153 FERC ¶ 61,220
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

18 CFR Part 35

[Docket No. RM15-2-000; Order No. 819]

Third-Party Provision of Primary Frequency Response Service

(Issued November 20, 2015)

AGENCY: Federal Energy Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Federal Energy Regulatory Commission (Commission) is revising its regulations to foster competition in the sale of primary frequency response service. Specifically, the Commission amends its regulations governing market-based rates for public utilities pursuant to the Federal Power Act (FPA) to permit the sale of primary frequency response service at market-based rates by sellers with market-based rate authority for sales of energy and capacity.

EFFECTIVE DATE: This Final Rule will become effective **[Insert date 90 days after publication in the FEDERAL REGISTER]**.

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SUPPLEMENTARY INFORMATION:

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FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Norman C. Bay, Chairman;
Cheryl A. LaFleur, Tony Clark,
and Colette D. Honorable.

Third-Party Provision of Primary Frequency Response Service — Docket No. RM15-2-000

ORDER NO. 819

FINAL RULE

(Issued November 20, 2015)

1. The Federal Energy Regulatory Commission (Commission) is revising its regulations to foster competition in the sale of primary frequency response service.[1] Specifically, the Commission amends its regulations to revise Subpart H to Part 35 of Title 18 of the Code of Federal Regulations governing market-based rates for public utilities pursuant to sections 205 and 206 of the Federal Power Act (FPA)[2] to permit the sale of primary frequency response service at market-based rates by sellers with market-based rate authority for sales of energy and capacity.

[1] As described in more detail below, this Final Rule defines primary frequency response service as a resource standing by to provide autonomous, pre-programmed changes in output to rapidly arrest large changes in frequency until dispatched resources can take over.

[2] 16 U.S.C. 824d, 824e (2012).

2. This proceeding derives from Order No. 784,[3] in which the Commission revised Part 35 of its regulations to reflect reforms to its *Avista* policy[4] governing the sale of certain ancillary services at market-based rates to public utility transmission providers. Specifically, Order No. 784 found that when appropriate intra-hour transmission scheduling practices are in place, the *Avista* restrictions need not apply to the sale of Energy Imbalance, Generator Imbalance, Operating Reserve-Spinning and Operating Reserve-Supplemental services, because with those scheduling practices in place the existing market power screens for sales of energy and capacity can also be applied to sales of those ancillary services.[5]

3. However, because of the unique technical and geographic requirements associated with Reactive Supply and Voltage Control (under OATT Schedule 2) and Regulation and

[3] *Third-Party Provision of Ancillary Services; Accounting and Financial Reporting for New Electric Storage Technologies*, Order No. 784, 78 Fed. Reg. 46,178 (July 30, 2013), FERC Stats. & Regs. ¶ 31,349 (2013).

[4] *Avista Corp*., 87 FERC ¶ 61,223, *order on reh'g*, 89 FERC ¶ 61,136 (1999) (*Avista*). Outside the markets operated by regional transmission organizations and independent system operators, *Avista* authorizes suppliers who cannot show a lack of market power with respect to certain ancillary services to nevertheless sell such services, subject to certain restrictions. As relevant to this Final Rule, these restrictions prohibit sales to a public utility that is purchasing ancillary services to satisfy its own Open Access Transmission Tariff (OATT) requirements to offer ancillary services to its own customers, or sales to a traditional, franchised public utility affiliated with the third-party seller, or where the underlying transmission service is on the transmission system of the affiliated public utility.

[5] Order No. 784, FERC Stats. & Regs. ¶ 31,349 at P 4, PP 57-58.

Frequency Response (under OATT Schedule 3),[6] the Commission only allowed market-based rate sales of Schedule 2 and Schedule 3 services to a public utility that is purchasing ancillary services to satisfy its OATT requirements if either: a) the sale is made pursuant to a competitive solicitation that meets certain specified requirements; or b) the sale is made at or below the buying public utility transmission provider's own Schedule 2 or 3 rate, as applicable. The Commission further stated its intention to gather more information regarding the technical, economic and market issues concerning the provision of these services in a separate proceeding.

4. Commission staff held a workshop on April 22, 2014 in this proceeding and then issued a notice of proposed rulemaking that distinguished between regulation service and primary frequency response service, and proposed to allow sales of primary frequency response service at market-based rates by entities granted market-based rate authority for sales of energy and capacity.[7] In response to the NOPR, 19 sets of comments were submitted.

[6] *Id.* PP 59-61. Although the title of Schedule 3 addresses both frequency response and regulation, the two services are distinct from each other. Frequency response is a resource standing by to provide autonomous, pre-programmed changes in output to rapidly arrest large changes in frequency until dispatched resources can take over while regulation service is centrally dispatched through automatic generation control (AGC) and is not focused exclusively on frequency control.

[7] *Third-Party Provision of Primary Frequency Response Service*, Notice of Proposed Rulemaking (NOPR), 80 Fed. Reg. 10,426 (Feb. 26, 2015), FERC Stats. & Regs. ¶ 32,705 (2015).

I. Background

5. The Commission in Order No. 888[8] delineated two categories of ancillary services: those that the transmission provider is required to provide to all of its basic transmission customers[9] and those that the transmission provider is only required to *offer* to provide to transmission customers serving load in the transmission provider's control area.[10] With respect to the second category, the Commission reasoned that the transmission provider is not always uniquely qualified to provide the services, and customers may be able to more cost-effectively self-supply them or procure them from other entities. The Commission contemplated that third parties (i.e., parties other than a transmission provider supplying ancillary services pursuant to its OATT obligation) could provide these ancillary services on other than a cost-of-service basis if such pricing was supported, on a case-by-case

[8] *See Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Order No. 888, FERC Stats. & Regs. ¶ 31,036 (1996), *order on reh'g*, Order No. 888-A, FERC Stats. & Regs. ¶ 31,048, *order on reh'g*, Order No. 888-B, 81 FERC ¶ 61,248 (1997), *order on reh'g*, Order No. 888-C, 82 FERC ¶ 61,046 (1998), *aff'd in relevant part sub nom. Transmission Access Policy Study Group v. FERC*, 225 F.3d 667 (D.C. Cir. 2000), *aff'd sub nom. New York v. FERC*, 535 U.S. 1 (2002).

[9] The first category consists of Scheduling, System Control and Dispatch service and Reactive Supply and Voltage Control from Generation Sources service.

[10] The second category consists of Regulation and Frequency Response service, Energy Imbalance service, Operating Reserve-Spinning service, and Operating Reserve-Supplemental service. Order No. 890 later added an additional ancillary service to this category: Generator Imbalance service. *See Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, FERC Stats. & Regs. ¶ 31,241, at P 85, *order on reh'g*, Order No. 890-A, FERC Stats. & Regs. ¶ 31,261 (2007), *order on reh'g*, Order No. 890-B, 123 FERC ¶ 61,299 (2008), *order on reh'g*, Order No. 890-C, 126 FERC ¶ 61,228 (2009), *order on clarification*, Order No. 890-D, 129 FERC ¶ 61,126 (2009).

basis, by analyses that demonstrated that the seller lacks market power in the relevant product market.[11]

6. Subsequently, in *Avista*,[12] the Commission adopted a policy allowing third-party ancillary service providers that could not perform a market power study to sell certain ancillary services at market-based rates with certain restrictions.[13]

7. As noted earlier, the instant proceeding derives from Order No. 784 in which the Commission found that when appropriate intra-hour transmission scheduling practices are in place, the *Avista* restrictions need not apply to the sale of Energy Imbalance, Generator Imbalance, Operating Reserve-Spinning and Operating Reserve-Supplemental services, because with those practices in place, the results of the existing market power screens for sales of energy and capacity can also be applied to sales of these ancillary services.[14]

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[11] Order No. 888, FERC Stats. & Regs. ¶ 31,036 at 31,720-21.

[12] *See supra* n.4.

[13] These ancillary services included: Regulation and Frequency Response, Energy Imbalance, Operating Reserve-Spinning, and Operating Reserve-Supplemental. The Commission did not extend this *Avista* policy to Reactive Supply and Voltage Control from Generation Sources service, which means that third parties wishing to sell this ancillary service at market-based rates would be required to present specific evidence of a lack of market power in the provision of this specific product before the Commission would authorize sales of this service at market-based rates. The Commission also did not extend the *Avista* policy to Scheduling, System Control and Dispatch service. Because only balancing area operators can provide this ancillary service, it does not lend itself to competitive supply. Order No. 784, FERC Stats. & Regs. ¶ 31,349 at n.17.

