDC shall provide a technical explanation that justifies the need for the identified facilities and/or upgrades. The EDC shall demonstrate that the required functionalities are not satisfied by employing IEEE STD 1547 certified and UL 1741 listed equipment.

(5) Once the Interconnection Customer has approved the cost letter and operational requirements, the Interconnection Customer is responsible for the costs the EDC incurs designing or constructing Interconnection Facilities or Distribution System Upgrades if the Interconnection Customer

decides not to move forward with the interconnection of the Small Generator Facility.

(6) Within sixty (60) thirty (30) business days after the EDC notifies the Interconnection Customer that it has received a completed Interconnection Request, the EDC will issue a final cost letter based on one hundred percent (100%) design. The cost letter will include a detailed list of necessary EDS upgrades and an itemized cost estimate, breaking out equipment, labor, operation and maintenance and other costs, including overhead, for completing such upgrades. The final cost letter will also indicate the milestones for completion of the Applicant's installation of its Generating Facility and the EDC's completion of any EDS modifications, and these milestones will be incorporated into the Interconnection Agreement.

(7) If the Interconnection Customer changes the design of the interconnection of the Small Generator Facility in response to the EDC amending site-specific operating or other requirements, the project shall retain its eligibility for interconnection, including its place in the interconnection queue.

(8) If the Interconnection Customer changes the design of the interconnection of the Small Generator Facility at any point, without prompting by the EDC, in a manner that results in a Material Modification, the final and estimated cost letters, as applicable, will be void and the EDC will restart the Interconnection Review process.

(9) If the proposed modification is determined not to be a Material Modification, then the Area EPS Operator shall notify the Interconnection Customer in writing that the modification has been accepted and that the Interconnection Customer shall retain its eligibility for interconnection, including its place in the interconnection queue."⁹

(10) The EDC will provide an EDC-executed Interconnection Agreement within three (3) business days of issuing the Approval to Install.

Rationale: Same as Level 1. Additionally, DOEE stresses that the previous iteration of

the SGIR required ATI to be issued within fifteen (15) days for Level 2 projects that needed

interconnection facilities. DOEE does not believe that it is necessary to extend that ATI

timeframe to twenty-five (25) days in the NOPR. The EDC's noncompliance with existing rules

cannot be used as a broad justification to extend the timelines, which will further slow the

process of solar interconnection in the District of Columbia. DOEE requests instead that

reporting of timelines be required to be filed with the Commission on a monthly basis, and that,

⁹ Minnesota Public Utility Commission, *State of Minnesota Distributed Energy Resources Interconnection Process*, pg. 9

like Level 1, noncompliance with ATI and/or ATO timelines require the development of a

Corrective Action plan. If, at that point, the Commission finds that the Corrective Action plans

have been executed in good faith and that the fifteen (15) day timeframe to ATI is not technically

achievable, then it would be appropriate to discuss extending the timelines. In the absence of

such action, extending the timelines is not a prudent course of action, and will negatively impact

the District's local solar mandates.

E. Advanced Inverters and Implementation of IEEE 1547-2018 Standard

DOEE recommends the following changes to Subsection 4002.7:

"To comply with IEEE 1547-2018:

(a) After January 1, 2022, any Small Generator Facility requiring an inverter that submits an interconnection request shall use an Advanced Inverter with either a default or a site-specific EDC required inverter settings profile, as determined by the EDC.

(b) Any Small Generator Facility may replace an existing inverter with a similar spare inverter that was purchased prior to January 1, 2022, for use at the Small Generator Facility.

(c) Prior to January 1, 2022, the Commission will develop stakeholderinformed EDC will establish default EDC District-wide required inverter settings profiles for Advanced Inverters on both radial and network (including spot network) distribution circuits pursuant to Subsection 4002 (c). The District-wide required inverter settings profiles will optimize the safe and reliable operation of the electric distribution system, and shall serve the following objectives:

(1) The primary objective is to incur no involuntary real power inverter curtailments incurred during normal operating conditions and minimal real power curtailments during abnormal operating conditions.

