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**Title:** **Offer Caps in Markets Operated by Regional Transmission Organizations and Independent System Operators**

**Action:**  Final rule.

**Agency**

DEPARTMENT OF ENERGY (DOE) > Federal Energy Regulatory Commission (FERC)

**Identifier:** **[Docket No. RM16-5-000; Order No. 831]**

**Administrative Code Citation**

**18 CFR Part 35**

**Synopsis**

**SUMMARY:** The Federal Energy Regulatory Commission is revising its ***regulations*** to address incremental energy offer caps. We require that each regional transmission organization (RTO) and independent system operator (ISO): Cap each resource's incremental energy offer at the higher of $ 1,000/megawatt-hour (MWh) or that resource's verified cost-based incremental energy offer; and cap verified cost-based incremental energy offers at $ 2,000/MWh when calculating locational marginal prices (LMP). Further, we clarify that the verification process for cost-based incremental offers above $ 1,000/MWh should ensure that a resource's cost-based incremental energy offer reasonably reflects that resource's actual or expected costs. This Final Rule will improve price formation by reducing the likelihood that offer caps will suppress LMPs below the marginal cost of production, while compensating resources for the costs they incur to serve load, by enabling RTOs/ISOs to dispatch the most efficient set of resources when short-run marginal costs exceed $ 1,000/MWh, by encouraging resources to offer supply to the market when it is most needed, and by reducing the potential for seams issues.

**Text**

**SUPPLEMENTARY INFORMATION:**

**Order No. 831**

**Final Rule**

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**I. Introduction**

1. In this Final Rule, the Federal Energy Regulatory Commission (Commission) finds that current regional transmission organization (RTO) and independent system operator (ISO) offer caps on incremental energy offers n1 (offer cap) are not just and reasonable for the reasons discussed below. To remedy these unjust and unreasonable rates, we require, pursuant to section 206 of the Federal Power Act, n2 that each RTO/ISO: (1) Cap each resource's incremental energy offer at the higher of $ 1,000/megawatt-hour (MWh) or that resource's verified cost-based incremental energy offer; and (2) cap verified cost-based incremental energy offers at $ 2,000/MWh when calculating locational marginal prices (LMP) (hard cap). n3 Further, we clarify that the verification process for cost-based incremental offers above $ 1,000/MWh should ensure that a resource's cost-based incremental energy offer reasonably reflects that resource's actual or expected costs.

n1 The incremental energy offer is the portion of a resource's energy supply offer that varies with output or level of demand reduction.

n2 [*16 U.S.C. 824e*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GPW1-NRF4-42M9-00000-00&context=) (2012).

n3 In this proceeding, a hard cap refers to an upper limit on the incremental energy offers that RTOs/ISOs can use to calculate LMPs. The hard cap does not limit the cost-based incremental energy offers that a market participant may submit to the RTO/ISO.

2. We reach this conclusion for several reasons. First, offer caps in some RTOs/ISOs may prevent a resource from recouping its short-run marginal costs by not permitting that resource to include all of its short-run marginal costs within its incremental energy offer. Second, current offer caps in some RTOs/ISOs are likely to suppress LMPs below the marginal cost of production during periods when fuel costs increase dramatically. Third, when several resources have short-run marginal costs above $ 1,000/MWh but are unable to reflect those costs within their incremental energy offers due to the offer cap, the RTO/ISO is unable to dispatch the most efficient set of resources because it will not be able to distinguish among the resources' actual costs. Finally, the $ 1,000/MWh offer cap in some RTOs/ISOs may discourage resources with short-run marginal costs above $ 1,000/MWh from offering supply to the RTO/ISO, even though the market may be willing to purchase that supply. n4 To remedy these problems, we are setting forth requirements for each RTO/ISO regarding the offer cap in this Final Rule. We believe generic action is appropriate to avoid the creation of seams that would result from different offer caps in adjacent RTO/ISO markets.

n4 Many resources are subject to must-offer requirements in either the day-ahead or real-time markets. These offer cap reforms ensure that such a resource has an economic incentive that matches its tariff obligation and also provide an economic incentive to those resources that are not subject to a must-offer requirement.

3. We have modified the proposal in the Notice of Proposed Rulemaking (NOPR) to include a $ 2,000/MWh hard cap for the purposes of calculating LMPs. While the offer cap proposed in the NOPR would address the concerns identified above, we are convinced by commenters that the absence of a hard cap creates practical concerns that must be addressed. First, several commenters note that RTOs/ISOs and/or Market Monitoring Units may have imperfect information about resource short-run marginal costs, which can create challenges for the proposed requirement to verify cost-based incremental energy offers above $ 1,000/MWh prior to the market clearing process. Additionally, as noted by market monitors, the dynamics of natural gas spot market prices during periods when they rise to levels that could result in the short-run marginal costs of some natural gas-fired resources exceeding $ 1,000/MWh can make verification challenging, particularly verification of expected costs. Thus, while a hard cap may diminish the ability to fully address the shortcomings of current offer caps identified above in all circumstances, we find that, on balance, a hard cap is necessary to reasonably limit the adverse impact that any imperfect information during the verification process could have on LMPs.

4. The goals of the price formation proceeding are to: (1) Maximize market surplus for consumers and suppliers; (2) provide correct incentives for market participants to follow commitment and dispatch instructions, make efficient investments in facilities and equipment, and maintain reliability; (3) provide transparency so that market participants understand how prices reflect the actual marginal cost of serving load and the operational constraints of reliably operating the system; and (4) ensure that all suppliers have an opportunity to recover their costs. n5

n5 *See Price Formation in Energy and Ancillary Services Markets Operated by Regional Transmission Organizations and Independent System Operators,* Notice Inviting Post-Technical Workshop Comments, Docket No. AD14-14-000, at 1 (Jan. 16, 2015) (Notice Inviting Comments); *Price Formation in Energy and Ancillary Services Markets Operated by Regional Transmission Organizations and Independent System Operators,* Notice, Docket No. AD14-14-000 (June 19, 2014) (Price Formation Notice).

5. The reforms adopted in this Final Rule advance two of the Commission's goals with respect to price formation. First, the reforms will result in LMPs that are more likely to reflect the true marginal cost of production when resources' short-run marginal costs exceed $ 1,000/MWh. In the short run, LMPs that reflect the short-run marginal costs of production are particularly important during high price periods because they provide a signal to consumers to reduce consumption and a signal to suppliers to increase production or to offer new supplies to the market. In the long run, LMPs that reflect the short-run marginal cost of production are important because they inform investment decisions. Second, the reforms will give resources the opportunity to recover their short-run marginal costs, thereby encouraging resources to participate in RTO/ISO energy markets. Adequate investment in resources and resource participation in RTO/ISO energy markets ensure adequate and reliable energy for consumers. The benefits summarized above and discussed in detail below would ultimately help to ensure just and reasonable rates.

6. As discussed below, we require each RTO/ISO to submit a filing with the tariff changes needed to implement this Final Rule within 75 days of the Final Rule's effective date. **[\*87772]**

**II. Background**

7. In June 2014, the Commission initiated a proceeding, in Docket No. AD14-14-000, to evaluate issues regarding price formation in the energy and ancillary services markets operated by RTOs/ISOs. n6 In the notice initiating that proceeding, the Commission stated that there may be opportunities for the RTOs/ISOs to improve the energy and ancillary services price formation process. As set forth in that notice, LMPs and market-clearing prices used in energy and ancillary services markets ideally "would reflect the true marginal cost of production, taking into account all physical system constraints, and these prices would fully compensate all resources for the variable cost of providing service." n7

n6 Price Formation Notice, Docket No. AD14-14-000.

n7 Price Formation Notice, Docket No. AD14-14-000 at 2.

8. In the instant proceeding, on January 21, 2016, the Commission issued a NOPR proposing to require that each RTO/ISO: (1) Cap each resource's incremental energy offer to the higher of $ 1,000/MWh or that resource's verified cost-based incremental energy offer; and (2) use verified cost-based incremental energy offers above $ 1,000/MWh to calculate LMPs. n8

n8 *Offer Caps in Markets Operated by Regional Transmission Organizations and Independent System Operators,* [*81 FR 5951*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:5J10-TNF0-006W-80C8-00000-00&context=) (Feb. 4, 2016), FERC Stats. & Regs. [paragraph] 32,714, at P 3 (2016) (NOPR).

9. The Commission also sought comments on the NOPR proposal regarding: (1) Whether a hard cap on cost-based incremental energy offers used for purposes of calculating LMPs should be included in any Final Rule in this proceeding and, if so, whether the hard cap should equal $ 2,000/MWh or another value; (2) the ability of the Market Monitoring Unit or RTO/ISO to verify the costs underlying incremental energy offers above $ 1,000/MWh prior to the day-ahead or real-time market clearing process, including whether the verification of physical offer components is also necessary; (3) whether the Market Monitoring Unit or RTO/ISO may need additional information to ensure that all short-run marginal cost components, such as risk or opportunity costs that are often difficult to quantify, are accurately reflected in a resource's cost-based incremental energy offer, and whether an adder is appropriate; (4) whether the Market Monitoring Unit or RTO/ISO may need additional information or the authority to require revisions or corrections to cost-based incremental energy offers to ensure that cost-based incremental energy offers are accurate reflections of a resource's short-run marginal cost; (5) whether the proposal should apply to imports and whether a cost verification process for import transactions is feasible; (6) whether excluding virtual transactions above $ 1,000/MWh could limit hedging opportunities, present opportunities for manipulation or gaming, or create market inefficiencies; and (7) the impact the proposal would have on seams. n9

n9 *Id.* P 73.

*A. Offer Caps in RTOs/ISOs*

10. Supply offers in day-ahead and real-time energy markets consist of both financial and physical components. The financial components of a supply offer are denominated in dollars (*e.g.,* $ /start and $ /MWh) and represent the costs underlying a resource's offer to supply electricity in a given day-ahead or real-time interval. The physical components of a supply offer, which are not denominated in dollars, describe the resource's physical operating parameters. These include, for example, a resource's minimum and maximum operating limits in a given day-ahead or real-time interval, and are denominated in MW, MWh, time, or some other unit.

11. This Final Rule addresses the incremental energy offer component of a resource's supply offer, which is a financial component consisting of costs that vary with a resource's output or level of demand reduction. Incremental energy offers typically consist of a supply curve made up of multiple price-quantity pairs that indicate the price, expressed in $ /MWh, that a resource is willing to accept to produce a given quantity of energy.

12. All six Commission-jurisdictional RTOs/ISOs have at one time imposed a $ 1,000/MWh cap on incremental energy offers. n10 The offer cap remains at $ 1,000/MWh in CAISO, ISO-NE., MISO, NYISO, and SPP, and resources in these RTOs/ISOs may not submit incremental energy offers above $ 1,000/MWh. As discussed further below, resources in PJM may submit incremental energy offers above $ 1,000/MWh provided they are cost-based, but PJM applies a hard cap that limits incremental energy offers to $ 2,000/MWh when calculating LMPs. n11

n10 *See, e.g.,* California Independent System Operator Corporation, eTariff, 39.6.1.1 (11.0.0); ISO New England Inc., Transmission, Markets and Services Tariff, Market Rule 1, III.1.10.1A(c)(iv), III,1.10.IA(d)(iv), III.2.6(b)(i), and III.A.15.1(b) (46.0.0); Midcontinent Independent System Operator, Inc., FERC Electric Tariff, Module D 39.2.5 (35.0.0), 39.2.5A (34.0.0), 39.2.5B (34.0.0), 40.2.5 (35.0.0), 40.2.6 (35.0.0) and 40.2.7 (33.0.0); New York Independent System Operator, Inc., NYISO Tariffs, NYISO Markets and Services Tariff, 21.4 and 21.5.1 (7.0.0); PJM Interconnection, L.L.C., Intra-PJM Tariffs, OATT, Tariff Operating Agreement, Attachment K, Appendix, 1.10.1A(d) (24.0.0); Southwest Power Pool, Inc., OATT, Sixth Revised Volume No. 1, Attachment AE, Section 4.1.1 (2.0.0).

n11 [*PJM Interconnection, L.L.C., 153 FERC [paragraph] 61,289, at P 25 (2015)*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5HV8-F410-01KR-D1S6-00000-00&context=) (PJM 2015 Offer Cap Order).

13. While the current offer caps restrict the incremental energy offers, one of the components used to set LMP, they do not limit LMPs to the level of the offer caps because the addition of the congestion and loss components of the LMP can result in LMPs that exceed the offer cap. Scarcity or shortage pricing and emergency purchases can also cause LMPs to exceed the offer cap.

*B. Offer Caps Waivers and Tariff Changes*

14. As described in the NOPR, after the extreme weather experienced during the winter of 2013/14, dubbed the "Polar Vortex", PJM, NYISO, and MISO filed various requests to either temporarily or permanently revise their respective offer caps. n12 During the winter months of 2014, the Commission approved requests to temporarily waive tariff provisions related to offer caps in NYISO n13 and PJM. n14 In the following winter of 2014/15, the Commission approved temporary changes to the PJM tariff and temporarily waived some MISO tariff provisions to address issues with the offer caps in the PJM and MISO energy markets. n15 During the winter of 2015/16, PJM and MISO again filed requests to modify their respective offer caps. On December 11, 2015, the Commission accepted tariff revisions in PJM that would raise the cap on cost-based incremental energy offers to $ 2,000/MWh for purposes of calculating **[\*87773]** LMPs. n16 The Commission also granted MISO's request to temporarily waive tariff provisions related to its $ 1,000/MWh offer cap. n17 MISO recently filed another request to temporarily waive tariff provisions related to its offer cap for the upcoming winter of 2016/17. n18

n12 NOPR, FERC Stats. & Regs [paragraph] 32,714 at PP 13-17.

n13 [*N.Y. Indep. Sys. Operator, Inc., 146 FERC [paragraph] 61,061, at PP 2-4 (2014).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5BDP-TPJ0-01KR-D1KS-00000-00&context=)

n14 PJM filed concurrently two tariff waiver requests related to its offer cap. In its first request, which the Commission granted for the January 24-February 10, 2014 period, PJM requested that certain resources with cost-based offers above $ 1,000/MWh receive uplift payments to recoup those costs. *See* PJM Interconnection, L.L.C., 146 FERC [paragraph] 61,041, at P 2 (PJM 2014 Waiver Order I), *order on reh'g,* [*149 FERC [paragraph] 61,059 (2014).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5DDT-0P60-01KR-D3JV-00000-00&context=) In its second request, which the Commission granted for the February 11-March 31, 2014 period, PJM requested that certain resources be allowed to submit cost-based incremental energy offers in excess of $ 1,000/MWh, with no cap on cost-based offers. *See* PJM Interconnection, L.L.C., 146 FERC [paragraph] 61,078, at PP 3-4 (2014) (PJM 2014 Offer Cap Order II).

n15 The temporary revisions to the PJM tariff were accepted for the January 16, 2015 through March 31, 2015 period. *See* PJM Interconnection, L.L.C., 150 FERC [paragraph] 61,020, at P 5 (2015) (PJM 2014/15 Offer Cap Order). The temporary waiver of the MISO tariff provisions was granted for December 20, 2014 through April 30, 2015 period. *See* Midcontinent Indep. Sys. Operator, Inc., 150 FERC [paragraph] 61,083, at P 3 (2015) (MISO 2014/15 Offer Cap Order).

n16 [*PJM 2015 Offer Cap Order, 153 FERC [paragraph] 61,289 at P 25.*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5HV8-F410-01KR-D1S6-00000-00&context=) The tariff provisions related to the offer cap do not have a sunset date.

n17 [*Midcontinent Indep. Sys. Operator, Inc., 154 FERC [paragraph] 61,006, at P 1 (2016)*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5HT8-6JY0-01KR-D1PB-00000-00&context=) (MISO 2015/16 Offer Cap Order). This waiver was granted for the January 1, 2016 through April 30, 2016 period.

n18 *Midcontinent Indep. Sys. Operator, Inc.,* Transmittal, Docket No. ER16-2685-000.

