UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators	))))	**Docket Nos. RM16-23-000**
Electric Storage Participation in Regions with Organized Wholesale Electric Markets	))	**AD16-20-000**

COMMENTS OF THE AMERICAN PUBLIC POWER ASSOCIATION AND THE NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION ON NOTICE OF PROPOSED RULEMAKING

I. INTRODUCTION AND SUMMARY OF POSITION

The American Public Power Association ("APPA") and the National Rural Electric Cooperative Association ("NRECA") appreciate the opportunity to provide comments on the Federal Energy Regulatory Commission's ("FERC" or "Commission") Notice of Proposed Rulemaking ("NOPR") issued in this proceeding on participation in organized wholesale markets by electric storage resources and distributed energy resource aggregations.[1]

As expressed in prior comments, APPA and NRECA generally support the Commission's efforts to reduce or remove undue barriers to electric storage resource participation in organized wholesale markets. We also generally support the Commission's efforts to allow participation by distributed energy resources in organized wholesale electric

[1] *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 157 FERC ¶ 61,121 (2016).

markets through distributed energy resource aggregators. APPA's and NRECA' s members have invested in electric storage resources and other distributed energy resource technology, and APPA and NRECA support the Commission's actions toward ensuring that the full value of those resources can be recognized. We urge the Commission to maintain as its primary focus, efforts to allow electric storage and distributed energy resources to participate in organized wholesale markets ***for the benefit of end-use customers.*** In its response to the Commission's request for comments in Docket No. AD16-20-000,[2] APPA suggested several guiding principles with respect to electric storage resources. These principles are applicable to the instant NOPR with respect to electric storage resources as well as distributed energy resource aggregation. Therefore, NRECA and APPA urge the Commission to follow these principles when deciding the Final Rule in this proceeding:

1. **Benefits to end-use customers:** The removal of unnecessary barriers to participation by electric storage resources and distributed energy resource aggregators in organized wholesale electric markets is a means to an end: better service and lower costs to consumers. Accordingly, the Commission must ensure that its efforts to remove barriers for participation in these markets lead to just and reasonable rates for consumers.
2. **Accommodation of Existing and Developing Technology:** The Commission's efforts should not threaten or undercut existing energy storage projects and operations or distributed energy resources, nor should they hamper continued

[2] *Comments of the American Public Power Association*, filed in Docket No. AD16-20-000 on June 6, 2016 ("APPA Comments").

technological advances. In addition to new electric storage and other distributed energy resource projects, public power and cooperative utility systems continue to use existing distributed energy resource and energy storage technologies, such as hydroelectric pumped-storage projects and controllable water heaters. The Commission should ensure that these existing projects are not adversely impacted by any reforms adopted in this proceeding.

3. **Respecting State and Local Regulatory Authority:** Wholesale market rules and Commission policy must not undercut the ability of state and local authorities to regulate existing and future electric storage projects and other distributed energy resources, interconnected at the distribution level or behind a customer meter, that provide retail- or distribution-level services. This issue is of paramount importance to APPA and NRECA. Many distribution utilities, including public power and cooperatives, are examining how distributed energy resources, including electric storage facilities, might provide benefits to their communities. These benefits may include backup energy, enhanced power quality, peak shaving, increased integration of intermittent distributed energy resources, and avoidance of distribution system upgrades. Electric storage facilities potentially can provide multiple services and benefits to retail and distribution customers. Wholesale market rules should not frustrate these important local uses of electric storage facilities. The Commission should ensure that its efforts to improve organized wholesale electric markets appropriately honor the boundaries of its own jurisdiction and do not encroach upon matters that Congress has appropriately reserved to state and local authorities. In this

regard, we urge the Commission to confine the Final Rule to reforms to the organized wholesale electric markets—as we read the NOPR to do—and to reject requests to expand the scope of the Final Rule beyond that limited scope.

4. **Protect Against Double-Recovery and Cross-Subsidies:** The Commission's further action on participation by distributed energy resources including electric storage resources in organized markets should protect against double-recovery of costs by providers and/or cross-subsidies. The Commission's recent Policy Statement on the ability of electric storage resources to provide services and recover their costs at both cost-based rates and market-based rates is instructive in recognizing that such double-recovery of costs is detrimental to consumers and competition, and must be addressed.[3] The Commission has recognized in organized markets, such as capacity markets, that where a resource is recovering costs in one market, those costs should not also be collected in another market or forum. For example, the calculation of the price to be paid to generators in PJM Interconnection, L.L.C.'s ("PJM") capacity construct contains an Energy and Ancillary Services Offset, designed to take into account that to the extent a generator recovers some of its costs in those markets, load should not compensate the generator a second time through capacity payments.[4] Depending on where they are located and how they are operated, electric storage facilities may serve different or multiple functions – transmission, generation, and/or ancillary

[3] *Utilization of Electric Storage Resources for Multiple Services When Receiving Cost-Based Rate Recovery,* Policy Statement, 158 FERC ¶ 61,051 (2017).

[4] *See* PJM Open Access Transmission Tariff at Attachment DD, Section 5.10 (a)(v).

services, and may provide multiple benefits and have multiple revenue streams. As the Commission has directed for other resources in organized markets, distributed energy resource owners should not be allowed to recover, and load should not have to pay, greater than the full cost of their facilities because the various revenue streams are not taken into account. Similarly, the Commission should ensure that one class of customers, such as wholesale customers, do not subsidize another class, such as retail customers. As the Commission recognized in its Order No. 784,[5] reforms to accounting and reporting regulations, or other mechanisms such as crediting, are necessary to "ensure that the activities and costs of new energy storage operations are sufficiently transparent to allow effective oversight."[6]

In addition to these guiding principles, APPA and NRECA recommend as follows on the specific proposals and requests for comment in the NOPR:

A. Recommendations regarding electric storage resource participation in organized wholesale electric markets

1. RTO and ISO efforts to accommodate electric storage resources in both market and non-market mechanisms should reflect technical capability and reliability.
2. The requirement to establish bidding parameters, if adopted, should be flexible in order to accommodate efficient decisions by load-serving entities ("LSEs") and varied technologies.

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[5] *Third-Party Provision of Ancillary Services; Account and Financial Reporting for New Electric Storage Technologies*, Order No. 784, FERC Stats. & Regs. ¶ 31,349 (2013), *clarified*, Order No. 784-A, 146 FERC ¶ 61,114 (2014).

[6] *Id.* at P 5.

3. The Final Rule should ensure that rules for electric storage resources to participate as a wholesale seller and a wholesale buyer are consistent with existing rules, particularly rules regarding self-supply.

B. Recommendations for proposed reforms regarding participation of distributed energy resource aggregators in the organized wholesale electric markets.

1. In order to abide by the statutory limits on its jurisdiction and authority, and in order to honor roles reserved for state and local authorities, the Commission should clarify that the Final Rule is limited to RTO/ISO rules, and include a role for state and local authorities, similar to the Relevant Electric Retail Regulatory Authority ("RERRA") for demand response aggregation under Order No. 719 and 719-A.[7]
2. In order to avoid significant unintended consequences, the Final Rule should address complex operational issues that are posed by distributed energy resource aggregators, including (a) safety of distribution utility personnel and the public; (b) distribution system reliability of service and associated requirements; and (c) security of the distribution system when distributed energy resources participate in wholesale markets.
3. The Final Rule should respect local rate-setting authority, as follows: (a) state that nothing in the Final Rule preempts or limits the ability of state and local authorities to adopt rules, approve tariffs, or set rates to provide an opportunity for a distribution utility to recover the costs it incurs in providing distribution

[7] *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, FERC Stats. & Regs. ¶ 31,281 (2008), *order on reh'g*, Order No. 719-A, FERC Stats. & Regs. ¶ 31,292 (2009), *order denying reh'g*, Order No. 719-B, 129 FERC ¶ 61,252 (2009).

facilities and distribution service to distributed energy resources; (b) clarify the eligibility requirements for distributed energy resources to participate in organized wholesale electric markets through an aggregator and require RTOs/ISOs to demonstrate how they will ensure against double recovery for resources that are receiving compensation as part of a retail program or another wholesale program; (c) require the RTOs/ISOs to adopt market rules for when distributed energy resources, already participating in a local or another wholesale program, would be able to switch to participation in the wholesale electric market through an aggregator; (d) require provisions to address the rates, terms and conditions of electric storage resource purchases from wholesale markets, as specified herein.

