149 FERC ¶ 61,145
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

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

Centralized Capacity Markets in Regional Transmission Organizations and Independent System Operators	Docket Nos. AD13-7-000
Winter 2013-2014 Operations and Market Performance in Regional Transmission Organizations and Independent System Operators	AD14-8-000

ORDER ON TECHNICAL CONFERENCES

(Issued November 20, 2014)

1. The Commission, through this order, is acting to address an issue that has been raised over the course of the last several months in various venues, including the Commission's September 25, 2013 technical conference on centralized capacity markets in regional transmission organizations and independent system operators (RTO/ISO) (Capacity Markets Technical Conference) and the Commission's April 1, 2014 technical conference on winter 2013/2014 operations and market performance in RTOs/ISOs (Polar Vortex Technical Conference). Fuel assurance was a consistent theme at both technical conferences and has a direct and immediate impact on generator performance and thus, system reliability. Failure to address this issue can potentially lead to volatile and often high fuel prices or costly RTO/ISO actions to ensure reliability. In light of these potential risks to reliability and just and reasonable rates, the Commission believes it is appropriate at this time to initiate a review of how each RTO/ISO is addressing fuel assurance.

2. In this order, we direct RTOs/ISOs to file reports on the status of their efforts to address fuel assurance issues. We also provide guidance to assist RTOs/ISOs in those efforts.

Background

3. The Commission convened the September 25, 2013 Capacity Markets Technical Conference to consider how centralized capacity market rules are supporting the procurement and retention of resources necessary to meet future reliability and

operational needs.[1] The Commission stated its intention to examine the effects of the evolving mix of resources and changing market conditions, including low natural gas prices, the retirement of aging generation resources, and compliance with state and federal environmental policies. During the conference, and in post-technical conference comments, commenters discussed four broad topics: (1) the role of centralized capacity markets in assuring resource adequacy; (2) mechanics of current centralized capacity markets; (3) adapting to industry changes; and (4) considerations for the future.

4. The Commission convened the April 1, 2014 Polar Vortex Technical Conference subsequent to the events of winter 2013/2014, in which generator outages and fuel supply issues led to tight system conditions. At the conference, RTOs/ISOs gave presentations on how they prepared for and operated during cold weather events, followed by stakeholder discussion on the lessons learned and future implications. During the conference, and in post-technical conference comments, commenters identified several aspects of fuel assurance as significant contributors to generator outages, including assurance of fuel supply, natural gas pipeline transportation, high natural gas prices caused by extreme cold weather, and cost recovery of high fuel prices.

Discussion

5. Out of the set of issues explored in both conferences, generator performance and efficient market operations are among the most pressing concerns to the Commission. Throughout the conferences and subsequent post-technical conference comments, and in continued analysis by the RTOs/ISOs and the Commission, generator access to sufficient fuel supplies and the firmness of generator fuel arrangements (referred to generally here as "fuel assurance") has been identified as a significant issue contributing to poor generator performance and inefficient market operations. For example, PJM Interconnection, L.L.C. (PJM) cited lack of fuel as a key reason for generator forced outages that occurred during January 2014 cold weather events.[2] Commission staff further identified fuel deliverability and fuel handling problems as contributing to high

[1] In August 2013, staff released a white paper evaluating the design of the centralized capacity markets in the three eastern RTOs/ISOs. Commission Staff, *Centralized Capacity Market Design Elements,* Docket No. AD13-7-000 (Aug. 23, 2013).

[2] PJM Interconnection, L.L.C., *Analysis of Operational Events and Market Impacts During the January 2014 Cold Weather Events,* at 24 (May 8, 2014); *available at* http://www.pjm.com/~/media/documents/reports/20140509-analysis-of-operational-events-and-market-impacts-during-the-jan-2014-cold-weather-events.ashx.

levels of forced generation outages in several RTOs/ISOs.[3] These issues were also identified as contributing to the stressed conditions in the markets that led operators to resort to out of market unit commitments and emergency actions, which contributed to higher prices and high levels of uplift during the same cold weather events.[4]

6. In addition, commenters in the Capacity Markets Technical Conference and Polar Vortex Technical Conference questioned whether the existing markets value fuel assurance. In particular, commenters raised concerns as to whether the current resource adequacy constructs in place in the RTOs/ISOs, including the eastern centralized capacity markets,[5] can address these significant challenges effectively. Commenters raised specific concerns focused on the ability of capacity markets to address a range of reliability and operational needs, including valuing firmer fuel supplies. As currently designed, the eastern capacity market auctions establish capacity prices based on economic bids of sellers, but do not directly take into account generator type, fuel supply arrangements, or operational characteristics. The Midcontinent Independent System Operator, Inc.'s (MISO) resource adequacy construct operates similarly in that it does not directly account for fuel assurance concerns. Additionally, experiences in RTO/ISO regions without centralized capacity markets, such as the California Independent System Operator Corporation (CAISO)[6] and the Southwest Power Pool, Inc. (SPP)[7] suggest that similar fuel assurance concerns may exist in those regions. In addition, commenters in the Capacity Markets Technical Conference proceeding raised concerns regarding the performance of energy and ancillary services markets, including the effectiveness of the

[3] Commission Staff, *Winter 2013-2014 Operations and Market Performance in RTOs and ISOs,* at 8, Docket No. AD14-8-000 (Apr. 3, 2014).