**III. Need for Reform**

15. In the NOPR, the Commission preliminarily found that the $ 1,000/MWh offer caps currently in effect in some RTOs/ISOs n19 are unjust and unreasonable for four reasons. n20 First, some current RTO/ISO offer caps may prevent a resource from recouping its short-run marginal costs by not permitting that resource to reflect its short-run marginal costs within its incremental energy offer. Second, current offer caps may suppress LMPs below the marginal cost of production. Third, when several resources have short-run marginal costs above $ 1,000/MWh but are unable to reflect those costs within their incremental energy offers due to the offer cap, the RTO/ISO may not dispatch the most efficient set of resources because it will not be able to distinguish between the resources' actual costs. Finally, the $ 1,000/MWh offer cap in some RTOs/ISOs may discourage resources with short-run marginal costs above $ 1,000/MWh from offering supply to the RTO/ISO, even though the market may be willing to purchase that supply. n21 We believe generic action is appropriate to avoid the creation of seams that would result from different offer caps in adjacent RTO/ISO markets. As described below, based on our analysis of the record, we adopt the preliminary findings in the NOPR and conclude that the current offer caps in RTOs/ISOs are unjust and unreasonable.

n19 Specifically CAISO, ISO-NE., MISO, NYISO, and SPP. *See supra* n.10.

n20 *See* NOPR, FERC Stats. & Regs. [paragraph] 32,714 at PP 43-47.

n21 *Id.* PP 44-47.

*A. Comments*

1. Comments That Support the Preliminary Finding That Current Offer Caps are Unjust and Unreasonable

16. Several commenters, for various reasons, support the Commission's preliminary finding in the NOPR that existing offer caps in RTOs/ISOs are unjust and unreasonable, n22 and others express general or conditional support for the NOPR. n23 Some commenters agree that the $ 1,000/MWh offer cap prevents resources from recovering their short-run marginal costs. n24 For example, Direct Energy states that generator cost assurance is key to maintaining reliability because it ensures that resources will have the incentive to follow RTO/ISO dispatch instructions when called upon by the RTO/ISO, without concern for receiving compensation below their short-run costs. n25 Six Cities states that exceptional circumstances may give rise to marginal costs for specific resources that exceed $ 1,000/MWh and those resources should have an opportunity to recover their actual costs of production. n26

n22 *See generally* CEA Comments at 3-4; Direct Energy Comments at 2-3; Exelon Comments at 5-7; PJM/SPP Comments at 1-2; EEI Comments at 3-4; ***Competitive*** Suppliers Comments at 4, 6, 7-15; Ohio Commission Comments at 4. A list of commenters and the abbreviated names used for them in this Final Rule appears in the Appendix.

n23 *See generally* Dominion Comments at 3; EEI Comments at 3-5; Golden Spread Comments at 1; Midcontinent Joint Consumer Advocates Comments at 2; MISO Comments at 1; NESCOE Comments at 1; New Jersey Commission Comments at 1; NY Transmission Owners Comments at 2; NYISO Comments at 2; OMS Comments at 2; OPSI Comments at 10; PJM/SPP Comments at 1; Potomac Economics Comments at 1; Powerex Comments at 6; Six Cities Comments at 2.

n24 CEA Comments at 4; Direct Energy Comments at 2-3; OMS Comments at 2; Six Cities Comments at 2.

n25 Direct Energy Comments at 2.

n26 Six Cities Comments at 2.

17. Several commenters support the Commission's preliminary finding that existing RTO/ISO offer caps should be reformed because they can suppress LMPs below the marginal cost of production. n27 For example, PJM/SPP n28 state that the current offer caps could undermine market efficiency by preventing legitimate incremental energy offers above $ 1,000/MWh, which they state has occurred in some parts of the country, because LMPs that fail to reflect the cost of serving demand are inefficient. n29 ***Competitive*** Suppliers assert that while the costs of the marginal resources have not frequently exceeded $ 1,000/MWh, the impact of the $ 1,000/MWh offer cap is not trivial because artificially suppressing day-ahead or real-time LMPs during those few intervals can prevent economic outcomes that will support reliability and motivate consumers to reduce consumption during stressed system conditions. n30 Midcontinent Joint Consumer Advocates support changing the offer cap because incremental energy costs would only exceed $ 1,000/MWh in extreme conditions. n31

n27 *See generally* CEA Comments at 3-4; ***Competitive*** Suppliers Comments at 9-13; Exelon Comments at 5-7; EEI Comments at 3-5; PJM Power Providers Comments at 1-2; PJM/SPP Comments at 1-2; Powerex Comments at 6.

n28 "PJM/SPP" indicates comments filed jointly by PJM and SPP. PJM and SPP also make individual comments within their joint filing.

n29 PJM/SPP Comments at 1-2 (citing PJM, Analysis of Operational Events and Market Impacts During the January 2014 Cold Weather Events (May 8, 2014), *available at* [*http://www.pjm.com/*](http://www.pjm.com/) *[approx.] /media/committeesgroups/task-forces/cstf/20140509/20140509-item-02-cold-weather-report.ashx*).

n30 ***Competitive*** Suppliers Comments at 9.

n31 Midcontinent Joint Consumer Advocates Comments at 3-4.

18. Other commenters agree with the Commission's preliminary finding that the $ 1,000/MWh offer cap should be reformed because it can discourage a resource with costs above the offer cap from offering its supply to the RTO/ISO, even though the market may be willing to purchase that supply. n32 For example, OMS states that when the (primarily fuel) cost to generate electricity is unusually high, the current $ 1,000/MWh offer cap can limit the willingness of resources to offer into the day-ahead and real-time markets. n33

n32 *See generally* CEA Comments at 3-4; ***Competitive*** Suppliers Comments at 13; OMS Comments at 2; Powerex Comments at 6.

n33 OMS Comments at 2.

19. CEA and EEI express general support for the Commission's preliminary finding in the NOPR that current offer caps could also prevent the RTO/ISO from dispatching the most efficient set of resources because the RTO/ISO will not have access to the underlying costs associated with the multiple incremental energy offers above the offer cap. n34

n34 CEA Comments at 2-3; EEI Comments at 3-4.

2. Comments That Oppose Reforming Current Offer Caps

20. Several commenters disagree with the Commission's finding that the current offer cap is unjust and unreasonable and therefore should be reformed. For example, CAISO argues that the current $ 1,000/MWh offer cap in CAISO should not be changed because $ 1,000/MWh is far in excess of what the highest reasonable cost-justified offer could be from a CAISO resource. n35 CAISO explains that natural gas prices have generally been stable, and argues that even if natural gas market fundamentals changed, periods when incremental energy costs exceed $ 1,000/MWh would be infrequent and short-lived and do not justify the offer cap changes proposed in the NOPR. n36 ISO-NE does not oppose raising its current offer cap to a higher fixed level, but nonetheless maintains that the **[\*87774]** current $ 1,000/MWh offer cap in ISO-NE is just and reasonable because the cap has not inappropriately limited LMPs below the marginal cost. n37

n35 CAISO Comments at 4.

n36 *Id.* at 4-5.

n37 ISO-NE Comments at 1-3.

21. The ISO-NE and SPP Market Monitors assert that there is no need to reform the offer caps in their markets. The ISO-NE Market Monitor states that there is no need to revise ISO-NE's $ 1,000/MWh offer cap because natural gas prices have become more stable and, if completed, proposed pipeline expansions in New England will help alleviate some of the natural gas congestion that led to the high LMPs observed in ISO-NE in 2014. n38 The SPP Market Monitor states that SPP resources have not experienced costs above $ 1,000/MWh and the SPP Market Monitor expects that fuel price spikes that would raise costs to that level would rarely occur. n39

n38 ISO-NE Market Monitor Comments at 12-14 (citing ISO-NE Market Rule 1, Appendix A, Section III.A.15).

n39 SPP Market Monitor Comments at 8-9.

22. A number of commenters argue, for various reasons, that current RTO/ISO offer caps should not be revised. n40 For example, several commenters assert that revising the offer cap is an overreaction to anomalous, infrequent, and/or transitory market and weather conditions that do not justify changing the offer cap. Steel Producers' Alliance observes that the current offer cap has only been an issue in a handful of instances, which it argues demonstrates that the offer cap is set at the appropriate level and performing as intended. n41 APPA, NRECA, and AMP assert that the offer cap issues described in the NOPR are merely hypothetical, and that there is insufficient evidence that current offer caps are unjust and unreasonable. n42

n40 *See generally* APPA, NRECA, and AMP Comments at 5-8; AF&PA Comments at 2-3; CAISO Comments at 2; Industrial Customers Comments at 3-9; Industrial Energy Consumers Comments at 2; ISO-NE Market Monitor Comments at 12-14; NY Department of State Comments at 3-5; NYPSC Comments at 1, 4; Steel Producers' Alliance Comments at 2-3; ODEC Comments at 3-5; PG&E Comments at 1-2; PJM Joint Consumer Advocates Comments at 2-4; SPP Market Monitor Comments at 2, 6, 12-13; TAPS Comments at 1, 4-7.

n41 Steel Producers' Alliance Comments at 2.

n42 APPA, NRECA, and AMP Comments at 9-13.

23. Some commenters disagree with the NOPR's preliminary finding that offer caps are unjust and unreasonable because they can suppress LMPs below the marginal cost of production. For example, ODEC argues that a higher cap is unnecessary because LMPs are lower in PJM than they were when PJM's current higher offer cap was adopted. n43 Other commenters argue that LMPs above $ 1,000/MWh do not send a useful price signal to consumers, n44 and may in fact harm consumers because most demand for electricity is inelastic, or unresponsive to price changes. n45 These commenters argue that, because most demand is inelastic, raising the offer cap would lead to market power abuses and transfer payments from load to generators. n46 For example, Industrial Customers argue that resources can take advantage of inelastic demand and exercise market power to obtain prices above ***competitive*** levels. n47 The New York Commission argues that without sufficient ***competition***, including from demand response, raising the offer cap will not change behavior in NYISO and will only increase prices and burden ratepayers. n48 The New York Commission asserts that the Commission should not revise the offer cap until more effective demand response resources can participate in NYISO's real-time energy market. n49

n43 ODEC Comments at 3-4.

n44 NY Department of State Comments at 3; New York Commission Comments at 5-6.

n45 AF&PA Comments at 2-3; Industrial Energy Consumers Comments at 2; Industrial Customers Comments at 10; PJM Joint Consumer Advocates Comments at 4; TAPS Comments at 6, 12.

n46 Direct Energy Comments at 3-5; Industrial Customers Comments at 10; NY Department of State Comments at 3; TAPS Comments at 3.

n47 Industrial Customers Comments at 10.

n48 New York Commission Comments at 5-6.

n49 New York Commission Comments at 6.

24. Many commenters argue that the current offer caps in RTOs/ISOs should be maintained because they protect consumers from excessive LMPs that result from market power abuse. n50 For example, NY Department of State argues that the offer cap benefits consumers by shielding customers from high real-time LMPs or market manipulation. n51 Similarly, TAPS states that the current offer caps act as a critical safety valve to protect consumers from excessive prices. n52 Industrial Customers assert that increasing the offer cap above $ 1,000/MWh would raise consumers' costs to hedge electricity procurements. n53 Industrial Energy Consumers stress that offer caps are essential for consumers to be confident that rate structures are fair and nondiscriminatory. n54

n50 Industrial Customers Comments at 3, 10-11; Industrial Energy Consumers Comments at 2; TAPS Comments at 1, 8-12, NY Department of State Comments at 4.

n51 NY Department of State Comments at 4.

n52 TAPS Comments at 1.

n53 Industrial Customers Comments at 20.

n54 Industrial Energy Consumers Comments at 2.

25. Some commenters argue that current offer caps do not suppress LMPs in a manner that impacts resource investment decisions. AF&PA asserts that periodic and unpredictable price spikes have limited value in sustaining resource viability or inducing consumers to make long term behavioral changes. n55 Similarly, TAPS argues that allowing offers above $ 1,000/MWh to set the LMP would not have a practical impact on resource investment decisions because, even if the offer cap were raised, the LMP would remain the same in the vast majority of hours. TAPS adds that no resource owner would base its capital investments on the hope that LMPs will be extremely high for just a few hours every year. n56

n55 AF&PA Comments at 2-3.

n56 TAPS Comments at 6-7.

26. Some commenters argue that offer cap waivers are the best remedy to address issues associated with the offer cap. n57 For example, Industrial Energy Consumers state that the Commission adequately addressed the isolated Polar Vortex event by granting either temporary, limited waivers, or uplift payments, thereby sending the correct price signal for investment. n58 AF&PA supports current Commission protocols of waivers and other reforms that allow generators to recover verifiable costs in certain situations, and supports the expansion and streamlining of these protocols. n59

n57 AF&PA Comments at 6-7; Industrial Energy Consumers Comments at 2; Steel Producers' Alliance Comments at 2-3.

n58 Industrial Energy Consumers Comments at 2.

n59 AF&PA Comments at 6.