(2) The secondary objective is to enhance electric distribution system hosting capacity and to optimize the provision of grid support services.

(d) To the extent reasonable, pursuant to any modifications required by Subsection 4002.7(c), all EDC required inverter settings profiles shall be consistent with applicable Advanced Inverter recommendations from PJM Interconnection, LLC that are applicable-

(e) A The default EDC required inverter settings profiles for radial and network (including spot network) distribution circuits shall be established by the EDC based on the District-wide default settings in collaboration with the Advanced Inverter Working Group and approved by the Commission. By an EDC to optimize the safe and reliable operation of the electric distribution system, and shall serve the following objectives:

(1) The primary objective is to incur no involuntary real power inverter curtailments incurred during normal operating conditions and minimal real power curtailments during abnormal operating conditions.

(2) The secondary objective is to enhance electric distribution system hosting capacity and to optimize the provision of grid support services.

(f) A site-specific EDC required inverter settings profile may be established by an EDC as necessary to optimally meet objectives established in Subsection 4002.7(c).

(g) All default EDC required inverter settings profiles will be documented in the interconnection agreements.

(h) A The default EDC required inverter settings profiles for radial and network (including spot network) distribution circuits will be published on the EDC's website.

(i) A list of acceptable Advanced Inverters shall be published on the EDC's website."

Rationale: DOEE applauds the Commission for adopting an implementation timeline for

the IEEE 1547-2018 Standard. The bulk of the interconnecting DER in the District of Columbia

are inverter-based. IEEE-compliant advanced inverters are equipped with sophisticated

electronics that are able to communicate with the EDC, inject power into the grid, provide

voltage support per the IEEE 1547-2018 Standard, and increase grid situational awareness. This

represents a paradigm shift in the EDS, with third-parties now able to provide functionalities that

support the grid, a space previous only occupied by the EDC. If this third-party support is

properly coordinated by the EDC it can result in operational cost savings. Taking advantage of

the implementation of the IEEE 1547-2018 Standard as recommended in the National

Association of Regulatory Utility Commissioners ("NARUC") resolution sponsored by the

Committee on Electricity and adopted by the Board of Directors, on February 12, 2020, the

Commission should form an Advanced Inverter Technical Stakeholder Working Group

("AIWG") to ensure that stakeholders and the EDC can properly coordinate the functionalities of

the advanced inverters interconnecting to the EDS and effectively integrate these firm

capabilities into its EDS planning. DOEE recommends the following set areas of technical

evaluation for the AIWG:

Before January 1, 2022:

- Autonomous Functionalities
 - Inverter Settings Profile
 - Default
 - Dynamic/Circuit Specific
- Interoperability (Initial)
 - Communications Protocols
 - Communication Performance Requirements

After January 1, 2022:

- Interoperability (Cont'd)
 - Communications Protocols
 - o Communication Performance Requirements
- DER Controllability
 - Integration ADMS/DERMS

As DOEE filed in Formal Case 1130 on the subject of the advanced inverter definition, it will be important to begin using advanced inverter functionalities as soon as possible in order to maximize the potential benefit to the EDS.¹⁰ The longer that the District waits in implementing functions such as voltage regulation, the less beneficial impact they will have on increasing hosting capacity.