[4] *See id.* at 6-7, 9.

[5] The three eastern RTOs/ISOs, PJM, ISO New England Inc. (ISO-NE) and New York Independent System Operator, Inc. (NYISO), have all implemented mandatory centralized capacity markets.

[6] For example, CAISO recently filed with the Commission a proposal to enhance its commitment cost recovery tariff provisions to, among other things, allow CAISO to use updated natural gas price data in its day-ahead market when natural gas prices exceed a specified threshold. CAISO October 1, 2014 Proposal, Docket No. ER15-15-000.

[7] SPP, Southwest Power Pool: Winter 2013-2014, Docket No. AD14-8-000, at 9-10, 16 (Apr. 3, 2014) (noting the operational challenges associated with limited natural gas supply during extreme cold events).

markets in setting prices during reserve shortage conditions.[8] Following the severe cold weather events experienced during winter 2013-2014, concerns were raised regarding the impact of offer caps and other RTO/ISO practices on the ability of generators to recover their fuel costs.

7. As explained above, we use the term "fuel assurance" to describe the broad set of issues that have emerged in the RTOs/ISOs with respect to generator access to sufficient fuel supplies and the firmness of generator fuel arrangements. Fuel assurance is a broad concept that includes a range of generator-specific and system-wide issues, including the overall ability of an RTO's/ISO's portfolio of resources to access sufficient fuel to meet system needs and maintain reliability. These issues have become of greater concern given the increased reliance on natural gas-fired generators due to low average natural gas prices, compliance with environmental regulations, and other factors. However, while issues surrounding increased reliance on natural gas act as important drivers of current fuel assurance concerns, the need to address fuel assurance continues to apply to all resources, regardless of fuel type. Fuel assurance may also encompass impacts on fuel availability of any industry in the supply chain, including contingencies and other risks stemming from those industries. While it is valuable for RTOs/ISOs, as well as the Commission, to be aware of the impacts on fuel availability of any industry in the supply chain, there may be issues that individual resources or RTOs/ISOs cannot control, and, in fact, only a subset of such impacts on fuel availability may be within the confines of the Commission's jurisdiction.

8. Fuel assurance is a key to ensuring generator performance, which directly contributes to the overall reliability of the grid and just and reasonable rates. Failure to address fuel assurance could lead RTOs/ISOs to take costly actions to ensure reliability. Failure to address fuel assurance could also result in volatile (and often high) prices to consumers when generation resources are forced to procure fuel supplies at the last minute in a volatile natural gas market. The events of winter 2013/2014 provide an example of this potential. To the extent that energy and ancillary services markets, centralized capacity markets, or resource adequacy constructs fail to address fuel assurance concerns, reforms may be necessary to ensure that these markets or resource adequacy constructs meet their reliability objectives and result in just and reasonable wholesale rates.

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[8] *See, e.g.*, Exelon Corporation, Post-Technical Conference Comments, Docket No. AD13-7-000, at 8-14 (filed Jan. 8, 2014); Electric Power Supply Association, Post-Technical Conference Comments, Docket No. AD13-7-000, at 9 (filed Jan. 8, 2014); Vitol, Inc., Post-Technical Conference Comments, Docket No. AD13-7-000, at 7-8 (filed Jan. 8, 2014).

9. While the comments from the Capacity Markets Technical Conference and Polar Vortex Technical Conference brought recent attention to the issue of fuel assurance in RTOs/ISOs, the Commission has highlighted such concerns in the past. For example, as early as 2006, the Commission met with utility and railroad representatives to discuss railroad coal-delivery matters and their impact on markets and electric reliability.[9] More recently, the Commission has acted in several individual proceedings to put in place a number of market rule and tariff changes that can help address fuel assurance concerns.[10] These incremental steps include providing greater market incentives to encourage generators to enter into firmer fuel arrangements, clarifying the obligations of capacity resources with respect to fuel procurement, and providing greater fuel cost recovery certainty.