3. Generally Applicable Offer Cap Reforms

27. In addition to the four preliminary findings stated above, n60 the Commission also stated in the NOPR that the lack of a uniform offer cap has the potential to exacerbate seams issues between neighboring RTOs/ISOs. n61 The Commission recognized in the NOPR that the proposed reforms could result in neighboring markets having different effective offer caps in a given interval because the marginal cost of production in one RTO/ISO may differ from neighboring markets due to resources with different short-run marginal costs being on the margin in those markets. n62 The Commission preliminarily found, however, that these differences will not adversely affect seams because the differences would be driven by actual costs and not by offer caps artificially suppressing LMPs. The Commission stated that, to the extent incremental energy offers can be verified, a reform applicable to all RTOs/ISOs that allows cost-based incremental energy offers to exceed $ 1,000/MWh would enhance **[\*87775]** market efficiency and mitigate the potential for seams issues. n63 The Commission sought comment on these preliminary findings and other seams issues related to this proposal.

n60 *See supra* P 2.

n61 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 70.

n62 *Id.* P 71.

n63 *Id.* P 48.

28. The majority of commenters agree with the NOPR's proposal to make a change in the offer cap across all RTOs/ISOs in order to avoid seams issues, n64 and several commenters generally agree with the importance of mitigating seams issues. n65 For example, the IRC notes the importance of uniformity in the treatment of offer caps, particularly in neighboring RTOs/ISOs. n66 NYISO supports a uniform RTO/ISO offer cap and argues that, in areas with a common fuel source, differing offer caps in neighboring regions could lead to restricted fuel procurement in the region with the lower offer cap. n67 MISO asserts that without a common offer cap, tight operating conditions could provide counterproductive arbitrage opportunities. n68 The ISO-NE Market Monitor notes that different offer caps in neighboring regions could be detrimental to ISO-NE's ongoing efforts to develop a clearing mechanism to select external resources in economic merit order. n69

n64 *See generally* Dominion Comments at 8; ***Competitive*** Suppliers Comments at 23, 25; EEI Comments at 4; Exelon Comments at 22-23; MISO Comments at 19; NESCOE Comments at 2; PJM Power Providers Comments at 6-7; OMS Comments at 4; PJM/SPP Comments at 2-3; IRC Comments at 3; NY Department of State Comments at 6; NYISO Comments at 9-10; ISO-NE Market Monitor Comments at 14; Steel Producers' Alliance Comments at 3-4. Some of these commenters express conditional or qualified support of the NOPR and/or propose alternative offer caps.

n65 Industrial Customers Comments at 21, 24; Midcontinent Joint Consumer Advocates Comments at 9-10; TAPS Comments at 21-22.

n66 IRC Comments at 1, 3.

n67 NYISO Comments at 10.

n68 MISO Comments at 19.

n69 ISO-NE Market Monitor Comments at 14.

29. The PJM Market Monitor states that the proposal's impact on seams would be consistent with efficient markets whereby energy would flow to where it is valued most. n70 EEI argues that the actual effect of the NOPR on seams would be determined by market forces and the marginal cost to operate the system. n71

n70 PJM Market Monitor Comments at 12.

n71 EEI Comments at 4.

30. With respect to the Western Electricity Coordinating Council (WECC), CAISO and Exelon argue that the Commission must address how it will ensure consistency between the proposed offer cap in CAISO and the existing $ 1,000/MWh offer cap in WECC. n72 CAISO and Exelon observe that, in instituting the existing offer cap in WECC, the Commission recognized the interdependency between CAISO and WECC and therefore stated that it would be unjust and unreasonable to have different offer caps in these two regions. n73 CAISO further asserts that for those RTOs/ISOs, such as CAISO, that do not share a seam with another RTO/ISO, the Final Rule should allow these RTOs/ISOs to demonstrate that raising the offer cap is unnecessary. n74

n72 CAISO Comments at 14; Exelon Comments at 22.

n73 CAISO Comments at 14 (citing [*Western Electric Coordinating Council, 133 FERC [paragraph] 61,026 (2010));*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:516F-YNN0-01KR-D2KF-00000-00&context=) Exelon Comments at 22 (citing [*Western Electric Coordinating Council, 131 FERC [paragraph] 61,145 (2010)).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:504M-1Y40-01KR-D1HC-00000-00&context=)

n74 CAISO Comments at 2, 4.

31. Some market participants support the NOPR's applicability to all RTOs/ISOs in theory, but argue that the effect on seams would depend on implementation. The Delaware Commission cautions that the degree to which the verification of cost-based offers above $ 1,000/MWh is sufficiently rigorous will determine the effect on seams and that this will not be known until implementation. n75 ISO-NE agrees that consistent energy offer caps are important to prevent flows that run contrary to reliability needs, but argues that the NOPR's actual effect on seams is unknown because real-time cost verification for imports is not possible. n76 PJM Joint Consumer Advocates argue that the Commission's proposal could exacerbate seams because shortage pricing mechanisms vary across RTOs/ISOs. n77 Industrial Energy Consumers note that allowing different offer caps in adjacent markets could create seams issues. n78

n75 Delaware Commission Comments at 14-15.

n76 ISO-NE Comments at 9.

n77 PJM Joint Consumer Advocates Comments at 6-7.

n78 Industrial Energy Consumers Comments at 2.

32. Other commenters argue that there should be regional flexibility in implementing an offer cap. PG&E argues that a one-size-fits-all solution for all RTO/ISO markets is not appropriate. n79 As noted above, the NY Transmission Owners suggest that different hard caps in different regions might be justified, so long as regions that are dependent on the same gas supply coordinate their caps. n80 Direct Energy supports the NOPR's proposal for verified cost-based offers above $ 1,000/MWh, but argues that individual RTOs/ISOs should be able to set offer caps above $ 1,000/MWh in recognition of regional differences. n81

n79 PG&E Comments at 1-2.

n80 NY Transmission Owners Comments at 4-5.

n81 Direct Energy Comments at 5-6.

33. APPA, NRECA, and AMP assert that the NOPR runs counter to the Commission's usual practice of recognizing and accommodating regional differences. n82 APPA, NRECA, and AMP state that a concern over seams is not adequate justification for the rule because it fails to account for regional differences, and because the Commission determined that the need for an increase in the offer cap outweighed seams issues when it approved PJM's $ 2,000/MWh offer cap. n83

n82 APPA, NRECA, and AMP Comments at 5-6.

n83 *Id.* at 6 (citing [*PJM 2015 Offer Cap Order, 153 FERC [paragraph] 61,289 at P 55).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5HV8-F410-01KR-D1S6-00000-00&context=) Additionally, APPA, NRECA, and AMP argue that the fact that PJM has this higher offer cap and it has not resulted in seams issues proves that concerns over seams are purely hypothetical. *Id.*

*B. Determination*

34. Based on our analysis of the record, we adopt the preliminary findings in the NOPR, and conclude that the offer caps currently in effect in RTOs/ISOs are unjust and unreasonable. We find that the currently effective offer caps may prevent a resource from recovering its short-run marginal costs, which could result in that resource operating at a loss. n84 We also find that the $ 1,000/MWh offer caps in effect in some RTOs/ISOs may suppress LMPs below the marginal cost of production given that recent history demonstrates that resource short-run marginal costs can exceed $ 1,000/MWh. n85 We also find that preventing resources from including all of their short-run marginal costs in their incremental energy offers when those costs exceed $ 1,000/MWh may discourage resources that are not subject to must-offer requirements from offering their supply to the RTO/ISO energy market. Finally, preventing resources from including their short-run marginal costs in their incremental energy offers when those costs exceed $ 1,000/MWh may also prevent the RTO/ISO from dispatching the most efficient resources when several resources have short-run marginal costs above $ 1,000/MWh.

n84 As discussed above, the Commission has previously accepted temporary changes to tariff provisions in MISO that enabled resources to receive uplift for short-run marginal costs above the $ 1,000/MWh offer cap. However, cost recovery through uplift is only guaranteed if a resource experiences short-run marginal costs above $ 1,000/MWh during the time period for which the Commission has accepted tariff revisions related to the offer cap. *See supra* P 14. Currently, resources in many RTOs/ISOs do not have the opportunity to recover short-run marginal costs above $ 1,000/MWh without a tariff modification.

n85 [*PJM 2014/15 Offer Cap Order, 150 FERC [paragraph] 61,020 at P 6.*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5F3B-M070-01KR-D46J-00000-00&context=)

35. We disagree with commenters who argue that there is no need to reform the offer cap or that the problems described in the NOPR are hypothetical and that insufficient evidence exists to **[\*87776]** conclude that the current offer caps are unjust and unreasonable. As discussed in the NOPR, three RTOs/ISOs made filings with the Commission (two on multiple occasions) to address issues related to the level of the offer cap. n86 The waiver requests and high natural gas costs experienced during the Polar Vortex, which could have caused some resources to experience costs above $ 1,000/MWh, demonstrate that the deficiencies of current offer caps, in particular the $ 1,000/MWh offer cap, are concrete rather than hypothetical.

n86 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at PP 13-17.

36. Without Commission action to remedy these deficiencies, some resources could be forced to operate at a loss and some resources would be discouraged from offering their supply to the grid when it is most needed. A central tenet of sound wholesale electric market design is that resources must have an opportunity to recover their costs, so the question left to the Commission is how to provide that opportunity for cost recovery when short-run marginal costs exceed the $ 1,000/MWh offer cap. We have essentially two choices to enable resources to recover short-run marginal costs above $ 1,000/MWh: To allow cost recovery through energy prices or through uplift. Short-run marginal costs, which resources include in the incremental energy component of their supply offers, are typically used to calculate LMP. As noted above, n87 ensuring that LMPs reflect the marginal cost of production sends critical information to market participants, improves transparency, and generally results in more efficient outcomes in RTO/ISO energy markets. We find that recovery through energy prices, in most circumstances, will provide the additional benefit that LMPs reflect the marginal cost of production, will increase transparency about the functioning of RTO/ISO energy markets, and will facilitate efficient dispatch of resources with short-run marginal costs above $ 1,000/MWh. n88 While we recognize that offer caps may not bind frequently, the Federal Power Act requires the Commission to ensure that rates are just and reasonable.

n87 *See supra* P 5.

n88 We note that uplift is necessary in some circumstances. For example, resource start-up and no-load costs are not typically included in LMP, and some resources receive uplift to recover these costs.

37. We also disagree with commenters that LMPs above $ 1,000/MWh do not send useful price signals to market participants because, in fact, the Commission has found on prior occasions that LMPs based on short-run marginal cost send efficient short-run and long-run signals to the market. n89 In the short-run, LMPs based on short-run marginal costs are an effective way to communicate information to market participants about the cost of providing the next unit of energy. For example, when LMPs are high, they provide a signal to customers to reduce consumption and a signal to suppliers to increase production or to offer new supplies to the market. In the long-run, LMPs based on short-run marginal costs can help to inform investment decisions. n90

n89 [*PJM Interconnection, L.L.C., 110 FERC [paragraph] 61,053, at P 114 (2005)*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:4FBF-NRW0-001G-Y2TX-00000-00&context=) ("offers [in a ***competitive*** market] should set the market clearing price in order to send appropriate price signals about the need for new generation or enhanced load response"). [*PJM 2014 Offer Cap Order II, 146 FERC [paragraph] 61,078 at P 40*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5BH1-C100-01KR-D1P7-00000-00&context=) ("By limiting legitimate, cost-based bids to no more than $ 1,000/MWh, the market produces artificially suppressed market prices and inefficient resource selection").

n90 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 7.

38. Furthermore, as noted by ***Competitive*** Suppliers and EEI, even if LMPs exceed $ 1,000/MWh for only a few hours during the year, the resulting LMPs in those hours could affect long-term price signals. n91 For all of these reasons, we conclude that the existing offer caps are not just and reasonable and, thus, need to be reformed.

n91 ***Competitive*** Suppliers Comments at 9; EEI Comments at 5.

39. With respect to the applicability of the reforms adopted in this Final Rule, we find that making the reforms applicable to all RTOs/ISOs will avoid seams issues that could arise if RTOs/ISOs had different offer caps. n92 We find that these offer cap reforms will also result in more economically efficient flows between RTOs/ISOs because transactions across RTO/ISO seams will occur based on economic merit rather than based on differences in the offer cap. n93

n92 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at PP 70-71.

n93 *Id.* P 74.

40. We also find that continued use of temporary waivers related to the offer cap, as advocated by some commenters, is an inappropriate remedy for problems associated with current offer caps in RTOs/ISOs. The reforms adopted in this Final Rule will provide more certainty to market participants and reduce the administrative burden on RTOs/ISOs associated with requests for temporary waivers of various tariff provisions related to the $ 1,000/MWh offer caps prior to the start of every winter to ensure that resources are given the opportunity to recover their costs. n94 We also find that problems identified with the current offer caps are better addressed through a rulemaking rather than through continued use of either *ad hoc* actions to approve tariff waivers or temporary changes to tariff provisions to remedy issues associated with existing RTO/ISO offer caps.

n94 *Id.* PP 45, 49 (citing Notice Inviting Comments, Docket No. AD14-14-000 at 2).

41. We find that the reasons for requiring the proposed offer cap reforms apply equally to CAISO. As discussed above, the potential for resources to have short-run marginal costs above CAISO's current $ 1,000/MWh offer cap requires some action to ensure that resources have an opportunity to recover costs. As in other RTO/ISO markets, increasing the offer cap will improve price formation in CAISO at times when the short-run marginal costs of CAISO resources exceed $ 1,000/MWh. CAISO's lack of a seam with another RTO/ISO does not alter these effects. Contrary to the implication of CAISO's argument, as explained above, we are not relying on the avoidance of seams issues as the sole rationale for adopting this Final Rule. With respect to comments regarding the WECC offer cap, we find that this issue is unique to CAISO, and if CAISO finds that this Final Rule raises seams issues with WECC, it may raise such issues elsewhere.

**IV. Offer Cap Reforms**

42. Having concluded that the existing offer caps are not just and reasonable, section 206 of the Federal Power Act requires that the Commission determine the practices that are just and reasonable. n95 We direct each RTO/ISO to establish in their tariffs the following three requirements:

n95 [*16 U.S.C. 824e*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GPW1-NRF4-42M9-00000-00&context=) (2012).