DOEE recommends changes to the "advanced inverters" definition 4099.1 consistent

with DOEE's filing that provided both edits and a justification in Formal Case 1130.11

¹⁰ District of Columbia Department of Energy and Environment, *Department of Energy and Environment's Comments in Response to Notice of Proposed Rulemaking RM-09-2020-01*

¹¹ Department of Energy and Environment's Comments in Response to Notice of Proposed Rulemaking RM-09-2020-01 et. al. (March 27, 2020)

DOEE also recommends the following additional definitions, as adapted from the Code of Maryland Regulations ("COMAR"):

"District-Wide Required Inverter Settings Profile" is a set of smart inverter settings optimized for use by utilities and manufacturers in establishing defaults District-wide, maintained by the Commission

"Default EDC Required Inverter Settings Profile" is a utility set of default smart inverter settings optimized for use across a utility's service territory, based on the District-wide settings

"Site-Specific Utility Required Inverter Settings Profile" is a set of smart inverter settings optimized for use at a specific site on a utility's electric system."¹²

DOEE acknowledges that the District-wide and Default EDC Settings may be very

similar, or even identical. However, DOEE recognizes that a multi-customer microgrid may have

different needs than an EDC, and therefore there should be room for multiple entities to develop

default settings profiles (including for Microgrid Operators, to be addressed further in Formal

Case 1163).

F. <u>Reporting Requirements</u>

DOEE commends the Commission for the proposed update to the reporting framework

for interconnection in Subsection 4008.5. DOEE recommends the following changes to the text:

"(b) The EDC shall provide a public and confidential list of final interconnection approvals for renewable generators (name, address, interconnection level, capacity (DC and AC), and system type, date of application, date of receipt of Authorization to Operate, total cost of interconnection facilities, and total cost of EDS upgrades) on the fifteenth (15th) of each month, for the previous month interconnections.
(c) The EDC shall provide a report listing out all of the CREFs that are interconnected and generating, the total amount of energy generated for the month, and the total amount of energy allocated to CREF subscribers for the month on the fifteenth (15th) of each month."

¹² Adapted from COMAR Title 15, Subtitle 50, Chapter 9. Small Generator Facility Interconnection Standards

Rationale: This tool will be useful for DER providers in planning, as well as inform the work done by DOEE in enacting relevant policy and programs. The date of applications and final ATO will help to illustrate the timeframe and cost of interconnection at various levels over time, which will be critical moving forward as the District moves towards a high-DER future. DOEE also requests that the reporting requirements include the total amount of energy generated by CREFs and allocated to CREF subscribers. This will provide additional transparency in the CREF generation and allocation process.

In the medium term, DOEE would like to see this report include additional information in line with the reporting process in Maryland's COMAR.

4. DOEE Proposals to Address Outstanding Issues

The totality of the changes to the SGIR, while a step in the right direction, will not be sufficient to realize an interactive, affordable, and non-discriminatory EDS. In this section, DOEE recommends strategies to streamline interconnection and introduce additional layers of transparency. Comments are divided into the following sub-sections: (A) Level 1 Fast Track, (B) Timeline Compliance and Corrective Action Plans, (C) Timeline Extension, (D) Dispute Resolution, (E) Near-Term Communications Profile, (F) Minimum Import Requirements, and (G) Net System Capacity for Storage Integration.

A. Level 1 Fast Track

A review by DOEE of interconnection rules in other states has illustrated that interconnection levels are generally divided based on their relative complexity in order to fasttrack smaller, more straightforward projects. The District of Columbia is no exception, with Level 1 restricted to projects with that are under 20 kW and a shorter timeline to ATO than the

other interconnection levels. DOEE recommends maintaining Level 1 as a purely fast-tracked queue with the goal towards automating Level 1 interconnections in the near-term. The IREC Model Procedures are structured such that Level 1 projects that fail a screen and are found to require interconnection facilities and/or EDS upgrades are assessed as Level 2.¹³ DOEE recommends that the Commission adopt this approach for the District of Columbia, by removing Subsection 4004.4 of the SGIR and replacing it with the following:

"(a) If the Interconnection Request requires the addition of Interconnection Facilities and/or Distribution Upgrades, it shall be processed under Level 2 starting at 4005.6."

