

FEDERAL ENERGY REGULATORY COMMISSION  
OFFICE OF ENERGY POLICY & INNOVATION  
WASHINGTON, D.C. 20426

April 11, 2016

Reference: Electric Storage Participation in Regions with Organized Wholesale  
Electric Markets

Docket No. AD16-20-000

Pursuant to authority delegated to the Director, Office of Energy Policy and Innovation, under 18 C.F.R. § 375.315 (2015), comments are requested on or before Monday, May 23, 2016 in the above-referenced proceeding regarding the applicability of Regional Transmission Organization (RTO) and Independent System Operator (ISO) market rules to electric storage resources.<sup>1</sup> Comments should take into account the RTOs' and ISOs' responses to the data request issued concurrently in this proceeding, which are due on or before Monday, May 2, 2016.

Commission staff has been examining the use of electric storage resources to help meet wholesale electricity needs for some time. In 2010, staff issued a Request for Comments Regarding Rates, Accounting and Financial Reporting for New Electric Storage Technologies.<sup>2</sup> Commission staff has also continued to conduct informal outreach on electric storage issues and has addressed electric storage issues in certain cases.<sup>3</sup> In addition, there have also been some key developments in the technology and cost-effectiveness of electric storage resources. Most recently, at the November 19, 2015 Commission meeting, the Commission hosted an energy storage panel to discuss

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<sup>1</sup> For purposes of this inquiry, Commission staff defines an electric storage resource as a facility that can receive electric energy from the grid and store it for later injection of electricity back to the grid. This includes all types of electric storage technologies, regardless of their size and storage medium, or whether they are interconnected to the transmission system, distribution system, or behind a customer meter.

<sup>2</sup> Request for Comments Regarding Rates, Accounting and Financial Reporting for New Electric Storage Technologies, Docket No. AD10-13-000, June 11, 2010.

<sup>3</sup> See, e.g., *PJM Interconnection, L.L.C.*, 134 FERC ¶ 61,177 (2011); *PJM Interconnection, L.L.C.*, 132 FERC ¶ 61,203 (2010); *Western Grid Development, LLC*, 130 FERC ¶ 61,056 (2010).

developments in the electric storage industry and the participation of electric storage resources in the RTO and ISO markets.<sup>4</sup>

In light of these developments, staff is interested in examining whether barriers exist to the participation of electric storage resources in the capacity, energy, and ancillary service markets in the RTOs and ISOs potentially leading to unjust and unreasonable wholesale rates. Staff also expects to examine, if potential barriers exist, whether any tariff changes are warranted.

As indicated in the Data Request being issued concurrently to each RTO and ISO in this docket, staff seeks information on rules that affect the participation of electric storage resources in the RTO and ISO markets, including, but not limited to, the eligibility of electric storage resources to participate in the RTO and ISO markets, the technical qualification and performance requirements for market participants, required bid parameters, and the treatment of electric storage resources when they are receiving electricity for later injection to the grid.

To aid in staff's examination, Commission staff seeks comments on the issues described in the attached Request for Comments. Persons voluntarily wishing to comment on the matters discussed herein are requested to submit comments to the Commission on or before Monday, May 23, 2016 in Docket No. AD16-20-000. Responses to this Request for Comments may be submitted after the responses to the Data Requests to allow commenters to better identify examples of rules in specific markets that facilitate or present barriers to the participation of electric storage resources. For further information, please contact:

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<sup>4</sup> Energy Storage Panel, Docket No. AD16-12-000 (Nov. 19, 2015).

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Thank you,

J. Arnold Quinn, Director  
Office of Energy Policy  
& Innovation

## Attachment

### **Request for Comments: Electric Storage Participation in Regions with Organized Wholesale Electric Markets<sup>5</sup>**

#### **I. The Eligibility of Electric Storage Resources to be Market Participants**

Commission staff seeks comment on whether the RTO and ISO market rules provide sufficient clarity to facilitate the participation of technically-capable electric storage resources in the RTO and ISO markets. The responses to the Data Request issued concurrently in this proceeding to the RTOs and ISOs (Data Request) should describe in which RTO and ISO markets and as what types of resources electric storage resources are eligible to participate. In this request for comments, staff seeks comments on whether those rules provide sufficient clarity to a potential new electric storage resource market participant. In some instances, it is possible that the RTOs' and ISOs' tariffs (i) explicitly allow for the participation of electric storage resources in their markets, (ii) implicitly allow for the participation of electric storage resources in their markets if such resources are able to meet the technical qualification and performance requirements of particular eligible technologies, or (iii) prohibit the participation of electric storage resources in particular markets. Staff seeks specific examples where electric storage resources are prohibited from participating in markets that they are technically capable of participating in, instances where the RTOs' and ISOs' tariffs are not clear as to whether electric storage resources are eligible to participate, and other potential barriers to electric storage resource participation when such resources are technically capable of providing services. To the extent that the RTOs and ISOs prohibit technically-capable electric storage resources from participating in particular markets or where RTO and ISO market rules are unclear, staff seeks comment on potential tariff revisions in specific markets or general rules for all markets that would help clarify the eligibility of electric storage resources as market participants and remove any undue barriers to their participation.