(1) A resource's incremental energy offer must be capped at the higher of $ 1,000/MWh or that resource's cost-based incremental energy offer. For the purpose of calculating Locational Marginal Prices, Regional Transmission Organizations and Independent System Operators must cap cost-based incremental energy offers at $ 2,000/MWh. (Offer cap structure requirement)

(2) The costs underlying a resource's cost-based incremental energy offer above $ 1,000/MWh must be verified before that offer can be used for purposes of calculating Locational Marginal Prices. If a resource submits an incremental energy offer above $ 1,000/MWh and the costs underlying that offer cannot be verified before the market clearing process begins, that offer may not be used to calculate Locational Marginal Prices and the resource would be eligible for a make-whole payment if **[\*87777]** that resource is dispatched and the resource's costs are verified after-the-fact. A resource would also be eligible for a make-whole payment if it is dispatched and its verified cost-based incremental energy offer exceeds $ 2,000/MWh. (Verification requirement)

(3) All resources, regardless of type, are eligible to submit cost-based incremental energy offers in excess of $ 1,000/MWh. (Resource neutrality requirement)

43. The offer cap structure requirement is discussed in section IV.A. The verification requirement is discussed in section IV.B. The resource neutrality requirement is discussed in section IV.C.

*A. Offer Cap Structure*

1. NOPR Proposal

44. In the NOPR, the Commission proposed the following offer cap structure requirement:

*A resource's incremental energy offer used for purposes of calculating Locational Marginal Prices in energy markets must be capped at the higher of $ 1,000/MWh or that resource's cost-based incremental energy offer.* n96

n96 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 53.

The Commission sought comments on this proposed offer cap structure requirement and whether a hard cap that limited the incremental energy offers used to calculate LMPs would be necessary. The Commission also sought comment on whether the level of the hard cap should be $ 2,000/MWh or another value. n97

n97 *See id.* P 55.

2. Comments

45. Comments about the proposed offer cap structure focus on two key areas: (1) Whether incremental energy above $ 1,000/MWh should be cost-based; and (2) how LMPs should be calculated when resource short-run marginal costs exceed $ 1,000/MWh, including whether resources with costs above $ 1,000/MWh should be compensated through higher LMPs or through uplift, whether a hard cap is necessary, and the appropriate level of any hard cap.

a. Whether Incremental Energy Offers Above $ 1,000/MWh Should be Cost Based

46. Commenters differed on the proposal to limit incremental energy offers above $ 1,000/MWh to cost-based incremental energy offers. Some commenters support this proposal and argue that it is appropriate to limit incremental energy offers that are *not* cost-based to $ 1,000/MWh as a backstop mitigation measure. n98 As discussed further below, n99 many commenters support the verification requirement proposed in the NOPR and stress that incremental energy offers above $ 1,000/MWh must be cost-based incremental energy offers before such offers are eligible to calculate LMPs. n100

n98 MISO Comments at 7; NY Transmission Owners Comments at 2-3.

n99 *See infra* PP 100-101.

n100 *See generally* NYISO Comments at 2; SCE Comments at 1-2; PG&E Comments at 3; NY Transmission Owners Comments at 3; Golden Spread Comments at 3; Delaware Commission Comments at 11; TAPS Comments at 12; NESCOE Comments at 3.

47. Regarding offer caps in general, MISO states that the offer cap is currently necessary because demand in RTO/ISO energy and ancillary service markets is inelastic and also because they serve as a safety net. n101 MISO adds that offer caps should be set high enough so as not to interfere with valid market dynamics. n102 NY Transmission Owners maintain that the $ 1,000/MWh offer cap is an important backstop to protect consumers from the exercise of market power should mitigation fail. n103

n101 MISO Comments at 7.

n102 *Id.* at 7.

n103 NY Transmission Owners Comments at 2-3.

48. Some commenters argue that the $ 1,000/MWh threshold, above which a resource's incremental energy offer submitted to the RTO/ISO must be cost-based, is too high. The Delaware and New Jersey Commissions recommend that in PJM, all incremental energy offers above $ 400/MWh be verified before such offers are eligible to set LMP, n104 and the Pennsylvania Commission asks the Commission to carefully consider the threshold above which incremental energy offers are verified. n105 The PJM Market Monitor states that there is no reason that $ 1,000/MWh should be the dividing line between incremental energy offers that can include markups and incremental energy offers that must be cost-based, and that the threshold could be lowered to $ 500/MWh in PJM noting that only 0.17 percent of all offers were above $ 400/MWh in 2015. n106

n104 Delaware Commission Comments at 4-7; New Jersey Commission Comments at 9.

n105 Pennsylvania Commission Comments at 10-13.

n106 PJM Market Monitor Comments at 2.

49. Exelon states that while it supports removing the offer cap completely, if the Commission finds that incremental energy offers above a certain threshold must be cost-based, n107 Exelon recommends a $ 2,000/MWh threshold which it states is above a recent fully supported cost-based incremental energy offer of $ 1,724/MWh seen in PJM in 2014. n108 Exelon also recommends that this threshold be reevaluated on a triennial basis to ensure it reflects market realities. n109

n107 Exelon refers to this threshold as a "market-based offer cap." *See, e.g.,* Exelon Comments at 1, 7-10.

n108 Exelon Comments at 9-10.

n109 *Id.* at 10.

50. Other commenters support an absolute cap on the incremental energy offers, even if a resource's short-run marginal costs exceed that cap. n110 Industrial Customers also claim that if incremental energy offers above $ 1,000/MWh are permitted, resources would have no incentive to minimize their fuel costs because they would recover all of their costs if they were dispatched by the RTO/ISO. n111 Potomac Economics states that resources should be prohibited from submitting incremental energy offers above $ 2,000/MWh, and claims that without such an absolute cap, natural gas prices could be bid up to extraordinary levels. n112

n110 Industrial Customers Comments at 10; Potomac Economics Comments at 7.

n111 Industrial Customers Comments at 19.

n112 Potomac Economics Comments at 7. Potomac Economics is the external independent market monitor for NYISO, MISO, and ISO-NE. ISO-NE and NYISO also have internal Market Monitoring Units.

51. However, several commenters state that resources should be able to submit incremental energy offers that reflect their short-run marginal costs, even if those offers exceed $ 1,000/MWh. n113 For example, CEA argues that it is prudent to modify current offer caps to allow resources to submit incremental energy offers above $ 1,000/MWh when fuel and other inputs cause the marginal cost of production to exceed $ 1,000/MWh. n114 PJM Power Providers argue that raising the offer cap is important because it would allow energy clearing prices to reflect market conditions and provide stability to consumers and suppliers by eliminating the need for *ad hoc* waivers. n115

n113 *See generally* ***Competitive*** Suppliers Comments at 12-14; Dominion Comments at 3-4; EEI Comments at 3-4; Golden Spread Comments at 1; MISO Comments at 6; NY Transmission Owners Comments at 3; OMS Comments at 3; PJM/SPP Comments at 6; PJM Market Monitor Comments at 1; Six Cities Comments at 2.

n114 CEA Comments at 3-4.

n115 PJM Power Providers Comments at 1-2 (citing NOPR, FERC Stats. & Regs. [paragraph] 32,714 at PP 14, 16, 17).

52. Some commenters argue that offer caps that limit the incremental energy offers that resources can submit should **[\*87778]** be increased n116 or removed entirely. n117 For example, API and the Texas Commission argue that the offer cap should be raised significantly. n118 The Texas Commission asserts that MISO's offer cap should be raised significantly to provide greater assurance of resource adequacy, reduce administrative complexity, and minimize uplift charges. n119

n116 API Comments at 3, 8, 13; Exelon Comments at 7; OMS Comments (on behalf of Public Utility Commission of Texas (Texas Commission), referring to MISO's $ 1,000/MWh offer cap) at 3 n. 7; NEI Comments at 2, 4-5.

n117 NEI Comments at 2, 4-5; ***Competitive*** Suppliers Comments at 4-5, 7, 13-15; Exelon Comments at 9-10.

n118 API Comments at 3, 8, 13; OMS Comments (on behalf of Texas Commission) at 3 n.7.

n119 OMS Comments (on behalf of Texas Commission) at 3 n.7.

53. MISO states that it does not oppose the NOPR proposal to revise the offer cap because the proposal will allow market clearing prices to more accurately reflect the true marginal cost of production while protecting consumers from the effects of manipulation and improving price transparency, and the proposal should also reduce uplift payments. n120 However, MISO urges the Commission to consider whether the offer cap proposal in the NOPR is an appropriate long-term approach and states that it could support a gradual relaxation of offer caps to allow market forces to respond accordingly. n121

n120 MISO Comments at 6.

n121 *Id.* at 7.

54. PJM Power Providers assert that resources should be able to submit cost-based incremental energy offers that reflect all short-run marginal costs. n122 ***Competitive*** Suppliers and Exelon argue that the offer cap should be removed entirely, or raised to avoid adverse impacts on the market. n123 According to ***Competitive*** Suppliers, significant improvements in electricity markets and market monitoring have occurred since the $ 1,000/MWh offer cap was put in place nearly 20 years ago. n124 ***Competitive*** Suppliers also argue that, given these improvements, the offer cap should be removed, or if that approach is not taken, the verification process should involve minimal distortions. n125

n122 PJM Power Providers Comments at 2.

n123 ***Competitive*** Suppliers Comments at 4-5, 8, 14; Exelon Comments at 10.

n124 ***Competitive*** Suppliers Comments at 8, 14-15.

n125 *Id.* at 4-5.

b. How LMPs Should Be Calculated When Resource Short-Run Marginal Costs Exceed $ 1,000/MWh

55. Several commenters discuss how LMPs should be calculated when resource short-run marginal costs exceed $ 1,000/MWh, with some commenters arguing that LMPs should rise to reflect the marginal cost of production and others arguing that resources with short-run marginal costs above $ 1,000/MWh should be compensated outside of the market through uplift rather than through higher LMPs. Commenters also discuss the need for a hard cap and the appropriate level for any hard cap.

i. Whether To Compensate Resources With Costs Above $ 1,000/MWh Through Uplift or Higher LMPs

56. As noted above, n126 several commenters state that incremental energy offers above $ 1,000/MWh should be used to calculate LMPs because the resulting LMPs will better reflect the marginal costs of production. n127 MISO states that permitting cost-based incremental energy offers above $ 1,000/MWh to set LMPs should improve price transparency and should reduce uplift payments. n128 EEI states that ***competitive*** wholesale electricity markets should provide accurate price signals and that cost-based incremental energy offers above $ 1,000/MWh should be used to calculate LMPs because LMPs should reflect the marginal cost of operating the system, which will promote efficient operation, resource accuracy, and result in savings for consumers. n129

n126 *See supra* P 17.

n127 CEA Comments at 3-4; ***Competitive*** Suppliers Comments at 9-13; EEI Comments at 3; Exelon Comments at 5-7; Powerex Comments at 6; PJM Providers Group Comments at 2; Golden Spread Comments at 1; MISO Comments at 6; PJM/SPP Comments at 1-2.

n128 MISO Comments at 6.

n129 EEI Comments at 3-4.

57. However, other commenters argue that incremental energy offers above $ 1,000/MWh, even if they are cost-based, should not be able to set LMP. n130 For example, Industrial Customers argue that letting incremental energy offers set LMP would be a windfall to resources. n131 Many commenters argue that uplift or temporary waivers should be used to account for instances when resources' short-run marginal costs exceed the offer cap. Some commenters argue that rather than letting incremental energy offers above $ 1,000/MWh set LMP, resources with costs above the $ 1,000/MWh offer cap should be compensated through uplift. n132 For example, the New York Commission argues that an uplift mechanism could ensure that generators can recover all short-run marginal costs. n133 KEPCo/NCEMC asserts that if cost-based incremental energy offers above $ 1,000/MWh are based on inaccurate fuel cost estimates, there may be no means of remedying the effects on the markets. n134 KEPCo/NCEMC add that uplift is a more cost effective way to ensure both resource cost recovery and just and reasonable prices. n135 Industrial Customers assert that uplift is preferable to using incremental energy offers above $ 1,000/MWh to calculate LMP because uplift payments ensure cost recovery and can be limited to the resources that are necessary to balance supply and demand, rather than compensating all resources. n136

n130 APPA, NRECA, and AMP Comments at 8-10; Industrial Customers Comments at 9; NY Department of State Comments at 3; ODEC Comments at 3; PJM Joint Consumer Advocates Comments at 5; TAPS Comments at 5-6; Steel Producers' Alliance Comments at 3.

n131 Industrial Customers Comments at 9.

n132 APPA, NRECA, and AMP Comments at 8, 13-14, 16; Industrial Customers Comments at 8-9, 23-24; KEPCo/NCEMC Comments at 4; TAPS Comments at 5-6; New York Commission Comments at 6-7; SPP Market Monitor Comments at 2, 4, 6-7; Industrial Energy Consumers Comments at 2.

n133 New York Commission Comments at 6-7.

n134 KEPCo/NCEMC Comments at 4.

n135 *Id.* at 4.

n136 Industrial Customers Comments at 8-9.

ii. Whether To Adopt a Hard Cap

58. Comments differ on the need for a hard cap that would limit the incremental energy offers RTOs/ISOs use to calculate LMPs, a limit referred to herein as a hard cap. Many commenters support a hard cap, n137 and some argue that a hard cap serves as an important backstop mitigation measure to address concerns about the ***competitiveness*** of natural gas markets or as a means to protect consumers from unreasonably high LMPs. n138

n137 ISO-NE Comments at 3; ISO-NE Market Monitor Comments at 12; Joseph Margolies Comments at 8; NYISO Comments at 7; SPP Market Monitor Comments at 2, 13; TAPS Comments at 7.

n138 Direct Energy Comments at 3-5; Industrial Customers Comments at 12; ISO-NE Comments at 3; Joseph Margolies Comments at 3; Potomac Economics Comments at 7; NY Department of State Comments at 3; TAPS Comments at 7.

59. CAISO, ISO-NE, and NYISO support a hard cap. CAISO asserts that, assuming it were able to verify cost-based offers above $ 1,000/MWh, a hard cap is necessary if the Commission permits resources to submit incremental energy offers above $ 1,000/MWh. n139 CAISO adds that a hard cap may help mitigate price spikes in fuel markets. n140 ISO-NE supports a hard cap established at a fixed level and argues that any new offer cap should be imposed in a straightforward manner such that market participants know the level of **[\*87779]** the offer cap with certainty when making advance fuel supply arrangements. n141 NYISO asserts that a hard cap will protect the market from the inadvertent submission of offers above the cap, create bounds for offers that are difficult to verify, and prevent potential attempts to exercise market power that are not otherwise addressed by existing mitigation rules. n142 While MISO takes no position on a hard cap as discussed further below, n143 MISO states that a hard cap is easier to integrate with other market design elements because it is more challenging to establish the appropriate levels for other market elements, such as MISO's Operating Reserve and Transmission Constraint demand curves, without a hard cap because the maximum incremental energy offers would not be limited to a pre-defined value. n144

n139 CAISO Comments at 10. As noted in P 20, *supra,* CAISO opposes raising CAISO's current $ 1,000/MWh offer cap.

n140 *Id.* at 10. CAISO refers to the hard cap as a "secondary hard cap."

n141 ISO-NE Comments at 2-3.

n142 NYISO Comments at 8.

n143 *See infra* P 69.

n144 MISO Comments at 13.

