

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Essential Reliability Services and the
Evolving Bulk-Power System – Primary
Frequency Response

Docket No. RM16-6-000

COMMENTS OF THE
ELECTRICITY CONSUMERS RESOURCE COUNCIL
(ELCON)

Pursuant to the Federal Energy Regulatory Commission's (FERC or the Commission) Notice of Inquiry issued on February 18, 2016 in the above-captioned proceeding, Electricity Consumers Resource Council (ELCON) submits comments on potential reforms to the rules and regulations governing the provision and compensation of primary frequency response of generation resources.¹ Namely, the NOI seeks input on (i) revising the *pro forma* Large Generator Interconnection Agreement and Small Generator Interconnection Agreement to include primary frequency response as a precondition to interconnection; (ii) implementing primary frequency response requirements on existing generation resources; and (iii) establishing procurement and compensation mechanisms for primary frequency response.

¹ See *Essential Reliability Services and the Evolving Bulk-Power System – Primary Frequency Response*, Docket No. RM16-6-000, 154 FERC ¶ 61,117 (February 18, 2016) ("NOI").

ELCON is the national association representing large industrial consumers of electricity. ELCON member companies produce a wide range of products from virtually every segment of the manufacturing community. ELCON members operate hundreds of major facilities and are consumers of electricity in the footprints of all organized markets and other regions throughout the United States. Many ELCON members also operate behind-the-meter generation. Reliable electricity supply is essential to our members' operations.

I. BACKGROUND

ELCON generally supports the concepts outlined in the NOI. Initiating a dialogue about potential reforms to the rules and regulations governing the provision and compensation of primary frequency response of generation resources is a logical progression of the Commission's emphasis on securing a reliable electricity system in the context of an evolving market with regard to the composition of generation sources.

Such a review is consistent with the various recent FERC initiatives to allow the provision and sale of ancillary services. For instance, Order No. 819 allowed sellers with market-based rate authority to sell primary response frequency service at market-based rates. In Orders No. 888 and 890, the Commission opened the market to seven ancillary services sold by transmission owners. To facilitate the ancillary service markets, Order No. 784 removed an existing restriction on market-based rate sales of ancillary services by third parties in a balancing authority area. Similar to the scope of this NOI, Order No. 784 sought to enhance the capabilities of a changing grid by

enabling energy storage companies to more easily access a competitive market. In all of these initiatives, ELCON submitted comments and generally supported FERC's actions.

ELCON agrees with the Commission that the resource mix of the country has evolved, particularly due to the influx of growth in solar and wind nameplate capacity in all three Interconnections as well as a higher proportion of natural gas serving as baseload. Retirements of coal-fired power plants have also shifted the ratio of generating sources and the attendant capability to supply certain ancillary services. Notably, variable energy resources – such as solar and wind – do not provide primary frequency response “unless specifically configured to do so.”²

ELCON cautions, however, that it is imperative that any solution follow the principles of cost causation to ensure that inequitable and burdensome costs are not imposed on load. In any further action on this topic, the Commission also should take full account of implementation of NERC initiatives including its Reliability Standard BAL-003-1 and of the results of similar initiatives in ERCOT and other regions.

II. DISCUSSION

a. **FERC should prioritize developing a solution for this particular generation issue to avoid unintended consequences for load.**

Due to an imbalance of frequency and load, Interconnection frequency oscillations can produce disruptions. In the Eastern Interconnection, frequency can change on a daily basis by 0.036 Hz or greater – a significant deviation. The Commission and NERC aim to reduce instances of under-frequency load shedding and

² NOI at P 9.

frequency nadirs through compliance with governor dead band and droop parameters. New market incentives can support these technical requirements if applied to each generator.

In the Electric Reliability Council of Texas (ERCOT), the service of primary frequency response consists of three technically distinct parts: Synchronous Inertial Response (the most instantaneous response), Fast Frequency Response (the second fastest), and Primary Frequency Response.³ Based on the ability of ERCOT to implement these ancillary services markets – all three of which comprise what is generally considered “primary frequency response” – ELCON recommends the Commission establish a similar framework.

The market, however, implicitly assigns the responsibility of primary frequency response to fossil-fuel generator owners. As fossil-fuel generators retire – principally coal-fired units – the share of generators able to provide primary frequency response decreases, placing higher associated costs on the remaining generators. To the extent that the Commission allows generators with “primary frequency response” capabilities (as broadly defined as possible to include all relevant and related services) to be compensated in order to balance the playing field while facilitating innovation in the renewable energy sector, ELCON recommends that it be made clear that such compensation will be paid by generators without “primary frequency response” capabilities, not load. For a sustainable solution amidst the increasing market share of

³ ERCOT Concept Paper, “*Future Ancillary Services in ERCOT*,” Version 1.1. November 1, 2013.

variable generation, “the industry needs to research, develop, and demonstrate newer and less familiar sources to provide frequency support.”⁴

Additionally, the current LGIA and the SGIA are “virtually silent”⁵ on requiring a functioning governor and reflect a generating fleet largely made up of traditional sources. An update to the *pro forma* LGIA and SGIA would serve to more appropriately reflect current and future market conditions while incorporating new language relevant to governors for frequency response purposes.

b. Small Combined Heat and Power (CHP) units are integrated with a manufacturing process and should not be required to provide Primary Frequency Response.