Additionally, DOEE asks the Commission to request that the EDC put forward a plan for automating Level 1 interconnections according to a Commission-directed timeline. Pacific Gas and Electric, Southern California Edison, and San Diego Gas and Electric have all at least partially automated the application and review process for DER under 30 kW.¹⁴

B. <u>Timeline Enforcement and Corrective Action Plans</u>

Subsection 4004.7 of the SGIR includes reporting requirements for Level 1 projects, including the number that are delayed beyond the 5-day ATI and 20-day ATO timelines. If Level 1 is not maintained as a purely fast-track interconnection level, then this reporting requirement should be extended to account for timeframes under the Level 1 modified interconnection process for projects requiring interconnection facilities and/or EDS upgrades. Reporting should include: the number of projects requiring interconnection facilities and whether or not ATI and ATO compliance was met, and the number of projects that required EDS upgrades and whether

¹³ Interstate Renewable Energy Council, Small Generator Interconnection Rules 2019

¹⁴ Hunt, Tam. "How automation is changing the solar interconnection process in California." <u>https://pv-magazine-usa.com/2020/03/17/how-automation-is-changing-the-solar-interconnection-process-in-california/</u>

or not ATI and ATO compliance were met. If Level 1 is maintained as a fast-track interconnection level, no change is required. A corrective action plan should be provided with a report for each project which details the reason(s) behind each ATI and/or ATO delay, and any mitigation actions taken.

In the interest of maintaining Level 1 as a streamlined interconnection procedure, IREC's Model Interconnection Procedures document includes a provision that if the DER has received ATI but has not been provided with ATO within the allotted 20 business days, the DER is automatically granted permission to operate. DOEE is open to exploring this option for Level 1 in the interest of streamlining and simplifying interconnection of DER.

For Levels 2-4, DOEE asks the Commission to add similar provisions based on Subsection 4004.7 to each interconnection level. Reporting to the Commission should include: (1) the number of projects to miss ATI and the reason for the missed deadline; (2) the number of projects to miss ATO and the reason for the missed deadline; (3) any mitigation measures undertaken; and (4) a corrective action plan in the event that less than 90% of projects are in compliance with established timelines.

C. <u>Timeline Extension</u>

DOEE recommends that the Commission add a provision to the rules for either the EDC or the Interconnection Customer to request a timeline extension. DOEE recommends basing this provision on the following boilerplate language from the IREC Model Interconnection Procedures which is also included in the interconnection rules in other states:

"1. The Utility shall make reasonable efforts to meet all timelines set by these Interconnection Procedures. If the Utility cannot meet a timeline, the Utility shall notify the Applicant in writing within one (1) Business Day after the missed deadline. The notification shall explain the reason for the Utility's failure to meet

the deadline and provide an estimate of when the step will be completed. The Utility shall keep the Applicant updated of any changes in the expected completion date. 2. The Applicant may request in writing the extension of one timeline set by these Interconnection Procedures. The requested extension may be for up to one-half of the time originally allotted (e.g., a ten (10) Business Day extension for a twenty (20) Business Day timeframe). The Utility shall not unreasonably refuse this request. If further timeline extensions are necessary, the Applicant may request an extension in writing to the Interconnection Ombudsperson, who shall grant or deny the request, if it is reasonable, within three (3) Business Days."¹⁵

D. Dispute Resolution

DOEE recommends the Commission adopt the following dispute resolution framework

from the IREC 2019 Model Interconnection Procedures:

"1. The Parties agree to attempt to resolve all disputes arising out of the interconnection process and associated study and interconnection agreements according to the provisions of this Section.

2. In the event of a dispute, the disputing Party shall provide the other Party a written Notice of Dispute containing the relevant known facts pertaining to the dispute, the specific dispute and the relief sought, and express notice by the disputing Party that it is invoking the procedures under this Section. The notice shall be sent to the non-disputing Party's email address and physical address set forth in the Interconnection Agreement or Application, if there is no Interconnection Ombudsperson.

The non-disputing Party shall acknowledge the notice within three (3) Business Days of its receipt and identify a representative with the authority to make decisions for the non-disputing Party with respect to the dispute.