4. The Final Rule should not address capacity requirements.
5. The Final Rule should require that distributed energy resource registration for aggregation is contingent upon authorization by the RERRA.
6. Distribution utility owners should be provided notice and approval rights for distributed energy resources on their system to participate in an aggregation, and be provided notice of any changes in those resources.
7. The Commission should strengthen the requirement for market participation agreements for distributed energy resource aggregators, to require (a) a demonstration that the RERRA has authorized the distributed energy resource to participate; (b) notice to the relevant distribution utility owner; and (c) compliance by the aggregator and distributed energy resource(s) with the rules and regulations of any other relevant regulatory authority.

II. DESCRIPTION OF APPA AND NRECA

A. APPA

APPA is the national service organization representing the interests of the nation's 2,000 not-for-profit, community-owned electric utilities. Public power utilities are located in every state except Hawaii. They collectively serve over 49 million people and account for 15% of all sales of electric energy (kilowatt-hours) to ultimate customers. Public power utilities are load-serving entities, with the primary goal of providing the communities they serve with safe, reliable electric service at the lowest reasonable cost, consistent with good environmental stewardship. This orientation aligns the interests of the utilities with the long-term interests of the residents and businesses in their communities.

Public power utilities operate in all of the Commission-approved RTOs and ISOs. Many participate directly in the organized wholesale electric markets of an RTO or ISO, while others are served by a wholesale supplier—sometimes a joint action agency or another public power utility—that participates in these markets. Although public power utilities own almost 10 percent of the nation's electric generating capacity, they purchase nearly 70 percent of the power used to serve their communities.

Because many public power utilities rely on transmission service from RTOs and ISOs and participate in organized wholesale electric markets, APPA has a vital interest in maintaining just and reasonable rates for transmission, capacity, energy, and ancillary services in RTO and ISO regions. APPA has participated actively in numerous Commission proceedings concerning RTO and ISO rates, services, market rules, and related issues.

B. NRECA

The nation's member-owned, not-for-profit electric co-ops constitute a unique sector of the electric utility industry – and face a unique set of challenges. NRECA represents the interests of the nation's more than 900 rural electric utilities responsible for keeping the lights on for more than 42 million people across 47 states. Electric cooperatives are driven by their purpose to power communities and empower their members to improve their quality of life. Affordable electricity is the lifeblood of the American economy, and for 75 years electric co-ops have been proud to keep the lights on. Because of their critical role in providing affordable, reliable, and universally accessible electric service, electric cooperatives are vital to the economic health of the communities they serve.

America's Electric Cooperatives bring power to 75 percent of the nation's landscape and 12 percent of the nation's electric customers, while accounting for approximately 11 percent of all electric energy sold in the United States. NRECA's member cooperatives include 65 generation and transmission ("G&T") cooperatives and 840 distribution cooperatives. The G&Ts are owned by the distribution cooperatives they serve. The G&Ts generate and transmit power to nearly 80 percent of the distribution cooperatives, those cooperatives that provide power directly to the end-of-the-line consumer-owners. Remaining distribution cooperatives receive power directly from other generation sources within the electric utility sector. NRECA members generate approximately 50 percent of the electric energy they sell and purchase the remaining 50 percent from non-NRECA members. Both distribution and G&T cooperatives share an obligation to serve their members by providing safe, reliable, and affordable electric service.

NRECA's members participate in all of the organized wholesale electricity markets as well as single Balancing Authority Areas (BAAs) throughout the country. And for this reason, NRECA participates in a variety of Commission proceedings, rulemakings and notices of inquiries on behalf of its members affecting the operation of markets as well as the reliability of the BPS.

C. Public Power and Electric Cooperative Utility Efforts Regarding Electric Storage and Other Distributed Energy Resources

In their previous comments to the Commission, APPA and NRECA provided examples of how their members have deployed electric storage systems.[8] Many public power systems, including those in RTO and ISO regions, are evaluating how new electric storage resources can better enable them to provide safe, reliable, and affordable electric service; integrate new generation resources; comply with environmental and other public-policy directives and goals; and provide new services to their communities. While electric storage technology continues to evolve, public power utilities across the country have completed or are pursuing a wide variety of innovative storage projects that will benefit their local communities.

Similarly, NRECA and several of its cooperative utility members have deployed electric storage systems. Many cooperative utilities are in the process of identifying ways that electric storage resources can provide solutions tailored to their needs, relying upon the practical and cost efficient uses for such technologies and less upon revision of existing market rules within organized wholesale markets.

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[8] APPA Comments at 3-5; Comments of the National Rural Electric Cooperative Association in Response to Request for Comments, filed June 6, 2016, at 4 ("NRECA Comments").

III. RESPONSE TO PROPOSED REFORMS TO REMOVE BARRIERS TO ELECTRIC STORAGE RESOURCE PARTICIPATION IN ORGANIZED WHOLESALE ELECTRIC MARKETS

APPA and NRECA agree with the Commission's preliminary finding that it must take action to remove barriers to participation by electric storage resources in organized wholesale electric markets by requiring the RTOs and ISOs to revise their tariffs to accommodate such participation by recognizing the physical and operational characteristics of such resources.[9] The issue is how prescriptive the Commission's required "participation model" for such resources will be. As APPA and NRECA have urged in connection with other organized market reforms, the Commission generally should avoid overly prescriptive or one-size-fits-all mandates. That appears to be the Commission's intent in the NOPR. Thus, APPA and NRECA recommend the Commission develop general requirements to accommodate the participation of electric storage resources in all organized wholesale markets to the extent they are both technically capable and efficiently able to do so. Each RTO and ISO can then work with their stakeholders, consider existing electric storage and other distributed energy resources, as well as tariff and other rate schedule provisions that address participation by those resources, and submit compliance filings to demonstrate how they will meet the Commission's general requirements. APPA and NRECA's comments on some of the specific proposed requirements are provided in the remainder of this section.

Section III of these comments is directed at the proposed requirements applicable to electric storage resources connected directly to the ISO/RTO interstate bulk transmission grid and participating directly in the organized wholesale markets. But the NOPR defines "electric

[9] *See* NOPR at P 28.

storage resources" to include resources "located on the interstate grid or on a distribution system"[10] and similarly defines "distributed energy resources" to include electric storage resources "located on the distribution system, any subsystem thereof, or behind a customer meter."[11] Electric storage resources located on a distribution system present additional jurisdictional and operational issues. We address those issues in Section IV of these comments on the Commission's proposals for distributed energy resources.[12]

A. APPA and NRECA Support the Commission's Proposal for Participation by Electric Storage Resources, Subject to Technical Capability

RTOs and ISOs are in various stages of revising their market rules in order to accommodate participation by electric storage resources. The Commission reasonably recognizes that the full benefits of these resources, which will benefit end-use customers, cannot be achieved under market rules that were designed for traditional resources or have not kept up with technology. To that end, APPA and NRECA support the Commission's proposal to require RTOs and ISOs "to establish a participation model consisting of market rules for electric storage resources under which a participating resource is eligible to provide any capacity, energy, and ancillary service that it is technically capable of providing in the organized wholesale electric markets."[13] APPA and NRECA also support the proposal to make electric storage resources eligible to provide services that the RTOs and ISOs procure through non-market mechanisms,

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[10] NOPR at P 1 n.1.

[11] *Id.* at P 1 n.2.

[12] We address the Commission's proposals in Section III.A.e.iv of the NOPR, PP 100-102, concerning energy used to charge electric storage resources, in Part IV of these comments because it overlaps with important jurisdictional issues related to participation by aggregations of distributed energy resources in organized wholesale electric markets.

[13] NOPR at P 48.

"such as blackstart, primary frequency response, and reactive power, if they are technically capable."[14] The NOPR further proposes that if there is compensation for the services to be provided by electric storage resources, they should receive compensation commensurate with the services provided.[15]

Notwithstanding their general support for these proposals, APPA and NRECA urge the Commission to make clear in the Final Rule that the "technical capability" to provide service is a threshold requirement and a limitation on the rule that RTOs and ISOs must accommodate participation by electric storage resources in their organized markets and their non-market procurements. APPA and NRECA agree that technical requirements in federal tariffs that do not reflect electric storage resource technology are the sorts of artificial barriers that should be removed. However, to the extent an electric storage resource may not have the technical capability necessary to provide the services procured through RTO and ISO markets or non-market mechanisms in a manner that makes them reliable, economically efficient, and cost-effective, the Commission should provide the RTOs and ISOs flexibility to make such demonstration and, if valid, craft rules that will allow electric storage resources to participate to the extent they are technically capable, consistent with reliability, economic efficiency, and cost-effectiveness.