[14] Because energy and generator imbalance services merely require the ability to respond to dispatch within the hour, the Commission found that any sub-hourly transmission scheduling interval would be sufficient. Order No. 784-A, 146 FERC ¶ 61,114 at P 12 (2012). As the operating reserve services require more rapid response within the hour (spinning reserves must be available immediately and

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8. However, the Commission also found in Order No. 784 that the record developed to that point did not support expanding these market-based rate authorizations to include sales of Reactive Supply and Voltage Control (under OATT Schedule 2) (Schedule 2 service) and Regulation and Frequency Response (under OATT Schedule 3) services (Schedule 3 service).[15] Instead, the Commission allowed market-based rate sales of Schedule 2 and Schedule 3 services to a public utility that is purchasing ancillary services to satisfy its OATT requirements, provided the sale is made pursuant to a competitive solicitation that meets certain specified requirements[16] or the sale is made at or below the buying public utility transmission provider's own Schedule 2 or 3 rate, as applicable.[17] The Commission further stated its intention to gather more information regarding the technical, economic and market issues concerning the provision of these services in a separate proceeding that considers, among other things, the ease and cost-effectiveness of relevant equipment upgrades, the need for and availability of appropriate special

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supplemental reserves must be available within a short period of time), the Commission required potential sellers of operating reserve services to satisfactorily explain, in their market-based rate applications, how the particular intra-hour transmission scheduling practices or other protocols in their regions permit resources in one balancing authority area to respond to contingencies in a neighboring balancing authority area within these tight time frames. Order No. 784-A, 146 FERC ¶ 61,114 at PP 13-15.

[15] Order No. 784, FERC Stats. & Regs. ¶ 31,349 at PP 59-61.

[16] *Id.* PP 99-101.

[17] *Id.* PP 82-85.

arrangements such as dynamic scheduling or pseudo-tie arrangements, and other technical requirements related to the provision of Schedule 2 and Schedule 3 services.[18]

9. Pursuant to that directive, Commission staff held a workshop on April 22, 2014 to obtain input from interested persons regarding the technical, economic and market issues concerning the provision of Schedule 2 and Schedule 3 services.[19] Among other things, the workshop explored issues surrounding the sale of these services at market-based rates. Comments submitted in response to the workshop that discussed the characteristics associated with a primary frequency response product indicated that market-based rate sales of such a product are feasible.[20]

10. Separately, the Commission on January 16, 2014 issued a Final Rule approving reliability standard BAL-003-1[21] under which a balancing authority[22] must maintain a

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[18] *Id.* P 61.

[19] *See Third-Party Provision of Reactive Supply and Voltage Control and Regulation and Frequency Response Services*, Final Agenda, Docket No. AD14-7-000 (Apr. 22, 2014).

[20] For example, most commenters echo Edison Electric Institute's (EEI) arguments that virtually all generators can provide primary frequency response, and because it is provided at the interconnection level, balancing authority areas have more flexibility on the location of the resource than they would for other products. *See, e.g.*, Edison Electric Institute Post-Workshop Comments, Docket No. AD14-7-000, at 7-8 (filed June 3, 2014).

[21] Reliability standards proposed by the North American Electric Reliability Corporation (NERC) are subject to the Commission's jurisdiction under section 215 of the Federal Power Act. 16 U.S.C. 824o(d). The Commission has authority to approve or reject such standards, and to enforce those that are approved.

[22] The NERC Glossary defines a balancing authority as "(t)he responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real

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minimum frequency response obligation.[23] While most balancing authorities should be able to meet the new reliability standard using their own resources,[24] some may nevertheless be interested in purchasing primary frequency response service from others if doing so would be economically beneficial.

11. Based upon information received at the workshop and in the subsequently-filed 11 written comments, the Commission issued a NOPR that differentiated between regulation service and primary frequency response service, analyzed the technical characteristics of primary frequency response service to show why the existing market power screens for sales of energy and capacity could be used to show lack of market power for sales of primary frequency response as well, and therefore proposed to allow sales of primary frequency response service at market-based rates by entities granted market-based rate authority for sales of energy and capacity.[25] The NOPR sought comment on all aspects of this proposal.[26]

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time." *See* http://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf.

[23] *See Frequency Response and Frequency Bias Setting Reliability Standard*, Order No. 794, 146 FERC ¶ 61,024 (2014).

[24] *Id.* PP 62-63.

[25] NOPR, FERC Stats. & Regs. ¶ 32,705 (2015). With respect to the remainder of the issues discussed in the workshop and associated written comments, the Commission did not see sufficient evidence to pursue generic reforms through this rulemaking proceeding. *Id.* P 10.

[26] *Id.* P 30.

12. Most of the 19 sets of comments submitted in response to the NOPR are supportive of the proposal, with some commenters seeking clarification of various issues. Meanwhile, the limited set of adverse comments fall into two broad categories: 1) comments seeking to contest the technical arguments regarding market power relied upon by the NOPR; and 2) comments that do not relate to market power screening but rather relate to various aspects of the implementation of actual primary frequency response transactions.

13. For the reasons described more fully below, the Commission finds that it is appropriate to finalize the NOPR proposal to permit voluntary sales of primary frequency response service at market-based rates for entities granted market-based rate authority for sales of energy and capacity. We also address various requests for clarification, as discussed more fully below. We emphasize that this Final Rule does not place any limits on the types of transactions available to procure primary frequency response service; they may be cost-based or market-based, bundled with other services or unbundled as discussed further below, and inside or outside of organized markets. This Final Rule focuses solely on how jurisdictional entities can qualify for market-based rates for primary frequency response service in the context of voluntary bilateral sales.

II. Discussion

14. In the NOPR in this proceeding, the Commission proposed to define primary frequency response service as the "autonomous, automatic, and rapid action of a generator, or other resource, to change its output (within seconds) to rapidly dampen large changes in

frequency."[27] Elsewhere in the NOPR, the Commission discussed the idea that individual autonomous responses to large changes in frequency will be of short duration, sustained only until dispatched regulation or operating reserve resources begin responding.[28] As there are aspects of both statements that are important to properly defining this product, in this Final Rule the Commission will refine and clarify the NOPR's definition to state that primary frequency response service is defined as a resource standing by to provide autonomous, pre-programmed changes in output to rapidly arrest large changes in frequency until dispatched resources can take over.

A. Technical Issues Related to the Application of Existing Market Power Screens to Primary Frequency Response Service

1. Geographic Market and the Impact of Resource Distance

15. The Commission analyzes horizontal market power for market-based sales of energy and capacity[29] using two indicative screens, the wholesale market share screen and the pivotal supplier screen, to identify sellers that raise no horizontal market power concerns and can otherwise be considered for market-based rate authority.[30] The

[27] *Id.* P 12.

[28] *Id.* P 24.

[29] *See* 18 CFR 35.37(b) (2015).

[30] *See Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, Order No. 697, FERC Stats. & Regs. ¶ 31,252 at PP 13, 62, *clarified*, 121 FERC ¶ 61,260 (2007), *order on reh'g*, Order No. 697-A, FERC Stats. & Regs. ¶ 31,268, *clarified*, 124 FERC ¶ 61,055, *order on reh'g*, Order No. 697-B, FERC Stats. & Regs. ¶ 31,285 (2008), *order on reh'g*, Order No. 697-C, FERC Stats. & Regs. ¶ 31,291 (2009), *order on reh'g*, Order No. 697-D, FERC Stats. & Regs. ¶ 31,305

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wholesale market share screen measures whether a seller has a dominant position in the relevant geographic market in terms of the number of megawatts of uncommitted capacity owned or controlled by the seller, as compared to the uncommitted capacity of the entire market.[31] A seller whose share of the relevant market is less than 20 percent during all seasons passes the wholesale market share screen.[32] The pivotal supplier screen evaluates the seller's potential to exercise horizontal market power based on the seller's uncommitted capacity at the time of annual peak demand in the relevant market.[33] A seller satisfies the pivotal supplier screen if its uncommitted capacity is less than the net uncommitted supply in the relevant market.[34]

16. Passing both the wholesale market share screen and the pivotal supplier screen creates a rebuttable presumption that the seller does not possess horizontal market power; failing either screen creates a rebuttable presumption that the seller possesses horizontal market power.[35] A seller that fails one of the screens may present evidence, such as a

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(2010), *aff'd sub nom. Mont. Consumer Counsel v. FERC*, 659 F.3d 910 (9th Cir. 2011), *cert. denied*, 133 S. Ct. 26 (2012). *See also* 18 CFR 35.37(b), (c)(1) (2015).

[31] Order No. 697, FERC Stats. & Regs. ¶ 31,252 at P 43.

[32] *Id.* PP 43-44, 80, 89.

[33] 18 CFR 35.37(c)(1) (2015).

[34] Order No. 697, FERC Stats. & Regs. ¶ 31,252 at P 42.