3. If the dispute is principally related to one or both Parties' compliance with timelines specified in these Interconnection Procedures or associated agreements, the Parties shall seek assistance from Interconnection Ombudsperson if the Parties cannot mutually resolve the dispute within eight (8) Business Days.

4. If the dispute is not principally related to one or both Parties' compliance with a timeline, then the non-disputing Party shall provide the disputing Party with all relevant regulatory and/or technical details and analysis regarding any Utility interconnection requirements under dispute within ten (10) Business Days of the date of the notice of dispute. Within twenty (20) Business Days of the date of the notice of dispute, the Parties' authorized representatives shall meet and confer to try to resolve the dispute. Parties shall operate in good faith and use best efforts to resolve the dispute.

¹⁵ Interstate Renewable Energy Council, *Model Interconnection Procedures 2019*, pg. 23.

5. If a resolution is not reached in thirty (30) Business Days from the date of the notice of dispute, either (1) a Party may request to continue negotiations for an additional twenty (20) Business Days, or (2) the Parties may by mutual agreement make a written request for mediation to the Interconnection Ombudsperson. Alternatively, both Parties by mutual agreement may request mediation from an outside third-party mediator with costs to be shared equally between the Parties.

6. If the results of the mediation are not accepted by one or more Parties and there is still disagreement, the dispute shall proceed to the formal complaint process provided by the Commission.

7. At any time, either Party may file a complaint before the Commission pursuant to its rules.

8. If neither Party elects to seek assistance from the Commission, or if the attempted dispute resolution fails, then either Party may exercise whatever rights and remedies it may have in equity or law consistent with the terms of these procedures."¹⁶

It is critical that Interconnection Customers have an opportunity built into the process to

dispute interconnection facilities or EDS upgrades. As referenced in the dispute resolution

section above, there is an immediate need for the designation of an Office within the

Commission to serve as the Ombudsperson to resolve disputes efficiently and effectively. The

Massachusetts Department of Public Utilities maintains a permanent staff position known as the

Interconnection Ombudsperson, which is the arbiter of interconnection disputes that cannot be

resolved between an EDC and an Interconnection Customer through good faith negotiations.¹⁷

E. <u>Near-Term Communications Protocol</u>

The EDC has imposed telemetry requirements on Interconnection Customers that operate

in parallel on both radial and network distribution circuits. The telemetry requirements consist of

EDC proprietary communications equipment that enables the remote monitoring of DER system

¹⁶ Interstate Renewable Energy Council, *Model Interconnection Procedures 2019*, pg. 24-25.

¹⁷ The Commonwealth of Massachusetts Department of Public Utilities, Order on the Distributed Generation Working Group's Redlined Tariff and Non-Tariff Recommendations, pg. 30

parameters. The cost of the proprietary equipment is substantial and unnecessary in many instances, given that the vast majority of the inverters available today feature communications functionalities that comply with the IEEE 1547-2018 Standard and can also enable the remote monitoring of DER system parameters without the need to employ a proprietary piece of EDC equipment. The modern grid that stakeholders have envisioned since the commencement of the MEDSIS Initiative is one that is flexible and interoperable as specified in the IEEE 1547-2018 Standard. The communications flexibility that is consistent with the envisioned modern grid pursues several strategies for connecting "edge" devices like solar systems to the EDC smart grid communications network. In order to take advantage of the already available communications functionalities of inverters and obviate the need for a proprietary communications module, the EDC should build up these smart grid network capabilities to enable the needed DER monitoring It will take some time to build up these communications capabilities to enable the needed DER monitoring of DER on the EDS, and DOEE requests that the Commission work with the EDC to develop an implementation timeline.

A near-term temporary alternative to the proprietary communications equipment requirement that the Commission could consider would be to have the Interconnection Customer upload the monitored data (3- ϕ voltage, 3- ϕ power, 3- ϕ current, total MW and MVAR, power crossing at the interchange of the building, and the DER system output) to a cloud server where the EDC has READ access to this data. It will be up to the EDC to transfer this data into its Energy Management System ("EMS") and store it in its PI database.