[14] *Id.*

[15] *Id.*

B. The Commission Should Not Allow Bidding Parameters to Prevent Load-Serving Entities and Electric Storage Resources from Making Efficient Resource and Investment Decisions

In their previous comments, APPA and NRECA each expressed concerns against the Commission adopting mandatory bidding parameters for electric storage resources, because those parameters might be so restrictive as to dictate the use of a higher-priced electric storage resource over a lower-priced one that could be equally reliable, or constrain LSEs' ability to determine which technology is the least-cost solution.[16] The result of overly prescriptive bidding parameters could be participation by specific electric storage resource technology at the exclusion of others, and a loss of benefits to consumers as a result.

The NOPR includes several minimum and optional bid parameters, as well as a proposal that in those instances where an RTO/ISO has reserved the right to manage the state of charge of an electric storage resource, the RTO/ISO allow the electric storage resources to self-manage their state of charge and upper and lower charge limits.[17] The bidding parameters are intended to "reflect and account for the physical and operational characteristics of electric storage resources."[18] The Commission expresses concern that the absence of some of the bidding parameters could result in limited operational effectiveness for electric storage resources.[19]

To the extent the proposed minimum and optional biding parameters will enhance the operational effectiveness and participation in organized wholesale markets by electric storage resources, APPA and NRECA do not take issue with the Commission's proposal. However, we

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[16] APPA Comments at 11; NRECA Comments at 7.

[17] NOPR at PP 66-69.

[18] *Id.* at P 66.

[19] *Id.*

nevertheless urge flexibility in the compliance process. Given the evolving and varied technologies, the Commission should permit RTOs and ISOs to recommend in their compliance filings bidding parameters that will not place unwarranted limitations on the use of electric storage resources, as long as they bear in mind the practical difficulties of establishing multiple parameters based on varied technologies. One possible approach would be that rather than mandate the minimum bidding parameters listed in the NOPR, the Commission instead make clear in the Final Rule that RTOs/ISOs must either adopt those minimum bidding parameters or demonstrate why it would be harmful to the participation of electric storage resources in RTO/ISO markets to do so and propose a superior just and reasonable alternative.

C. Rules Allowing Electric Storage Resources to Participate as a Wholesale Seller and Wholesale Buyer Must Accommodate Self-Supply

APPA and NRECA support the Commission's proposal to require RTOs and ISOs to permit electric storage resources to be dispatched and set wholesale market clearing prices as both a wholesale seller and wholesale buyer.[20] We urge, however, that any Final Rule adopting this proposal must also include language contained in the NOPR that will be necessary in order to protect the cost-effective and efficient use of these resources and, in turn, protect consumers from unjust and unreasonable rates.

Specifically, the Final Rule in this proceeding should require that RTO/ISO rules for electric storage resources to participate as both wholesale buyers and wholesale sellers, must be "consistent with existing rules that govern when a resource can set the wholesale price" and "must not prohibit electric storage resources from participating in organized wholesale electric

[20] NOPR at P 81.

markets as price takers, consistent with the existing rules for self-scheduled load resources."[21] The issues of price formation in organized wholesale markets have been complex and contentious. The Commission should take care in this proceeding to ensure that its Final Rule here achieves the worthy goal of electric storage resources participating in RTO and ISO markets, while also maintaining and allowing those resources to benefit from existing rules regarding setting wholesale clearing prices.

Moreover, APPA and NRECA cannot overstate the importance of the Commission's Final Rule in this proceeding making clear that where an LSE self-schedules electric storage resources, those resources should be permitted to participate as price takers on the same basis as any other self-scheduled resource. For example, to the extent capacity constructs, like PJM's, contain an exemption from buyer-side price mitigation (in PJM, the Minimum Offer Price Rule) for self-scheduled resources by electric cooperatives and public power utilities, electric storage resources should qualify on the same basis as would another type of resource. If electric storage resources are not permitted to participate as price takers "consistent with the existing rules for self-scheduled load resources,"[22] or are otherwise treated differently in this regard, it will create a disincentive to LSE investment and utilization of electric storage resources, which will thwart the Commission's goals.

[21] *Id.*

[22] *Id.*

IV. RESPONSE TO PROPOSED REFORMS REGARDING PARTICIPATION OF DISTRIBUTED ENERGY RESOURCE AGGREGATORS IN THE ORGANIZED WHOLESALE ELECTRIC MARKETS

As with removing barriers to electric storage resource participation in organized wholesale markets, APPA and NRECA support the Commission's goal of eliminating barriers to distributed energy resource participation in these markets. However, as discussed below, there are several areas where the Commission needs to clarify, modify or limit its proposal.

A. The Commission Should Clarify the Scope of the Final Rule and Adopt Procedures to Enable State and Local Regulatory Authorities To Exercise Their Authority Over Retail Sales and Facilities Used for Generation and Local Distribution

The NOPR includes an expansive definition of distributed energy resources[23] and a broad definition of a distributed energy resource aggregator, which includes an entity that aggregates even one distributed energy resource.[24] The Commission proposes to require RTOs and ISOs to revise their tariffs as necessary in order to permit distributed energy resource aggregators to offer to sell capacity, energy, and ancillary services in the organized wholesale electric markets. Distributed energy resource aggregators would be defined as set forth in the NOPR and would be a type of market participant that can participate directly in RTO and ISO markets under the participant model that best accommodates the physical and operational characteristics of its distributed energy resource aggregation, consistent with certain requirements set forth in the NOPR.[25] Further, subject to retaining existing prohibitions, the Commission proposes to require

[23] NOPR at P 1 n.2.

[24] *Id.* at P 5 n.13.

[25] *Id.* at PP 124, 132.

that RTO/ISO rules cannot prohibit participation of any particular type of technology through a distributed energy resource aggregator.[26]

The Commission proposes to take action in this rulemaking under section 206 of the Federal Power Act ("FPA")[27] to ensure that RTO/ISO tariffs are just and reasonable and not unduly discriminatory or preferential.[28] APPA and NRECA interpret the NOPR to be limited to reforms to the RTO/ISO tariff rules governing their organized wholesale electric markets. We urge the Commission to confine the Final Rule to such reforms to the RTO/ISO market rules and to reject requests to expand the Final Rule beyond that limited scope.

The FPA gives the Commission authority over the transmission of electric energy in interstate commerce and the sale of electric energy at wholesale in interstate commerce.[29] But the Commission does not have jurisdiction over "any other sale of electric energy" or, except as expressly provided, "over facilities used for the generation of electric energy or over facilities used in local distribution …."[30]

The Commission exercised its FPA section 206 authority over RTO/ISO market rules to require RTOs and ISOs to accept certain demand response bids from aggregators of retail customers in Order No. 719, and regulate the compensation to be paid demand response in wholesale energy markets in Order No. 745.[31] In *FERC v. Electric Power Supply Association*,[32]

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[26] *Id.* at P 133.

[27] 16 U.S.C. § 824e.

[28] NOPR at P 1.

[29] 16 U.S.C. § 824(b)(1).

[30] *Id.*

[31] *Demand Response Compensation in Organized Wholesale Energy Markets*, Order No. 745, FERC Stats. & Regs. ¶ 31,322 (2011); *order on reh'g*, Order No. 745-A, 137 FERC ¶ 61,215 (2011).

the Supreme Court upheld the Commission's jurisdiction to issue Order No. 745. As the Court held in that case, the Commission's FPA section 206 authority over matters directly "affecting" rates for jurisdictional wholesale sales does not allow the Commission to regulate retail sales: "FERC cannot take an action transgressing that limit no matter how direct, or dramatic, its impact on wholesale rates."[33]

That limit applies in this rulemaking; for example, the Commission cannot adopt wholesale market rules that apply to or regulate retail sales by electric storage resources.[34] But in this rulemaking, the FPA's exclusion of Commission jurisdiction "over facilities used for the generation of electric energy or over facilities used in local distribution" are additional important limits on the Commission's authority. In reforming RTO/ISO market rules to enable the wholesale market participation by electric storage resources located on a distribution system and by aggregators of a broadly defined class of distributed energy resources, the Commission cannot transgress the statute's limits by regulating generation facilities or local distribution facilities, no matter how they may affect wholesale rates in RTO/ISO markets.

APPA and NRECA recognize that the NOPR contemplates regulating distributed energy resources when they participate directly in wholesale organized electric markets and that the Commission has in other instances regulated wholesale market participation by resources that are interconnected to a distribution system, in which case the Commission recognized that it had jurisdiction only over the wholesale electric market participation, but not over the resource's

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[32] *FERC v. Electric Power Supply Association*, 136 S.Ct. 760 (2016) ("*EPSA*").