[35] 18 CFR 35.37(c)(1) (2015).

delivered price test, to rebut the presumption of horizontal market power.[36] In the alternative, a seller may accept the presumption of horizontal market power and adopt some form of cost-based mitigation.[37]

17. Three of the key components of the analysis of horizontal market power are the definition of products, the determination of appropriate geographic scope of the relevant market for each product, and the identification of the uncommitted generation supply within the relevant geographic market. In Order No. 697, the Commission adopted a default relevant geographic market for sales of energy and capacity.[38] Specifically, the Commission generally uses a seller's balancing authority area plus directly interconnected (first-tier) balancing authority areas, or uses the Regional Transmission Organization (RTO) or Independent System Operator (ISO) market if applicable, as the default relevant geographic market. However, where the Commission has made a specific finding that there is a submarket within an RTO/ISO, that submarket becomes the default relevant

[36] 18 CFR 35.37(c)(2) (2015). For purposes of rebutting the presumption of horizontal market power, sellers may use the results of the delivered price test to perform pivotal supplier and market share analyses and market concentration analyses using the Herfindahl-Hirschman Index (HHI). The HHI is a widely accepted measure of market concentration, calculated by squaring the market share of each firm competing in the market and summing the results. The Commission has stated that a showing of an HHI less than 2,500 in the relevant market for all season/load periods for sellers that have also shown that they are not pivotal and do not possess a market share of 20 percent or greater in any of the season/load periods would constitute a showing of a lack of horizontal market power, absent compelling contrary evidence from intervenors. Order No. 697, FERC Stats. & Regs. ¶ 31,252 at P 111.

[37] 18 CFR 35.37(c)(3) (2015).

[38] Order No. 697, FERC Stats. & Regs. ¶ 31,252 at P 15.

geographic market for sellers located within the submarket for purposes of the market-based rate analysis. The Commission also provided guidance as to the factors the Commission will consider in evaluating whether, in a particular case, to adopt an alternative larger or smaller geographic market instead of relying on the default geographic market.[39]

18. The Commission stated in the NOPR that, because primary frequency response service can be effectively supplied by any resource throughout an interconnection and have the same ability to dampen harmful changes in interconnection-wide frequency, the geographic market for market power analysis of a primary frequency response product could be the entire interconnection within which the buyer resides, and in any event would be no smaller than the geographic market represented in the existing market power screens;[40] i.e., the home balancing authority area of the seller plus first-tier balancing authority areas or the RTO/ISO market if applicable. The Commission therefore proposed to apply the existing market power screens used for energy and capacity sales, without modification as to geographic market, to sales of primary frequency response service.

[39] A necessary condition that must be satisfied to justify an alternative market is a demonstration regarding whether there are frequently binding transmission constraints during historical peak seasons examined in the screens and at other competitively significant times that prevent competing supply from reaching customers within the proposed alternative geographic market. *Id.* P 268.

[40] NOPR, FERC Stats. & Regs. ¶ 32,705 at P 23.

19. Most commenters either express specific support for this finding,[41] or are silent on the issue.[42] However, American Public Power Association, the National Rural Electric Cooperative Association, and the Transmission Access Policy Study Group (together, TAPS), PJM Interconnection, L.L.C. (PJM), and Midcontinent Independent System Operator, Inc. (MISO) raise limited, technical concerns regarding this finding.

20. TAPS argues that while remote generators may be capable of responding, there is reason to be concerned that frequency response from a distant generator would be less effective than frequency response from a nearby generator, and that this alleged impact of distance would upset the Commission's proposal to rely on the existing market-based rate screens used for energy and capacity sales to ensure that sellers of primary frequency response service lack market power when making sales to public utility transmission providers.[43]

21. PJM similarly asserts, without elaboration, that questions remain as to whether there is sufficient substitutability of units across the Eastern Interconnection so as to support the conclusion that market power issues are of limited concern in the provision of primary frequency response. PJM also asserts that the kind of communications

[41] *See, e.g.*, American Wind Energy Association (AWEA) at 6; Calpine Corporation (Calpine) at 5; EEI at 2; Electricity Consumers Resources Council (ELCON) at 3.

[42] *See* Dominion Resources Services, Inc. (Dominion) at 2; Duke Energy Corporation (Duke) at 3; Electric Power Supply Association (EPSA) at 3; Energy Storage Association (ESA) at 1; Idaho Power Company (Idaho Power) at 2; Public Interest Organizations at 2.

[43] TAPS at 5-6.

infrastructure, protocols, and compensation policies necessary to permit PJM to obtain primary frequency response from resources outside of its market do not yet exist.[44]

22. MISO argues that, while the NOPR is correct that any resource anywhere in an interconnection can help stabilize the frequency of that interconnection following a load or resource loss, there may be negative reliability impacts caused by flows to very remote locations, particularly if there are weak or transmission-limited interfaces.[45]

Commission Determination

23. We adopt the NOPR proposal to apply the existing market power screens used for energy and capacity sales, without modification as to geographic market, to sales of primary frequency response service. With respect to TAPS's arguments, the Commission finds that the delay in sensing a change in frequency associated with resource distance does not undermine the NOPR's proposal to rely upon the default geographic market reflected in the existing market power screens for sales of energy and capacity; i.e., the home balancing authority area of the seller plus first-tier balancing authority areas or the RTO/ISO market if applicable. While TAPS is correct that a resource located far across an interconnection from the site of a contingency event should sense the resulting change in frequency later than would a closer resource, studies of this issue[46] indicate that this

[44] PJM at 4.

[45] MISO at 5.

[46] *See, e.g.*, http://fnetpublic.utk.edu/eventsamples/20110823175058_E.jpg. *See also*, John Undrill, *Power and Frequency Control as it Relates to Wind-Powered Generation* (2010), *available at* http://www.ferc.gov/CalendarFiles/20110120114503-Power-and-Frequency-Control.pdf.

delay would be within the NOPR's product definition that requires primary frequency response resources to change their output within seconds in response to a large change in frequency.[47]

24. With respect to PJM's assertion that questions remain as to the substitutability of units across the Eastern Interconnection, PJM has not explained what those questions may be, and in any event the NOPR does not propose to test market power based on an interconnection-wide geographic market.

25. With respect to PJM's argument that the kind of communications infrastructure, protocols, and compensation policies necessary to permit PJM to obtain primary frequency response from resources outside of its market do not yet exist, the Commission partially agrees and partially disagrees as described below, but even where we partially agree, this would not impact the NOPR proposal regarding market power screening.

26. With respect to communications protocols, the Commission agrees that in order to effectuate actual voluntary primary frequency response transactions, it may be necessary to further develop or refine existing communications protocols, as more detailed data may be needed for purposes of verifying primary frequency response activity than for other activities. However, this refinement should not pose such a fundamental barrier to sales of primary frequency response service from one balancing authority area to another that it calls into question the default geographic market of the existing market power screens. This is because, as will be discussed further below, there are existing information sharing

[47] NOPR, FERC Stats. & Regs. ¶ 32,705 at P 12.

systems and protocols that should be able to accommodate the more detailed information associated with primary frequency response transactions without requiring an unreasonable amount of effort from affected parties. Hence, for market power screening purposes, resources in first-tier balancing authority areas should remain viable competitors to supply primary frequency response to the home balancing authority area.

27. With respect to compensation policies, the Commission disagrees with PJM that compensation policies necessary to support this Final Rule do not yet exist. As will be further discussed below, this Final Rule does not require development of organized markets for primary frequency response service, but rather is focused on voluntary bilateral sales of primary frequency response at market-based rates. In bilateral markets, compensation would be negotiated between the buyer and the seller pursuant to the seller's market-based rate authority. As such, bilateral transactions will be strictly voluntary and the buyer will presumably only agree to them if it sees an economic reason to do so. Therefore, no further compensation policies are necessary in connection with this Final Rule.

28. Finally, MISO argues that there may be negative reliability impacts caused by flows to very remote locations, particularly if there are weak or transmission-limited interfaces. The Commission agrees but sees this as a practical consideration relevant to particular bilateral transactions rather than a universal issue that invalidates the use of existing market power screens to show lack of market power for sales of primary frequency response service. Accordingly, this argument does not invalidate the NOPR proposal regarding market power screening for sellers of primary frequency response service.

2. Need for Transmission Reservation and Scheduling

29. With respect to potential barriers related to transmission scheduling or reservation, the Commission stated in the NOPR that primary frequency response service should not require any transmission reservation or scheduling, because by definition individual frequency responses would not be sustained for long enough periods to trigger a need for transmission service or schedule changes. Rather, such individual primary frequency responses should be rapidly replaced by resources centrally dispatched by the relevant balancing authority.[48]

30. Most commenters either specifically agree that transmission scheduling and reservation should not be necessary in connection with the temporary, autonomous changes in output associated with primary frequency response service,[49] or remain silent on the issue. However, EEI asserts that transmission reservation or scheduling may be needed in some cases. According to EEI, the duration of primary frequency response products could range from a minute or two to supplement a response for only large events, to an unbounded number of minutes for as long as frequency remains beyond a given frequency deadband. In the case of longer durations, according to EEI, transmission providers may have to assess the potential transmission impact of third-party resources

[48] NOPR, FERC Stats. & Regs. ¶ 32,705 at P 24.