F. Minimum Import Requirement

The EDC currently imposes minimum import requirements on DER systems operating in parallel on network distribution circuits. These requirements do not take into consideration the

control functionalities available in the interconnecting DER system, through the use of advanced inverters and controls. The vast majority of these systems feature significant control and sensing capabilities that enable the dynamic adjustment of power output making the practice of restricting nameplate capacity obsolete. To deal with the requirement of minimum import, DOEE recommends the addition of the following language:

"A technical explanation shall accompany the requirement for minimum import that specifies the reasons for the identified import power levels. The Interconnection Customer shall, within ten (10) business days after receipt of the EDC technical explanation, notify the EDC of any technical challenges to the identified requirements. The EDC will address the challenge and seek a collaborative resolution with the Interconnection Customer within twenty (20) business days after receiving the technical challenge. If the EDC and Interconnection Customer are unable to reach agreement, the EDC shall seek remedy with the Commission."

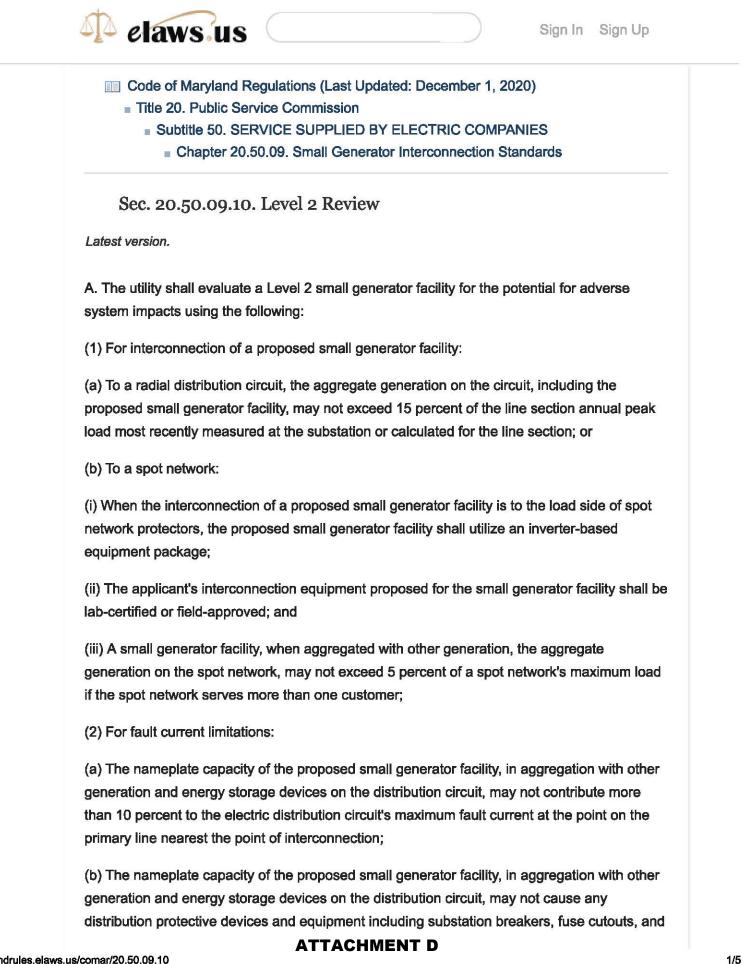
G. Net System Capacity for Storage Integration

In order to accommodate projects that include battery storage, the SGIR needs to be revamped to include the assessment of projects from the perspective of net system capacity, rather than aggregate nameplate capacity, and inadvertent export. The Level 3 interconnection process will need to be more fully fleshed out to develop a streamlined process for non-exporting system configuration and interconnection. Additionally, projects on the spot and area network are currently barred from applying under a Level 3 interconnection. DOEE does not agree with barring non-exporting projects from the spot and area network: DER can be configured using inverters that feature robust control and actuator schemes that assure power non-export. States that have adopted rules to accommodate net-export and inadvertent export for battery storage include Maryland, Nevada, Massachusetts, California, Minnesota, and Hawaii. Updating the rules to accommodate battery storage interconnection is a time sensitive issue, especially given that batteries can increase system hosting capacity.