[33] *EPSA*, 136 S.Ct. at 775.

[34] *See infra* Part IV.C (seeking clarification that Final Rule does not apply to retail sales by electric storage resources).

interconnection.[35] Accordingly, APPA and NRECA urge the Commission to confine the Final Rule to wholesale market participation rules, and preserve state and local authority over retail sales, generation facilities, and local distribution facilities.

In both Order No. 719 and Order No. 745, the Commission included limitations on its exercise of its authority which ensured against the Commission interfering in matters that should be addressed by state or local authorities. In Order No. 719, the Commission addressed concerns over retail rate authority by requiring RTOs and ISOs to permit aggregated demand response bids directly into their markets "unless the laws or regulations of the relevant electric retail regulatory authority do not permit a retail customer to participate."[36] In adopting this limitation, the Commission acknowledged concerns that allowing aggregators "to bid into the wholesale energy market without the relevant electric retail regulatory authority's express permission may have unintended consequences, such as placing an undue burden on the relevant electric retail regulatory authority."[37] In *EPSA*, the Court upheld FERC's exercise of jurisdiction in Order No. 745 based in part on the jurisdictional safeguard in Order No. 745 which "allows any State

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[35] For example, PJM's Wholesale Market Participation Agreement provides for non-FERC jurisdictional resources to access and participate in FERC-jurisdictional electric markets. PJM describes the arrangement as follows: "Generators at local distribution or sub-transmission voltage levels may also request to participate in PJM's wholesale power market. However, they may not be under Federal Energy Regulatory Commission jurisdiction regarding the nature of their interconnection request. If not jurisdictional, each such generator must sign a Wholesale Market Participation Agreement instead of an Interconnection Service Agreement upon completion of all required reliability studies. A Wholesale Market Participation Agreement defines the terms and conditions under which PJM wholesale power market participation will be conducted. It also contains a milestone for the generator to execute, separately, an interconnection agreement with the local electric distribution company in accordance with the respective state's own established process." *See* http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx; *see also*, *California Independent System Operator Corp.*, 155 FERC ¶ 61,229 (2016).

[36] Order No. 719 at P 154.

[37] *Id.* at P 155.

regulator to prohibit its consumers from making demand response bids in the wholesale market."[38]

In Order No. 719-A, the Commission modified this rule by reversing the presumption for small electric utilities – those that distributed 4 million megawatt-hours or less in the previous fiscal year.[39] Thus, the Commission's regulations provide that an RTO or ISO must accept demand-response bids from an aggregator of retail customers of a small utility "where the relevant electric retail regulatory authority permits such customers' demand response to be bid into organized markets by an aggregator of retail customers," and that the RTO or ISO must *not* accept such bids "unless the relevant electric retail regulatory authority permits such customers' demand response to be bid into organized markets by an aggregator of retail customers."[40]

APPA and NRECA urge the Commission in the Final Rule in this proceeding to require RTOs and ISOs to apply a similar system. For distributed energy resources that are participating as demand response resources, the NOPR contemplates that the Order No. 719 regime would still apply.[41] APPA and NRECA urge that the same requirement be applied to all aggregations of distributed energy resources, not just those participating as demand response resources. This system is a necessary safeguard for preserving state and local authorities over retail, generation, and local-distribution matters. Such a provision would also provide an important indication that the Final Rule is entirely within the Commission's own jurisdiction.[42]

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[38] *EPSA*, 136 S.Ct. at 779.

[39] Order No. 719-A at P 51.

[40] 18 C.F.R. § 35.28(g)(1)(iii) (2016).

[41] NOPR at P 157 n.238.

[42] *See EPSA*, 136 S.Ct. at 760 (referencing Order No. 719).

Accordingly, APPA and NRECA request that the Commission should adopt in this proceeding the same sort of "gatekeeper" role for state or local regulatory authority as it did in Order Nos. 719 and 719-A. In the Final Rule in this proceeding, the Commission should direct RTOs' and ISOs' tariffs to allow or deny participation by distributed energy resource aggregators in the organized wholesale electric markets, as determined by the laws or regulations of the RERRA. For simplicity of administration, and to protect small utilities that are particularly vulnerable in these circumstances, APPA and NRECA suggest the Final Rule adopt the same distinct "opt-out" and "opt-in" framework for large and small utilities as provided in the Commission's existing regulations governing aggregators of retail customers for demand response bidding.[43] The Commission's Final Rule should further adopt the following definition of RERRA, adopted in Order No. 719:

> The term "relevant electric retail regulatory authority" means the entity that establishes the retail electric prices and any retail competition policies for customers, such as the city council for a municipal utility, the governing board of a cooperative utility, or the state public utility commission.[44]

The RERRA definition, set forth in Order No. 719, has been used in RTOs/ISOs with respect to demand response participation and seems to work well in terms of allowing aggregation of demand response for participation in RTO/ISO markets without infringing upon retail regulatory authority.

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[43] *See* 18 C.F.R. § 35.28(g)(i)(iii).

[44] Order No. 719 at P 158c.

B. Distributed Energy Resource Aggregators May Create Complex Operational Issues for Distribution Utilities, Which Need to be Addressed in Order to Avoid Significant Unintended Consequences.

Effectively and efficiently incorporating, operating, and coordinating distributed energy resources at significant penetration levels is a relatively new challenge for distribution utilities. Operating procedures, safety rules, and standards continue to evolve, and allowing distributed energy resource participation in wholesale markets is also a relatively new challenge for distribution operators. Without proper deference to state and local authorities the Commission may be opening the door to adverse impacts for non-participating customers.

Allowing aggregations of distributed energy resources, interconnected and operating at the distribution-system level, to participate directly in organized wholesale electric markets presents complex issues for the safety, reliability, and security of distribution utility operations and facilities. Whether an aggregator operates distributed energy resources at a single metered point or at multiple points on a distribution system, the participating resources must obey established safety rules, follow applicable technical standards and requirements, and operate without adversely affecting service to or imposing burdens on the other distribution customers. These multiple industry standards comprise the distribution system's "rules of the road." For a distribution utility, compliance with these rules is an important part of the utility's obligation to provide safe and reliable service to the public. As described below, the reliability of distribution service includes power quality requirements. Among the key factors often measured as part of power quality are voltage, current, frequency, and harmonics. The possible adverse effects on power quality, as well as many other operational and safety issues must be addressed when aggregations of distributed energy resources participate in wholesale electric markets.

Compliance with the distribution-system rules of the road should be regarded as a necessary condition, not a barrier, to such participation.

APPA and NRECA commend the Commission for recognizing the need for "coordination" between the RTO/ISO, the distributed energy resource aggregator, and the distribution utility.[45] The NOPR proposes to require the RTO/ISO market rules to "provide for" such coordination, both when an aggregation is registered with the RTO/ISO[46] and on an ongoing basis.[47] The Commission seeks comments on a number of specific coordination proposals; whether RTO/ISOs should provide for "any additional review by or coordination with other parties;" [48] "any related reliability, safety, and operational concerns and how they may be effectively addressed;"[49] and "the appropriate lines of communication to require."[50]

The Commission states that purpose of such coordination is to "ensure that the participation of these resources in the organized wholesale electric markets does not present reliability or safety concerns for the distribution or transmission system."[51] The Commission acknowledges that when an aggregator seeks registration for its resources, there must be assurance that the aggregated resources "would be able to respond to RTO/ISO dispatch instructions without posing any significant risk to the distribution system …."[52] The NOPR

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[45] NOPR at PP 153-156.

[46] *Id.* at P 154.

[47] *Id.* at PP 155-156.

[48] *Id.* at P 154.

[49] *Id.* at P 155.

[50] *Id.* at P 156.

[51] *Id.* at P 153.

[52] *Id.* at P 154.

likewise states that ongoing coordination "may be necessary to ensure that the distributed energy resource aggregator is disaggregating dispatch signals … and dispatching individual resources … consistent with the limitations of the distribution system."[53]

These concerns are valid. From the RTO/ISO's perspective, its market rules should ensure the efficient dispatch and operation of distributed energy resources in the wholesale electric markets and the reliable operation of the transmission grid. From the distribution utility's perspective, the RTO/ISO market rules must preserve the distribution utility's legal authority and technical ability to maintain safe and reliable service over its facilities when its distribution system includes aggregated distributed energy resources. The Commission only has jurisdiction over wholesale and transmission services and facilities, however, and not over any other sales or "over facilities used for the generation of electric energy or over facilities used in local distribution."[54] Accordingly, the RTO/ISO market rules *cannot* prescribe the rules for protecting distribution operations and facilities. These are matters for state and local regulation. Instead, the RTO/ISO market rules must defer to, and market participation by resources must be subject to, the rules and regulations for local distribution service established under state and local law. Coordination, in this sense, means ensuring that distribution utilities and state and local authorities are given an opportunity to fulfill their respective obligations to the public, without preemption or interference by prescriptive federal rules or tariffs.

