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

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| Essential Reliability Services and the Evolving Bulk-Power System— Primary Frequency Response | ) ) ) | Docket No. RM16-6-000 |

# SUPPLEMENTAL COMMENTS OF THE ISO-RTO COUNCIL ON NOTICE OF PROPOSED RULEMAKING REGARDING PRIMARY FREQUENCY RESPONSE

Pursuant to the Federal Energy Regulatory Commission's (the "Commission" or "FERC") Notice of Request for Supplemental Comments issued on August 18, 2017,[1] the ISO-RTO Council ("IRC")[2] respectfully submits these supplemental comments.

## I. BACKGROUND

On November 17, 2016, the Commission issued a Notice of Proposed Rulemaking[3] proposing revisions to its *pro forma* Large Generator Interconnection Agreement ("LGIA") and *pro forma* Small Generator Interconnection Agreement ("SGIA") to require new large and small generating facilities, both synchronous and non-

[1] *Essential Reliability Services and the Evolving Bulk-Power System – Primary Frequency Response*, Notice of Notice of Request for Supplemental Comments, 160 FERC ¶ 61,011 (Aug. 18, 2017) ("Request for Supplemental Comments").

[2] The IRC comprises the Alberta Electric System Operator ("AESO"), California Independent System Operator ("CAISO"), Electric Reliability Council of Texas, Inc. ("ERCOT"), the Independent Electricity System Operator of Ontario, Inc. ("IESO"), ISO New England, Inc. ("ISO-NE"), Midcontinent Independent System Operator, Inc. ("MISO"), New York Independent System Operator, Inc. ("NYISO"), PJM Interconnection, L.L.C. ("PJM"), and Southwest Power Pool, Inc. ("SPP"). The AESO and ERCOT are not subject to the Commission's jurisdiction with respect to the matters addressed in this rulemaking and, therefore, do not join these comments.

[3] *Essential Reliability Services and the Evolving Bulk-Power System – Primary Frequency Response*, Notice of Proposed Rulemaking, 157 FERC ¶ 61,122 (Nov. 17, 2016) ("NOPR").

synchronous, to install, maintain, and operate equipment capable of providing primary frequency response as a condition of interconnection.[4] Multiple parties, including the IRC,[5] filed comments in response to the NOPR. In response to certain comments, the Commission issued the Request for Supplemental Comments to better understand the possible ramifications of the proposed primary frequency response requirements on electric storage resources and small generators.

## II. COMMENTS

The IRC supports the requirements proposed in the NOPR and the application of such requirements to all resource types, including electric storage resources and small generators. The purpose of the Commission's proposal is to ensure adequate levels of primary frequency response continue to exist given the transformation in the resource mix and the Commission's concerns about declining frequency response.[6] This transformation includes the retirement of baseload, synchronous generating facilities and the loss of the inertia and primary frequency response contributions from such generators. At the same time, asynchronous generators, small generators, distributed energy resources, and electric storage resources comprise an increasing percentage of the future generation mix. Providing an exemption or variation to the NOPR requirements for small generators and electric storage resources could allow such resources to avoid solving the very problem to which such resources contribute and the NOPR rules were meant to address. In fact, the Commission has conducted recent proceedings exploring

[4] *Id*. at P 44.

[5] Comments of the ISO-RTO Council on Notice of Proposed Rulemaking Regarding Primary Frequency Response, Docket No. RM16-6-000 (Jan. 24, 2017) ("IRC NOPR Comments").

[6] *Id*. at P 3.

the increased participation of small and storage resources in the wholesale markets. The performance expectations discussed in those proceedings seems out of synch with an effort to exempt these resources from performance expectations.

The Commission's proposed requirements are consistent with guidelines developed by North American Electric Reliability Corporation ("NERC") to maintain and enhance the reliability of the bulk electric system. As FERC stated in the NOPR, the NERC Essential Reliability Services Task Force, "…concluded that it is prudent and necessary to ensure that primary frequency response capabilities are present in the future generation resource mix, and recommended that all new generators support the capability to manage frequency."[7] Furthermore, the NERC guidelines on which the NOPR requirements are based recommend that "…all resources connected to an Interconnection be equipped with a working governor or equivalent frequency control device" with response characteristics such as those described in the guidelines[8] and proposed in the NOPR. Similar to traditional resources and large generators, electric storage resources and small generators should contribute their fair share of primary frequency response in accordance with the requirements proposed in the NOPR.