5. Conclusion

DOEE respectfully recommends that the Commission adopt DOEE's proposed changes to 15 DCMR Chapter 40 presented in this document. DOEE commends the Commission for this NOPR, which takes additional steps in the direction of a modern and non-discriminatory EDS. DOEE requests that the Commission move quickly to convene an Advanced Inverter stakeholder working group and reconvene the RM-9 Stakeholder Working Group to address outstanding issues.

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line reclosers, or other customer equipment on the electric distribution system to be exposed to fault currents exceeding 90 percent of the short circuit interrupting capability; and

(c) The interconnection request may not request interconnection on a circuit that already exceeds 90 percent of the short circuit interrupting capability;

(3) The proposed small generator facility's point of interconnection may not be on a transmission line;

(4) When a small generator facility is to be connected to 3-phase, 3-wire primary utility distribution lines, a 3-phase or single-phase generator shall be connected phase-to-phase;

(5) When a small generator facility is to be connected to 3-phase, 4-wire primary utility distribution lines, a 3-phase or single-phase generator will be connected line-to-neutral and will be effectively grounded;

(6) When the proposed small generator facility is to be interconnected on single-phase shared secondary line, the aggregate generation on the shared secondary line, including the proposed small generator facility, may not exceed 20 kW;

(7) When a proposed small generator facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition may not create an imbalance between the two sides of the 240 volt service of more than 20 percent of the nameplate rating of the service transformer;

(8) A small generator facility, in aggregate with other generation and energy storage devices interconnected to the distribution side of a substation transformer feeding the circuit where the small generator facility proposes to interconnect, the aggregate generation may not exceed 10 MW in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity;

(9) As an alternative method to evaluate the adverse system impacts of a proposed Level 2 small generator facility on the distribution system, as described in §A(1)-(8) of this regulation, a utility may use a power-flow based analysis system if the utility has submitted:

(a) A plan, subject to Commission approval, that describes its methodology for its power-flow based modeling system and includes reasoning for each screen used to evaluate an application; and

(b) Information about the system s results, as required in Regulation .14 of this chapter;

(10) Except as permitted by an additional review in §G of this regulation, no modification or construction of additional facilities by a utility of its distribution system, with the exception of metering or a minor system modification, shall be required to accommodate the small generator facility; and

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(11) If the proposed interconnection facility requires a minor system modification, the utility shall notify the applicant of that requirement when it provides the Level 2 evaluation result, as follows:

(a) The applicant must inform the utility within 10 business days if the applicant elects to continue the application;

(b) If the applicant makes such an election, the utility shall provide an interconnection agreement, along with a non-binding good faith cost estimate and construction schedule for those upgrades, to the applicant within 30 calendar days after the utility receives such an election; and

(c) The applicant shall have 30 calendar days, or other mutually agreeable time frame after receipt of the interconnection agreement, to sign and return such agreement.

B. A utility shall, within 5 business days after receipt of the interconnection request, inform the applicant that the interconnection request is:

(1) Complete; or

(2) Incomplete and what materials are missing;

C. Queue Position.

(1) When an interconnection request is complete, the utility shall assign a queue position.

(2) The queue position of the interconnection request shall be used to determine the potential adverse system impact of the small generator facility based on the relevant screening criteria.

(3) The utility shall notify the applicant of any other higher queue position applicants on the same line section or spot network for which interconnection is sought.

(4) Queue position may not be forfeited or otherwise impacted by the submission of a dispute under the provisions of Regulation .13 of this chapter.