APPA and NRECA will address below in sections IV.B.1 and IV.B.2 the Commission's specific proposals as to what the RTO/ISO market rules should provide. In general, APPA and

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[53] *Id.* at P 155.

[54] *See supra* section III.A.

NRECA believe that the Commission's proposals do not go far enough and need to be clarified.) The remainder of this section IV.B. explains what is at stake for distribution utilities and state and local regulators in the Commission's instant proposals for distributed energy resource aggregations.

1. The safety of distribution utility personnel and the public must be protected.

Public safety, including the safety of utility workers, must be protected. There are several standards that relate to distributed energy resources and distribution-system operation and maintenance that attempt to address electric safety. First and foremost is the National Electrical Safety Code ("NESC"), some version of which has been adopted in every state.[55] These established safety standards apply by default to distributed energy resources, whether or not they participate in wholesale markets through an aggregator. The interconnecting distribution utility is the first line of defense in enforcing these safety requirements and protocols, particularly for new, small distributed resources that may not be familiar with them. Interconnection should not proceed without such compliance. In addition, the consumer side of the meter must meet National Electrical Code ("NEC") requirements, subject to approval by the appropriate jurisdictional authority. Compliance with NESC on the utility side and NEC on the consumer side of the meter should be reinforced by any market rules. Gaps in safety standards as related to distributed energy resources need to be addressed comprehensively by standard making bodies, but that will take time.

Among the key safety concerns with distributed energy resources are ensuring detection of system failures and preventing unintentional islanding. When a distributed energy resource

[55] *See* The National Electrical Safety Code, available at http://standards.ieee.org/about/nesc/

operates outside of the traditional distribution-system protection and control configuration, it may create an electric fault "non-detection zone." This can occur if a rotating generator and a distributed energy resource inverter are operating or dispatched together at the distribution system level. In this case, it has been shown that the rotating generator looks too much like the electric system for the inverter to detect a fault.[56] This also means that some of the most common safety and operational interconnecting standards implemented, Institute of Electrical and Electronic Engineers Standard 1547[57] and Underwriters' Laboratory Standard 1741,[58] may not always be effective, especially if there are multiple independent aggregators of different distributed energy resources.

Preventing unintentional islanding must be a priority when distributed energy resources operate on a distribution system. Islanding occurs when a distributed energy resource, such as a photovoltaic system, continues to supply power to the distribution system while electric utility service is out. While unintentional islanding can occur even without the aggregation of distributed energy resources, further study by the distribution utility may be warranted to protect against unintentional islanding when distributed energy resources are being aggregated and dispatched in wholesale electric markets.

An unintentional islanding occurred in 2005 in Flomaton, Alabama, when a lineman was electrocuted while repairing damage on residential power lines after a hurricane. Even though the

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[56] *See* Sandia Report SAND2012-1365, *Suggested Guidelines for Assessment of DG Unintentional Islanding Risk*, revised March 2013, available at http://energy.sandia.gov/wp-content/gallery/uploads/SAND2012-1365-v2.pdf.

[57] Institute of Electrical and Electronics Engineers 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems, available at http://grouper.ieee.org/groups/scc21/1547/1547_index.html.

[58] UL Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources, available at http://ulstandards.ul.com/standard/?id=1741_2.

line crew thought the power lines were de-energized, the operation of a portable generator caused a backfeed onto those lines. OSHA found that proper procedures had not been followed.[59] This tragedy shows that lineman may be exposed to hazardous conditions if distributed energy resources are not properly operated. There are several safety considerations that should always be observed by distributed energy resources, and those should be a part of distribution system interconnection procedures and technical criteria. In some cases, utilities require safety measures in addition to the specifications outlined in IEEE Standard 1547. Austin Energy, for example, maintains the right to require the customer to install additional protective devices in order to protect the safety of Austin Energy's employees and equipment. For energy storage systems specifically, Austin Energy requires a second AC disconnect if the first approved disconnect has not been installed within sight. Austin Energy continues to outline other specifications including compliance with NESC and utility and city codes.[60]

To avoid unintended safety-related consequences, the distribution utility must be involved in the interconnection and approval process of any distributed energy resource. Any final rule in this docket must preserve authority of the state or local regulatory authority over distributed energy resource safety.

2. Distribution-system reliability of service and its associated requirements must be protected.

Distribution system reliability and related operational issues must be addressed in the registration and ongoing operation of any aggregation of distributed energy resources. As noted

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[59] OSHA Docket 06-0166, available at http://www.oshrc.gov/decisions/html_2007/06-0166.htm.

[60] *See* Austin Energy, Distribution Interconnection Guide for Customer Owned Facilities less than 10 MW, available at https://austinenergy.com/wps/wcm/connect/23c5f881-73da-4064-b1bc-a7a428c9eebb/distibutionInterconnectionGuide.pdf?MOD=AJPERES.

above, the NOPR recognizes this in a general sense by requiring "coordination" between the RTO/ISO, the aggregator, and the distribution utility. Just as the RTO/ISO market rules must have a participation model that recognizes the unique physical and operational characteristics of distributed energy resources, so, too, must the RTO/ISO market rules recognize and defer to—not override or interfere with—the technical criteria that the distribution utility uses to reduce unintended operational consequences to the distribution system and its consumers. Allowing the distribution utility and its state and local regulators to establish and enforce rules that mitigate unintended and unacceptable consequences is imperative. For this reason, the distribution utility must be a key partner with the RTO/ISO in the registration and operation of aggregations of distributed energy resources.

a. Power quality must be maintained.

The reliability of distribution services involves far more than minimizing the frequency and duration of service outages. To ensure reliability and prevent equipment damage, public power utilities and cooperatives are required to provide a supply of electricity at a steady state, or normal expected voltage, as a part of their obligation to serve. At a distribution utility, providing normal voltage that continuously meets the manufacturer specifications is often referred to as power quality. IEEE Standard 1250 establishes a guide for providing electric distribution service to all types of power quality sensitive equipment.[61] This equipment, including computers and computer-like products, will rapidly fail if subjected to power quality phenomena that exceed the

[61] *See* 1250-2011 – IEEE Guide for Identifying and Improving Voltage Quality in Power Systems, available at https://standards.ieee.org/findstds/standard/1250-2011.html.

various tolerance standards used by manufacturers.[62] It would be unacceptable under several standards to allow power quality disturbances to occur for some customers in order to facilitate a wholesale market transaction by an aggregator of distributed energy resources.

Across a utility, there can be different system voltages, but each system voltage is defined by the portion of the system in question as bounded by transformers or utilization equipment, and is designed to be within specified normal voltage ranges. Distributed energy resources have the potential to help a utility's voltage, and when used properly can be used to correct local system voltage disturbances, or avoid creating them. But the opposite can also occur. Without proper partnership with the local utility, aggregations of distributed energy resources may act out of sync with the local priorities creating power quality consequences for customers that are not participating, or that may be participating with other aggregators. In the event of a distribution system low voltage, or under-voltage condition, utilities adhering to IEEE standards would have operational reason to act to preserve normal voltage levels.[63]

Any Final Rule in this docket should recognize that it is unacceptable to compromise power quality for other customers in order for an aggregator to participate in a wholesale market. Aggregators of distributed energy resources should have market rules that help them to comply with the applicable standards required to maintain distribution-system reliability and power quality. Maintaining and improving reliability and power quality should not be considered a barrier to wholesale market participation, but rather a necessary condition on such participation.

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[62] *See* EPRI, Power Quality Standards: CBEMA, ITIC, SEMI F47, IEC 61000-4-11/34, available at https://www.sceg.com/docs/librariesprovider5/pdfs/powerqualitystandards.pdf.

[63] *See, e.g.*, 1159-2009 - IEEE Recommended Practice of Monitoring Electric Power Quality, available at https://standards.ieee.org/findstds/standard/1159-2009.html, and ANSI C84.1-2011, https://www.nema.org/Standards/ComplimentaryDocuments/Contents-and-Scope-ANSI-C84-1-2011.pdf.

b. The participation of aggregations of distributed energy resources in wholesale markets must respect the operational and technical constraints of distribution systems.