The NOPR proposals are also consistent with current requirements of PJM, NYISO, ISO-NE, and CAISO. As stated in its NOPR comments, a number of ISOs and RTOs already require resources, including small generators and/or electric storage resources, to install, maintain, and operate equipment capable of providing primary frequency response as a condition of interconnection. These requirements have been in

[7] *Id*. at P 15.

[8] *See* NERC Primary Frequency Control Guideline Final Draft, p. 3 (Dec. 2015), http://www.nerc.com/comm/OC/Reliability%20Guideline%20DL/Primary_Frequency_Control_final.pdf ("NERC Guideline").

place for several years, have not resulted in operational issues or challenges associated with such requirements, and have not required exemptions for either electric storage resources or small generators. Moreover, areas with substantial penetration of renewable resources already impose a primary frequency response capability requirement on all resources, with no negative impacts.[9] To the best of its knowledge, the IRC is unaware of any limitations that would render the Commission's proposed requirements infeasible or unduly burdensome for electric storage resources or small generators.

## III. ANSWERS TO QUESTIONS POSED IN THE REQUEST FOR SUPPLEMENTAL COMMENTS

In response to the certain questions posed by the Commission, the IRC provides the following.[10]

### *A. IRC Response Regarding Challenges, Operational Implications, and Impacts of the Proposed Requirements on Electric Storage Resources (Questions 1(a), (b), and (c) in Section II A)*

The IRC is not aware of any challenges of requiring electric storage resources to implement the proposed operating settings for droop, deadband, and timely and sustained response proposed in the NOPR. Moreover, as stated in section II above, the NOPR proposal is consistent with NERC guidelines and the current requirements of certain RTOs and ISOs.

[9] For example, in the European Union, all generators seeking to connect to the grid must have primary frequency response capability. *See* ENTSO-E Requirements for Generators, Chapter 1, Article 13 available at https://electricity.network-codes.eu/network_codes/rfg/.

[10] The IRC responds to only certain questions in the Request for Supplemental Comments because many of the questions in the Request for Supplemental Comments are technical questions that are better addressed by electric storage resources, small generators, and their manufacturers.

### *B. IRC Response Regarding Risks Associated with Requiring Electric Storage Resources to Provide Primary Frequency Response (Question 2 in Section II A)*

The IRC is not aware of risks associated with requiring electric storage resources to provide timely and sustained primary frequency response, such as possible adverse effects on an electric storage resource's ability to fulfill other obligations (e.g., providing energy or other ancillary services). With regard to sustained response, NERC states in its Reliability Guideline that frequency deviations often persist for longer than one minute, and frequency response should be sustained until the frequency returns to a value within the governor deadband.[11] The Commission's proposed requirements to provide sustained frequency response is consistent with NERC's guideline and should be applied to both traditional and electric storage resources.

### *C. IRC Response Regarding the Relationship between Electric Storage Resources Being Online and the Provision of Primary Frequency Response (Question 3(a) and (b) in Section II A)*

As the IRC indicated in the IRC NOPR Comments, all newly interconnecting generating resources, and all existing interconnections that require the submission of a new interconnection request, should be required to install the capability necessary to provide primary frequency response and operate in accordance with the settings proposed in the NOPR.[12] Moreover, electric storage resources should be required to provide primary frequency response in accordance with each RTO's and ISO's respective tariff and in a manner similar to all other resources. For example, under PJM's tariff, all resources, including electric storage resources, that are actively providing energy or

[11] NERC Guideline at p. 11.

[12] IRC NOPR Comments at p. 2.

certain ancillary services are expected to provide primary frequency response. Similarly, in ISO-NE, the LGIA already requires the provision and maintenance of a functioning governor on all new generating units comprising the Large Generating Facility in accordance with applicable provisions of the ISO New England Operating Documents and applicable Reliability Standards. ISO New England Operating Procedure No. 14 contains specific frequency response requirements. If an electric storage resource is online but is not providing energy or certain ancillary services, it is not expected to provide primary frequency response, similar to all other resources within PJM.