10. For example, the Commission recently acted on market rule changes proposed by ISO New England Inc. (ISO-NE) and the New England Power Pool (NEPOOL) to provide greater market incentives, in both the capacity market and energy and ancillary services markets, for generators to be available and meet their obligations during reserve shortages.[11] The capacity market rule changes, called "pay for performance," more closely link capacity revenues to real-time performance, paying capacity resources more when they deliver energy or reserves during reserve shortages and penalizing capacity resources that fail to perform during such events. In addition, the Commission required ISO-NE to adopt a NEPOOL proposal to increase Reserve Constraint Penalty Factors to provide better price signals in the energy and ancillary services markets during reserve shortage events. The potential additional market revenues to generators available in real-time shortage conditions, and the potential for significant penalties when not available, are intended to spur investments in fuel assurance, dual-fuel capability, improved maintenance and staffing, and other enhancements to improve resource performance.

11. With respect to clarifying the obligations of capacity resources, the Commission (in response to a complaint) clarified that the ISO-NE tariff imposes a strict performance obligation on capacity resources and that capacity resources may not take "economic" outages, including outages based on economic decisions not to procure fuel or fuel transportation.[12] This clarification provided important certainty to the market regarding

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[9] *Discussions with Utility and Railroad Representatives On Market and Reliability Matters,* Notice of Discussions, Docket No. AD06-8-000 (May 30, 2006).

[10] *See* cases cited *infra* notes 11-18.

[11] *ISO New England Inc.*, 147 FERC ¶ 61,172 (2014).

[12] *New England Power Generators Association, Inc. v. ISO New England, Inc.*, 144 FERC ¶ 61,157, at P 47 (2013).

the obligations of capacity resources in ISO-NE with respect to procuring fuel and fuel transportation.

12. The Commission has also addressed incremental steps intended to provide generators with greater certainty of their ability to recover fuel costs. For example, the Commission issued an order conditionally accepting enhancements to ISO-NE's energy market to provide greater flexibility for market participants to structure and modify their supply offers in the day-ahead and real-time markets.[13] One of those enhancements will permit market participants the flexibility to update their offers on an hourly basis in real time, allowing them to reflect updated fuel costs in their offers.[14] The Commission also granted a request by Dominion Energy Marketing, Inc. (Dominion) for the recovery of fuel costs incurred when generating units at one of Dominion's facilities ran beyond their day-ahead schedules at the direction of ISO-NE.[15] Further, during the severe cold weather events of last winter, the Commission granted several requests submitted by RTOs/ISOs to temporarily waive bid caps that could prevent generators from reflecting their full fuel costs in their offers, providing generators with greater certainty that they would be permitted to recover higher fuel costs caused by the extreme cold weather.[16] Finally, the Commission has accepted two Winter Reliability Programs filed by ISO-NE to encourage generators to maintain onsite fuel inventories, addressing concerns about generator reliance on pipeline deliveries of fuel during periods of high natural gas demand and stresses on pipeline systems.[17]

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[13] *ISO New England Inc. and New England Power Pool,* 147 FERC ¶ 61,073 (2014).

[14] *See id.* P 3.

[15] *Dominion Energy Marketing, Inc. and ISO New England, Inc.*, 143 FERC ¶ 61,233, at PP 24-25, *order on compliance*, *ISO New England Inc.*, 145 FERC ¶ 61,110 (2013).

[16] *PJM Interconnection, L.L.C.,* 146 FERC ¶ 61,041; *PJM Interconnection, L.L.C.,* 146 FERC ¶ 61,078, at P 40 (2014); *New York Indep. Sys. Operator, Inc.*, 146 FERC ¶ 61,061, at P 20 (2014); *Cal. Indep. Sys. Operator, Inc.*, 146 FERC ¶ 61,184, at P 20 (2014).

[17] *ISO New England Inc. and New England Power Pool Participants Committee*, 148 FERC ¶ 61,179 (2014). The program also provides cost recovery for dual-fuel audits, market monitoring changes to the must-burn requirement for dual-fuel resources, and incentives for commissioning of dual-fuel capacity and additional demand response participation.

13. While we expect that these incremental steps will help to address market and system performance concerns associated with fuel assurance, the Commission would like to consider these issues, and the efforts RTOs/ISOs have undertaken or plan to undertake to address them, on a more comprehensive basis. Thus, as explained in more detail below, we direct the RTOs/ISOs to file reports on the status of their efforts to address fuel assurance issues within 90 days of the date of this order.

14. Having considered the incremental improvements that RTOs/ISOs have implemented to date (as discussed above), we note that there are a number of potential approaches - in the capacity markets and resource adequacy constructs, energy and ancillary services markets, or both - RTOs/ISOs could consider to address market and system performance concerns associated with fuel assurance. The options can range from those focused on providing incentives to encourage greater fuel assurance to approaches that are more administrative in nature.