The NOPR recognizes that to ensure reliability and mitigate unintended operational consequences, there is a need for coordination between the RTO/ISO, the aggregator, and the distribution utility. In this regard, the distribution utility's role is essential. The mechanisms for accommodating wholesale transactions in the face of distribution-system realities must be based on operational and technical constraints of the distribution grid.

The question of what distributed energy resources are operationally dispatchable by the RTO/ISO must be answered in a fashion that addresses all operational consequences that might flow from such a dispatch. Only the distribution utility can answer the vast majority of technical, safety and operational questions that surround distributed energy resource participation in wholesale markets. For example, a distribution circuit may not be able to serve all EVs in a neighborhood concurrently with other distributed energy resource operations.

Distributed energy resource aggregators may encounter situations where they cannot participate in wholesale transactions because the local system design and construction may not allow the necessary rerouting around faults or congestion, as is frequently possible in bulk power markets. This is an important technical difference between transmission and distribution grids. The RTO/ISO, which operates the wholesale market and transmission grid, may not be made aware of these utility-specific design and construction constraints. Hence, the distribution utility must be able to apply these considerations by establishing technical limits for resource scheduling and dispatch occurring on its system. In all circumstances, the distribution utility must retain operational authority to preserve distribution-system reliability.

c. Consequences of improper control equipment operation must be recognized.

Designing and operating a distribution system involves many technical tradeoffs, which are applied by a utility to minimize the cost of customer interconnection and system engineering. These tradeoffs include distribution system-wide uniform specifications that relate to equipment such as, transformers, capacitors, protection controls, and sizing criteria. The operations of a distribution system therefore can be affected by distributed energy resources under regular conditions and during faults. Accordingly, the distribution utility should have authority over the interconnection of all distributed energy resources on its distribution system.

The distribution utility is the best party to conduct the required analyses and ensure that the proper equipment and technology are deployed to optimize reliability for customers, while also preventing equipment from deteriorating or failing over time. In many cases, it is the only accountable party with an existing obligation to serve.

For example, Canada's BC Hydro reported that backfeed from distributed energy resources into a ground fault on a long transmission line without effective grounding can generate temporary overvoltages, which have the potential to damage customer equipment.[64] Distributed energy resources may impose these overvoltages on their neighbor's service as a consequence of their wholesale market participation.

Such overvoltages caused by distributed energy resources are a configurational issue and must be mitigated by the distribution system utility. This mitigation comes at a cost and includes

[64] Dispersed generation interconnection - Utility perspective, IEEE Transactions on Industry Applications 42(3):864-872 · May-June 2006.

things such as adjusting or changing to three-phase reclosers,[65] checking the thermal ampacity of the feeder and regulators, performing additional load flow studies, and checking or modifying the voltage regulation equipment between the utility and the distributed resource to avoid overvoltages. In addition, line voltage regulators subject to reverse power flow from distributed energy resources may need to be retrofitted or replaced to sense and prevent tap changing transformer operations.

Any Final Rule in this proceeding needs to put the distribution utility front and center as the key partner when distributed energy resources are being placed on its system to avoid equipment damage, increased failure rates, power-quality issues for the utility and customers, as well as the possibility for increased losses due to improper or misunderstood coordination.[66]

d. The cost of maintaining adequate power quality under increasing and potentially uncoordinated DER is substantial.

Increasing penetration levels of distributed energy resources participating in wholesale electric markets either individually or through aggregators may create conflicting power-quality and wholesale-market objectives. While the NOPR proposes that the telemetry issues can be solved adequately for market participation using modern technology,[67] APPA and NRECA believe this ultimately has the potential to create an absurd outcome where a distributed energy resource is simultaneously responding to real-time signals in wholesale electric markets but creating reliability and power-quality issues for its neighbors. Such unintended consequences of wholesale market participation by distributed energy resources impose real costs on the

[65] To avoid single-pole line switching on the three-phase synchronous generators of distributed energy resources.

[66] Dispersed generation interconnection - Utility perspective, IEEE Transactions on Industry Applications 42(3):864-872 · May-June 2006.

[67] NOPR at P 152.

distribution utility and its other customers. The distribution utility must be able to establish reasonable technical limits to prevent power quality and reliability issues while appropriately allocating costs before resources are interconnected with the distribution grid and before wholesale market participation begins.

For example, the utility should be able to prevent the fault current contribution that originates on the customer side of the meter via distributed energy resources from creating an insufficient safety margin in the fault current interrupting equipment on the distribution side of the meter. Each additional contribution to fault current from additional sources, such as distributed resources, can pose problems to the distribution system. In cases where distributed energy resources are causing additional fault current contributions, the distribution utility would need to counteract the operational consequences.

Figure 1 depicts options for the utility to undertake and the approximate costs associated with each option. The potential per circuit costs to the utility are estimated to range from $50,000 – $500,000.[68]

[68] EPRI, Power Quality Impacts of Distributed Generation, Technical Report, Palo Alto, CA: 2005, available at http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000000001008507&Mode=download.

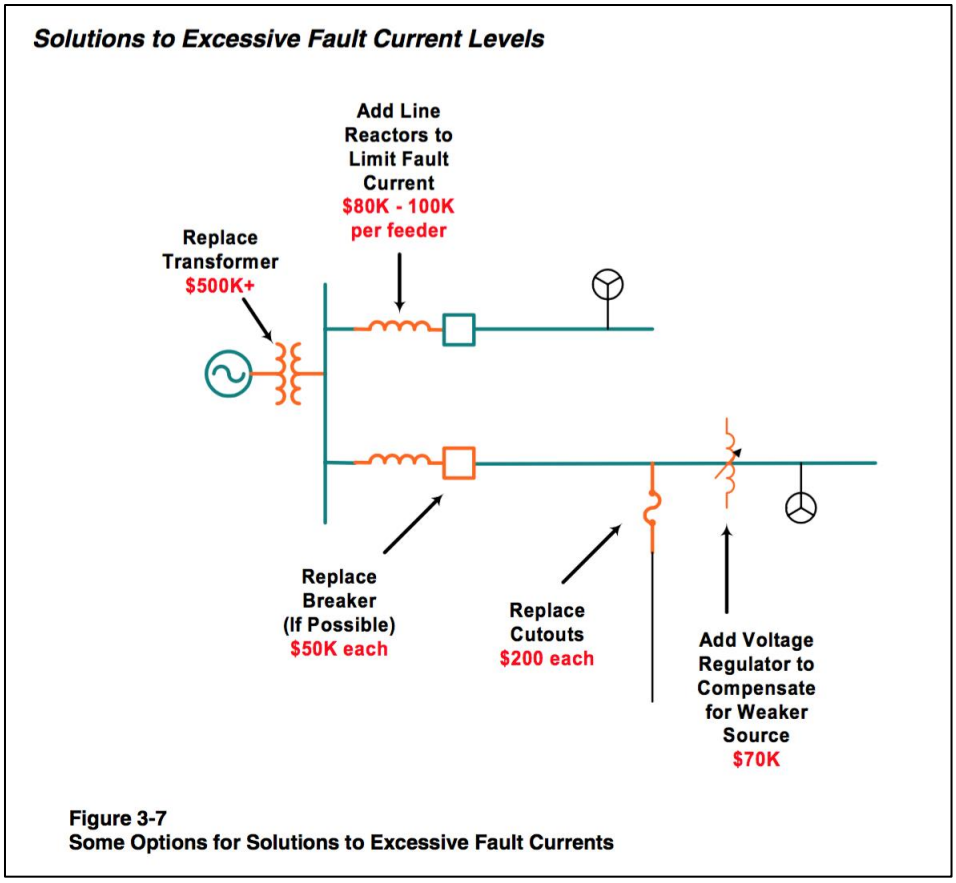

Figure 1: Estimated Costs for solutions to excessive fault current[69]

Large amounts of distributed generation can interfere with the operation of the tap-changers, as well as increasing the threat of unintentional islanding. In the case of a radial distribution system, the assumption is that the voltage drops on the feeder as the distance from the substation increases. Voltage regulation equipment installed on the distribution system is usually done so with this assumption in mind; however, with unexpected DG being installed on the system, these assumptions can be heavily impacted and can contribute to retrofitting cost. A functioning market system ensures these types of costs are addressed. A utility should be a

[69] *Id*. at 3-7.

partner in addressing these costs and reliability issues as they arise and before an aggregator is given access to a wholesale market tariff.