60. Potomac Economics, and the ISO-NE and PJM market monitors stress the need for the hard cap to address concerns about uncompetitive conditions in natural gas markets when natural gas supplies are scarce. n145 Potomac Economics contends that during natural gas shortages, natural gas markets have two dominant customer types: Local gas distribution companies and natural gas generators. n146 Potomac Economics states that natural gas generators are frequently the marginal buyers since local gas distribution companies will not interrupt supply to their customers at any price. Potomac Economics asserts that without a hard cap, natural gas prices could be bid up to extraordinary levels because local distribution companies are guaranteed to recover their cost, regardless of how high. n147 The PJM Market Monitor also states that vertically-integrated utilities with a gas marketing function could have the incentive to exercise market power in natural gas markets during extreme conditions in an effort to exercise market power in electricity markets. n148

n145 ISO-NE Market Monitor Comments at 13-14; Potomac Economics Comments at 7; PJM Market Monitor Comments at 4.

n146 Potomac Economics Comments at 7.

n147 *Id.*

n148 PJM Market Monitor Comments at 4.

61. The ISO-NE Market Monitor also asserts that natural gas markets lack structural measures to prevent the exercise of market power. According to the ISO-NE Market Monitor, the offer cap in electricity markets can impact prices in natural gas markets when natural gas supplies are scarce because natural gas resources, particularly resources with must-offer requirements, are the marginal customers in natural gas markets and thus have a significant impact on natural gas prices. n149

n149 ISO-NE Market Monitor Comments at 13-14.

62. Although the PJM Market Monitor argues that, in the absence of market power, there should be no absolute cap on the short-run marginal costs reflected in an incremental energy offer, n150 the PJM Market Monitor opines that the removal of hard caps in electricity markets should be considered in light of the ***competitiveness*** of natural gas markets. The PJM Market Monitor asserts that it is essential that market participants have confidence in the ***competitiveness*** of natural gas markets before removing hard caps in electricity markets. n151

n150 PJM Market Monitor Comments at 1.

n151 *Id.* at 4.

63. The ISO-NE, PJM, and SPP market monitors also explain that when natural gas supplies are scarce, open exchanges for natural gas, such as the Intercontinental Exchange (ICE), tend to have low liquidity and wide bid-ask spreads. These market monitors state that it can be difficult to verify the short-run marginal cost of natural gas resources during periods when open natural gas exchanges have low liquidity because natural gas resources may purchase natural gas bilaterally rather than through the exchanges, and therefore the bid and ask spreads and settled transactions observed on the open exchanges may not represent the costs of the natural gas resources that make bilateral natural gas purchases. Furthermore, when liquidity in the open exchanges is low and the bid-ask spreads are wide, the ISO-NE, PJM, and SPP market monitors explain that there may be little basis on which to verify a resource's natural gas procurement costs. n152

n152 ISO-NE Market Monitor Comments at 8; PJM Market Monitor Comments at 6; SPP Market Monitor Comments at 7.

64. The New Jersey Commission and NY Transmission Owners also argue that a hard cap is necessary to address issues related to the interactions between the gas and electricity markets. n153 NY Transmission Owners explains that resource owners with costs above $ 1,000/MWh that also own infra-marginal resources may benefit from paying more for natural gas which in turn increases LMPs and thus the revenues that infra-marginal resources receive. n154 NY Transmission Owners further states that it will be difficult for market monitors to ascertain whether the price a resource has paid for natural gas reflects its expectations about the electricity market or an attempt to impact LMPs, and suggests that a hard cap can address these issues. n155 The New Jersey Commission similarly states that, absent a hard cap, market power in natural gas markets could drive up cost-based incremental energy offers in electricity markets and increase LMPs. n156

n153 NY Transmission Owners Comments at 3-4; New Jersey Commission Comments at 9.

n154 NY Transmission Owners Comments at 4.

n155 *Id.*

n156 New Jersey Commission Comments at 9.

65. The SPP Market Monitor states that it would prefer to maintain SPP's existing $ 1,000/MWh offer cap, but if it is to be revised, it would prefer a new fixed hard cap to serve as a backstop market power mitigation measure during periods of market anomalies when existing measures may fail to protect consumers. n157

n157 SPP Market Monitor Comments at 6, 13.

66. Comments from other stakeholders generally support a hard cap to protect customers against market power abuse. n158 For example, the Ohio Commission asserts that if the Commission does not require PJM and the PJM Market Monitor to jointly review these cost-based energy offers, the $ 2,000/MWh hard cap in PJM should remain to protect against market power concerns and unverified price increases. n159 Industrial Customers argue that the offer cap works in tandem with market power mitigation measures to prevent excessive prices when supplies are tight given that demand is inelastic. n160

n158 *See generally* Direct Energy Comments at 4-5; Ohio Commission Comments at 6-7; Industrial Customers Comments at 10-11; TAPS Comments at 8-10; New Jersey Commission Comments at 7.

n159 Ohio Commission Comments at 6-7.

n160 Industrial Customers Comments at 10-11.

67. Some commenters argue that a hard cap is necessary to protect customers from unjust and unreasonable prices resulting from market aberrations or other events when RTOs/ISOs fail to function properly. n161 For example, TAPS asserts that removing the offer cap entirely would result in the Commission failing to meet its statutory duty to protect against excessive prices, n162 and it argues that the hard cap provides crucial damage control to shield consumers from unreasonably high prices. n163 Industrial Customers argue that the hard cap helps discipline generator fuel procurement costs, stating that full cost recovery would significantly reduce incentives for **[\*87780]** generators to minimize their costs if these costs can be passed on to consumers. n164

n161 TAPS Comments at 8-9; Industrial Customers Comments at 19-20.

n162 TAPS Comments at 10 (citing [*FERC v. Elec. Power Supply Ass'n, 136 S. Ct. 760, 764 (2016)).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5HXW-G251-F04K-F20M-00000-00&context=)

n163 *Id.* at 9-10.

n164 Industrial Customers Comments at 19-20.

68. Commenters opposed to the inclusion of a hard cap on offers used to calculate LMPs generally argue that any cap would artificially suppress LMPs and increase uplift payments. n165 PJM/SPP state that there should not be a hard cap on cost-based offers used to calculate LMPs provided that appropriate verification processes are in place to ensure cost-based incremental offers reflect legitimate costs. n166 PJM/SPP also assert that a hard cap can create unhedgeable uplift payments. n167 PJM Power Providers assert that resources should be able to submit cost-based incremental energy offers that reflect their short-run marginal costs and that those offers should be able to set the LMP. n168

n165 ***Competitive*** Suppliers Comments at 12-15; Dominion Comments at 4; Exelon Comments at 21-22; Golden Spread Comments at 2; PJM/SPP Comments at 6; EEI Comments at 7.

n166 PJM/SPP Comments at 6.

n167 *Id.*

n168 PJM Power Providers Comments at 2.

69. MISO states that it does not have a strong preference on the imposition of a hard cap and notes that the same benefits and drawbacks that exist for the current $ 1,000/MWh hard cap (in some markets) would apply to any new hard cap. n169 MISO identifies two drawbacks of a hard cap: (1) A hard cap could suppress LMPs below the marginal cost of production; and (2) a special uplift mechanism would be needed for offers that exceed the hard cap. n170 MISO states that a hard cap may not be necessary because the verification requirement safeguards the market and states that the limitations and implementation costs associated with a hard cap would likely overshadow the benefits. n171

n169 MISO Comments at 13.

n170 *Id.*

n171 MISO Comments at 13.

70. Exelon and EEI oppose a hard cap, arguing that it is important for LMPs to be as consistent as possible with the marginal cost of operating the system and that, therefore, resources should always be permitted to offer their costs, and that such offers should always be eligible to set LMP. n172 As noted above, ***Competitive*** Suppliers assert that the offer cap should be removed entirely. n173

n172 Exelon Comments at 21; EEI Comments at 4.

n173 ***Competitive*** Suppliers Comments at 13.

71. Additionally, some commenters opposed to a hard cap assert that existing market monitoring and mitigation measures, as well as the proposed verification requirement for cost-based incremental energy offers above $ 1,000/MWh, render a hard cap unnecessary and duplicative. n174 For example, Dominion states that a hard cap is not necessary for cost-based incremental energy offers because market power concerns are not relevant for cost-based incremental energy offers as offers based on resource costs do not constitute an exercise of market power. n175

n174 ***Competitive*** Suppliers Comments at 14; PJM/SPP Comments at 6; Dominion Comments at 4.

n175 Dominion Comments at 4.

72. Commenters disagree about the appropriate level for any new hard cap. ISO-NE states that it does not have evidence to substantiate a specific recommendation for the level of any new hard cap. n176 NYISO states that the Commission should hold a technical workshop to determine the appropriate level of the hard cap that analyzes the elasticity of the fuel markets, including natural gas markets, and fuel prices at various demand levels. n177

n176 ISO-NE Comments at 3.

n177 NYISO Comments at 8.

73. Potomac Economics states that the $ 2,000/MWh level approved in PJM would be a reasonable hard cap for all RTOs/ISOs in the Eastern Interconnect. n178 However, Potomac Economics states that the Commission should adopt a $ 2,000/MWh cap that not only caps the incremental energy offers eligible to set LMP but also prevents resources from recovering incremental energy costs above $ 2,000/MWh. n179 Potomac Economics adds that the loss of generation resulting from any natural gas resources that do not procure natural gas during natural gas shortages due to such a cap will not substantially increase the probability of an electric outage. n180

n178 Potomac Economics Comments at 7-8.

n179 *Id.* at 8. Potomac Economics notes that its recommendation would require modifying PJM's current offer cap, which permits resources to recover costs above PJM's $ 2,000/MWh hard cap.

n180 *Id.*

74. TAPS argues that offers above $ 1,500/MWh should not be used to calculate LMPs because a MISO analysis indicated that natural gas resources in MISO would have a marginal cost below $ 1,138/MWh if natural gas prices reached $ 65/MMBtu and that more than 98 percent of MISO's gas capacity would have a marginal cost below $ 1,500/MWh if gas prices reached $ 100/MMBtu. n181 TAPS further argues that $ 2,000/MWh is too high and that the value was not supported by PJM other than as a compromise between PJM stakeholders. n182 Midcontinent Joint Consumer Advocates argue that a $ 2,000/MWh hard cap is unreasonably high and could cause prices to rise up to $ 2,000/MWh. n183

n181 TAPS Comments at 10-11. TAPS uses the phrase "hard offer cap," which could indicate that RTOs/ISOs should limit offers to $ 1,500/MWh for purposes of calculating LMPs or that resources should not be able to submit incremental energy offers above $ 1,500/MWh.

n182 *Id.* at 11.

n183 Midcontinent Joint Consumer Advocates Comments at 4.

75. As noted above, some commenters support a $ 1,000/MWh hard cap on the incremental energy offers that are used to calculate LMPs. n184 For example, APPA, NRECA, and AMP assert that the hard cap should be set to $ 1,000/MWh in all RTOs/ISOs, including PJM, which currently has a $ 2,000/MWh hard cap. n185 Direct Energy and NY Transmission Owners state that different hard caps across RTOs/ISOs may be justified given differences in regional natural gas prices, but add that RTOs/ISOs with the same natural gas supply should have the same hard cap. n186 Additionally, APPA, NRECA, and AMP, ODEC, PJM Joint Consumer Advocates, and Steel Producers' Alliance all ask the Commission to reinstate PJM's previous $ 1,000/MWh offer cap. n187 ODEC and PJM Joint Consumer Advocates state that although they supported the consensus position on PJM's current $ 2,000/MWh offer cap as an interim measure, they state that they were awaiting Commission action on offer caps and do not support such a cap as a long-term policy. n188 ODEC and PJM Joint Consumer Advocates argue that the $ 2,000/MWh offer cap on cost-based offers is no longer necessary and that a $ 1,000/MWh offer cap is more appropriate because new measures, such as PJM's new capacity construct and additional measures implemented in response to the Polar Vortex, will ensure that prices remain at reasonable levels. n189

n184 New Jersey Commission Comments at 8-9; TAPS Comments at 10-11; APPA, NRECA, and AMP Comments at 8-9.

n185 APPA, NRECA, and AMP Comments at 9.

n186 Direct Energy Comments at 3-4; NY Transmission Owners Comments at 5.

n187 APPA, NRECA, and AMP Comments at 7; ODEC Comments at 3-5; PJM Joint Consumer Advocates Comments at 2-4; Steel Producers' Alliance Comments at 5.

n188 ODEC Comments at 3; PJM Joint Consumer Advocates Comments at 2.

n189 ODEC Comments at 5; PJM Joint Consumer Advocates Comments at 2-3.

76. Dominion states that the NOPR proposal will result in more accurate price signals and a better understanding of the true costs of serving demand, reduce uplift during stressed periods, and allow customers to more effectively hedge the costs of reliability through market participation. n190 NESCOE states **[\*87781]** that the offer cap reforms proposed in the NOPR appear to appropriately balance price formation issues, seams issues, and the potential for market power abuse while allowing for regional variation in implementing consumer protection mechanisms. n191

n190 Dominion Comments at 3.

n191 NESCOE Comments at 2.

3. Determination

77. The Commission is adopting aspects of the offer cap structure set forth in the NOPR, which caps a resource's incremental energy offer used for purposes of calculating LMPs in day-ahead and real-time energy markets at the higher of $ 1,000/MWh or that resource's cost-based incremental energy offer. Based on the comments received in this proceeding, the Commission is also adopting a hard cap as part of this Final Rule. n192 Although a resource may submit a cost-based incremental energy offer above $ 2,000/MWh, the hard cap will prohibit the use of such offers above $ 2,000/MWh when calculating LMPs. As discussed further in section IV.B below, incremental energy offers above $ 1,000/MWh must be verified before they are used to calculate LMPs. As noted above, RTOs/ISOs must cap verified cost-based incremental energy offers at $ 2,000/MWh when calculating LMPs.

n192 The hard cap was not included in the proposal set forth in the NOPR, but the Commission sought comment on it. *See* NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 55.