#### **II. Qualification Criteria and Performance Requirements**

Resources that seek to participate in the RTO and ISO markets must meet minimum technical requirements. For example, resources must meet or exceed a minimum capacity to register as a resource and must bid in excess of minimum bid sizes to participate in the RTO and ISO markets. Also, some RTO and ISO markets require minimum performance requirements, such as minimum start times, minimum ramp rates,

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<sup>5</sup> The statements herein do not necessarily reflect the views of the Commission.

and minimum run times. Technical requirements for market participation are established to balance reliability, operational effectiveness, and system costs. Staff therefore requests that commenters' analysis of technical requirements in the RTO and ISO markets consider such requirements from operational, reliability, and market perspectives.

The Data Request responses will provide information on the minimum technical requirements for the RTO and ISO markets. For those services that electric storage resources are technically capable of providing, whether they are currently eligible to provide those services or not, staff seeks comments on the existing minimum technical requirements of participating in those markets and whether those requirements may create undue barriers to the participation of electric storage resources in the RTO and ISO markets. For any existing technical requirements that may create undue barriers, staff is interested in (i) any justifications for the current requirement, (ii) whether, and if so why, changes to that technical requirement may be justified, (iii) what alternative requirements may be more appropriate, and (iv) how any potential alternatives may affect reliability, system operations, and the RTO and ISO markets.

### **III. Bid Parameters for Electric Storage Resources**

Generally, the parameters that market participants submit with their bids are meant to ensure that a resource's operational capabilities are considered when it is modeled and dispatched by the RTO or ISO. The ability of an electric storage resource to receive and provide electricity, as well as the technical limitations on the duration of time that it can do either, may make modeling, optimizing, and effectively dispatching electric storage resources different than for conventional generation. Some RTOs and ISOs have started to acknowledge these differences. While these bid parameters may not be applicable to all types of electric storage resources in all of the RTOs and ISOs, considering different bid parameters for electric storage resources may allow them to participate in the RTO and ISO markets and to be dispatched more efficiently. For example, ISO New England (ISO-NE) recently updated how it models pumped hydropower storage in its dispatch and pricing optimizations. In addition to more accurately accounting for a resource's minimum consumption, ISO-NE allows pumped hydropower units to submit certain bid parameters so that these resources can be scheduled more economically and operated within their physical limitations.<sup>6</sup> Commission staff seeks comment on whether the bid parameters in the RTO and ISO markets in which electric storage resources are technically capable of providing a service adequately support the characteristics of electric storage resources. If commenters believe that certain characteristics of electric storage resources warrant a different set of bid parameters, Commission staff seeks

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<sup>6</sup> ISO New England Inc., ISO New England Inc. Transmission, Markets and Services Tariff, III.1.10.6, Dispatchable Asset Related Demand, 30.0.0.

comment regarding which bid parameters would be appropriate, whether those parameters may be universally applicable to all types of electric storage resources or specific categories, and whether the creation of different bid parameters for electric storage resources may justify defining electric storage resources as a different type of eligible technology if not already defined as such.

#### **IV. Distribution-Connected and Aggregated Electric Storage Resources**

Electric storage resources might be located on the distribution grid or a subsystem thereof to provide a service to the distribution utility or its customers, but also may be able to participate in the RTO and ISO markets. Staff is interested in learning more about the ability of electric storage resources located on the distribution grid or electric storage resources aggregated into a single resource to participate in the RTO and ISO markets. In the Data Request, Commission staff seeks information regarding whether and how distribution-connected and aggregated electric storage resources are able to participate in the RTO and ISO markets. Commission staff here likewise seeks comment on the opportunities for distribution-connected and aggregated electric storage resources to participate in the RTO and ISO markets, including whether such opportunities currently exist, and if not, whether such opportunities should be created and why.

#### **V. When Electric Storage Resources are Receiving Electricity**

Electric storage resources must first receive electricity from the grid before they are able to store it for use at a later time. In the Data Request, staff asks questions about the circumstances when electric storage resources need to participate as a wholesale buyer of electricity and the circumstances that determine the price that electric storage resources pay for the electricity they receive. Electric storage resources can be connected to the transmission system, distribution system, or located behind a customers' meter, and in some instances are able to provide services to the RTO and ISO markets at all of those locations. Commission staff understands that depending on where an electric storage resource is connected to the grid and what services it is providing, it may not be clear what price an electric storage resource should pay for the electricity that it receives. Commission staff here seeks comment on (i) the circumstances under which the RTO and ISO tariffs should determine the appropriate price that electric storage resources pay for electricity; (ii) whether existing RTO and ISO tariffs, provide sufficient clarity regarding the price that electric storage resources pay for electricity; and (iii) the potential need for clarifications or changes to specific market rules in a particular RTO or ISO or general clarifications or changes for all RTOs and ISOs to address barriers to participation of electric energy resources to ensure just and reasonable wholesale rates and help avoid unduly discriminatory treatment of electric storage resources when they are paying for the electricity they receive.