Many manufacturing processes use steam as the primary driver and the cogeneration of steam and electricity is an essential feature of the process. These devices, which are part and parcel of the load itself, cannot be treated as if they were conventional, stand-alone generators, and forcing them to act as stand-alone generation will compromise and potentially harm the manufacturing process. Retrofits to these devices is also out of the question on economic grounds, and requiring such capabilities of new machine (via revisions to the LGIS or SGIA) gives the management of the manufacturing process (i.e., the load) to Balancing Authorities. These loads should not be singled out for this type of treatment simply because they produce some electricity as a by-product of its operation. The appropriate mechanism for involving loads with

⁴ NREL. *Role of Wind Power in Primary Frequency Response of an Interconnection. Conference Paper*. September 2013. Located at: <http://www.nrel.gov/docs/fy13osti/58995.pdf>.

⁵ Midwest Reliability Organization. *Meeting Agenda: MRO Operating Committee*. February 2, 2016.

the provision of any Essential Reliability Service is demand response, which ELCON has long supported.

c. Given NERC Reliability Standard BAL-003-1, FERC should examine if, and to what extent, any FERC action is required.

In the NOI, the Commission contemplates a new policy framework to address primary frequency response that, in some respects, would expand on NERC Reliability Standard BAL-003-1 in addressing the need for sufficient frequency response, extended to generating units in addition to each Balancing Authority. Thus, it is worth examining the extent to which the issues raised by the NOI have already been adequately addressed by NERC. NERC Reliability Standard BAL-003-1 became effective April 1, 2016 and compliance begins on December 1, 2016. It may be prudent for the Commission to study the market impacts of this new standard when data is available.

Initiating a “proactive approach”⁶ with regard to the BAL-003-1 standard may not produce reliable insight. In fact, one of the questions to be answered in the NOI (Question 2.2) reveals the need for post hoc analysis: “Does the Commission’s recent rulemaking allowing third-party sales of frequency response services at market based rates allow balancing authorities to procure sufficient amounts of primary frequency response as required by BAL-003-1?”⁷ By better understanding the practical implications of sales in the market, the Commission can then assess whether or not balancing authorities even need to require that *all* generating resources provide primary

⁶ NOI at P 20.

⁷ NOI at PP 39-40.

frequency response. It is worth considering that the balancing authorities can procure these services in different proportions due to the varying resource mixes within each region.

d. Successful implementation of similar regulatory instruments (e.g. in ERCOT) should be granted consideration and copied, if appropriate.

As explained in the body of the NOI, regions such as ERCOT, ISO-NE, and PJM have already started to incorporate policies related to primary frequency response, with favorable results. The successful aspects of these policies should be reflected, and as appropriate duplicated, in any action taken under the NOI.

ERCOT Initiatives

In the ERCOT Interconnection, the growth rate in 2015 of wind and solar grew 29 percent and 50 percent relative to 2014 levels, respectively.⁸ Due to the significant portfolio of intermittent generating resources particularly during periods of low baseload – and the small size of the system compared to the North and South Interconnections – the ERCOT system faced unique frequency control issues.

Consequently, Texas Reliability Entity Inc. (TRE) developed a Regional Reliability Standard (BAL-001-TRE-01) addressing frequency response. This regional standard was borne out of discussion with key industry stakeholders, applicable to balancing authorities, generator owners, and generator operators. The Commission approved this standard, finding it to be “more stringent” than the existing NERC

⁸ NOI at P 7.

Reliability Standard BAL-001-0 Requirement R2.⁹ As explained in the NOI, “NERC recently noted that ERCOT experienced a significant improvement in its frequency response performance as generators within its region adjusted their governor settings with compliance with BAL-001-TRE-01.”¹⁰

As a condition of interconnection, ERCOT currently requires all generators to have effective governor response and to not restrict operations. ERCOT has also proposed another market solution via its Future Ancillary Services (FAS) design. That program would unbundle ancillary services, which would allow additional load resources and innovative technologies such as demand response to provide ancillary services.

NERC Frequency Response Initiative for the Eastern Interconnection

A NERC advisory report referenced in the NOI indicated that “a significant portion of generators within the Eastern Interconnection utilize governor dead bands or other control settings that either inhibit or prevent the provision of primary frequency response.”¹¹ Additionally, NERC found evidence of primary frequency response withdrawal—occurring prior to secondary and tertiary frequency control—in the Eastern Interconnection. The NERC Frequency Response Initiative puts forward several technological solutions that may address this problem during the rebound and recovery periods. Key among them is a “synthetic” inertial response from wind, solar,

⁹ *North American Electric Reliability Corporation*, 146 FERC ¶ 61,025 (2014).

¹⁰ NOI at P 22.

¹¹ NOI at P 34.

and storage sources that could “reinforce and augment traditional resource Primary Frequency Response.”¹² Although the currently unknown cost and viability of deployment of “synthetic” inertia would need to be quantified before it can be properly evaluated, this may represent an innovative approach that would be worthy of the Commission’s consideration.

III. CONCLUSION

While ELCON generally supports Commission’s emphasis on securing a reliable electricity system in the context of an evolving market with regard to the composition of generation sources. It is imperative that any solution follow the principles of cost causation to ensure that inequitable and burdensome costs are not imposed on load. The Commission also should take full account of implementation of NERC initiatives including its Reliability Standard BAL-003-1 and of the results of similar initiatives in ERCOT and other regions.

¹² NERC Frequency Response Initiative. Presentation on January 27, 2011. Located at: <http://www.nrel.gov/electricity/transmission/pdfs/cummings.pdf>.

NOTICES AND COMMUNICATIONS

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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 of this proceeding.

Dated at Washington, D.C.: April 25, 2016

/s/ W. RICHARD BIDSTRUP
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