78. As a result of this Final Rule, an RTO/ISO will treat resources' incremental energy offers differently, depending on the level of the offer itself. Each RTO/ISO shall treat incremental energy offers below $ 1,000/MWh as it currently does. Such offers: (1) Are subject to existing RTO/ISO market power mitigation procedures and are not required to be cost-based; and (2) may be used to calculate LMPs. A resource may only submit an incremental energy offer equal to or above $ 1,000/MWh if the offer is cost-based, that is, if the offer accurately reflects that resource's actual or expected short-run marginal costs. For an incremental energy offer equal to or above $ 1,000/MWh and less than or equal to $ 2,000/MWh, the RTO/ISO or Market Monitoring Unit must verify that the offer is cost-based before the RTO/ISO may use the offer to calculate LMPs. For an incremental energy offer above $ 2,000/MWh, the RTO/ISO or Market Monitoring Unit must also verify that the offer is cost-based. Cost-based incremental energy offers in excess of $ 2,000/MWh will be capped at $ 2,000/MWh for purposes of calculating LMPs. As such, the $ 2,000/MWh hard cap places an upper limit on the incremental energy offers that the RTO/ISO can use to calculate LMPs. n193 We note that the resulting LMPs may exceed $ 2,000/MWh due to losses and congestion. Additionally, resources with verified cost-based incremental energy offers above $ 2,000/MWh will be eligible to receive uplift.

n193 The $ 2,000/MWh hard cap requires that the cost-based incremental energy offers that RTOs/ISOs may use to calculate LMPs may not exceed $ 2,000/MWh.

79. After consideration of the record in this proceeding, including responses to the question we asked about the need for a hard cap, we adopt a modified version of the offer cap structure proposed in the NOPR. This modified version recognizes the practical issues raised by commenters. While a hard cap may diminish the ability to fully address the shortcomings of the current offer caps identified above n194 in all circumstances, we find that, on balance, a hard cap is necessary to reasonably limit the adverse impact that imperfect information about a resource's short-run marginal costs during the verification process could have on LMPs.

n194 *See supra* P 2.

80. First, the offer cap structure will reduce the likelihood that the $ 1,000/MWh offer cap in effect in some RTOs/ISOs n195 will suppress LMPs below the marginal cost of production. Ideally, LMPs in RTO/ISO energy markets should reflect the short-run marginal cost of the marginal resource. Under the offer cap structure adopted in this Final Rule, cost-based incremental energy offers up to $ 2,000/MWh that have been verified by either the RTO/ISO or Market Monitoring Unit as being a reasonable reflection of a resource's actual or expected short-run marginal cost may be used to calculate LMPs.

n195 Specifically CAISO, ISO-NE, MISO, NYISO, and SPP.

81. Second, the offer cap structure and associated uplift payments discussed further in section IV.B below give resources the opportunity to be compensated for the short-run marginal costs they incur to provide service, which achieves the price formation goal of ensuring that resources have an opportunity to recover their costs.

82. Third, the offer cap structure adopted in this Final Rule will encourage a resource to offer supply to the market when it is needed most. A resource that is compensated for its costs has an incentive to offer its supply into the market even when those costs are high, which often occurs when supplies are tight. Fourth, the offer cap structure enables RTOs/ISOs to dispatch the most efficient set of resources when resources' short-run marginal costs exceed $ 1,000/MWh.

83. We also find that the offer cap structure will mitigate market power associated with incremental energy offers above $ 1,000/MWh, as some commenters suggest. The requirement that incremental energy offers above $ 1,000/MWh be cost-based retains the backstop mitigation function that current offer caps play in existing RTO/ISO market power mitigation because incremental energy offers that are not cost-based may not exceed $ 1,000/MWh. A cost-based incremental energy offer is based on the associated resource's short-run marginal cost, which constitutes a ***competitive*** offer free from the exercise of market-power.

84. Revising the offer cap to permit cost-based incremental energy offers up to $ 2,000/MWh to set LMP will reduce the likelihood that the offer cap will suppress LMPs below the marginal cost of production. Permitting cost-based incremental energy offers up to $ 2,000/MWh to set LMP will also reduce uplift associated with the current offer caps, which will be beneficial to the market because uplift payments are less transparent to market participants than LMPs that reflect the marginal cost of production. Therefore, we disagree with arguments that all resources with short-run marginal costs above $ 1,000/MWh should be compensated through uplift rather than through the LMP. As discussed further below, we adopt a hard cap and provide cost recovery for resources with short-run marginal costs above $ 2,000/MWh to address practical concerns raised about the offer verification process. As discussed further below, some resources may not know their actual short-run marginal costs at the time they submit cost-based incremental energy offers. n196 Accordingly, the RTO/ISO or Market Monitoring Unit will have to verify that such offers reasonably reflect the associated resource's expected short-run marginal costs, which necessarily involves an estimate. Furthermore, the information that RTOs/ISOs and/or Market Monitoring Units have to estimate and/or verify the short-run marginal costs of some resources may be imperfect. For example, as noted above, information about the short-run fuel costs of certain natural gas-fired resources may be limited when natural gas supplies are scarce because publicly available natural gas indices may not be representative of the price that such resources actually pay for fuel. n197 Given **[\*87782]** these limitations, we find it is appropriate to include a hard cap to ensure that LMPs calculated based on verified cost-based incremental energy offers above $ 1,000/MWh are just and reasonable.

n196 *See infra* PP 105-108.

n197 *See supra* P 63.

85. We disagree with Industrial Customers that resources would have no incentive to minimize their fuel costs if the offer cap is above $ 1,000/MWh because, in the absence of market power, resources have an incentive to ***compete*** with other resources in order to clear the RTO/ISO day-ahead and real-time energy markets. Any resource that is able to procure natural gas at a cost less than the cost that sets the LMP will earn a profit and thus has a strong incentive to manage its fuel procurement.

86. However, as part of the offer cap structure, we will require a hard cap of $ 2,000/MWh on offers that are used to calculate LMPs. Under the hard cap, an RTO/ISO must place an upper limit, or hard cap, on the cost-based incremental energy offers that it uses to calculate LMPs. n198 To implement the hard cap, we modify the offer cap structure requirement proposed in the NOPR and adopt the following offer cap structure requirement:

n198 We note that PJM currently permits resources to submit cost-based incremental energy offers above its current $ 2,000/MWh hard cap, and PJM may use such offers to dispatch resources. However, incremental energy offers are capped at $ 2,000/MWh for purposes of calculating LMPs. *See* [*PJM 2015 Offer Cap Order, 153 FERC [paragraph] 61,289.*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5HV8-F410-01KR-D1S6-00000-00&context=)

A resource's incremental energy offer must be capped at the higher of $ 1,000/MWh or that resource's cost-based incremental energy offer. *For the purpose of calculating Locational Marginal Prices, Regional Transmission Organizations and Independent System Operators must cap cost-based incremental energy offers at $ 2,000/MWh.*

87. We find that a hard cap is necessary for two primary reasons. First, a hard cap will address the fact that RTOs/ISOs and/or Market Monitoring Units may have imperfect information about resources' short-run marginal costs during the verification process. As discussed further in section IV.B below, several commenters note that there may be imperfect information associated with the verification of cost-based incremental energy offers above $ 1,000/MWh prior to the market clearing process because some of those offers will be based on a resource's estimate of its costs and RTOs/ISOs or Market Monitoring Units may not have perfect information with which to estimate those costs. Additionally, as noted by market monitors, when natural gas spot market prices rise to levels that could result in the short-run marginal costs of some natural gas-fired resources exceeding $ 1,000/MWh, over-the-counter natural gas markets often lack liquidity or have wide bid-ask spreads, which can make verification challenging, particularly verification of expected costs. At those times, a market participant's expected costs could vary significantly from its actual costs. Although, as discussed further below, only verified cost-based incremental energy offers above $ 1,000/MWh may be used to calculate LMPs subject to the $ 2,000/MWh hard cap. We find that, on balance, a hard cap will reasonably limit the adverse impact that any imperfect information about resources' short-run marginal costs during the verification process could have on LMPs.

88. Second, we agree with MISO that a hard cap will be easier to integrate with other market constructs that place caps or upper bounds on various market elements (*e.g.,* penalty factors associated with shortage pricing or violating transmission constraints).

89. We are not persuaded by comments that a hard cap is duplicative of existing market power mitigation rules because existing market power mitigation provisions in most RTOs/ISOs only apply under certain circumstances, whereas this Final Rule essentially mitigates all incremental energy offers above $ 1,000/MWh to a level based on short-run marginal costs. Additionally, as noted above, the hard cap is necessary to address concerns about the imperfect information that RTOs/ISOs and/or Market Monitoring Units have about resources' short-run marginal costs during the verification process.

90. Having determined that a hard cap is necessary, we find that $ 2,000/MWh is a just and reasonable level for that hard cap based on the record in this proceeding. Historically, high natural gas prices during the Polar Vortex resulted in at least one resource with a cost-based incremental energy offer of $ 1,724/MWh. n199 Based on this experience and noting that it occurred in an otherwise low natural gas price environment, we expect that resources may experience costs that approach but are unlikely to exceed $ 2,000/MWh. With a hard cap of $ 2,000/MWh, we find that resources will be able to recover those costs and that LMPs will reflect marginal costs. n200 The Commission has previously relied upon high and volatile natural gas prices as a justification for increasing offer caps. n201 This $ 2,000/MWh level was also generally supported by Potomac Economics. n202 With respect to treatment of cost-based incremental energy offers above $ 2,000/MWh, we expect RTOs/ISOs to use such offers to determine merit-order dispatch. We note that the Commission allowed this approach when accepting PJM's current offer cap structure, in which PJM uses cost-based incremental energy offers above $ 2,000/MWh to determine merit order dispatch but limits cost-based incremental energy offers to $ 2,000/MWh for purposes of calculating LMPs. n203

n199 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 13 (citing [*PJM 2014 Offer Cap Order I, 146 FERC [paragraph] 61,041 at P 2).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5BC7-1DY0-01KR-D1J6-00000-00&context=)

n200 *See* [*Envtl. Action, Inc. v. FERC, 939 F.2d 1057, 1064 (D.C. Cir. 1991)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3S4X-9RC0-008H-V002-00000-00&context=) ("it is within the scope of the agency's expertise to make such a prediction about the market it regulates, and a reasonable prediction deserves our deference notwithstanding that there might also be another reasonable view."). *See also* [*Michigan Consol. Gas Co. v. F.E.R.C., 883 F.2d 117, 124 (1989)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3S4X-9RG0-003B-52YD-00000-00&context=) ("It is also quite clear FERC may make predictions--"[m]aking . . . predictions is clearly within the Commission's expertise" and will be upheld if "rationally based on record evidence.") (citing *East Tennessee* [*Natural Gas Co. v. FERC, 863 F.2d 932, 938-39 (1988)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3S4W-XFK0-001B-K1SX-00000-00&context=) (citing [*Associated Gas Distributors v. FERC, 824 F.2d 981, 1008 (1987)).*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3S4X-9BD0-001B-K30X-00000-00&context=)

n201 *See* California Indep. Sys. Operator Corp., 114 FERC [paragraph] 61,026, at P 25 (2006) (In CAISO, natural gas prices rose from $ 3-$ 4/MMBtu when the bid cap in CAISO was $ 250/MWh to $ 14/MMBtu. Based on this information, the Commission found "that raising the bid cap is justified by the well-documented rise in gas prices" and accepted CAISO's proposal to raise the bid cap from $ 250/MWh to $ 400/MWh.).

n202 Potomac Economics Comments at 8.

n203 [*PJM 2015 Offer Cap Order, 153 FERC [paragraph] 61,289 at P 11.*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5HV8-F410-01KR-D1S6-00000-00&context=)

91. We recognize that a $ 2,000/MWh hard cap leaves some possibility for price suppression when the marginal cost of production legitimately exceeds $ 2,000/MWh. However, by allowing verified cost-based incremental energy offers in the $ 1,000/MWh-$ 2,000/MWh range to set LMPs, we significantly reduce the likelihood of such price suppression, and we find this balanced approach just and reasonable.

92. We decline to hold a technical workshop as suggested by NYISO or a triennial review as suggested by Exelon to determine an appropriate level for the hard cap because there is sufficient evidence in this record to support $ 2,000/MWh as a just and reasonable value. Based on the record, we decline to adopt a lower hard cap level, such as the $ 1,500/MWh value TAPS proposes, because this level is demonstrably lower than cost-based incremental energy offers observed during the Polar Vortex. Additionally, the PJM Market Monitor reported that on 54 occasions in early 2015, resources submitted cost-based incremental energy offers at prices above $ 1,000/MWh. n204

n204 Monitoring Analytics, Report on PJM Energy Market Offers January 16 to March 31, 2015, at 2 (May 1, 2015), *available at* [*http://www.monitoringanalytics.com/reports/Reports/2015/IMM\_Informational\_Filing\_Docket\_No\_EL15-31-000\_20150505.pdf*](http://www.monitoringanalytics.com/reports/Reports/2015/IMM_Informational_Filing_Docket_No_EL15-31-000_20150505.pdf). **[\*87783]**

93. With respect to APPA, NRECA, and AMP's argument that concerns over seams do not justify revising RTO/ISO offer caps, particularly because the Commission accepted PJM's current $ 2,000/MWh offer cap, we reiterate that the Commission's finding in that order was limited to the facts in that record. In accepting PJM's proposal, the Commission stated that it would not prejudge broader reforms in the price formation proceeding. n205

n205 [*PJM 2015 Offer Cap Order, 153 FERC [paragraph] 61,289 at P 55.*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5HV8-F410-01KR-D1S6-00000-00&context=)

94. We decline to hold, as CAISO suggests, a technical workshop on implementation challenges. We expect that any issues regarding the implementation of this Final Rule will be raised by RTOs/ISOs on compliance, and the Commission will address them at that time. We also decline to implement a $ 400/MWh cap on incremental energy offers that are not cost-based, as some commenters have suggested. We find that the fact that resources rarely submit incremental energy offers above $ 400/MWh does not indicate that allowing resources to submit incremental energy offers as high as $ 1,000/MWh which are not cost-based (referred to as "market-based offers" in PJM) will result in unjust and unreasonable rates.

95. In response to MISO's suggestion that future adjustments to the offer cap may be needed in response to market-based solutions that increase demand elasticity or resource mix changes, we decline to speculate as to what changes may or may not be necessary in the future.

