



FERC Proposes Wide-Ranging New Regulations to Remedy Barriers to Wholesale Market Participation by Energy Storage and Distributed Energy Resources

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By: Shawn Whites (Paralegal)

The NOPR represents a major step forward in efforts to integrate energy storage and DERs into wholesale electricity markets. If finalized as proposed, the new rules would require RTOs/ISOs to (1) establish a comprehensive “participation model”³ to accommodate energy storage, recognizing its physical and operational characteristics; and (2) define an aggregator of individual DERs as a type of market participant that can participate in the wholesale markets under the existing participation model that best accommodates the collective characteristics of the resource aggregation.

Implementing these reforms in the RTO/ISO markets will undoubtedly provide energy storage and DERs with important new opportunities to participate in organized wholesale electricity markets. Ensuring non discriminatory opportunities for participation in these markets is critical for accelerating the integration of advanced energy technologies into the wholesale electric grid, which will be critical as the traditional mix of generating resources continues to change, and faster and more flexible resources are needed to ensure reliable operations. For that reason, advanced energy technology interests (including manufacturers, distributors and operators) should follow this rulemaking and its eventual implementation by RTOs/ISOs closely.

The Legal Basis for Removing Barriers to Entry Facing Energy Storage and DERs

While FERC’s current NOPR represents arguably its most comprehensive effort to date to remove barriers to the participation of new technologies in the RTO/ISO markets, FERC’s interest in easing such barriers, and the agency’s view of its legal authority to do so, are well-

established. As the Commission explains in the NOPR, its proposal to address barriers to market participation facing energy storage and DERs is a “continuation of efforts pursuant to [its] authority under the [Federal Power Act]” to remedy “market rules designed for traditional generation resources [that] can create barriers to entry for emerging technologies.”⁴ Those efforts included several case-specific determinations in the late 2000s regarding RTO/ISO-specific steps to allow more participation of demand response and energy storage in their markets,⁵ and more recent generic rulemakings addressing the participation of demand response, wind and other non synchronous generation resources in the markets.⁶

Following this precedent, FERC notes in the NOPR that energy storage experiences barriers to entry because such resources are often forced to use existing “participation models” designed for traditional generating resources or demand response resources “that do not recognize electric storage resources’ unique physical and operational characteristics.”⁷ Even where participation models for energy storage have been created, they may limit the services that such resources can provide or accommodate only very specific types of storage resources (such as pumped hydro facilities). FERC makes the case that the lack of participation models that account for the unique physical and operational characteristics of energy storage results in a failure of the existing RTO/ISO tariffs and market rules to realize their operational flexibility (e.g., ability to charge and discharge quickly) and the ability to provide multiple wholesale products, including capacity, energy and ancillary services. That, FERC asserts, results in the inefficient use of energy storage and a reduction in competition to provide wholesale services. FERC preliminarily concludes that remedying these problems, and effectively integrating energy storage into the organized wholesale markets, “would enhance competition and, in turn, help to ensure that these markets produce just and reasonable rates.”⁸

The Commission reaches a similar preliminary conclusion with respect to the participation of aggregated DERs in organized wholesale electricity markets. FERC states that DERs can sometimes be too small to participate in the markets individually and that existing RTO/ISO tariffs impede their participation by providing only limited opportunities for DER aggregations. In addition, FERC notes that existing tariffs and market rules often limit DERs located behind the meter to participating as demand response resources, or they impose expensive and burdensome metering and telemetry requirements as a prerequisite to participation. Removing these barriers, FERC reasons, will enhance market competitiveness

and efficiency “and thereby help to ensure just and reasonable and not unduly discriminatory or preferential rates.”⁹

Creation of a New Participation Model for Energy Storage

As FERC explains in the NOPR, the ability of different technologies to participate in RTO/ISO markets is governed by “(1) participation models consisting of market rules designed for different types of resources, and (2) the technical requirements for market services that those resources are eligible to provide.”¹⁰

To remedy barriers to participation facing energy storage, the NOPR focuses on the lack of existing participation models suited to their unique characteristics. FERC proposes to require each RTO/ISO to develop a new participation model (i.e., set of market rules) that recognizes the physical and operational characteristics of energy storage and accommodates their participation in the organized wholesale electricity markets. Each participation model would also need to satisfy five detailed requirements:

- Eligibility to Provide Wholesale Services – FERC notes that existing participation models and technical requirements that fail to recognize fast and controllable technologies may preclude energy storage from providing certain wholesale services (i.e., energy, capacity or ancillary services) that such resources are technically capable of providing. To address this problem, the Commission proposes to require each participation model to include market rules that ensure that energy storage is eligible to provide any service it is technically capable of providing.
- Bidding Parameters – The Commission states that existing bidding parameters designed for traditional generators or other supply resources may not recognize the ability of energy storage to both absorb and provide electricity at varying speeds and durations, preventing RTOs/ISOs from effectively modeling and dispatching them. To remedy this inefficiency, FERC proposes to require each participation model to include certain mandatory bidding parameters specific to energy storage, including (i) state of charge, (ii) upper charge limit, (iii) lower charge limit, (iv) maximum energy charge rate and (v) maximum energy discharge rate. The Commission also proposes to require the establishment of certain optional bidding parameters (such as minimum and maximum charge and run times) that energy storage can use to optimize its operation and preserve its useful life.

- Ability to Set Wholesale Prices – To ensure that market prices will fully reflect the value of energy storage when such a resource is the marginal resource, each participation model would be required to include market rules that ensure that energy storage will set the market clearing price when it is both a buyer (charging) and a seller (discharging).
- Minimum Size Requirements – Participation models would be required to establish a minimum size requirement that does not exceed 100 kW.
- Pricing of Sales to Energy Storage – FERC proposes to require each RTO/ISO to revise its tariff to specify that sales of energy from the RTO/ISO market to energy storage, that the resource then resells to the market, must be at the wholesale locational marginal price (LMP).

Accommodating DER Aggregations as a New Type of Market Participant

FERC takes a different approach to addressing barriers to the participation of DERs in RTO/ISO markets. The Commission asserts that the ability of many DERs “to meaningfully participate” in the organized wholesale electricity markets depends on their ability to aggregate (i.e., combine) smaller resources to satisfy existing minimum size and performance requirements, and address “commercial and transactional barriers” to participation, including the costs of required metering, telemetry and communications equipment.¹¹ To ensure that opportunities for such aggregations to participate are available, the NOPR proposes to require each RTO/ISO to revise its tariff to define “distributed energy resource aggregators” as a type of market participant that can participate in the organized wholesale electricity markets under the existing participation model “that best accommodates [the aggregated resource’s] physical and operation characteristics.”¹²

Unlike its approach to barriers to participation facing electric storage resources, FERC does not propose the creation of new participation models for DERs. The Commission acknowledges, however, that allowing DER aggregators to participate in the wholesale electricity markets using existing participation models designed for other types of resources may not resolve all barriers to their participation. FERC also agreed with commenters on its energy storage inquiry that certain limits placed on energy storage and DERs connected at the distribution-level – in particular, requirements that they participate as only “demand response” – may restrict their ability to offer all the wholesale services they are technically capable of providing.

To address these limits on participation, the Commission proposes that each RTO/ISO modify the eligibility requirements in their existing participation models as necessary to accommodate participation by DER aggregators. FERC identifies several categories of market rules that RTOs/ISOs must consider establishing or modifying, including:

- locational requirements that restrict aggregations of resources to a smaller geographic area (e.g., single point of interconnection or pricing node); FERC proposes to require RTO/ISOs to make such requirements “as geographically broad as technically feasible”
- distribution factor and bidding parameter requirements that account for the individual resources in an aggregation and their potentially dispersed geographic location, to allow the RTO/ISO to have visibility of those resources
- information and data requirements that allow the RTO/ISO to effectively model, dispatch and settle DER aggregations
- rules allowing modifications to the list of resources in a DER aggregation without deregistering and reregistering all resources
- metering and telemetry system requirements that provide the RTO/ISO with necessary information without imposing undue burdens on DERs.

Importantly, FERC also proposes to require RTOs/ISOs to address coordination with DER aggregators, distribution utilities and retail regulatory programs. The Commission makes clear in the NOPR that DERs receiving retail compensation – such as net metering – or another wholesale market participation program – such as demand response – will not be eligible to receive compensation for providing the same services in an aggregation. In addition, when a DER aggregator registers its list of individual DERs for the first time, or modifies that list, FERC proposes to require RTOs/ISOs to provide the distribution utility or utilities with such DERs on their distribution system with an opportunity for review to ensure that their dispatch by the RTO/ISO will not pose any risk to the distribution system and that the DERs are not participating in a retail compensation program. This distribution utility review would be required **before** any DER can participate in the wholesale market through an aggregator.