[49] *See, e.g.*, AWEA at 6; ELCON at 3; MISO at 1.

providing primary frequency response through their service territory for extended periods of time.[50] Duke makes similar arguments.[51]

31. Similarly, TAPS argues that the Commission did not adequately examine in the NOPR the implications of remote provision of primary frequency response on transmission availability and co-optimization of energy and ancillary services. TAPS argues the Commission should provide additional analysis of how remote supply of frequency response service will affect transmission reserve margin and available transfer capability, how the associated costs are borne, and whether this will have adverse consequences for market efficiency, particularly in RTOs.[52]

Commission Determination

32. The Commission continues to believe that transmission reservation and scheduling will not create a barrier to sales of frequency response within an interconnection. While the Commission concedes that in some cases transmission capacity may need to be reserved to support a sale of primary frequency,[53] we continue to believe that in the vast majority of cases the sale of primary frequency response service should not require any

[50] EEI at 8.

[51] Duke at 7-8.

[52] TAPS at 9-11.

[53] The Commission expects that sales of primary frequency response from resources in transmission constrained areas would constitute the most likely scenario where a reservation of transmission capacity might be needed to support the sale. Naturally, the added cost of such transmission purchases would likely be considered by the potential purchaser in deciding whether or not to enter into such purchase.

transmission reservation or scheduling because, by definition, individual frequency responses would not be sustained for long enough periods to trigger a need for transmission service or schedule changes. With respect to EEI's arguments, the Commission disagrees that primary frequency response, as defined in this Final Rule, could last for an unbounded number of minutes. By the definition of primary frequency response provided in this Final Rule, individual primary frequency responses shall be short, lasting only until dispatched resources can take over. Thus, even if a deviation from target frequency lasts longer than the typical short responses envisioned by our primary frequency response product definition, this does not necessarily mean that a particular resource that continues to respond to that deviation is doing so through extended periods of primary frequency response service as EEI suggests.

33. Rather, after the initial autonomous response, any continuing response would be deemed to occur as a result of dispatch instructions from the relevant balancing authority, which would most likely constitute either use of regulation or operating reserves. Accordingly, while a transmission reservation may sometimes be needed to support a sale of primary frequency response, there should never be a need to actually schedule transmission or change a transmission schedule in connection with primary frequency response service. Hence, transmission scheduling should pose no barrier to sales of primary frequency response service, and in the open access transmission environment created by Order No. 888, reservation by itself does not present any undue barrier to participation. Indeed, all other ancillary service transactions, at least in bilateral markets, are expected to include needed transmission reservation.

34. With respect to TAPS's argument, the Commission agrees that transmission providers may in some cases need to set aside additional transmission capacity to support particular sales of primary frequency response from remote resources. However, the possibility that particular transactions involving remote resources may require additional transmission capacity to be set aside does not undermine the NOPR proposal to grant market-based rate authority for voluntary sales of primary frequency response to entities that pass the existing market power screens for sales of energy and capacity. These screens already limit consideration of imports from first-tier balancing authority areas based on simultaneous transmission import limits as a way to test market power under realistic conditions based on a reasonable simulation of historical conditions.[54] No further consideration of transmission impacts is necessary to test for seller market power. Analysis of (1) how remote supply of primary frequency response service in particular transactions might affect transmission reserve margin and available transfer capability; (2) how the associated costs would be borne; or (3) whether this might have adverse consequences for market efficiency are concerns that are not relevant to the Commission's market power assessment. Rather, these are concerns that may impact a balancing authority's decision as to whether to enter into any given primary frequency response transaction, or that may become relevant if any RTO or ISO voluntarily chooses to develop an organized market for primary frequency response - something that is not required by this Final Rule.

[54] Order No. 697, FERC Stats. & Regs. ¶ 31,252 at P 354.

35. With respect to TAPS's arguments regarding potential distortion of co-optimized RTO/ISO energy and ancillary service markets, this Final Rule merely clarifies the appropriate method for ex ante market power screening for potential sellers of primary frequency response service. It does not require any entity, including RTOs and ISOs, to purchase primary frequency response. Nor does it require RTOs and ISOs to develop organized markets for primary frequency response. The Commission finds it reasonable to assume that if an RTO or ISO ever decides to purchase primary frequency response service, it will only do so if the RTO or ISO can address its and its stakeholders' concerns as to the impact on its co-optimized markets. Furthermore, if such purchases require any tariff modifications, the RTO or ISO would also need to submit a filing to the Commission for its review addressing such issues. Accordingly, in the context of this Final Rule focusing on market power screens, these concerns are premature and beyond the scope.

B. Requests for Clarification

1. Purchases Required or Optional

36. A variety of entities request clarification that this Final Rule does not require purchases of primary frequency response or the development of organized markets for primary frequency response.[55] At the other end of the spectrum, Calpine argues that RTOs and ISOs should be given a deadline to develop tariff changes that would enable them to implement primary frequency response compensation mechanisms.[56]

[55] EEI at 1-2; California Independent System Operator Corporation (CAISO) at 2; MISO at 1; PJM at 2, 5.

[56] Calpine at 9.

37. The Commission grants the requests to clarify that this Final Rule does not require any entity to purchase primary frequency response from third parties or to develop an organized market for primary frequency response. This Final Rule is limited to issues associated with market power screening for voluntary bilateral sellers of primary frequency response service. In light of this clarification, we deny Calpine's request for RTOs and ISOs to be given a deadline to develop tariff changes that would enable them to implement primary frequency response compensation mechanisms.

2. Interaction with Regulation Service

38. EEI and Duke both request that sellers be able to retain the reference to "Regulation and Frequency Response Service" in their current market-based rate tariffs, and that the Final Rule make clear that providing market-based rate authorization for primary frequency response service is not intended to limit the options that buyers have in procuring these ancillary services.[57]

39. The Commission does not intend to limit the options that buyers have in procuring these ancillary services but will nevertheless affirm the NOPR proposal to require a separate listing of regulation service and primary frequency response service in market-based rate tariffs. However, to address EEI's and Duke's concerns, the Commission clarifies that, even though we require that regulation service and primary frequency response service be separately listed in sellers' market-based rate tariffs, this does not mean that buyers and sellers cannot agree to combined transactions involving both

[57] EEI at 4; Duke at 3-7.

regulation service and primary frequency response service with appropriate restrictions. Those restrictions involve the need for the market-based regulation service component to be limited to the buyer's OATT rate for regulation or the outcome of a competitive solicitation as described in Order No. 784.[58] No such restrictions would apply to the primary frequency response service component of such combined transactions.

40. Duke also expresses concern as to what impact splitting the services in the "Third Party Provider" section of the market-based rate tariff would have on transmission providers and any transmission customers self-providing service under Schedule 3 of the OATT.[59]

41. The Commission clarifies that OATT Schedule 3 serves a different purpose from the market-based rate tariff (cost-based sales from the OATT provider versus market-based sales from third parties), and so OATT Schedule 3 does not need modification as a result of this Final Rule. However, to the extent that a particular OATT provider purchases primary frequency response from a third party in order to help serve its OATT customers, it may propose in a section 205 filing to include such costs in its OATT Schedule 3 rates.

[58] Order No. 784, FERC Stats. & Regs. ¶ 31,349 at PP 82 and 99-101.

[59] Duke at 6, 8.

3. Information Sharing and Measurement and Verification

42. A variety of entities emphasize the importance of adequate information sharing and measurement and verification if primary frequency response service is to be traded.[60] In this regard, SmartSenseCom, Inc. (SmartSenseCom) also argues that in order to support the broadest base of available resources to provide primary frequency response services, potential providers should have flexibility in their ability to select any monitoring device that meets or exceeds applicable industry standards for accuracy as a means to measure frequency and trigger the primary frequency response at a given set point.[61]

43. The Commission agrees that these matters are important, and expects that potential buyers will ensure that the resources from which they purchase are capable of providing the service in a useful manner, consistent with relevant NERC requirements and guidelines as discussed earlier. This would require that, among other things, the parties agree to appropriate information sharing and measurement and verification. At this stage, and given the voluntary nature of any primary frequency response transactions that may result from this Final Rule, the Commission sees no need to be more prescriptive regarding specific methods of information sharing and measurement and verification.

44. In a related matter, TAPS asserts that the NOPR's statement that telemetry sharing should not pose any significant barrier to the use of remote resources for the purposes of market-based rates requires further evaluation. TAPS argues that transmitting the

[60] CAISO at 2-3; EEI at 5; MISO at 1-4; Duke at 7-8; Dominion at 3; Idaho Power at 2.

[61] SmartSenseCom at 9-10.

telemetry data from one balancing authority area to just one other balancing authority area effectively doubles (or more) the number of points at which the data can be intercepted or attacked. Thus, TAPS argues that the Commission should provide additional analysis to evaluate whether these potential technical barriers will impede the ability of remote generators to compete to make market-based rate sales of primary frequency response across balancing authorities and to multiple balancing authorities.[62]

45. As mentioned earlier, the Commission finds that balancing authorities already share with their neighbors the same type of operational information contemplated here, both on a day-to-day basis, and occasionally through special arrangements like pseudo-ties or dynamic schedules, though they may not do so with as much detail as would be required for primary frequency response. In sharing such information, they use secure protocols such as Inter-Control Center Communications Protocol.[63] There appears to be nothing unique about information related to primary frequency response transactions, which would largely involve the real-time operational state of the resources in question as a way of verifying both their readiness to respond and actual responses to relevant frequency deviations, that could not be accommodated by this existing secure protocol widely used by the electric utility industry. As a result, the Commission continues to believe that the information sharing required to facilitate sales of primary frequency response service will

[62] TAPS at 6-9.

