

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

PJM Interconnection, L.L.C. ) Docket No. ER19-469-000  
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**ANSWER AND MOTION FOR LEAVE TO ANSWER  
OF THE INDEPENDENT MARKET MONITOR FOR PJM**

Pursuant to Rules 212 and 213 of the Commission's Rules and Regulations,<sup>1</sup> Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor ("Market Monitor") for PJM Interconnection, L.L.C. ("PJM"),<sup>2</sup> submits this answer to the limited protest and comments submitted by the Joint Consumer Advocates (JCA)<sup>3</sup> on February 7, 2019; and the comments submitted by the Energy Storage Association (ESA) on February 7, 2019, in response to Order No. 841.<sup>4</sup><sup>5</sup>

<sup>1</sup> 18 CFR §§ 385.212 & 385.213 (2018).

<sup>2</sup> Capitalized terms used herein and not otherwise defined have the meaning used in the PJM Open Access Transmission Tariff (“OATT”), the PJM Operating Agreement (“OA”) or the PJM Reliability Assurance Agreement (“RAA”).

<sup>3</sup> The Office of the People's Counsel for the District of Columbia, Citizens Utility Board, and the Delaware Division of the Public Advocate.

**PJM Interconnection, L.L.C., Compliance Filing, Docket No. ER19-469 (December 3, 2018).**

<sup>5</sup> *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Order No. 841, III FERC Stats. & Regs. ¶ 31,398 (2018) (“Order No. 841”).

## I. ANSWER

### A. Order No. 841 and the Long Term Functioning of the PJM Markets Requires Equitable and Comparable Treatment of ESR Resources.

JCA (at 5) and ESA (at 3) state that Order No. 841 requires that RTOs revise their tariffs to establish a set of rules, which the Commission terms a participation model, that recognizes the physical and operational characteristics of electric storage resources ("ESR") and facilitates their participation in the RTO/ISO markets. JCA notes (at 5–6) that "one of the unique features of ESRs is their 'energy-limited nature' that limits them to 'only discharg[ing] as much energy as has previously been charged.'" JCA notes (at 6) that "[t]his characteristic separates them from traditional resources, such as natural gas, coal, or nuclear, which may have fuel delivered continually and therefore resource availability need not be limited." JCA argues (*id.*) that "PJM's capacity rules should account for such differences."

Both JCA (at 5) and ESA (at 2) take this to mean that, in the context of the PJM capacity market design, ESRs should not be treated on a comparable basis with other resource types. ESA (at 1) and JCA (at 5) argue that ESR should not be treated on a basis that is comparable or equivalent to pumped hydro, a resource with the identical unique characteristic of only being able to inject energy that they have previously used to charge. ESA argues (at 1) that PJM's proposal to treat non-hydro ESR according to its current practice for pumped storage "creates arbitrary and undue burdens to storage market participation in PJM's capacity market." Similarly, JCA argues (at 5) that PJM's "one size fits all capacity rating measurement is contrary to Order 841." JCA argues (*id.*) that Order No. 841 "actually counsels the opposite" of comparable treatment.

Rather than requiring comparable treatment, ESR and FSA argue that Order No. 841 requires that ESR be given the most lenient standards available, regardless of whether or not these standards are applicable to other electric storage resources or, more importantly, whether or not the standards are consistent with the PJM capacity market design or consistent with the reliable operation of the PJM system. For instance, rather than use 10

hours continuous output that PJM has applied to pumped hydro (ESR by any other name), ESA argues (at 3–4) that ESR should use the rules applied to intermittent resources, demand resources or energy efficiency resources. ESA notes (at 4) that intermittent wind and solar resources are credited capacity based on their expected output in the “four-hour period ‘from hours ending 3, 4, 5, and 6 pm Local Prevailing Time’ on summer days.” Based on the rules applicable to intermittent resources that net inject power or net reduce load and are not applicable to resources like ESR that are a net increase in load, ESA asserts (at 9) that a “4-hour duration requirement is consistent with PJM’s existing market rule” and should be applied to ESRs.

Further, ESA argues that a four hour duration requirement for ESR is consistent with the requirements of Order No. 841 because other markets use four hour duration for their ESR market participation model capacity determination.

While arguing for something less than the 10 hours proposed by PJM, both JCA (at 8) and ESA (at 7) recognize that the resulting ESR capacity market participation model would be inferior, on a MW for MW basis, than a MW provided by comparable hydro storage based capacity resources or thermal resources, but argue this would not be problematic unless there is significant market penetration by ESR resources. JCA argues (at 8) that the resulting ESR participation model would only be problematic with significant market penetration where the reliability of typical (as opposed to a peak) summer day would depend on capacity provide by ESRs. JCA notes (*id.*) that “ESRs would require a significant level of penetration before PJM could depend on them for resource adequacy on a typical summer day.” JCA argues (at 8) that “ESR penetration has not yet reached that level and is not likely to in the foreseeable future.” Similarly, ESA argues (at 7) that the PJM’s “premise for a 10-hour duration requirement is based on the imminent deployment of 15 GWs of ESRs, which would represent 10 percent of PJM’s total system load.” ESA argues (*id.*) that “even with aggressive growth assumptions for the industry, total installed capacity in PJM is not expected to reach this level for well over a decade.”