What's Next?

Comments on the NOPR are due January 30, 2017. While a voluminous set of comments from across the electricity industry can be expected, given the breadth of FERC's proposals, certain issues are likely to garner significant attention. With respect to the proposals regarding barriers to participation of energy storage, for example, FERC specifically sought comment on several issues, including the potential burdens of implementing a new participation model

(e.g., software changes), whether FERC-approved Reliability Standards also pose barriers to participation, and whether new metering and accounting practices are needed to address the complexities of implementing the requirement that energy storage resources located behind the meter (and thus on the retail distribution system) pay the wholesale LMP rate for energy they consume when charging.

FERC's proposal to address barriers to DERs more broadly was unexpected, given that the agency's earlier inquiries were focused solely on energy storage. Not surprisingly, then, FERC specifically seeks comment on several issues raised by its proposal to facilitate participation by DER aggregators. Commissioner Cheryl A. LaFleur noted that the Commission is especially interested in comments in this area, since DERs are connected to the grid at the retail distribution level and can pose various coordination challenges. FERC also generally seeks comment on how prescriptive its final rule should be with regard to needed modifications to existing participation models to accommodate participation by DER aggregators, and how to balance the operational needs of RTOs/ISOs with the burdens that certain information requirements can impose on DERs.

¹ Though the Commission uses this term throughout the NOPR, we will refer to these resources herein as “energy storage.”

² *Elec. Storage Participation in Mkts. Operated by Regional Transmission Orgs. and Indep. Sys. Operators*, 157 FERC ¶ 61,121 (2016).

³ The Commission defines a participation model “as a set of tariff provisions that accommodate the participation of resources with particular physical and operational characteristics in the organized wholesale electric markets of the RTOs and ISOs.”

⁴ NOPR at P 9.

⁵ See, e.g., *Ca. Indep. Sys. Operator Corp.*, 116 FERC ¶ 61,274 (2006) (encouraging further incorporation of demand response into the redesign of the CAISO markets); *Midwest Indep. Transmission Sys. Operator, Inc.*, 116 FERC ¶ 61,124 (2006) (directing a technical conference to consider, *inter alia*, the integration of demand response in MISO's procedures for addressing shortage and emergency conditions occurring in the real-time energy market); see also, e.g., *N.Y. Indep. Sys. Operator, Inc.*, 127 FERC ¶ 61,135 (2009); *Midwest Indep. Transmission Sys. Operator, Inc.*, 129 FERC ¶ 61,303 (2009) (both addressing market rule changes to incorporate energy storage into the markets).

⁶ *Wholesale Competition in Regions with Organized Elec. Mkts.*, Order No. 719, FERC Stats. & Regs. ¶ 31,281, at PP 370-375 (2008), order on reh'g, Order No. 719-A, FERC Stats. & Regs. ¶ 31,292 (2009), order on reh'g, Order No. 719-B, 129 FERC ¶ 61,252 (2009); *Demand Response Compensation in Organized Wholesale Energy Mkts*, Order No. 745, FERC Stats. & Regs. ¶ 31,322, order on reh'g and clarification, Order No. 745-A, 137 FERC ¶ 61,215 (2011), reh'g denied, Order No. 745-B, 138 FERC ¶ 61,148 (2012), vacated sub nom. *Elec. Power Supply Ass'n v. FERC*, 753 F.3d 216 (D.C. Cir. 2014), rev'd & remanded sub nom. *FERC v. Elec. Power Supply Ass'n*, 136 S. Ct. 760 (2016); *Integration of Variable Energy Resources*, Order No. 764, FERC Stats. & Regs. ¶ 31,331, order on reh'g, Order No. 764-A, 141 FERC ¶ 61,232 (2012), order on reh'g, Order No. 764-B, 144 FERC ¶ 61,222 (2013).

⁷ NOPR at P 11.

⁸ *Id.* at P 12.

⁹ *Id.* at P 14.

¹⁰ *Id.* at P 2.

¹¹ *Id.* at PP 125-26.

¹² *Id.* at P 128.

Categories

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