[63] *See* International Electroctechnical Commission, *Telecontrol equipment and systems - Part 6-802: Telecontrol protocols compatible with ISO standards and ITU-T recommendations - TASE.2 Object models* (Sept. 2005), *available at* https://webstore.iec.ch/publication/18156.

not create a barrier to such sales and thus we find in this Final Rule that the market power screens used for energy and capacity are valid for primary frequency response service.

4. Definition of Primary Frequency Response Service

46. Parties request various clarifications regarding the definition of primary frequency response service. Calpine and EPSA assert that the product definition for primary frequency response service should include both inertial response from conventional "spinning mass" generators and primary frequency response from discretionary turbine-governor settings.[64] Similarly, Union of Concerned Scientists argues for the inclusion of synchronous and/or synthetic inertia as a market product that can be used to provide primary frequency response, and requests that the Commission clarify whether the creation of markets for inertia is within the scope of changes that were envisioned by the Commission when it issued this NOPR.[65]

47. The Commission emphasizes that this Final Rule addresses market-based rate authority for sales of services that fit the definition of primary frequency response services, i.e., resources standing by to provide autonomous, pre-programmed changes in output to rapidly arrest large changes in frequency until dispatched resources can take over. True inertia, while also serving an important function, does not fit this definition because it does not arrest large changes in frequency, but rather acts to oppose all changes in frequency. The term "synthetic inertia" is more complicated to address because it is not

[64] Calpine at 7, n.16; EPSA at 5.

[65] Union of Concerned Scientists at 8.

clear from the record whether there is actual industry consensus on what the term means. However, if it is assumed to mean a resource standing by to provide autonomous, pre-programmed changes in output to rapidly arrest large changes in frequency until dispatched resources can take over, then the Commission would simply consider it a form of primary frequency response subject to this Final Rule. In contrast, if the "synthetic inertia" response either cannot be sustained until dispatched resources take over, or is merely aimed at slowing all changes in frequency instead of arresting large changes, then "synthetic inertia" would not be a form of primary frequency response, and sales of it would not be encompassed by this Final Rule.

48. Several commenters assert that the product definition must differentiate based on response time in addition to magnitude of response.[66] Consistent with this idea, SmartSenseCom asks the Commission to amend section 35.28 of its regulations by adding a new paragraph that states the following:

> Primary frequency response in ancillary service markets. Each Commission approved independent system operator or regional transmission organization that has a tariff that provides for the compensation for primary frequency response service must provide such compensation based upon the actual service provided, include a capacity payment that takes into account the speed of primary frequency response-providing resources and a payment for performance that reflects the quantity of primary frequency response provided by a resource in response to a frequency deviation.[67]

[66] Calpine at 7; AWEA at 4; Grid Storage Consulting at 2-4; Public Interest Organizations at 4; SmartSenseCom at 8.

[67] SmartSenseCom at Ex. A.

49. The Commission finds that the Final Rule's product definition, summarized at the beginning of the discussion section above, already sufficiently incorporates the importance of speed. The Commission finds that no further differentiation based on response time or magnitude is necessary in connection with this Final Rule, which deals only in the appropriate ex ante market power screening of potential sellers of primary frequency response service. For this reason, and because this Final Rule does not require development of organized markets for primary frequency response, the Commission also denies as unnecessary the requested addition to the Commission's regulations related to organized RTO and ISO markets for primary frequency response.

50. Grid Storage Consulting, LLC (Grid Storage Consulting) and Public Interest Organizations argue that the product definition for this service should require response that is immediate, bi-directional, proportional to the frequency deviation, continuous in the sense of not being prematurely interrupted by competing controls or physical limitations, and certain.[68] The Commission clarifies that potential voluntary buyers and sellers of primary frequency response service are free to negotiate any refinements to the basic product definition in this Final Rule that they see fit, so long as such refinements remain consistent with the basic definition. Obviously, any market-based rate authority granted as a result of this Final Rule would only apply to products that are consistent with the definition of primary frequency response service described at the beginning of the discussion section above.

[68] Grid Storage Consulting at 4-7; Public Interest Organizations at 4.

51. SmartSenseCom urges the Commission to define primary frequency response directly within the Commission's regulations.[69] The Commission denies this request as unnecessary. The Commission's regulations do not include definitions of every particular product subject to its jurisdiction; it is sufficient for such product definitions to be described in relevant Commission orders such as this one.

5. Miscellaneous Requests for Clarification

52. EEI encourages the Commission to make clear in the Final Rule that a potential third-party provider would not be disqualified from competing on the basis that it is interconnected to an affiliated transmission provider. According to EEI, not addressing the affiliate restriction provisions of the *Avista* policy could unnecessarily limit the pool of third-party generators that would be eligible to compete to provide market-based primary frequency response service.[70]

53. EEI's concern relates to the component of the *Avista* restrictions highlighted below:

> (2) to address affiliate abuse concerns, the approach [permitting market-based rate sales of ancillary services without a corresponding market power analysis] will not apply to sales to a traditional, franchised public utility affiliated with the third-party supplier, ***or to sales where the underlying transmission service is on the system of the public utility affiliated with the third-party supplier***.[[71]]

54. As the Commission noted in the *Avista* passage quoted above, this second *Avista* restriction was meant to address affiliate abuse. However, EEI's concern that potential

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[69] SmartSenseCom at 3.

[70] EEI at 7.

[71] *Avista Corp*., 87 FERC ¶ 61,223 at n.12 (1999) (emphasis added).

third-party providers should not be disqualified from competing on the basis that they are interconnected to an affiliated transmission provider appears to be based on an overly broad interpretation of the language highlighted above; i.e., one that would prevent sales that only tangentially involve the affiliated public utility transmission provider's system. While the Commission understands this concern, we do not believe it is justified because the highlighted language targets a much narrower set of circumstances.

55. In particular, in *Ameren Marketing*,[72] the Commission approved a case-by-case request for market-based rates for ancillary services sales by a third-party seller to transmission customers located on the transmission system of the seller's public utility transmission provider affiliate where the seller offered several safeguards to protect against the potential for affiliate abuse.[73] *Ameren Marketing* demonstrates the narrow scope of the Commission's concern related to this *Avista* restriction; namely, third-party sales to customers located on the transmission systems of affiliates. Only in these situations does the second *Avista* restriction apply, and in these situations, we remain willing to consider requests for market-based rate authority for sales of primary frequency response service on a case-by-case basis. In response to EEI's concern, the Commission

[72] *Ameren Energy Marketing Co.*, 95 FERC ¶ 61,448, at 62,626 (2001) (*Ameren Marketing*).

[73] With respect to all three *Avista* restrictions, the Commission expressed its willingness to consider requests for market-based rate authority under the conditions associated with the restrictions on a case-by-case basis. *Avista Corp*., 87 FERC ¶ 61,223 at n.12.

clarifies that where the customer is not located on the transmission system of the third-party seller's affiliate, this aspect of the *Avista* restrictions does not apply.

56. EEI also recommends that the Commission clarify in the Final Rule that the location of primary frequency response purchases be deemed to be where the customer is located within an interconnection, rather than where the underlying generation resides. According to EEI, this would address a potential ambiguity in how the NOPR proposal is described in paragraph 28 of the NOPR, where the Commission stated that ". . . sellers passing existing market-based rate screens in a given geographic market should be granted a rebuttable presumption that they lack market power for sales of primary frequency response in that market."[74] EEI states that if a generator has passed the Commission's existing market power screens (or if the screens are not required to be submitted based on the location of the generation) for the geographic market in which the buyer is located, then the generator should benefit from the rebuttable presumption that it lacks market power with respect to sales of primary frequency response service throughout the entire interconnection.[75]

57. EEI appears to be concerned that the language in paragraph 28 might be interpreted to mean that market-based rate sales of primary frequency response are only authorized in specific geographic markets. As will be explained next, this would be similar to how market-based rate sales of operating reserves are handled pursuant to Order No. 784, but

[74] EEI at 7 (citing NOPR, FERC Stats. & Regs. ¶ 32,705 at P 28).