ESA (at 7) and JCA (at 8–9) suggest that any problems introduced by significant market penetration by ESR using their proposed market participation model could be handled through market penalties or an ad hoc cap on ESR penetration once problems become apparent.

There is no basis for JCA and ESA's assertions. Order No. 841 does not allow, let alone require, preferential rather than equitable and comparable treatment of ESR resources in RTO markets. Order No. 841 (at P 3) requires that RTOs revise their tariffs to establish a set of rules, which the Commission terms a participation model, that recognizes the physical and operational characteristics of electric storage resources and facilitates their participation in the RTO/ISO markets. Consistent with these directions, the Commission makes explicit that the Final Rule is not intended to subsidize or unduly advantage storage resources. The Final Rule is intended to allow storage resources to provide services in RTO markets that they are technically capable of providing. The Commission states (at P 52) that the “Final Rule does not grant undue preference to electric storage resources as a group or to specific electric storage technologies; rather, it removes barriers to their participation, enhancing competition among all resources that are technically capable of providing wholesale services.” This means that, under Order No. 841 requirements, the participation model for ESR for a particular market must be technically consistent with that market.

Order No. 841 requires (at P 3) that RTOs establish a participation model for ESR that recognizes the physical and operational characteristics of electric storage resources and facilitates their participation in the RTO/ISO markets to the extent they are technically capable of providing the product in each market, as defined. Order No. 841 does not require that RTOs inappropriately change the technical definition of the product in the market or to distort the market design. Order No. 841 does not require RTOs to accommodate the technical limitations of ESR resources in a manner that reduces efficiency and unjust and unreasonably raises wholesale prices. Order No. 841 does not indicate that RTOs should adopt an ESR market participation model that is inconsistent and disruptive with its fundamental market design and then control for the expected operational problems with ad

hoc caps on market penetration or the hope that the risk to ESR providers from market failures would discipline their participation.

In order for the capacity market to function on a resource agnostic basis, every MW of capacity offered must be a substitute for every other MW, so that a capacity MW from a steam plant is a substitute for a MW from a battery or any other resource. PJM's proposed participation model for Electric Storage Resources (ESR) using a 10 hour injection requirement falls short of the Commission's objectives because PJM's participation model for ESR capacity resources provides undue preference for ESR capacity resources relative to other resource types in both the energy and capacity markets. Compared to PJM's proposal, which is flawed, ESA and JCA's proposed participation model is preposterous and in no way meets the requirements set forth in Order No. 841.

ESA and JCA's proposed market participation model is inconsistent with Order No. 841. Rather than maintaining its resource agnostic standard, ESA and JCA are purposely and unapologetically proposing a market participation model for ESR that explicitly subsidizes and inefficiently favors ESR relative to the participation models that exists for thermal generation or any other existing capacity resource.

Acknowledging that their proposed ESR participation model would be disruptive to the operation of the PJM Capacity Market, and system reliability generally, ESA and JCA argue that the resulting participation model for ESR will not cause a problem until sometime in the future. Problems would commence immediately and worsen over time. ESA and JCA's proposed market participation model would cause market disruptions in the near term, suppressing prices and inefficiently driving out more capable resources in favor of ESR MW long before market saturation would endanger system reliability. Downplaying the harm does not constitute evidence that the participation model proposed by ESA and SCR is consistent with Order No. 841.

Allowing ESR to compete in a market with a market participation model that requires a limit on market participation by ESR is inconsistent with Order No. 841. A maximum sustainable market penetration for the market participation model for ESR

proposed by PJM and by ESA and JCA is not technically consistent with the obligations required of resources providing capacity service and it is not consistent with a metric of capacity that is consistent with achieving uniformity for planning, operating, accounting and reporting purposes.

