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Via Electronic Filing
Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Pennsylvania PUC Advanced Notice of Proposed Rulemaking (ANOPR)

Re: Distributed Energy Resources Participation in Wholesale Markets
Docket No: L-2023-3044115

INTRODUCTION

The Natural Resources Defense Council (NRDC) appreciates the opportunity to submit the following in response to the Public Utility Commission’s (PUC) Advanced Notice of Proposed Rulemaking (ANOPR) seeking comments from stakeholders and other concerned parties about the use of Distributed Energy Resources (DERs) as a mechanism to help increase energy efficiency, enhance grid services, and lower costs for consumers, and to investigate the PUC’s role in the implementation of the Federal Energy Regulatory Commission’s (FERC) Order 2222.

NRDC is an international non-profit organization with over 700 lawyers, scientists, and other environmental specialists working since 1970 to protect our public natural resources, health, and climate. NRDC has over three million members and online activists worldwide. Additionally, NRDC’s Sustainable FERC Project, founded in 1995, is a partnership of state, regional, and national environmental and other public interest organizations that advocate before FERC, the U.S. Department of Energy (DOE), regional transmission organizations (RTOs), and state utility commissions.
DERs are small-scale energy assets that are interconnected to the distribution system or behind the meter and that include technologies such as rooftop solar with battery storage, electric vehicles (EVs) and chargers, energy efficiency and demand response, electric water heaters, heat pumps, and other smart appliances and their controls. When aggregated, DERs can assist in balancing electricity supply and demand while providing benefits both for consumers (via reduced costs and increased resilience) and for transmission and distribution grids by expanding capacity and flexibility to serve rising peak demand in the years ahead.

With electricity demand projected to grow materially for the first time in two decades, fossil assets retiring and gas generators proving to be an infirm resource, the interconnection queue at PJM undergoing much-needed reform, and PJM’s long-term regional transmission planning badly in need of updating to keep pace with a changing grid, there is significant and increasing value in the potential for DERs and DER aggregations to support rapid electrification and decarbonization while reducing overall grid costs. As the largest net electricity exporter in the country, Pennsylvania is uniquely poised to benefit from this opportunity.

Order 2222 and PJM’s DER rules create new opportunities to use the capabilities of DERs to provide vital grid services. Because DERs have both state and federal jurisdictional aspects, RTO and state coordination is needed to unlock this potential. We commend the PUC for issuing this ANOPR and for proactively seeking feedback from stakeholders on these critical topics.

**DISCUSSION**

Hereafter, NRDC replies to a subset of the questions posed by the PUC in the ANOPR. Our responses focus on issues that affect reliability, accurate accounting, and jurisdictional boundaries between PJM and the PUC.

*How will Component DERs previously not subjected to interconnection (energy efficiency and demand response resources) be integrated into an aggregation?*
The only action the PUC needs to take regarding these resources is to affirm eligibility and ensure that customers have timely access to the information needed to register with PJM.

As load-side resources, energy efficiency and demand response resources are not subject to interconnection but instead “register” with PJM. Order 2222 does not change this. Energy efficiency and demand response resources will continue to register with PJM, as before. Information and process flows associated with these registrations are already well-defined and do not need to be changed in response to Order 2222.

Once individually registered, these resources may then be included as part of a DER Aggregation¹ through a second registration process. As part of that process, the DER Aggregator (DERA) must provide additional information, including the “physical and transmission system electrical location” of the resource. The electric distribution company (EDC) has 60 calendar days to review this application and may object if, among other reasons, the EDC finds that participation conflicts with the relevant electric retail regulatory authority (or “RERRA,” which in this case is the PUC) rules and regulations or that the resources’ participation could pose a threat to reliability or safety.

All these processes happen between the DERA, PJM, and (optionally) the EDC and are generally governed by PJM’s Governing Documents. Only actions taken by the EDC fall within the PUC’s jurisdiction; therefore, little PUC action is required. This process touches on PUC authority at three points:

1. The EDC is the only source of necessary information regarding the resources’ “physical and transmission system electrical location,” generally meaning the transmission node or nodes the resource takes service through. This is the only affirmative obligation that EDCs have in this process. The PUC can facilitate efficient registration by requiring EDCs to provide the physical and transmission system electrical location to a customer upon request in a timely manner.

¹ Where the distinction is immaterial, we use “DER Aggregation” to refer to both a “DER Aggregation Resource” and a “DER Capacity Aggregation Resource,” as defined in the PJM Governing Documents.
2. To avoid uncertainty, the PUC can take this opportunity to affirm that otherwise compliant demand response and energy efficiency participation in a PJM DER Aggregation complies with PUC rules and regulations.