15. With respect to potential reforms to capacity markets or resource adequacy constructs, RTOs/ISOs could pursue a range of options. On one end of the spectrum, RTOs/ISOs could reform their centralized capacity markets to provide greater price incentives for capacity resources to be available, and impose stiff penalties for failure to perform, to encourage capacity resources to enter into firmer fuel arrangements. As explained above, the Commission has already approved one such proposal in ISO-NE. On the other end of the spectrum, RTOs/ISOs could take a more administrative approach by reforming their capacity markets and/or resource adequacy mechanisms to specifically require that capacity resources have certain fuel arrangements in place to be eligible to provide resource adequacy. For example, RTOs/ISOs might require that, to be eligible to participate in a centralized capacity market or to satisfy resource adequacy obligations in other constructs, a generator would have to demonstrate that it has in place the fuel arrangements required in the RTO's/ISO's definition of the capacity product or resource adequacy obligation. RTOs/ISOs could also combine aspects of both approaches. One way an RTO/ISO might consider implementing this approach is to discount the value of capacity resources (by lowering their capacity rating or some other means) based on their fuel arrangements.

16. Tradeoffs exist between the different approaches that must be considered in determining what additional changes to capacity markets or resource adequacy constructs to address fuel assurance may be appropriate. For example, an administrative approach may offer RTOs/ISOs more certainty regarding the expected performance of resources but requires that the RTO/ISO correctly identify all future system needs and the best methods for meeting those needs. The ability of the RTO/ISO to do so correctly has cost consequences for consumers. On the other hand, providing incentives to resources places the risk and obligation on resource owners to determine how each resource can best fulfill its fuel assurance needs but provides the RTO/ISO with less certainty regarding how

resources will perform in the future. Resource owners will also price risk into their market offers, which could have cost consequences for consumers.

17. Regardless of the method, if fuel assurance is expressly valued in capacity markets or resource adequacy constructs, additional changes may also be required. For example, it may be appropriate to adjust capacity market offer caps, if applicable, to allow offers to include investments required for fuel assurance. Additionally, clarifications may be needed regarding rules such as the timing of the day-ahead market and unit commitment process.

18. With respect to potential reforms to energy and ancillary services markets, shortage pricing measures that accurately reflect the value to consumers of avoiding an involuntary curtailment could provide incentives for resources to pursue firmer fuel arrangements. Specifically, the potential to earn revenues to cover their costs and earn a return in a few high priced hours each year provides a strong incentive for resources to take steps (including firming their fuel arrangements) to ensure that they are available during those hours. In addition, the risk of higher prices during peak demand hours could provide a strong incentive for load to take steps to hedge against that risk, including entering into bilateral arrangements to support additional infrastructure needed to ensure fuel availability. Further, as described above, RTOs/ISOs can adjust market rules to provide greater certainty that generators will be able to recover their fuel costs, giving them greater incentives to make timely fuel procurement decisions. As with capacity markets, we encourage RTOs/ISOs to evaluate whether changes to energy market rules are necessary to ensure sufficient fuel cost recovery, thereby enhancing fuel assurance. We recognize that any solution involves a balance of interests, such as weighing the benefits of a particularly high level of fuel assurance with the associated costs, and encourage RTOs/ISOs to account for these trade-offs in their approaches to fuel assurance.

19. While the Commission could take action to impose solutions, and may need to in the future if the steps RTOs/ISOs have taken or plan to take prove inadequate, we find that the appropriate next step is for each RTO/ISO to provide the Commission with additional information to explain how its market rules address fuel assurance challenges. Although there are some common issues affecting all the RTOs/ISOs, there are also significant differences in the nature and scope of the fuel assurance issues among the RTOs/ISOs and it may be that there is more than one right answer for addressing fuel assurance. Therefore, we allow each RTO/ISO the opportunity to identify the fuel assurance issues most relevant to its markets and comprehensively describe the set of actions it has already undertaken or proposes to undertake to address these issues.

20. We direct each RTO/ISO to file a report on the status of its efforts to address market and system performance associated with fuel assurance issues within 90 days of the date of this order. The RTO/ISO report should describe the nature of fuel assurance concerns specific to its regions. The report should also describe the comprehensive

strategy or strategies the RTO/ISO has implemented or plans to implement to address market and system performance in light of each of its fuel assurance concerns. Finally, the report should detail the specific programs and mechanisms that the RTO/ISO will use to carry out its strategies. Following the submission of the RTO/ISO reports, there will be a 30-day public comment period.

The Commission orders:

The RTOs/ISOs are hereby directed to file reports, as discussed in the body of this order, within 90 days of the date of this order.

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.