*B. Cost Verification*

1. NOPR Proposal

96. In the NOPR, the Commission proposed the requirement that cost-based incremental energy offers above $ 1,000/MWh be verified by the RTO/ISO or Market Monitoring Unit prior to being used to calculate LMPs (verification requirement). n206 The Commission proposed the following verification requirement:

n206 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 56.

*The costs underlying a resource's cost-based incremental energy offer above $ 1,000/MWh must be verified before that offer can be used for purposes of calculating Locational Marginal Prices. If a resource submits an incremental energy offer above $ 1,000/MWh and the costs underlying that offer cannot be verified before the market clearing process begins, that resource's incremental energy offer in excess of $ 1,000/MWh may not be used to calculate Locational Marginal Prices. In such circumstances a resource would be eligible for a make-whole payment if that resource clears the energy market and the resource's costs are verified after-the-fact.* n207

n207 *Id.*

97. The Commission reasoned that this requirement would ensure that the proposal results in LMPs that reflect the marginal cost of production during intervals when the marginal resource's short-run marginal cost exceeds $ 1,000/MWh. Further, in the NOPR, the Commission preliminarily found that the verification requirement was necessary to reduce the potential exercise of market power by resources, which could result in unjust and unreasonable rates. n208

n208 *Id.* P 57.

2. Comments

98. As discussed further below, the Commission received several comments about the proposed verification requirement. Comments about the proposed verification requirement focus on whether it is needed and what type of verification would be acceptable and feasible. A number of commenters generally support the proposed verification requirement, but they express concerns or seek clarification about the proposed verification requirement. n209

n209 ISO-NE Comments at 6; NYISO Comments at 2; PJM/SPP Comments at 2-3; TAPS Comments at 12.

a. Need for the Verification Requirement

99. Commenters disagree about whether the proposed verification requirement for cost-based incremental energy offers above $ 1,000/MWh is necessary to reduce the potential exercise of market power. Several commenters support the verification requirement, n210 some asserting that the verification requirement is a critical element of the proposal. n211

n210 SCE Comments at 1-2; PG&E Comments at 1-3; NY Transmission Owners Comments at 3.

n211 Golden Spread Comments at 3; Delaware Commission Comments at 11; TAPS Comments at 12; NESCOE Comments at 3.

100. OMS contends that the verification requirement protects retail consumers from unlimited and unjustified wholesale price increases. n212 The Delaware Commission and TAPS assert that the verification requirement is necessary to address market power concerns. n213 TAPS states that although it opposes revisions to the offer cap, the proposed verification requirement is needed to protect the integrity of the RTO/ISO markets and will help avoid litigation costs associated with re-running markets after-the-fact in the event that an LMP is subsequently found not to be cost-justified. n214 PG&E and SCE generally support the prevention of unverified incremental energy offers above $ 1,000/MWh from setting the LMP, although PG&E does not support the proposal overall. n215

n212 OMS Comments at 3.

n213 Delaware Commission Comments at 11; TAPS Comments at 12-13.

n214 TAPS Comments at 12-13.

n215 PG&E Comments at 1-3; SCE Comments at 1-2.

101. PJM Joint Consumer Advocates argue that the only way to protect consumers from unfair prices is to verify offers prior to the market clearing process and that fairness demands such a review, even if the verification process is technically complex. PJM Joint Consumer Advocates assert that market-based offers, which are not strictly tied to costs, should not be eligible to set LMP because they would unfairly inflate costs to consumers and result in a windfall for suppliers. n216

n216 PJM Joint Consumer Advocates Comments at 5.

102. Other commenters assert that the verification requirement is unnecessary n217 or unduly cumbersome. n218 Potomac Economics and PJM Power Providers argue that cost verification is unnecessary given other RTO/ISO market constructs. n219 Potomac Economics states that the justification for the proposed verification requirement is limited because ***competition*** is not diminished during the fuel price spikes that could cause a resource's short-run marginal costs to exceed $ 1,000/MWh. Potomac Economics also argues that existing RTO/ISO market power mitigation measures address market power concerns. n220 PJM Power Providers state that the verification requirement is unnecessary because resources have the incentive to submit incremental energy offers that reflect actual costs. PJM Power Providers assert that the threat of an investigation from the Commission's Office of Enforcement and possible associated fines incent good behavior and discourage the exercise of market power. n221 Industrial Energy Consumers also state that the NOPR could lead markets to become more complicated **[\*87784]** and opaque, potentially leading to unintended consequences. n222

n217 Potomac Economics Comments at 12; PJM Power Providers Comments at 5.

n218 OMS Comments (on behalf of Texas Commission) at 3 n.7.

n219 Potomac Economics Comments at 12; PJM Power Providers Comments at 5.

n220 Potomac Economics Comments at 12.

n221 Exelon Comments at 9; PJM Power Providers Comments at 5 (citing [*Public Citizen, Inc. v. Midcontinent Indep. Sys. Operator, Inc., 154 FERC [paragraph] 61,224, at P 88 (2016)).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5JG6-06H0-01KR-D2D1-00000-00&context=)

n222 Industrial Energy Consumers Comments at 2.

b. Verification Standard

103. The Commission sought comment on the Market Monitoring Unit's or RTO's/ISO's ability to timely verify cost-based incremental energy offers above $ 1,000/MWh prior to the day-ahead or real-time market clearing process. n223 In response, the Commission received a wide array of comments about the feasibility of the proposed verification requirement and the challenges associated with implementing the requirement.

n223 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 59.

104. Many of the comments highlighted the difference between verification of *actual* costs and verification of *expected* costs. They noted that because verification has to occur before the market runs, verification of *actual* costs was more difficult than verification of *expected* costs. Indeed, several commenters contend that it is not possible prior to the market clearing process to verify that a resource's cost based-incremental energy offer equals that resource's *actual* costs. n224 Commenters raise two key obstacles to the verification of a resource's actual costs prior to the market clearing process: (1) Some natural gas resources do not know their actual costs at the time they submit offers; and (2) natural gas resource fuel costs are particularly difficult to verify during periods when natural gas supplies are scarce. Each obstacle is discussed in turn below.

n224 EEI Comments at 6; Exelon Comments at 11; IRC Comments at 2-3; ISO-NE Comments at 2, 6-7; MISO Comments at 9; PJM/SPP Comments at 12-13; Potomac Economics Comments at 3-4; SPP Market Monitor Comments at 9.

i. Resource Cost Uncertainty When Submitting Offers

105. Many commenters, including RTOs/ISOs, market monitors, and generators, assert that because some resources, specifically natural gas resources, do not know their actual fuel procurement costs when they submit incremental energy offers to the RTO/ISO, it is impossible to verify the incremental energy offers of such resources prior to the market clearing process. n225

n225 Dominion Comments at 5; Exelon Comments at 16; ISO-NE Market Monitor Comments at 7; ISO-NE Comments at 6; MISO Comments at 9; PJM Market Monitor Comments at 6; PJM/SPP Comments at 10; Potomac Economics Comments at 3-5; SPP Market Monitor Comments at 9.

106. ISO-NE, MISO, and PJM/SPP state that some natural gas resources have not procured fuel by the time that they submit incremental energy offers to the RTO/ISO markets, and thus ISO-NE and PJM/SPP state that such resources often submit offers based on the cost that the resources expect to pay for natural gas on the natural gas spot market. n226 For example, PJM/SPP state that some natural gas resources procure all or part of their natural gas requirements in the daily natural gas spot market, which is more volatile than month-ahead index prices because of changes in commodity prices and weather, as well as interstate natural gas pipeline capacity curtailments and maintenance activities. n227

n226 ISO-NE Comments at 5; MISO Comments at 9; PJM/SPP Comments at 9.

n227 PJM/SPP Comments at 9-10.

107. Comments from market monitors also suggest that some natural gas resources do not know their actual fuel costs at the time they submit offers. n228 For example, the ISO-NE Market Monitor states that natural gas resources that have not purchased natural gas in advance submit offers based on their best estimate of what they expect to pay for natural gas in real-time. n229 Potomac Economics and the ISO-NE Market Monitor state that resources submit initial incremental energy offers n230 or updates to their cost-based incremental energy offers n231 based on expected, rather than actual costs. Potomac Economics adds that such offers reflect a resource's expectation of its costs, and these costs may be subject to substantial uncertainty and thus cannot be verified in advance. n232 The ISO-NE Market Monitor, Potomac Economics, and the SPP Market Monitor conclude that strict verification of a resource's actual costs prior to the market clearing process is not possible. n233

n228 ISO-NE Market Monitor Comments at 7; Potomac Economics Comments at 4; SPP Market Monitor Comments at 9.

n229 ISO-NE Market Monitor Comments at 7.

n230 Potomac Economics Comments at 4.

n231 ISO-NE Market Monitor Comments at 7.

n232 Potomac Economics Comments at 4.

n233 ISO-NE Market Monitor Comments at 4; Potomac Economics Comments at 3-4; SPP Market Monitor Comments at 9.

108. Generators also state that verification of actual costs may not be possible because some natural gas resources can only submit an estimate of their expected fuel costs. n234 For example, Exelon states that when a resource submits a day-ahead offer, which is due 24-48 hours prior to actual dispatch, that resource must consider numerous costs and may have to make complicated and somewhat imprecise judgments to predict future events, which makes it difficult to quantify and substantiate risks on either an before-the-fact or after-the-fact basis. n235 Additionally, EEI states that a resource that is not committed or not fully committed in the day-ahead market may not procure enough natural gas to meet its full output in the real-time market and may need to purchase fuel in the intra-day natural gas market where prices are significantly higher and more volatile than the day-ahead natural gas market. n236

n234 Dominion Comments at 5; Exelon Comments at 11-16.

n235 Exelon Comments at 11-17.

n236 EEI Comments at 5-6.

ii. Cost Verification During Peak Periods

109. Several commenters state that the challenges associated with pre-verification become more acute during stressed system conditions when natural gas supplies are limited, which is precisely when resources may have incremental energy costs above $ 1,000/MWh. n237

n237 *See generally* Dominion Comments at 4-5; PJM/SPP Comments 11; ISO-NE Comments at 4-5; SPP Market Monitor Comments at 7; PJM Market Monitor Comments at 6; EEI Comments at 6; Exelon Comments at 13-14; PJM Power Providers Comments at 3.

110. PJM states that higher natural gas prices have led to higher cost-based incremental energy offers from resources, but verifying resource costs with natural gas price indices can be challenging because there is not a strong or straightforward correlation between changes in natural gas index prices and the magnitude of changes in cost-based offers, particularly when cost-based incremental energy offers in PJM are high. n238 ISO-NE argues that indices may not fairly represent the fuel prices that resources must pay, particularly when natural gas supplies are tight. n239 ISO-NE notes that there may be scant independent or timely information on natural gas resources' costs during such times. n240 Various commenters explain that during such times, natural gas resources must often purchase natural gas outside of the exchange trading platforms n241 through bilateral deals that are not reported on such exchanges, and that a significant amount of such purchases tends to make natural gas **[\*87785]** indices less representative of the price natural gas resources pay for natural gas. n242

n238 PJM/SPP Comments at 11 (citing Attachment A). Attachment A presents an analysis of cost-based incremental energy offers and natural gas prices during the winters of 2013/14, 2014/15, and 2015/16. The analysis in Attachment A shows that for cost-based offers in the $ 500/MWh-$ 750/MWh range, the median gas price corresponding to the range of offers was $ 10.44/MMBtu in the 2013/14 winter, $ 15.62 MMBtu in the 2014/15 winter, and $ 3.75/MMBtu in the 2015/16 winter.

n239 ISO-NE Comments at 4-5.

n240 *Id.*

n241 Industrial Customers Comments at 16; ISO-NE Comments at 4-5; ISO-NE Market Monitor Comments at 8; PJM Market Monitor Comments at 6; SPP Market Monitor Comments at 7.

n242 ISO-NE Market Monitor Comments at 8; PJM Market Monitor Comments at 6.

111. The ISO-NE., PJM, and SPP market monitors state that cost verification is most challenging when natural gas demand is high because of low liquidity and high bid-ask spreads for natural gas purchased on open exchanges such as the ICE. n243 For example, the PJM Market Monitor and the ISO-NE Market Monitor state that the natural gas market is least transparent on days with very high electric demand and that the ICE index is likely to be unsuitable for verification purposes because there are either no completed trades reported, a low number of completed gas trades (*i.e.,* low liquidity), or the bid-ask spread is so wide as to be meaningless. n244 The SPP Market Monitor states that the risk inherent in determining accurate fuel costs from natural gas indices is acceptable in most periods, but that the risk increases to unacceptable levels during extremely stressed fuel supply conditions. n245 Comments from generators also suggest that natural gas indices become less reliable during periods when natural gas supplies are limited and natural gas prices spike. n246 Dominion and Exelon assert that purchasing natural gas outside of an exchange through marketers or bilateral deals also increases the risks that a natural gas resource faces when it formulates its bid, and can increase the error associated with a resource's estimate of its actual costs. n247

n243 ISO-NE Market Monitor Comments at 8; PJM Market Monitor Comments at 6; SPP Market Monitor Comments at 7.

n244 ISO-NE Market Monitor Comments at 7-8; PJM Market Monitor Comments at 6.

n245 SPP Market Monitor Comments at 7.

n246 EEI Comments at 6; Exelon Comments at 13-14; PJM Power Providers Comments at 3.

n247 Dominion Comments at 5; Exelon Comments at 13-14.

c. Feasibility of Verification Requirement

112. The Commission sought comment on the feasibility of the proposed verification requirement. n248 As discussed further below, ISO-NE, MISO, and NYISO state that current mitigation procedures could satisfy the proposed verification requirement if the Commission clarifies that the verification process can include expected, rather than actual, costs. n249 Several commenters express concerns that timely verification of a resource's actual short-run marginal costs is not possible within the timeframe of the RTO/ISO day-ahead and real-time market clearing process. n250

n248 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at PP 59, 73.

n249 *See infra* PP 126-127.

n250 Exelon Comments at 11; Industrial Customers Comments at 13-16; ISO-NE Market Monitor Comments at 9; Joseph Margolies Comments at 13; Potomac Economics Comments at 3-4; SPP Market Monitor Comments at 2, 7, 9.