3. The PUC should consider a rebuttable presumption that demand response and energy efficiency participation in a PJM DER Aggregation creates no threat to the reliable and safe operation of the distribution system, the public, or electric distribution company personnel. In support of this, we note that:
   a. Neither of these resource types injects energy onto a distribution system but instead merely reflects avoided consumption.
   b. Because energy efficiency is, by definition, not a dispatchable resource, its physical behavior is unchanged when it joins a DER Aggregation. This is purely an administrative issue with no effects whatsoever on the physical electric system and thus cannot create real-world threats.
   c. A demand resource can already participate in all the same PJM markets on its own that it can in a DER Aggregation. While joining a DER Aggregation may allow the demand resource to coordinate with other types of resources, the demand resource on its own will do nothing that it was not already enrolled to do. Thus, demand response participation in a DER Aggregation can create no new risks beyond any that have already been considered for standalone demand resources.

How should load assumptions be adjusted to accommodate the use of load-modifying resources?

Because the load-modifying resources participating in DER Aggregation are the same resources that already participate in PJM demand response, price responsive demand, and energy efficiency markets, the only changes to existing load assumptions necessary because of Order 2222 implementation are ensuring that the contributions of DERs that become ineligible to provide capacity to PJM are counted.
The primary PUC-jurisdictional area where load assumptions should consider load-modifying resources is distribution system planning, where the Commission should require distribution utilities to consider reduced peak loads due to energy efficiency and/or demand response in coordination with PJM’s capacity market and identifying distribution system upgrades (the issues related to capacity market participation are discussed in more detail below in response to the PUC’s question on duplicative compensation). While benefits of load-modifying resources for the distribution system are not a new concern with Order 2222, any increase in load-modifying resources stemming from Order 2222 could provide new opportunities to defer distribution system upgrades.

*How should the PUC clarify and harmonize the relationship between DER interconnection under PUC regulations with DER interconnection under PJM’s small generator interconnection rules, if needed?*

FERC has disclaimed authority over interconnection of DERs to the distribution system, placing DER interconnection and PJM’s Small Generator Interconnection Procedure (SGIP) on entirely separate tracks. By definition, resources that interconnect through the SGIP are wholesale resources that participate under traditional market rules, while those that interconnect to the distribution system through PUC regulations are DERs. This clear delineation of purpose eases the PUC’s task, as there is no need to harmonize PUC jurisdictional distribution level interconnection with PJM’s SGIP.

Allowing DERs to avoid PJM’s notoriously backlogged interconnection queue is one of the largest potential benefits of Order 2222. While no coordination with the SGIP is needed, the PUC should ensure that distribution interconnection tariffs under its jurisdiction are efficient, timely, and do not create unnecessary barriers to DER participation. **Ensuring an efficient, timely process to interconnect DERs to PUC jurisdictional distribution systems is the single**

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3 *See, e.g.*, Governor Josh Shapiro letter to PJM Board dated May 16, 2023, available [here](#).
most important step the PUC can take to support the success of DERs in the Commonwealth.

Could or should the PUC’s existing regulations on compensation for net metering customer-generators, 52 Pa. Code § 75.13, be adapted to incorporate appropriate restrictions on double counting of services provided by a Component DER in wholesale and retail markets, on duplicative compensation for the same service, consistent with Order 2222 and PJM’s DAPM, or on both, and, if so, what specific changes to the PUC’s regulations would or should facilitate this adaption?

- Does the PUC have authority to decide whether to permit net metering customers to participate in DERAs, noting FERC’s statement that “under a [RERRA]’s jurisdiction over its retail programs, such a [RERRA] is able to condition a distributed energy resource’s participation in a retail distributed energy resource program on that resource not also participating in the RTO/ISO markets”?
- Assuming the PUC does have requisite authority, should the PUC permit net metering customers to also participate in DERAs at the same time?
- Assuming the PUC does have requisite authority, should the PUC develop rules for when and how often a retail customer may switch between net metering and DERA participation?

Procedural Background

FERC Order 2222 specifies that customers participating in retail net metering programs are to be restricted from providing wholesale services that are also provided through the retail program, provided that such restrictions are “narrowly designed to avoid counting more than once the services provided.” Absent such restrictions, a customer who is both participating in net metering and in a DERA could be paid twice for the same service (“double counting”). The order goes on to clarify that this includes both services to be provided explicitly to RTO markets or implicitly by reducing their EDC’s obligation to purchase those services.5

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4 Order 2222 at 160.
5 Id at 161.
In response to PJM’s initial compliance filing, FERC further clarified that restrictions on wholesale market participation for net metering customers must occur in cases only where “the same service is being provided by the Component DER”\(^6\) and that being credited for a service does not necessarily mean that the service is being provided. FERC specifically noted that “Component DER participating in a net energy metering retail program, for example, may be credited for a product or service that it does not actually provide”\(^7\) and cites Pennsylvania’s net metering programs as an example.