*D. IRC Response Regarding Whether an Exemption is Appropriate for All or a Subset of Small Generating Facilities (Question 3 in Section II B)*

For the reasons stated above in section II, exemptions are not appropriate for small generators or any subset thereof.

*E. IRC Response Regarding the Extent to which Small Generating Facilities are Necessary to ensure Adequate Primary Frequency Response (Question 4 in Section II B)*

Given small generators' increasing market penetration, small generators should be required to provide adequate primary frequency response in a manner similar to large generators. For example, within PJM, 30 new generators were placed in service in the past year. Of those, 25 are small generators (i.e., generators having a capacity of no more than 20 MW) and 5 are large generators. Similarly, in ISO-NE, 12 new generators were placed in service in the past year. Of those, 8 are small generators, and 4 are large generators.

*F. IRC Response Regarding Whether PJM's Changes to its Interconnection Agreements Address Concerns Regarding Costs and Barriers and whether PJM's Approach is Viable in other Regions (Question 5 in Section II B)*

PJM has not experienced any decrease in the number of interconnections requests or interconnections of small non-synchronous generators since requiring non-synchronous generating facilities to install enhanced inverters that include primary frequency response capability. The PJM approach is viable in other regions.

## IV. CONCLUSION

In response to the Request for Supplemental Comments, the IRC respectfully requests that the Commission consider the comments contained herein.

Respectfully submitted,


/s/ *James M. Burlew*
Craig Glazer
Vice President-Federal Government Policy
James M. Burlew
Senior Counsel
**PJM Interconnection, L.L.C.**
2750 Monroe Boulevard
Audubon, Pennsylvania 19403
james.burlew@pjm.com

*/s/ Margoth R. Caley*
Raymond W. Hepper
Vice President, General Counsel, and Secretary
Theodore J. Paradise
Assistant General Counsel, Operations and Planning
Margoth R. Caley
Senior Regulatory Counsel
**ISO New England Inc.**
One Sullivan Road
Holyoke, Massachusetts 01040
mcaley@iso-ne.com

/s/ *Anna McKenna*
Roger E. Collanton, General Counsel
Anna McKenna
Assistant General Counsel, Regulatory
Andrew Ulmer Director, Federal Regulatory Affairs
**California Independent System Operator Corporation**
250 Outcropping Way
Folsom, California 95630
amckenna@caiso.com

*/s/ Gregory J. Campbell*
Robert E. Fernandez, General Counsel
Raymond Stalter
Director of Regulatory Affairs
Gregory J. Campbell, Attorney
**New York Independent System Operator, Inc.**
10 Krey Boulevard
Rensselaer, NY 12144
gcampbell@nyiso.com

*/s/ Andre Porter*
Andre Porter
Vice President and General Counsel
Joseph G. Gardner
Vice President & Chief Compliance Officer
**Midcontinent Independent System Operator, Inc.**
720 City Center Drive
Carmel, Indiana 46032
aporter@misoenergy.org

*/s/ Tam Wagner*
Tam Wagner
Senior Manager, Regulatory Affairs
Maia Chase
Senior Regulatory Analyst
**Independent Electricity System Operator**
1600-120 Adelaide Street West
Toronto Ontario M5H1T1
Canada
tam.wagner@ieso.ca
maia.chase@ieso.ca

*/s/ Paul Suskie*
Paul Suskie
Executive Vice President & General Counsel
Tessie Kentner
Senior Attorney
**Southwest Power Pool, Inc.**
201 Worthen Drive
Little Rock, Arkansas 72223-4936
psuskie@spp.org

October 10, 2017

**CERTIFICATE OF SERVICE**

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

Dated at Norristown, PA, this 10th day of October, 2017.

James M. Burlew
Senior Counsel
PJM Interconnection, L.L.C.
2750 Monroe Boulevard
Audubon, PA 19403
(610) 666-4345