[75] *Id.* at 7-8.

different from how authority for market-based rate sales of energy and capacity is granted. With respect to energy and capacity, the Commission's normal practice is to test for market power in the seller's home balancing authority area, and, if the seller is vertically-integrated, first-tier balancing authority areas, because this is where the seller's market power likely would be greatest. However, the market-based rate authority granted based on passage of these market power screens permits sales anywhere that the seller is capable of transacting. In Order No. 784, the Commission had to depart from this standard practice with respect to market-based rate sales of operating reserves because of the special transmission scheduling practices associated with those services. Order No. 784 required sellers of operating reserves to first demonstrate that the scheduling practices in the regions within which they wish to sell could support sales of operating reserves from one balancing authority area to another, and market-based rate authority for sales of operating reserves would only be granted for regions where such showing was made successfully by the seller.[76] Because primary frequency response is autonomous and individual responses are of short duration, no special scheduling practices would be required. Hence, the Commission finds that market-based rate authority for sales of primary frequency response should be granted on the same basis as sales of energy and capacity; i.e., while market power is tested at the resource's location, authority is granted for sales anywhere the seller is capable of transacting. The Commission, therefore, clarifies the description in paragraph 28 of the NOPR accordingly.

[76] Order No. 784, FERC Stats. & Regs. ¶ 31,349 at P 58.

58. AWEA, ESA, Union of Concerned Scientists, and Grid Storage Consulting argue that there may be some resources that have been authorized to sell ancillary services at market-based rates but not energy and capacity, or that are otherwise eligible to participate in Commission-authorized and supervised markets. They recommend that any such resources be permitted to sell primary frequency response service at market-based rates as well.[77] In a similar vein, Public Interest Organizations ask the Commission to consider whether there is any class or potential class of emerging resources that sell only ancillary services and not energy or capacity, and if so, whether such resources should be exempted from existing market power screens in exchange for some more appropriate market power analysis.[78]

59. In response to these comments, the Commission clarifies that for resources capable of injecting electric energy onto the interstate transmission grid,[79] authority to sell at market-based rates, even exclusively in organized RTO or ISO markets, is only granted to entities that either pass the existing market power screens for sales of energy and capacity or where any market power concerns have been adequately mitigated. Thus, even if such

[77] AWEA at 4; ESA at 4-5; Union of Concerned Scientists at 3; Grid Storage Consulting at 10.

[78] Public Interest Organizations at 5-6.

[79] Pursuant to section 201(a) of the FPA, the Commission is charged with regulating the transmission of electric energy in interstate commerce and the sale of electric energy at wholesale in interstate commerce. 16 U.S.C. § 824(a) (2012). Section 201(b) provides that the Commission shall have jurisdiction over facilities for wholesale sales of electric energy in interstate commerce or for transmission of electric energy in interstate commerce. *Id.* § 824(b). In section 201(e), a public utility is defined as a person who owns or operates facilities subject to the jurisdiction of the Commission. *Id.* § 824(e).

sellers only sell ancillary services today, their authorization to do so was granted based in part upon either passage of the existing market power screens for sales of energy and capacity or where there was a demonstration that any market power concerns have been adequately mitigated.[80] The only current exception to this rule involves demand response resources. If a third-party seller exclusively uses demand response resources to participate in RTO/ISO markets, it does not need to seek market-based rate authority or place any tariff on file with the Commission, because demand response resources do not inject electric energy onto the interstate transmission grid. However, if it ever markets services from other types of resources that result in it injecting electric energy onto the grid, then it would need market-based rate authority and a tariff on file.[81] Accordingly, all sellers with market-based rate authority using resources that can inject electric energy onto the interstate transmission grid, even if they only sell ancillary services today, are already eligible to make use of the rebuttable presumption related to primary frequency response in this Final Rule. Similarly, sellers exclusively using demand response resources are already exempted from the need to submit market power analyses to gain authorization for their sales, and Public Interest Organizations have provided no reason why any new class of resources should be exempted.

[80] In the event that sellers fail the existing market power screens for the RTO/ISO markets, the Commission allows such sellers to seek to obtain or retain market-based rate authority by relying on Commission-approved RTO/ISO monitoring and mitigation. *See Refinements to Policies and Procedures for Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, Order No. 816, 80 FR 67056, (Oct. 30, 2015), 153 FERC ¶ 61,065, at P 28 (2015).

[81] *EnergyConnect, Inc.*, 130 FERC ¶ 61,031, at PP 26-33 (2010).

60. Union of Concerned Scientists, ESA, and Public Interest Organizations all ask that the Commission clarify that the current Final Rule applies for all resources that can provide primary frequency response.[82] Steel Producers Alliance makes similar arguments, emphasizing that resources other than generators are able to provide primary frequency response service and should be permitted to compete to provide the service.[83] The Commission clarifies that this Final Rule applies to jurisdictional market-based rate sellers of primary frequency response service, irrespective of what specific equipment they may choose to use to make such sales.

61. MISO asserts that certain technical statements within the NOPR require limited clarification. First, while MISO agrees with the NOPR that 60 Hertz (Hz) is the target frequency in North America, MISO notes that scheduled frequency may be offset at times to correct time error.[84] Second, in response to the NOPR's description of how each balancing authority's automatic generation control system will issue dispatch instructions to regulation resources to try to return the systems frequency to 60 Hz, MISO argues that typically the contingent balancing authority uses a combination of automatic generation control and contingency reserves for this purpose.[85] The Commission agrees with these

[82] Union of Concerned Scientists at 5; ESA at 2-4; Public Interest Organizations at 2-3.

[83] Steel Producers Alliance at 2-3.

[84] MISO at 5.

[85] *Id.* at 6.

clarifications, but finds that they do not alter any fundamental underpinning of the NOPR proposal.

62. Union of Concerned Scientists seeks clarification that procurement of, and payment for, primary frequency response service would be allowed if the sale of primary frequency response service under market-based rates were allowed. It suggests that the Commission state that markets for primary frequency response service are allowed, subject to petition by appropriate utilities and approval by the Commission.[86] Union of Concerned Scientists also asks that market eligibility and participation as a seller should not be constrained by disproportionate administrative burdens.[87] The Commission agrees that market-based rate sales by entities that have been granted authorization for such sales are allowed; that is, of course, the object of a market-based rate application. With respect to the authority for potential buyers to purchase primary frequency response service, this Final Rule only involves market power screening of potential sellers. As with most products in voluntary bilateral markets, potential buyers do not need the Commission's permission. Similarly, the Commission clarifies that RTOs and ISOs remain free to develop organized markets for primary frequency response if they so choose, though nothing in this Final Rule requires them to do so, and if they choose to do so, only then will the Commission review such issues as eligibility requirements for participation.

[86] Union of Concerned Scientists at 4.

[87] *Id.* at 3.

6. Requests Outside the Scope of this Proceeding

63. AWEA and Public Interest Organizations both request that the Commission permit sales of regulation service at market-based rates by entities with authority for market-based rate sales of energy and capacity.[88] AWEA further requests that the Commission: a) explore the role that dynamic transfer capability, or lack thereof, plays in protecting against exertion of market power;[89] b) consider relaxing interconnection standards for resources that only sell ancillary services;[90] and c) consider whether entities in bilateral market areas should be required to develop platforms for the sale of primary frequency response, even if on a limited basis such as through open seasons.[91]

64. Monitoring Analytics, LLC (Monitoring Analytics) notes that, while the NOPR is mainly concerned with the market power screens typically used in connection with authorizations to charge market-based rates, in organized markets like PJM's, such rates are granted in significant part based on the market power mitigation rules of the RTO or ISO. Accordingly, Monitoring Analytics recommends that if PJM develops a market for primary frequency response service, the rules for such market should incorporate the

[88] AWEA at 1, 7-9; Public Interest Organizations at 5.

[89] AWEA at 3.

[90] *Id*. at 4.

[91] *Id*. at 5.

three pivotal supplier test that is already used for market power mitigation in PJM's other markets.[92]

65. ESA argues that fast responding energy storage resources should be allowed to supply both primary frequency response and regulation services simultaneously. In this regard, ESA asserts that the Commission should not inadvertently create a system where all providers of primary frequency response must provide such service for at least 5-10 minutes until the slowest regulation resources can be brought online.[93] ESA requests that the Commission ensure that ancillary service market designs and procurement mechanisms are reasonably consistent across regions and reflect non-market compensated benefits in the determination of operational needs for particular capabilities, such as fast response.[94]

66. Grid Storage Consulting argues that balancing authorities should not be able to mandate that primary frequency response be provided as part of other market products,[95] and that in some circumstances it may be appropriate to permit the costs of dedicated primary frequency response resources to be recovered in transmission rate base.[96]

67. If an RTO seeks to create an organized market for primary frequency response, then Dominion recommends that the Commission require a market design similar to those used

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[92] Monitoring Analytics at 7.

[93] ESA at 5.

[94] *Id*. at 6.

[95] Grid Storage Consulting at 8-9.