On this basis, FERC approved PJM’s ban on DERs that participate in a net metering retail program from providing energy or capacity to PJM unless the EDC confirms that this would not lead to double counting. FERC also directed PJM to clarify that it complies with FERC’s directive to prevent double counting of services provided, not services credited.\(^8\)

In their subsequent September 2023 compliance filing, PJM explained that it is “not aware of any retail program in its territory that permits Component DER to provide ancillary services at this time,”\(^9\) and modified its proposed tariff language to clarify that such customers may provide ancillary services to PJM but will not be paid for any energy provided.\(^10\) FERC has yet to rule on this filing.

**Issues before the PUC**

Within the rules proposed in PJM’s pending tariff, the PUC’s authority over retail net metering customers participating in DERAs is exercised through PUC-jurisdictional EDCs notifying PJM whether DERA participation in specific wholesale markets would lead to double counting. For energy and capacity, DERAs also in net metering programs will be excluded unless the EDC confirms to PJM that participation would not cause double counting. For ancillary services, the situation is reversed: EDCs may recommend DERAs be excluded from PJM’s market if the EDC

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8 FERC March 2023 Order at 137-138.
identifies that the resources are *providing* ancillary services through a retail program. We address each market in turn.

**Energy:** Energy is the simplest case. Participants in retail net metering programs are unambiguously providing energy to their host utility, as evidenced by the EDC’s lesser need to purchase energy elsewhere. PJM rules already anticipate this case, and the PUC need take no action to prevent double counting of energy provided by net metering customers.

**Capacity:** Due to the restriction on net metering DERAs on providing energy, those resources are not able to meet the requirements of PJM’s capacity market and cannot provide wholesale capacity. Thus, there is no risk of double counting. Instead, there is a risk that the capacity value of DERAs is not fully realized—the PUC must avoid a “zero counting” problem rather than double counting.

When a DERA provides energy or reduces load during a time of system risk, it is providing resource adequacy value and, therefore, reducing the need for capacity. Unless that reduction is reflected in PJM’s capacity procurements, it will be lost. The PUC should take the following actions so that does not occur:

- Encourage PJM to update the methods for assessing behind the meter solar in load forecasting to also fully include the capacity benefits of power injected by DERAs that are not eligible for capacity market participation.
- Mandate EDCs consider risk-hour contributions by resources in DERAs that are not eligible for capacity market participation in developing the load forecasts provided to PJM.
- Mandate EDCs update their peak load contribution (PLC) calculation methodologies, currently on file with PJM as Tariff Attachments N, to not ‘add back’ load reductions from demand resources that are not eligible to provide capacity due to DERA participation. Those add backs are designed to prevent double counting from demand resources that provide capacity as supply to PJM; applying them to demand resources that do not provide capacity would result in zero counting.
**Ancillary Services:** The PUC has previously argued that net metering customers should not be allowed to provide ancillary services.\(^{11}\) We urge the PUC to reconsider this position given FERC’s rulings and PJM’s clarifications, as discussed above, and issue a finding that allowing participants in Pennsylvania net metering programs to also provide ancillary services through DERAs does not result in double counting.

The PUC’s prior position was based on the fact that participants in net metering avoid a share of the cost allocation of ancillary services. However, as both FERC and PJM point out, this is a distinct issue from whether those participants provide those services.

In fact, net metering customers do not provide ancillary services as part of their net metering participation. At a basic physical level, the essence of ancillary services is that a resource may be quickly dispatched by the RTO to meet real-time system needs. Net metering customers do not do this. This is properly reflected in markets: while a net metering customer’s provision of energy reduces their utility’s energy need, it in no way reduces the utility’s need for ancillary services. Net metering customers thus do not provide ancillary services either directly or indirectly through a reduction in system needs. There is no risk of double counting simply because ancillary services are not counted at all outside of DERA market participation.

On the other hand, allowing DERAs to provide ancillary services will bring benefits to ratepayers. The need for ancillary services is expected to increase as more supply comes from intermittent resources, making abundant low-cost supply important to reducing costs. By providing a path to mobilize assets like EVs, local energy storage to provide ancillary services, DERAs are an important potential source of low-cost supply to meet these needs. Preventing net metered customers from providing them brings no benefits but would prevent development of an important resource type.


\(^{11}\) See, e.g., Comments and Limited Protest of the Pennsylvania Public Utility Commission to PJM’s Compliance Filing Concerning FERC Order 2222, filed March 31, 2022, in FERC Docket No. ER22-962-000 at pp5-8.
changes to the PUC’s policies and regulations would facilitate the PUC’s exercise of authority over DERAs?

The PUC has jurisdiction to regulate the interconnection of DERs but does not have jurisdiction over their participation in DERAs.

