

FEDERAL ENERGY REGULATORY COMMISSION  
OFFICE OF ENERGY POLICY AND INNOVATION  
WASHINGTON, DC 20426

September 5, 2019

PJM Interconnection, L.L.C.  
1200 G Street, N.W.  
Suite 600  
Washington, D.C. 20005  
Attn: Craig Glazer, Vice President – Federal Gov't Policy

Reference: Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators

Docket No. RM18-9-000

Dear Mr. Glazer:

Pursuant to authority delegated to the Director, Office of Energy Policy and Innovation, under 18 C.F.R. § 375.315(b)(2) (2018), PJM Interconnection, L.L.C.'s (PJM) response is requested in the above-referenced proceeding regarding the interconnection of distributed energy resources (DER).<sup>1</sup>

On November 17, 2016, the Commission issued a Notice of Proposed Rulemaking concerning Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators (NOPR).<sup>2</sup> On February 15, 2018, the

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<sup>1</sup> For purposes of this inquiry, Commission staff defines a DER as a source or sink of power that is located on the distribution system, any subsystem thereof, or behind a customer meter. These resources may include, but are not limited to, electric storage resources, distributed generation, thermal storage, and electric vehicles and their supply equipment.

<sup>2</sup> *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 157 FERC ¶ 61,121 (2016).

(continued ...)

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Commission announced its intention to explore the NOPR's proposed DER aggregation reforms under Docket No. RM18-9-000.<sup>3</sup> Having examined the comments submitted in response to the NOPR and following the Technical Conference held on April 10-11, 2018, Commission staff is interested in further exploring the interconnection of distribution-connected DERs, in particular those that participate or will participate in DER aggregations for the purpose of providing wholesale service in markets operated by Regional Transmission Organizations (RTO) and Independent System Operators (ISO).

In the attached data request, staff seeks information on the RTO and ISO policies and procedures that affect the interconnection of DERs.

Please file a response to the data request attached to this letter on or before October 7, 2019 in Docket No. RM18-9-000. All parties interested in filing comments in reply to PJM's response must do so within 30 days from the date PJM files its response with the Commission.

Sincerely,



Jignasa Gadani, Director  
Office of Energy Policy and Innovation

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<sup>3</sup> Notice of Technical Conference, Docket Nos. RM18-9-000 and AD18-10-000 (Feb. 15, 2018).

Attachment

**Data Request: Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators**

For each of the below questions, please provide the answer and, as applicable, citations to relevant tariff provisions, business practice manuals, or other documentation that supports the response.

1. Under your RTO's/ISO's existing rules for small generator interconnection, if a DER seeks to participate in wholesale markets and plans to interconnect at the distribution level, please describe the step-by-step process by which that resource would interconnect to the system.
  - a. What are the respective roles of the RTO/ISO and the distribution utility in that process?
  - b. How would the DER ascertain whether it must interconnect pursuant to a state-jurisdictional interconnection process or a Commission-jurisdictional process?
  - c. How does your RTO/ISO define the physical boundaries of a distribution facility when determining whether a distribution facility to which a new DER seeks interconnection is already subject to an Open Access Transmission Tariff (OATT) for purposes of making wholesale sales?<sup>4</sup>
2. Does the interconnection process described in response to Question # 1 differ based on whether or not the DER is a Qualifying Facility, and if so, how?
3. Does the interconnection process described in response to Question # 1 differ if the DER seeking to participate in wholesale markets is interconnecting behind a retail customer meter (whether on the distribution or transmission system), and if so, how?

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<sup>4</sup> See *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, 104 FERC ¶ 61,103, at P 804 (2003), *order on reh'g*, Order No. 2003-A, 106 FERC ¶ 61,220, *order on reh'g*, Order No. 2003-B, 109 FERC ¶ 61,287 (2004), *order on reh'g*, Order No. 2003-C, 111 FERC ¶ 61,401 (2005), *aff'd sub nom. Nat'l Ass'n of Regulatory Util. Comm'rs v. FERC*, 475 F.3d 1277 (D.C. Cir. 2007), *cert. denied*, 552 U.S. 1230 (2008); *Standardization of Small Generator Interconnection Agreements and Procedures*, Order No. 2006, 111 FERC ¶ 61,220, at PP 5, 8, *order on reh'g*, Order No. 2006-A, 113 FERC ¶ 61,195 (2005), *order granting clarification*, Order No. 2006-B, 116 FERC ¶ 61,046 (2006).