[96] *Id*. at 10-11.

currently to procure other ancillary services such as regulation and operating reserves. Alternatively, Dominion also supports allowing RTOs to procure primary frequency response at cost-based rates, in a manner similar to how reactive power is procured. Dominion also argues that generators should either be exempt from charges such as operating reserve and balancing energy when deviating from their schedules in order to provide primary frequency response service or their compensation should include credits to offset such charges.[97]

68. SmartSenseCom asserts that there is a difference in value between resources capable of delivering a rapid response to changing frequency and slower-responding units. Accordingly, SmartSenseCom asks the Commission to require public utility transmission providers to take into account the speed and accuracy of primary frequency response resources when determining reserve requirements for primary frequency response, as the Commission did for regulation service in Order No. 784. SmartSenseCom claims this "is particularly necessary in this instance in light of the language set forth in Order No. 784 and in the instant NOPR that distinguishes [primary frequency response] from regulation and the different requirements that will now exist for each service."[98]

69. The Commission finds all of these issues to be beyond the scope of this Final Rule. This Final Rule deals only with market-based pricing for voluntary bilateral primary frequency response sellers. While some of the issues raised above might be relevant in

[97] Dominion at 3.

[98] SmartSenseCom at 8.

other proceedings,[99] none of the issues raised above is relevant to the topic of market-based rates in voluntary bilateral markets. Accordingly, there is no need to address these issues here.

III. Compliance and Implementation

70. In Order No. 697, the Commission provided standard tariff provisions that sellers must include in their market-based rate tariffs to the extent they are applicable based on the services provided by the seller,[100] including a provision for sales of ancillary services as a third-party provider.[101] The Commission hereby revises the "Third Party Provider" ancillary services provision to change the reference to "Regulation and Frequency Response Service" to "Regulation Service" and to add a reference to "Primary Frequency Response Service." The new language is as follows:

> Third-party ancillary services: Seller offers [include all of the following that the seller is offering: Regulation Service, Reactive Supply and Voltage Control Service, Energy and Generator Imbalance Service, Operating Reserve-Spinning, Operating Reserve-Supplemental, and Primary Frequency Response Service]. Sales will not include the following: (1) sales to an RTO or an ISO, i.e., where that entity has no ability to self-supply ancillary services but instead depends on third parties; and (2) sales to a traditional, franchised public utility affiliated with the third-party supplier, or sales where

[99] For example, if an RTO or ISO eventually proposes to develop an organized market for primary frequency response service, or if the Commission at some point in the future decides to require such development, then several of the issues raised above might become relevant at that stage.

[100] Order No. 697, FERC Stats. & Regs. ¶ 31,252 at Appendix C.

[101] In Order No. 784, the Commission revised the standard third party provider provision to reflect the changes adopted in Order No. 784. Order No. 784, FERC Stats. & Regs. ¶ 31,349 at P 200.

> the underlying transmission service is on the system of the public utility affiliated with the third-party supplier. Sales of Operating Reserve-Spinning and Operating Reserve-Supplemental will not include sales to a public utility that is purchasing ancillary services to satisfy its own open access transmission tariff requirements to offer ancillary services to its own customers, except where the Commission has granted authorization. Sales of Regulation Service and Reactive Supply and Voltage Control Service will not include sales to a public utility that is purchasing ancillary services to satisfy its own open access transmission tariff requirements to offer ancillary services to its own customers, except at rates not to exceed the buying public utility transmission provider's OATT rate for the same service or where the Commission has granted authorization.

71. The Commission finds that a seller that already has market-based rate authority as of the effective date of this Final Rule is authorized as of that date to make sales of primary frequency response service at market-based rates. Such a seller will be required to revise the third-party provider ancillary services provision of its market-based rate tariff to reflect that it wishes to make sales of primary frequency response service at market-based rates. However, while this authorization is effective for sellers with existing market-based rate authority as of the effective date of this Final Rule, in order to reduce their administrative burden, the Commission permits such sellers to wait to file this tariff revision until the next time they make a market-based rate filing with the Commission, such as a notice of change in status filing or a triennial update.

72. As noted in the NOPR, consistent with the existing requirements of Order No. 2001, any entity selling primary frequency response service will need to report such sales in the Electric Quarterly Report,[102] and the Commission will update its Electric

[102] *See Revised Public Utility Filing Requirements*, Order No. 2001, FERC Stats. & Regs. ¶ 31,127, *reh'g denied,* Order No. 2001-A, 100 FERC ¶ 61,074, *reh'g denied,* Order

(continued...)

Quarterly Report system to include a specific product name option for primary frequency response service.[103]

IV. Information Collection Statement

73. The Paperwork Reduction Act (PRA)[104] requires each federal agency to seek and obtain Office of Management and Budget (OMB) approval before undertaking a collection of information directed to ten or more persons or contained in a rule of general applicability. OMB regulations require approval of certain information collection requirements imposed by agency rules.[105] Upon approval of a collection(s) of information, OMB will assign an OMB control number and an expiration date. Respondents subject to the filing requirements of an agency rule will not be penalized for failing to respond to the collection of information unless the collection of information displays a valid OMB control number.

74. The Commission will submit the revised information collection requirements to OMB for its review and approval. The Commission solicits public comments on its need

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No. 2001-B, 100 FERC ¶ 61,342, *order directing filing*, Order No. 2001-C, 101 FERC ¶ 61,314 (2002), *order directing filing*, Order No. 2001-D, 102 FERC ¶ 61,334, *order refining filing requirements*, Order No. 2001-E, 105 FERC ¶ 61,352 (2003), *order on clarification*, Order No. 2001-F, 106 FERC ¶ 61,060 (2004), *order revising filing requirements*, Order No. 2001-G, 120 FERC ¶ 61,270, *order on reh'g and clarification*, Order No. 2001-H, 121 FERC ¶ 61,289 (2007), *order revising filing requirements*, Order No. 2001-I, FERC Stats. & Regs. ¶ 31,282 (2008).

[103] NOPR, FERC Stats. & Regs. ¶ 32,705 at P 29.

[104] 44 U.S.C. 3501-3520 (2012).

[105] *See* 5 CFR 1320 (2015).

for this information, whether the information will have practical utility, the accuracy of burden and cost estimates, ways to enhance the quality, utility, and clarity of the information to be collected or retained, and any suggested methods for minimizing respondents' burden, including the use of automated information techniques.

75. Burden Estimate and Information Collection Costs: While, to the Commission's knowledge, no entity currently sells primary frequency response service on an unbundled basis,[106] there is no reason why primary frequency response service could not be sold today under cost-based rates. Such cost-based sales, if they occurred, would face all of the burdens associated with cost-of-service regulation, including a variety of requirements from which market-based rate sellers frequently seek and are granted waiver.[107] Furthermore, just like market-based rate sellers, cost-based rate sellers must report all transactions in the Electric Quarterly Report. Accordingly, the Commission views this Final Rule as providing potential market-based rate sellers of primary frequency response

[106] It is likely that some customers purchase primary frequency response service along with other services on a bundled basis, such as through full requirements contracts, but this Final Rule is focused on unbundled sales of primary frequency response service.

[107] Such burdens would include, for example, the need to maintain Open Access Transmission Tariffs and Open Access Same-Time Information Systems related to any jurisdictional transmission facilities owned by the entity, the need to adhere to the Commission's standards of conduct, the need to adhere to the detailed cost-of-service related requirements of subparts B and C of Part 35 of the Commission's regulations, the need to adhere to the accounting and reporting requirements of Parts 41, 101, and 141 of the Commission's regulations, and the need to seek separate authorizations for issuances of securities and assumptions of liabilities under FPA section 204 and Part 34 of the Commission's regulations.

service with the opportunity to avoid cost-of-service regulation for such sales and the associated substantial reporting burdens.

76. Below, we discuss the expected increases in burden as a result of this Final Rule. The Commission expects the additional burden to be greatly outweighed by the reduction in burden from avoiding cost-of-service regulation. The additional estimated annual public reporting burdens and costs for the requirements in this Final Rule are as follows.

Changes in Final Rule in RM15-2[108]					
Number of Respondents (a)	**Annual Number of Responses per Respondent (b)**	**Total Number of Responses (a)X(b)=(c)**	**Average Burden & Cost Per Response (d)**	**Total Annual Burden Hours & Total Annual Cost (c)X(d)=(e)**	**Cost per Response (e)/(c)**
FERC-516 (Electric Rate Schedules and Tariff Filings) (one time, phased in)					

[108] For purposes of burden estimation, the NOPR assumed that industry staff members are similarly situated to FERC, in terms of hourly cost per full time employee, and no commenter disputes this assumption. Therefore, the estimated average hourly cost (salary plus benefits) is $72.00.

1,585[109]	0.163[110]	259	6 hrs.; $432	1,554 hrs.; $111,888	$432
FERC-920 (Electric Quarterly Report) (one-time, phased in)					
1,585	0.163 [111]	259	2 hrs.; $144	518 hrs.; $37,296	$144

[109] The 1,585 respondent universe includes existing sellers (1,999 total market-based rate sellers - 697 Category 1 sellers + 70 Category 1 sellers = 1,372 sellers estimated to sell primary frequency response services) plus 213 new market-based rate applicants (as estimated in Docket No. RM14-14). (We estimate that ten percent (or 70, as indicated above) of the Category 1 sellers may choose to sell primary frequency response services.)