System topology is significant to the analysis of distributed energy resources' impact and will vary substantially from system to system. In the instance of a network system, load tap changers are used to regulate voltage. Many public power utilities are located in highly dense urban areas, which are good examples of systems that are "thermally limited." Thermally limited means that when the load is increased, the transformers and cables reach their thermal limits long before voltage drop becomes a major issue. In contrast, longer radial distribution systems are usually voltage drop limited – meaning that the voltage drop becomes too excessive well before any thermal limits are reached.[70] The utility is the rational arbiter of access to the distribution system to ensure these types of topological variations are addressed.

An important question, not addressed here because it is well outside the scope of this rulemaking, is how the distribution utility recovers the resulting costs of accommodating distributed energy resources as well as their participation through aggregators in organized wholesale electric markets, e.g. from the individual marginal distributed energy resource, from the aggregator, or otherwise. In Part IV.F below, we recommend that the Final Rule clarify that state and local regulators have authority over the rates of distribution utilities to recover the costs they incur in providing the distribution facilities and services used by distributed energy resources when they are participating in organized wholesale electric markets.

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[70] *See* Power Quality Impact of Distributed Generation: Effect on Steady State Voltage Regulation, available at http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.202.5283&rep=rep1&type=pdf.

3. Ensuring reliability requires ensuring the security of the distribution system when distributed energy resources participate in wholesale markets.

One issue the NOPR does not address is the security of the distribution system and its resources. Adding distributed energy resources to organized wholesale electric markets adds potentially thousands of additional access points to a critical system, all of which must be secured. The mechanisms for doing so and the resulting costs need to be addressed

C. The Commission Should Ensure that Permitting Aggregations of Distributed Energy Resources does not have Unintended Pricing Consequences.

The Commission proposes to require each RTO/ISO to revise its tariff to establish locational requirements for distributed energy resources to participate in aggregations that "are as geographically broad as technically feasible." [71] In addition to the technical, operational and reliability concerns discussed above that must be addressed, APPA and NRECA urge the Commission to allow RTOs/ISOs sufficient flexibility to prevent any unintended consequences related to pricing in their markets. Distributed energy resources should not have the ability to obtain more favorable pricing than other resources in a particular location by virtue of their aggregation, particularly if that location is constrained. For example, if aggregation across several different pricing zones is allowed, that aggregation should not result in lower-cost pricing zones subsidizing higher-cost pricing zones. As APPA and NRECA emphasize in the introduction to these comments, it is important to protect against over-recoveries and cross-subsidies. The Commission should direct RTOs/ISOs, with input from their stakeholders, to propose appropriate mechanisms for addressing such concerns.

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[71] NOPR at P 139.

D. The Commission Should Ensure that the Final Rule Respects Local Rate-Setting Authority.

APPA and NRECA reiterate their request that the Commission clarify that the scope of this rulemaking is limited to RTO/ISO market rules.[72] More fundamentally, the Commission should be mindful of the retail- and distribution-service rate-setting authority of state commissions, cooperative boards of directors, and, for public power utilities, governing boards and city councils, and it must ensure that the Final Rule does not impinge local rate-setting authority. To this end, APPA and NRECA request that the Final Rule contain the following points.

First, the Final Rule should state that nothing in the rule preempts or limits the ability of state and local authorities to adopt rules, approve tariffs, or set rates to provide an opportunity for a distribution utility to recover the costs it incurs in providing distribution facilities and distribution service to distributed energy resources, including resources that participate in aggregations under the RTO and ISO market rules required by the Final Rule. For the reasons already stated, Part II of the FPA leaves these matters to state and local authorities.[73] Moreover, the provisions of Part II of the Act do not apply to public power utilities or to most electric cooperatives, unless a provision specifically so provides.[74] The Final Rule does not rely on any such specific provision.

Confirming the ability of distribution utilities to recover these costs is important because, as demonstrated above, a distribution utility may incur substantial costs from the interconnection

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[72] *See* Part IV.A., *supra.*

[73] 16 U.S.C. §§ 824(a), 824(b)(1).

[74] 16 U.S.C. § 824(f).

and operation of distribution energy resources, including those participating in organized wholesale electric markets through aggregators.[75] In addition, APPA and NRECA echo the concerns detailed in the comments of the Transmission Access Policy Study ("TAPS") Group regarding new metering technologies. Since net metering by itself does not generally require installation of additional meters, the instant proposal may necessitate the installation of new meters or new communication technology to capture wholesale market transactions, as the NOPR finds and requires the RTO and ISO compliance filings to address.[76] These costs could outweigh the benefits of distributed energy resource participation in the RTO marketplace. These costs would be a particular burden to smaller distribution utilities, including many public power and cooperative utilities. The ability to recover these costs, and how they are recovered, are essential matters for state and local authorities to address.

Second, APPA and NRECA request that the Commission's Final Rule clarify the eligibility requirements for distributed energy resources to participate in organized wholesale electric markets through an aggregator. In this regard, APPA and NRECA agree with the Commission's proposal that distributed energy resources that are already participating in one or more retail compensation programs such as net metering, or wholesale programs such as demand response, will not be eligible to participate in the organized wholesale electric markets through an aggregator.[77] The NOPR states that it is inappropriate for a distributed energy resource to participate in an aggregation while receiving compensation for the same services through another

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[75] *See supra* Part IV.B.2.d.

[76] NOPR at PP 150-152.

[77] NOPR at P 134.

program.[78] Consistent with the guiding principles set forth at the beginning of these comments, APPA and NRECA urge the Final Rule to clarify that such double recovery is unjust and unreasonable, and thus unlawful under the FPA.

Further, APPA and NRECA request that the Final Rule, require that as part of their compliance filings, each RTO and ISO must demonstrate, through tariff language, how it will ensure that resources that are receiving compensation for a service as part of a retail program or another wholesale program cannot also participate in providing the same service in the organized wholesale electric markets through a distributed energy resource aggregator. The compliance filings must provide that the RERRA, or an entity authorized by the RERRA (such as the distribution utility), will determine whether the resource's participation in a non-wholesale program makes it ineligible to participate in the organized wholesale electric markets through an aggregator. A simple attestation by the aggregator to the RTO or ISO should not be sufficient for these purposes.

Third, the integrity of the retail and wholesale programs could be threatened if distributed energy resources are eligible to opt out at will and go with an aggregator. This also creates rate and cost uncertainty for the distribution utility. Along the same lines, it would create massive uncertainty if distributed energy resources could switch between participating in the retail/wholesale program and the market aggregator depending on which program would be most economically beneficial at any given moment. The Final Rule therefore should require the RTO and ISO compliance filings to adopt market rules for when distributed energy resources, already tied to a local or another wholesale program, would be able to switch into the organized

[78] *Id.*

wholesale electric markets through an aggregator. These compliance filings must provide that the RERRA or entity authorized by it would make this determination for a resource participating in or seeking to participate in a local program. Also, once a distributed energy resource has switched between aggregation and retail or wholesale program participation, that decision should stand for a certain minimum amount of time. APPA and NRECA believe a one-year period should elapse before resources can switch back. The Final Rule should require the RTO or ISO compliance filing to propose and justify a reasonable time limit on such switching. For electric storage resources, a further specific rule is required, as described next.

Fourth, to ensure that the Final Rule respects local rate-setting authority, the Final Rule should be specific on the requirements that apply to the participation of electric storage resources in wholesale and retail electric markets.[79] APPA and NRECA agree with the proposal in the NOPR that to require each RTO or ISO tariff to state that "the sale of energy from the organized wholesale electric markets to an electric storage resource that the resource then resells back to those markets must be at the wholesale [locational marginal price]."[80] In other words, an electric storage resource that sells energy in the wholesale market is entitled to buy that energy in the wholesale market at the LMP authorized by the Commission. APPA and NRECA urge the Final Rule to require the RTO/ISO tariffs contain two further provisions. First, if an electric storage resource purchases energy from the wholesale market, it must resell that energy and cannot

[79] These requirements would apply to all electric storage resources participating in wholesale electric markets, whether they are located on the interstate grid or a distribution system, and regardless whether they participate in an aggregation.