4. Does the interconnection process described in response to Question # 1 allow studies for bi-directional service (i.e., both from a DER to the transmission system and from the transmission system to a distribution-connected wholesale customer)?
5. Under the interconnection process described in response to Question # 1, and assuming all of the individual DERs in the aggregation are new resources, which of the following would apply: (1) an aggregation of DERs located at multiple points of interconnection would be studied as one aggregated resource by your RTO/ISO and require only a single Generator Interconnection Agreement (GIA); (2) each individual DER would be studied individually and require its own GIA; (3) each DER would be studied individually with the aggregation still only requiring a single GIA; or (4) a different approach (please describe if a different approach would be used).
6. In contrast with the scenario in Question # 5, please assume that at least some of the individual DERs in a proposed aggregation are existing resources already interconnected and in service. If multiple existing and new DERs were able to aggregate at separate points of interconnection across your RTO/ISO to participate in wholesale markets as an aggregation rather than as individual resources, under what circumstances would your RTO's/ISO's existing interconnection procedures and study processes apply to the individual DERs in the aggregation? If multiple existing and new DERs were able to aggregate at separate points of interconnection across your RTO/ISO to participate in wholesale markets as an aggregation rather than as individual resources, under what circumstances would your RTO's/ISO's existing interconnection procedures and study processes apply to the aggregation? Would any revisions be needed to accommodate aggregations of DERs (existing and new) at multiple points of interconnection?
  - a. Under existing tariff rules, which entity (i.e., the RTO/ISO or the distribution utility) would be responsible for processing the interconnection of the individual DERs seeking to join an aggregation?
  - b. For existing DERs that are currently not participating in wholesale markets and that interconnected under a state-jurisdictional process, under your current interconnection procedures would the DER's decision to participate in an aggregation trigger the RTO/ISO interconnection process? Would additional studies be necessary to ensure that participation in your RTO's/ISO's wholesale markets through an aggregation does not cause reliability problems on the transmission system? If so, what studies? If not, why not? For example, would the original state-jurisdictional interconnection process have already studied the DER in a variety of operational scenarios that eliminate the need for further studies prior to wholesale market participation in your region?
  - c. If existing distribution-level DERs that are currently not participating in wholesale markets join aggregations and start making wholesale sales for

- the first time, how would that new wholesale use of existing DERs and their associated distribution facilities impact your assessment of whether those distribution facilities are subject to your OATT? Would Commission-jurisdictional interconnection procedures apply to subsequent requests to interconnect to those distribution facilities? Why or why not?
- d. For large and small generator interconnections subject to Order Nos. 2003 and 2006, the transmission provider is required to coordinate between the interconnection customer and “affected systems” (i.e., third-party transmission systems) to ensure that any needed affected system issues are resolved.<sup>5</sup> With respect to new DERs seeking to interconnect to distribution facilities that are subject to a Commission-jurisdictional OATT, do the relevant small generator interconnection procedures in your region treat the transmission system to which the relevant distribution facilities are connected as an “affected system” in order to address any needed transmission upgrades at the initial interconnection stage?
7. If the individual DERs in an aggregation are seeking to interconnect to a combination of distribution facilities, some of which are subject to a Commission-jurisdictional OATT and some that are not subject to an OATT, would any, all, or only a subset of the DERs in the aggregation be required to go through the interconnection process you described in response to Question #1 and to execute GIA(s) under your tariff? Please explain.
8. If available, please provide data on or estimates of the number of individual DERs in your region that are directly participating today in your RTO/ISO markets as compared to DERs in your region that are not participating in wholesale markets. If possible, please provide estimates by resource type and participation model (i.e., generator, demand response, etc.).
9. Do you or the distribution utilities in your region have data on or estimates of how many distribution facilities, as defined in your answer to Question #1.c. above, are currently subject to an OATT compared to the total number of distribution facilities in the RTO/ISO footprint?
- a. If yes, please provide this data or estimates.
- b. How is this information managed and updated?
10. Is your RTO/ISO engaged in any ongoing discussion or coordination with state or local authorities regarding the interconnection process for DERs? If so, please describe this discussion or coordination.

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<sup>5</sup> *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, 104 FERC ¶ 61,103, at P 118 (2003); *Standardization of Small Generator Interconnection Agreements and Procedures*, Order No. 2006, 111 FERC ¶ 61,220, at P 543 (2005).

11. If a DER needs to transmit its output over distribution facilities to make sales into the RTO/ISO markets, are there any existing tariff provisions that govern such service? If so, please list and describe such provisions and describe whether that service is bi-directional.

Document Content(s)

PJM DER Aggregation Interconnection.PDF.....1-6