By their own arguments, ESR resources are not capacity resources and there is no reasonable way to make them equivalent to capacity resources through a market participation model. ESR resources are limited resources that can only discharge “as much energy as has previously been charged.”<sup>6</sup> This means that, with losses, ESR resources are net load. ESRs are not net generation. This means that the system cannot be served by ESR capacity alone. ESRs can only create intertemporal shifts of energy consumption. JCA recognizes (at 6) that “[t]his characteristic separates them from traditional resources, such as natural gas, coal, or nuclear, which may have fuel delivered continually and therefore resource availability need not be limited.” This also means that ESR resources are not comparable to intermittent resources that provide net injections of power. This means that the rules that PJM applies to intermittent resources, as flawed as they are, are not applicable to ESR resources for the purposes of determining capacity MW and, if used for this purpose, would not make capacity MW from ESR resources comparable to capacity MW from intermittent resources. Treating ESR resources like they were intermittent resources does not properly account for the unique characteristics and would not make ESR technically capable of providing the resulting measure of capacity.

The assertion that other RTO markets are using a four hour duration as the basis for capacity MW determinations for their ESR market participation models does not justify using a four hour duration in PJM’s ESR market participation model and is not an indication that it would be consistent, in PJM’s capacity market design, with Order No. 841 requirements. Under Order No. 841 requirements, the PJM ESR capacity market

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<sup>6</sup> See JCA at PP 5–6.

participation model must be technically consistent with PJM’s capacity market design, not with another RTO’s market design.

There is no basis for the assertion by ESA (at 7) and JCA (at 8) that any problems introduced by significant market penetration by ESR using their proposed market participation model could be appropriately addressed through exposure to CP market penalties. Market participants are not responsible for the safe, reliable and efficient operation of the system in which they are participating. That is the responsibility of the RTO, and this is achieved through a market design that is intended to acquire, at least cost, the resources its needs to safely, reliably and efficiently operate the system they oversee.

The RTO markets depend on product definitions that are consistent with the reliable operation of the market and the market prices based on the marginal cost of providing that service. A market participation model that runs counter to the market design and would disrupt the functioning of that market is not consistent with the requirements of Order No. 841.

#### **B. JCA and ESA Confuse Economic Barriers with Technical Barriers.**

JCA and ESA confuse economic barriers to participation with technical barriers to participation. ESA argues (at 4) that PJM’s proposal will “reduce Sell Offers that a CSR can make in PJM’s capacity market.” ESA argues (*id.*), “[a]s such, it violates Order 841’s directive to ensure electric storage resources may provide all services in the capacity market that they are technically capable of providing.” Similarly, JCA argues (at 2) that “PJM’s proposal to determine ESR capacity value based on ‘ten hours of sustained continuous operation’ would unjustly limit the ability of ESRs to offer available capacity into the market.” JCA also argues (at 2) that PJM’s “Proposal fails to address significant pending capacity market changes in Docket Nos. EL16-49-000 et al. that could result in the application of the minimum offer price rule (“MOPR”) to storage Resources.” JCA argues (*id.*) that “[b]oth of these issues erect unnecessary barriers to entry that could critically inhibit ESR participation in PJM’s capacity market contrary to the intent of Order No. 841.”

The Market Monitor disagrees. Order No. 841 does not require PJM to provide a market participation model that will make electric storage resources, regardless of merit or technical capability, economic in the PJM market. Rather, Order No. 841 requires (at P 3) that RTOs establish a participation model for ESR that recognizes the physical and operational characteristics of electric storage resources and facilitates their participation in the RTO/ISO markets to the extent they are technically capable of providing the product in each market, as defined.<sup>7</sup>

## II. MOTION FOR LEAVE TO ANSWER

The Commission's Rules of Practice and Procedure, 18 CFR § 385.213(a)(2), do not permit answers to answers or protests unless otherwise ordered by the decisional authority. The Commission has made exceptions, however, where an answer clarifies the issues or assists in creating a complete record.<sup>8</sup> In this answer, the Market Monitor provides the Commission with information useful to the Commission's decision-making process and which provides a more complete record. Accordingly, the Market Monitor respectfully requests that this answer be permitted.

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<sup>7</sup> *Id.* at 3

<sup>8</sup> See, e.g., *PJM Interconnection, L.L.C.*, 119 FERC ¶61,318 at P 36 (2007) (accepted answer to answer that "provided information that assisted ... decision-making process"); *California Independent System Operator Corporation*, 110 FERC ¶ 61,007 (2005) (answer to answer permitted to assist Commission in decision-making process); *New Power Company v. PJM Interconnection, L.L.C.*, 98 FERC ¶ 61,208 (2002) (answer accepted to provide new factual and legal material to assist the Commission in decision-making process); *N.Y. Independent System Operator, Inc.*, 121 FERC ¶61,112 at P 4 (2007) (answer to protest accepted because it provided information that assisted the Commission in its decision-making process).

### **III. CONCLUSION**

The Market Monitor respectfully requests that the Commission afford due consideration to this answer as the Commission resolves the issues raised in this proceeding.

Respectfully submitted,



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Dated: February 27, 2019

## **CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Eagleville, Pennsylvania,  
this 27<sup>th</sup> day of February, 2019.



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