This jurisdictional divide was asserted in Order 2222.\textsuperscript{12} FERC’s findings there closely follow court precedent, including a 2016 ruling from the U.S. Supreme Court.\textsuperscript{13}

A series of other Supreme Court decisions clarify that once FERC has established jurisdictional rates, states may not attempt to restate or undo that rate: “Congress has drawn a bright line between state and federal authority in the setting of wholesale rates and in the regulation of agreements that affect wholesale rates. States may not regulate in areas where FERC has properly exercised its jurisdiction to determine just and reasonable wholesale rates or to ensure that agreements affecting wholesale rates are reasonable.”\textsuperscript{14} Further, states may not use their retail jurisdiction to attempt to modify the outcomes of FERC rates.\textsuperscript{15} This includes state regulations that, while otherwise within state jurisdiction, are “unmistakably and unambiguously directed at” participants in FERC jurisdictional markets.\textsuperscript{16}

Based on this precedent, the PUC may not assert jurisdiction to regulate DERAs. Further, although the PUC has jurisdiction over DER interconnection to the distribution system, the PUC may not use this jurisdiction to modify or condition DER resource participation in PJM markets. For example, the PUC may set requirements on DER interconnection but cannot set requirements that apply only to the interconnection of DERs that participate in PJM markets.

\textit{Under what conditions will direct control vs. monitoring be required?}

Any decision made by the PUC regarding direct control vs. monitoring must conform to jurisdictional restrictions:

\textsuperscript{12} Order 2222 at 38-44 (Exclusive FERC jurisdiction over market participation) and 90-98 (State jurisdiction over distribution system interconnection).
\textsuperscript{13} \textit{FERC v. Electric Power Supply Ass’n}, 136 S. Ct. 760, 776 (2016)
\textsuperscript{15} Mississippi P&L at 371; \textit{see also Hughes v. Talen Energy Mktg., LLC}, 578 U.S. ____ (2016).
1. Rules regarding direct control or monitoring as a condition of distribution system interconnection must apply equally regardless of the DER’s participation in PJM markets.

2. Rules regarding direct control or monitoring as related to participation in PJM markets are determined by PJM tariffs. As of May 29, 2024, the relevant tariff sections have been filed by PJM but not acted upon by FERC.\textsuperscript{17} PJM states that during “emergency (override) scenarios, in real-time operations, the utility shall take any action they deem necessary for safety and reliability, including overriding DER Aggregation Resources or underlying Component DER operating under PJM dispatch.”\textsuperscript{18} In a later filing, PJM clarifies that this override shall occur “pursuant to any applicable tariffs, agreements, and operating procedures of the Electric Distribution Company, and/or the rules and regulations of any Relevant Electric Retail Regulatory Authority.”\textsuperscript{19}

Based on this language, we submit that direct control may be required only in situations where there is real-time risk to safety or reliability that cannot be resolved through other means, such as communication with the DER Aggregator.

The PUC may set direct control requirements as a condition of distribution interconnection service; however, such requirements may not discriminate on the basis of a resource’s participation in PJM markets, nor may it condition such participation.

\textit{What data will DERAs need to provide to EDCs and to what extent can this leverage existing PJM registration data requirements? How should these data be documented?}

\textit{Where should automation vs. manual coordination and communication between EDCs, the DERA and PJM be required?}

\textsuperscript{17} PJM September 2023 Filing, pp 55-57.
\textsuperscript{18} PJM February 2022 Filing, pp75.
\textsuperscript{19} PJM September 2023 Filing, proposed Open Access Transmission Tariff, Attachment K-Appendix, Section 1.4B(f)
Data coordination and communication requirements are discussed extensively in PJM’s tariff.20 These tariffs have yet to be finalized, thereby making detailed recital premature. Nevertheless, given the clear jurisdictional boundaries established by FERC and the courts and discussed above, PJM’s tariff is dispositive on these matters.

CONCLUSION

On behalf of NRDC, we sincerely appreciate the opportunity to submit these comments, and we look forward to working with the PUC and relevant stakeholders to develop programs to increase deployment of DERs and DERAs across Pennsylvania in a manner that reduces costs, enhances grid reliability, and delivers a cleaner economy for all.

Respectfully submitted,

/s/ Thomas Rutigliano  
Thomas Rutigliano  
Senior Advocate, Sustainable FERC Project  
Climate & Energy  
NRDC  
trutigliano@nrdc.org

/s/ Robert Routh  
Robert Routh  
Pennsylvania Policy Director  
Climate & Energy  
NRDC  
rrouth@nrdc.org

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20 See PJM February 2022 Filing, proposed Open Access Transmission Tariff, Attachment K-Appendix, Section 1.4B(b) (registration data requirements); and Section 1.4B(e) (metering and telemetry, metering data); section 1.4(f) (operational coordination).