[80] NOPR at P 100.

consume it (e.g., manage its own retail load).[81] The FPA requires this result; the Commission cannot regulate a retail sale to the electric storage resource.[82] This clarification is necessary to avoid having the RTO market rules become a vehicle for the storage resource to bypass the retail utility's service and rates. Second, if an electric storage resource purchases energy at retail, it must consume that energy and cannot resell that energy into the organized wholesale electricity markets; in other words, all energy sold at wholesale must be purchased at wholesale. This clarification is necessary to avoid having the RTO market rules become a vehicle for the electric storage resource to engage in arbitrage between volatile wholesale markets and regulated retail markets, with the likely result of shifting costs to the retail utility's other customers. The RTO or ISO tariff should require an electric storage resource that participates in the organized wholesale electric markets to affirm its compliance with these two rules. The NOPR requests comment on whether advanced metering and accounting can separate wholesale and retail activities.[83] For the reasons explained in the TAPS Group comments, APPA and NRECA believe that, rather than require RTOs and ISOs and distribution utilities to develop and administer elaborate metering and accounting schemes, a storage resource must elect to participate in either market, but cannot participate in both.[84]

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[81] The NOPR recognizes this problem. *See id.* at P 102.

[82] 16 U.S.C. § 824(b)(1).

[83] NOPR at P 102.

[84] TAPS Comments at 31-32.

E. The Commission Should Leave Capacity Requirements for Distributed Energy Resources Out of This Proceeding

As discussed above, distribAuted energy resource aggregation raises a host of issues for the distribution utility related to reliability, operations and safety. The impact of a distributed energy resource aggregation that participates in organized wholesale electric markets will depend not only the size of the resources, but also their locations on the distribution system and their technical and operational capabilities. APPA and NRECA support the Commission's proposal not to establish minimum or maximum capacity requirements on individual resources. These are matters that should not be determined by the Commission or the RTOs or ISOs, both because the Commission has no jurisdiction over facilities used for generation or local distribution, and because states and local regulators are likely best equipped to address these issues. Moreover, given that most distribution utilities such as APPA's and NRECA' s members are in the relatively early stages of addressing the challenges associated with higher penetrations of distributed energy resources, it is premature for the Commission to either establish minimum or maximum capacity criteria or mandate that RTOs and ISOs do so at this time. Instead, the Final Rule should remain silent on this issue, except to indicate that the Commission will address it on a case-by-case basis if raised by RTOs and ISOs in their filings.

F. The Final Rule Should Clarify the Role of Distribution Utilities in Registering and Distributed Energy Resource Aggregations and in Ongoing Coordination with the RTO/ISO and the Aggregator.

As noted above, the Commission properly recognizes the need for coordination between the RTO/ISO, the distributed energy resource aggregator, and the distribution utility, both when a new aggregation is registered with an RTO/ISO and on an ongoing basis. The Commission proposes to require the RTO/ISO tariff to "provide for" such coordination "to ensure that the participation of these resources in the organized wholesale electric markets does not present

reliability or safety concerns for the distribution or transmission system."[85] The Commission's registration and coordination proposals, however, are incomplete and inadequate, because they leave the distribution utility in an unreasonably vulnerable position. The NOPR proposes to give the distribution utility a purely advisory role. Thus, the distribution utility would be given "the opportunity to review the list of individual resources that are located on their distribution system that enroll in a distributed energy resource aggregation before those resources may participate in the organized wholesale electric markets through the aggregation."[86] Under the Commission's proposal, a distributed energy resource aggregator would be able to modify the list of distributed energy resources in its aggregation without re-registering them "if the modification will not result in any safety or reliability concerns."[87] When the aggregator modifies the list, the distribution utility would again have "the opportunity to review the list of individual resources" before they may participate.[88] If the proposed new or modified aggregation does pose safety or reliability concerns for the distribution utility, the only recourse the NOPR gives the utility is an "opportunity to report such information to the RTO/ISO for its consideration prior to the RTO/ISO allowing the new or modified distributed energy resource aggregation to participate in the organized wholesale electric markets."[89]

The ability of a distribution utility to review distributed energy resource aggregations before the resource participates is of little to no value if the distribution utility's hands will be

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[85] NOPR at P 153.

[86] *Id.* at P 154.

[87] *Id*. at P 149.

[88] *Id.* at P 154.

[89] *Id.*

tied from protecting its system. The RTO or ISO cannot be expected to take responsibility for protecting the safety, reliability and operations of the distribution utility system. Instead, those responsibilities fall to the distribution utility and its state or local regulatory authorities.

Accordingly, the Final Rule should provide that an aggregation's registration is contingent upon the RERRA authorizing its participation in the organized wholesale electric markets, under the Order No. 719-A opt-in/opt-out process described above. The Commission should require the RTO and ISO compliance filings to include this requirement.

Moreover, in order to protect against adverse impacts on the distribution utility system, the Commission should require RTOs and ISOs to include in their compliance filings a process whereby distribution utility owners are provided reasonable prior notice of any changes in the distributed energy resources in a registered aggregation registration for distributed energy resources on their system and then must approve the distributed energy resource participation in the aggregation within a specific period of time, or explain its reason for not approving. Absent such approval, the RTO/ISO should not be permitted to allow the distributed energy resource to participate in the aggregation, because it could have adverse impacts on the distribution utility system.

Similarly, as part of the ongoing coordination that the NOPR would require among RTOs/ISOs, distributed energy resource aggregators, and the relevant distribution utility or utilities,[90] the Commissions should require appropriate, detailed and sufficient communication and coordination as a condition precedent to distributed energy resource aggregation. APPA and NRECA believe that the requirement to coordinate should be flexible in order to accommodate

[90] *Id.* at PP 155, 156.

differences in the RTO/ISO regions with respect to the level of distributed energy resource deployment, ability to meaningfully coordinate with distribution utility owners, or other matters. Therefore, in order to allow flexibility in this regard while making sure there is adequate coordination and communication, the Commission should require each RTO/ISO to work with its stakeholders – including distributed energy resource owners, distribution utility owners, and distributed energy resource aggregators to the extent available – and develop for their compliance filing tariff provisions that will set forth the minimum detail regarding information related to reliability, safety and operational issues to be exchanged and notifications which must be made (e.g, outages, withdrawal from an aggregation), as well as timelines for same.

G. The Commission Should Strengthen the Proposed Requirement for Market Participation Agreements for Distributed Energy Resource Aggregators

APPA and NRECA agree with the Commission that distributed energy resource aggregations must comply with all relevant provisions of the RTO/ISO tariff and should be required to execute a market participation agreement.[91] Such compliance is properly a condition to its continued participation in the organized wholesale electric markets. We also support the Commission's proposal that such market participation agreements must not restrict the business models that may be adopted by energy resource aggregators. As the Commission notes in the NOPR, "the market participation agreement for distributed energy resource aggregators should not preclude distribution utilities, cooperatives, or municipalities from aggregating distributed

[91] NOPR at P 157.

energy resources on their systems or even microgrids from participating in the organized wholesale electric markets as distributed energy resource aggregation."[92]

APPA and NRECA agree with the Commission's statement that the resources in these aggregations will need to comply with tariffs, rules, and regulations of multiple organizations, including distribution utilities and local regulatory authorities.[93] The NOPR simply proposes that the market participation agreement must require the aggregator to "attest[] that its distributed energy resource aggregation is compliant with the tariffs and operating procedures of the distribution utilities and the rules and regulations of any other relevant regulatory authority."[94] The Final Rule should clarify that such an attestation by the aggregator is a necessary but not sufficient condition to market participation by the aggregator: in addition, the aggregator must demonstrate that the RERRA has authorized the wholesale-market participation by the distributed energy resources in the aggregation as described earlier.

The Final Rule should also clarify that the market participation agreement must also require the aggregator to provide notice to the distribution utility of the resources in the aggregation and any subsequent changes in those resources, as proposed in the previous section.

Finally, the Final Rule should require the market participation agreement to provide that compliance by the aggregator and the individual resources in the aggregation with the tariffs and operating procedures of the distribution utilities and the rules and regulations of any other relevant regulatory authority is a condition of the right to participation in the RTO/ISO's

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[92] *Id.* at P 158.

[93] *Id.*

[94] *Id.* at P 157.

organized wholesale electric markets by the aggregator and the individual distributed energy resources in the aggregation.

V. CONCLUSION

WHEREFORE, for the foregoing reasons, APPA and NRECA request that the Commission consider these comments and adopt APPA and NRECA's recommendations.

Respectfully submitted,

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Dated: February 13, 2017

CERTIFICATE OF SERVICE

I hereby certify that on this 13th day of February, 2017, I have caused a copy of the foregoing to be served upon each party designated on the Official Service list in this proceeding.

/s/ Adrienne E. Clair