[110] We expect respondents to enter the primary frequency response market gradually. For each of the next three years, we expect all 213 new market-based rate applicants per year (or 639 total during Years 1-3), to include the primary frequency response language in their tariffs.

Additionally, during the three-year period, we expect a total of ten percent of the existing 1,372 respondents (or 137 respondents), to decide to sell primary frequency response services and to make the corresponding FERC-516 rate filing. The corresponding annual estimate is 46 of the existing respondents (an average of 3.4% annually). Therefore, the annual estimate, including both new respondents and existing respondents, is an average of 259 (213 + 46) respondents and responses per year.

[111] As respondents decide to sell primary frequency response services, they would report the new offering in their Electric Quarterly Report (FERC-920), and would continue to report in subsequent EQRs. When a filer adds the new service, we estimate the one-time burden to be two hours. We expect any additional burden associated with reporting the new service in the EQR to be negligible after the first implementation as it would become part of the respondent's normal reporting practice in the EQR and would only involve selecting the 'primary frequency response' option from a list of product names. On average, we expect filers of the new primary frequency response service to phase in:

- Year 1, 259 respondents or 16.3 percent of EQR filers.
- Year 2, 259 respondents or 16.3 percent of EQR filers.
- Year 3, 259 respondents or 16.3 percent of EQR filers.

Titles: FERC-516 (Electric Rate Schedules and Tariff Filings) and FERC-920 (Electric Quarterly Report (EQR)).

Action: Revision of Currently Approved Collection of Information.

OMB Control Nos.: 1902-0096 (FERC-516) and 1902-0255 (FERC-920).

Respondents: Public utilities.

Frequency of responses: One-time, phased in (for both FERC-516 and FERC-920).

Necessity of the Information: Regarding FERC-516, section 205(c) of the Federal Power Act requires public utilities to file with the Commission schedules showing all rates and charges for any transmission or sale subject to the Commission's jurisdiction. Accordingly, entities wishing to sell primary frequency response service at market-based rates must amend their market-based rate tariffs to include the language included in this Final Rule. Regarding FERC-920, the Commission is revising the EQR to ensure that public utilities that may sell primary frequency response service at market-based rates report those sales in the EQR, consistent with their filing obligations under section 205(c).

Internal Review: The Commission has reviewed the requirements associated with the proposed revisions to the information collections and determined they are necessary to ensure that rates remain just, reasonable, and not unduly discriminatory.

77. These requirements conform to the Commission's need for efficient information collection, communication, and management within the energy industry. The Commission has assured itself, through internal review, that there is specific, objective support for the burden estimates associated with the information collection requirements.

78. Interested persons may obtain information on the reporting requirements by contacting the following: Federal Energy Regulatory Commission, 888 First Street, NE, Washington, DC 20426 [Attention: Ellen Brown, Office of the Executive Director], e-mail: DataClearance@ferc.gov, Phone (202) 502-8663, fax: (202) 273-0873. Comments on the collections of information and associated burden estimates in the Final Rule should be sent to the Commission in this docket and may also be sent to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503 [Attention: Desk Officer for the Federal Energy Regulatory Commission]. For security reasons, comments to OMB should be submitted by e-mail to: oira_submission@omb.eop.gov. Please refer to OMB Control No. 1902-0096 (FERC-516) and OMB Control No. 1902-0255 (FERC-920).

V. Environmental Analysis

79. The Commission is required to prepare an Environmental Assessment or an Environmental Impact Statement for any action that may have a significant adverse effect on the human environment.[112] The Commission concludes that neither an Environmental Assessment nor an Environmental Impact Statement is required for this Final Rule under section 380.4(a)(15) of the Commission's regulations, which provides a categorical exemption for approval of actions under sections 205 and 206 of the FPA relating to the filing of schedules containing all rates and charges for the transmission or sale subject to

[112] *Regulations Implementing the National Environmental Policy Act of 1969*, Order No. 486, 52 FR 47,897 (Dec. 17, 1987), FERC Stats. & Regs., Regulations Preambles 1986-1990 ¶ 30,783 (1987).

the Commission's jurisdiction, plus the classification, practices, contracts, and regulations that affect rates, charges, classifications, and services.[113]

VI. Regulatory Flexibility Act

80. The Regulatory Flexibility Act of 1980 (RFA)[114] generally requires a description and analysis of proposed and final rules that will have significant economic impact on a substantial number of small entities.

81. The Small Business Administration's (SBA) Office of Size Standards develops the numerical definition of a small business.[115] The SBA revised its size standard for electric utilities (effective January 22, 2014) from a standard based on megawatt hours to a standard based on the number of employees, including affiliates.[116] Under SBA's current size standards, the entities with market-based rates which are affected by this Final Rule likely come under the following categories[117] with the indicated thresholds (in terms of number of employees[118]):

- Hydroelectric Power Generation, 500 employees.

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[113] 18 CFR 380.4(a)(15) (2015).

[114] 5 U.S.C. 601-612 (2012).

[115] 13 CFR 121.101 (2015).

[116] SBA Final Rule on "Small Business Size Standards: Utilities," 78 FR 77,343 (Dec. 23, 2013).

[117] 13 CFR 121.201, Sector 22, Utilities.

[118] SBA's regulations at 13 CFR 121.201 state that "[t]he number of employees ... indicates the maximum allowed for a concern and its affiliates to be considered small."

- Fossil Fuel Electric Power Generation, 750 employees.
- Nuclear Electric Power Generation, 750 employees.
- Solar Electric Power Generation, 250 employees.
- Wind Electric Power Generation, 250 employees.
- Geothermal Electric Power Generation, 250 employees.
- Biomass Electric Power Generation, 250 employees.
- Other Electric Power Generation, 250 employees.

82. The categories for the applicable entities have a size threshold ranging from 250 employees to 750 employees. For the analysis in this Final Rule, we are using the threshold of 750 employees for all categories. We anticipate that a maximum of 82 percent of the entities potentially affected by this Final Rule are small. In addition, we expect that not all of those entities will be able to or will choose to offer primary frequency response service.

83. Based on the estimates above in the Information Collection section, we expect a one-time cost of $576 (including the burden cost related to filing both the tariff and the EQR) for each entity that decides to offer primary frequency response service.

84. The Commission does not consider the estimated cost per small entity to impose a significant economic impact on a substantial number of small entities. Accordingly, the Commission certifies that this Final Rule will not have a significant economic impact on a substantial number of small entities.

VII. Document Availability

85. In addition to publishing the full text of this document in the Federal Register, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through the Commission's Home Page (http://www.ferc.gov) and in the Commission's Public Reference Room during normal business hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street, NE, Room 2A, Washington, DC 20426.

86. From the Commission's Home Page on the Internet, this information is available on eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number excluding the last three digits of this document in the docket number field.

87. User assistance is available for eLibrary and the Commission's website during normal business hours from the Commission's Online Support at 202-502-6652 (toll free at 1-866-208-3676) or email at ferconlinesupport@ferc.gov, or the Public Reference Room at (202) 502-8371, TTY (202) 502-8659. E-mail the Public Reference Room at public.referenceroom@ferc.gov.

VIII. Effective Date and Congressional Notification

88. The Final Rule is effective [**INSERT DATE 90 days from publication in FEDERAL REGISTER**]. The Commission has determined, with the concurrence of the Administrator of the Office of Information and Regulatory Affairs of OMB, that this Final Rule is not a "major rule" as defined in section 351 of the Small Business Regulatory

Enforcement Fairness Act of 1996. This Final Rule is being submitted to the Senate, House, Government Accountability Office, and Small Business Administration.

List of subjects in 18 CFR Part 35
Electric power rates; Electric utilities; Reporting and recordkeeping requirements.

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

In consideration of the foregoing, the Commission amends Part 35, Chapter I, Title 18, Code of Federal Regulations, as follows.

PART 35 – FILING OF RATE SCHEDULES AND TARIFFS

1. The authority citation for Part 35 continues to read as follows:

Authority: 16 U.S.C. § 791a-825r, 2601-2645; 31 U.S.C. § 9701; 42 U.S.C. § 7101-7352.

2. Revise § 35.37 (c)(1) to read as follows:

§ 35.37 Market power analysis required.

* * * * *

(c)(1) There will be a rebuttable presumption that a Seller lacks horizontal market power with respect to sales of energy, capacity, energy imbalance service, generation imbalance service, and primary frequency response service if it passes two indicative market power screens: a pivotal supplier analysis based on annual peak demand of the relevant market, and a market share analysis applied on a seasonal basis. There will be a rebuttable presumption that a Seller lacks horizontal market power with respect to sales of operating reserve-spinning and operating reserve-supplemental services if the Seller passes these two indicative market power screens and demonstrates in its market-based rate application how the scheduling practices in its region support the delivery of operating reserve resources from one balancing authority area to another. There will be a rebuttable presumption that a Seller possesses horizontal market power with respect to sales of energy, capacity, energy imbalance service, generation imbalance service, operating

reserve-spinning service, operating reserve-supplemental service, and primary frequency response service if it fails either screen.

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