D. When a utility determines additional information is required to complete an evaluation:

(1) The utility shall request the information;

(2) The time necessary to complete the evaluation may be extended, but only to the extent of the delay required for receipt of the additional information; and

(3) When additional information is required, the utility may not revert to the start of the review process or alter the applicant's queue position.

E. Within 20 business days after the utility notifies the applicant it has received a completed interconnection request, the utility shall:

(1) Evaluate the interconnection request using the Level 2 screening criteria; ATTACHMENT D Sec. 20.50.09.10. Level 2 Review, Chapter 20.50.09. Small Generator Interconnection Standards, Subtitle 50. SERVICE SUPPLIED BY

(2) Review the applicant's analysis, if provided by applicant, using the same criteria;

(3) Provide the applicant with the utility's evaluation, including a comparison of the results of its own analyses with those of applicant, if applicable; and

(4) When a utility does not have a record of receipt of the interconnection request and the applicant can demonstrate that the original interconnection request was delivered, expedite its review to complete the evaluation of the interconnection request within 20 business days.

F. Failure to Meet Level 2 Criteria.

(1) Additional review may be appropriate when a small generator facility has failed to meet one or more of the Level 2 criteria of §A of this regulation.

(2) A utility shall:

(a) Within 30 calendar days, offer to perform additional review to determine whether minor modifications to the electric distribution system would enable the interconnection to be made consistent with safety, reliability, and power quality criteria; and

(b) Provide the applicant with a nonbinding, good faith estimate of the costs of additional review and minor modifications.

(3) The utility shall undertake the additional review only if the applicant agrees within 10 business days to pay for the cost of the review, which may be extended at the request of the applicant. A request for extension may not be unreasonably denied by the utility.

(4) If the review identifies the need for modifications to the distribution system, the utility shall make the necessary modifications only if the interconnection customer agrees to pay for the cost of the modifications.

G. Interconnection Agreement.

(1) When a utility determines that the interconnection request passes the Level 2 screening criteria, or fails one or more of the Level 2 screening criteria but determines that the small generator facility can be interconnected safely and reliably, the utility shall provide the applicant an interconnection agreement within 5 business days after the determination.

(2) The applicant shall have either 30 calendar days, or another mutually agreeable time frame after receipt of the interconnection agreement, to sign and return the interconnection agreement.

(3) If the applicant does not sign the interconnection agreement within 30 calendar days, the request shall be considered withdrawn unless the applicant and utility mutually agree to extend the time period for executing the interconnection agreement prior to the expiration of the 30-calendar-day calendar period. A request for extension may not be unreasonably denied by the utility.

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(4) After the interconnection agreement is signed by the applicant and utility, interconnection of the small generator facility shall proceed according to any milestones agreed to by the applicant and utility in the interconnection agreement.

(5) The utility shall approve the interconnection request and provide a permission to operate notice within 20 business days of receipt of acceptable documents, subject to the following conditions:

(a) All milestones agreed to in the interconnection agreement are satisfied;

(b) The small generator facility is approved by electric code officials with jurisdiction over the interconnection;

(c) The applicant provides a certificate of completion to the utility;

(d) Upon request of the utility, the applicant provides one or more photographs of the small generator facility site location, components, metering equipment, and other related facilities and equipment; and

(e) There is a successful completion of the witness test, if conducted by the utility.

H. Level 2 Review Failure.

(1) If the small generator facility is not approved under a Level 2 review, the utility shall provide the applicant written notification explaining its reasons for denying the interconnection request.

(2) The applicant may submit a new interconnection request for consideration under a Level 3 or Level 4 interconnection review; however, the queue position assigned to the Level 2 interconnection request shall be retained provided the request is made within 15 business days of notification that the current Level 2 interconnection request is denied.

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CERTIFICATE OF SERVICE

I hereby certify that on this 2nd day of March 2021, I caused true and correct copies of the Department of Energy and Environment's Motion for Leave to File Reply Comments to Second Notice of Proposed Rulemaking to be emailed to the following:

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