113. For example, Potomac Economics states that time constraints will make the proposal infeasible if the proposed verification requires that resource cost data be collected and fully validated to actual cost prior to market clearing. n251 The ISO-NE Market Monitor states that the lack of solid information about natural gas prices on high-volatility, low-liquidity days makes validation of a resource's expected short-run marginal costs difficult, particularly if many resources seek to update their cost-based incremental energy offers. n252 The PJM Market Monitor notes that in PJM, a large volume of data, including information from approximately 420 gas-fired resources and about 35 gas trading points, must be processed to review cost-based incremental energy offers. n253 The SPP Market Monitor states that verification prior to market clearing may not be feasible in SPP given the tight timeline, particularly during sudden fuel shortages and fuel price spikes, and adds that it would need additional technical capabilities for such verification. n254 The SPP Market Monitor states that the proposal could also negatively affect RTO/ISO market monitors' ability to conduct timely market power mitigation under the proposed timeline because market monitors would be required to perform cost verification and market mitigation before completion of the market clearing process. n255

n251 Potomac Economics Comments at 3-4.

n252 ISO-NE Market Monitor Comments at 9.

n253 PJM Market Monitor Comments at 7.

n254 SPP Market Monitor Comments at 2, 7, 9, 10-11.

n255 *Id.* at 9.

114. Industrial Customers argue that market monitors cannot be expected to have the ability to assess the legitimacy of the cost component of resource offers in real-time. n256 Industrial Customers add that even if a resource has a natural gas invoice with a high price and provides it to the market monitor, this alone does not provide adequate consumer protection because the market monitor must investigate, understand, and accept the dynamics that led to that invoice. n257

n256 Industrial Customers Comments at 14.

n257 Industrial Customers Comments at 19.

115. Citing CAISO's prior comments about practical implementation challenges associated with before-the-fact verification, Industrial Customers argue that the proposal in the NOPR may not be beneficial because pre-verification presents significant challenges given time constraints. n258 KEPCo/NCEMC states that RTOs/ISOs may not be in a position to verify cost-based incremental energy offers prior to market clearing without substantial investment in both new technology and significant changes to the existing RTO/ISO tariffs and business practice manuals. n259 KEPCo/NCEMC argues that the verification requirement involves substantial technological and regulatory costs for wholesale market participants, which KEPCo/NCEMC asserts are unwarranted given the limited nature of the problem with the current RTO/ISO offer caps. n260

n258 *Id.* at 14-16 (citing CAISO Post-Technical Workshop Comments, Docket No. AD14-14-000, at 4-6 (Mar. 6, 2015)).

n259 KEPCo/NCEMC Comments at 5.

n260 *Id.*

116. EEI maintains that the NOPR proposal is heavily dependent on having a verification process that is not so cumbersome as to prevent a resource's cost based incremental energy offer from being verified in time to be used in the LMP calculation. It argues that the use of make-whole payments would not serve the Commission's goal of having clearing prices that reflect the true marginal cost of production, taking into account all physical constraints. n261 NEI states that the manner in which the verification is performed is a key concern, and without a simple and efficient process, there is risk that the LMP will not reflect the true costs of operating the system because it will exclude offers above the cap. NEI maintains that an alternative approach would be warranted if market monitors cannot validate incremental energy offers in excess of $ 1,000/MWh quickly and efficiently. n262 ***Competitive*** Suppliers contend that the proposed verification requirement would result in cost-based offers above $ 1,000/MWh being unable to set the LMP because cost verification prior to the market clearing process is not possible. n263

n261 EEI Comments at 5.

n262 NEI Comments at 4.

n263 ***Competitive*** Suppliers Comments at 17-18.

117. ***Competitive*** Suppliers argue that removing the offer cap entirely or increasing it significantly would alleviate any challenges inherent in a before-the-fact cost verification process. n264 Similarly, NEI states that instead of the verification requirement, the Commission should lift caps to a **[\*87786]** level that does not artificially constrain LMPs. n265

n264 *Id.*

n265 NEI Comments at 4.

118. Midcontinent Joint Consumer Advocates and TAPS argue that it is possible to perform the proposed cost verification prior to the market clearing process. n266 Midcontinent Joint Consumer Advocates state that the MISO Market Monitor has publicly confirmed its ability to verify offers prior to market clearing and that it currently tracks fuel prices that could be used to make adjustments to gas and fuel costs included in a MISO resource's cost-based incremental energy offer. n267 According to TAPS, MISO's current process for developing and updating cost-based incremental offers for resources is workable because the vast majority of resources will never experience cost levels close to $ 1,000/MWh, and the resources that are likely to reach such levels should have already provided the Market Monitoring Unit with up-to-date information about their heat rates, which will allow the Market Monitoring Unit to quickly calculate cost-based incremental energy offers for such resources. n268 TAPS states that MISO's current methodology for verification of cost-based incremental offers could be modified and adapted in all RTOs/ISOs. n269

n266 Midcontinent Joint Consumer Advocates Comments at 5; TAPS Comments at 13-15.

n267 Midcontinent Joint Consumer Advocates Comments at 5.

n268 TAPS Comments at 13-14.

n269 *Id.* at 14-15.

d. Uplift Payments

119. Several stakeholders commented on the after-the-fact review of costs in the event that the RTO/ISO or Market Monitoring Unit is unable to verify a resource's incremental energy offer above $ 1,000/MWh prior to the market clearing process. n270 MISO states that market participants should be required to consult with the Market Monitoring Unit before the submission of an offer in order for that market participant to be eligible for make-whole payments after-the-fact, and asserts that market participants should not be eligible for cost recovery above their offers just because in hindsight, their offers were below their actual costs. n271 PG&E states that if a cost-based incremental energy offer is verified after the market has run, energy cleared from such an offer should be compensated on an "as bid" basis. n272 PG&E maintains that if a cost-based incremental energy offer cannot be verified even after the market has run, then that resource's cleared energy should instead be compensated at the LMP. n273 PJM Power Providers and ***Competitive*** Suppliers assert that even after-the-fact verification of a resource's costs will be challenging, and, according to ***Competitive*** Suppliers, it will be particularly challenging for natural gas resources that have complex fuel supply arrangements. n274

n270 ***Competitive*** Suppliers Comments at 19; MISO Comments at 10; PG&E Comments at 3; PJM Power Providers Comments at 4.

n271 MISO Comments at 10.

n272 PG&E Comments at 3.

n273 *Id.*

n274 ***Competitive*** Suppliers Comments at 19; PJM Power Providers Comments at 4.

120. ***Competitive*** Suppliers state that in some instances, a resource may not be able to use the RTO's/ISO's verification process to set the market clearing price (for offers above $ 1,000/MWh) and in such rare cases, it may be necessary to compensate that resource through an uplift payment based on after-the-fact cost verification. n275 ***Competitive*** Suppliers assert that if a resource incurs justifiable and demonstrable short-run marginal costs, those costs should be recovered so that the resource does not operate at a loss and so that the resource is not discouraged from offering supply to the market. n276

n275 ***Competitive*** Suppliers Comments at 20-21.

n276 *Id.* at 21.

121. NEI states that, given that the Commission's price formation reforms are aimed at reducing the use of out-of-market payments, NEI is disappointed by the NOPR proposal to include uplift payments as a fall back if before-the-fact cost verification proves infeasible in practice. n277 However, Direct Energy states that if a resource's verified cost-based incremental energy offer exceeds the cap, that resource should be entitled to full cost recovery of RTO/ISO approved costs through uplift. n278

n277 NEI Comments at 4.

n278 Direct Energy Comments at 3.

e. Specific Proposals for the Verification Requirement

122. Given the concerns about verification of actual costs, several commenters, including RTOs/ISOs, n279 Market Monitoring Units, n280 and other stakeholders, n281 request that the Commission clarify that if it is not possible to verify a resource's actual costs prior to setting LMP, it will accept a process that verifies that a resource's incremental energy offer reasonably reflects that resource's expected costs.

n279 ISO-NE Comments at 4-7; NYISO Comments at 2; PJM/SPP Comments at 12-13.

n280 Potomac Economics Comments at 3-4; ISO-NE Market Monitor Comments at 4.

n281 EEI Comments at 6-7; Exelon Comments at 17.

123. Several commenters maintain that a prior-to-the-market-clearing verification process that requires cost-based offers be equal to actual costs will likely result in fewer incremental energy offers above $ 1,000/MWh that are eligible to set LMP. n282 For example, EEI states that its primary concern with the NOPR is the verification process and whether it is workable. n283 The ISO-NE Market Monitor and PJM/SPP state that there is a trade-off between the level of precision of the cost-based offer verification, the number of offers that will be eligible to set LMPs, and the level of uplift. n284

n282 CEA Comments at 5; EEI Comments at 5.

n283 EEI Comments at 5.

n284 ISO-NE Market Monitor Comments at 5; PJM/SPP Comments at 13.

124. Several commenters ask the Commission to indicate the types of verification processes it would accept. n285 ISO-NE., MISO, and NYISO state that their current process for developing and updating cost-based incremental energy offers, known as reference levels, could comply with the proposal as clarified to include estimated costs. n286

n285 CEA Comments at 6; IRC Comments at 2.

n286 ISO-NE Comments at 6; MISO Comments at 8; NYISO Comments at 2.

125. CAISO states that the simplest method of verifying cost-based incremental energy offers would involve reviewing a broker quote or procurement invoice provided as evidence of a resource's costs, but CAISO questions whether such information would be sufficient. n287 CAISO predicts that incremental energy offers above $ 1,000/MWh are not likely to be eligible to set the clearing price in CAISO and that instead a resource with costs above $ 1,000/MWh would receive an uplift payment, assuming that the resource's costs were verified after-the-fact. n288

n287 CAISO Comments at 11.

n288 *Id.*

126. PJM/SPP state that the principles outlined in the NOPR are sound, provided that the Final Rule allows RTOs/ISOs flexibility to design verification procedures that are consistent with current RTO/ISO rules. n289 PJM/SPP outline conceptual initial proposals for verification, but stress the need to provide RTOs/ISOs with latitude to develop the final verification process with stakeholders. n290 PJM presents a possible verification process that involves an automatic screen to filter out unreasonably high offers and to create a range of reasonableness based on an **[\*87787]** index of natural gas prices, the bid/ask spread, and resource heat rates. n291 PJM states that the verification requirement could use a screening process that determines whether certain resources' incremental energy offers in a given area are within ten percent or $ 100/MWh of a benchmark offer based on a natural gas price index. n292 SPP states that it could develop additional rules that facilitate resources' submission of the fuel cost component of their cost-based incremental energy offers that is consistent with the resource's actual costs where possible, or that is a reasonably accurate representation of those costs. SPP states that given the need to approximate fuel costs that are difficult to verify, in most cases such a verification process could be subject to a reasonable margin of error. n293

n289 PJM/SPP Comments at 2-3.

n290 *Id.* at 14-21.

n291 *Id.* at 15-16.

n292 *Id.* at 16-17.

n293 *Id.* at 19.

127. ISO-NE states that if its current cost verification process is acceptable to the Commission, then the offer cap proposal may be workable and would help improve price formation if high fuel prices cause generation costs to exceed $ 1,000/MWh. n294 MISO contends that its current process to establish and adjust cost-based offers can be used to verify incremental energy offers above $ 1,000/MWh. n295 NYISO also states that its current review process of a resource's incremental energy costs could be used to satisfy the proposed verification requirement. n296

n294 ISO-NE Comments at 6.

n295 MISO Comments at 8.

n296 NYISO Comments at 3.

128. The ISO-NE Market Monitor states that the Commission should revise the proposed verification requirement to permit use of ISO-NE's current Commission-approved process where a resource can update its cost-based incremental energy offer, which occurs through a "Fuel Price Adjustment." n297 The ISO-NE Market Monitor states that ISO-NE's Fuel Price Adjustment mechanism balances the desire to reflect resource costs in cost-based incremental energy offers, the limited information the ISO-NE Market Monitor has available to verify costs, and the need to deter abuse. n298 The ISO-NE Market Monitor explains that ISO-NE's market power mitigation software automatically calculates cost-based incremental energy offers for resources, which may be based on a day-ahead fuel price index. n299

n297 ISO-NE Market Monitor Comments at 5-10.

n298 *Id.* at 5.

n299 *Id.* at 6.

129. Potomac Economics states that MISO's current process for developing and updating reference levels would comply with a Final Rule which clarified that before-the-fact verification of a resource's expected costs is acceptable. n300 Potomac Economics explains that in MISO, cost-based offers are calculated on the day before every operating day based on next-day fuel price indices. n301 In real-time, the MISO Market Monitor (*i.e.,* Potomac Economics), reviews natural gas prices on ICE at various delivery points, and if natural gas prices rise significantly compared to the next-day fuel index, the MISO Market Monitor adjusts the cost-based incremental energy offers of any affected resources. n302 Potomac Economics adds that a MISO resource can also consult with the Market Monitor and request to raise its cost-based offer beyond this adjustment if the resource provides supporting information, which may or may not be approved. n303

n300 Potomac Economics Comments at 5.

n301 *Id.* at 4.

n302 *Id.* In MISO, cost-based offers are referred to as reference levels.

n303 *Id.* at 5.

130. Potomac Economics explains that a NYISO resource may also request to update its cost-based incremental energy offer through a software process that automatically permits such an increase, provided the increase does not exceed a predetermined threshold. n304 Potomac Economics maintains that NYISO may need to adjust the validation threshold to account for periods of unusually high fuel price volatility, but that with such an adjustment, NYISO's current verification process could comply with the proposal. n305

n304 *Id.* NYISO states that a resource that updates the fuel type or fuel cost information associated with its cost-based incremental energy offer must make supporting documentation available for NYISO's review after-the-fact. *See* NYISO Comments at 4.

n305 Potomac Economics Comments at 6.

131. The PJM Market Monitor explains that resource owners in PJM are responsible for submitting their own cost-based offers and fuel cost policies, and that fuel costs are an essential part of the verification process. n306 The PJM Market Monitor states that it does not have the authority to tell a resource owner what its fuel cost is or what its offer should be, but it does have the authority to verify cost-based offers, to discuss cost issues with resource owners, and to refer resource owners to the Commission for rule violations and for the attempted or actual exercise of market power. n307 It states that it is essential that the Commission impose significant penalties for rule violations determined during the after-the-fact review. According to the PJM Market Monitor, a resource should be required to have in place a fuel cost policy that has been approved by both the PJM Market Monitor and PJM before the resource is able to submit an offer in excess of $ 1,000/MWh. n308 The PJM Market Monitor states that if a resource's cost-based incremental energy offer above $ 1,000/MWh is used in the market clearing process, the PJM Market Monitor would perform a timely after-the-fact review to determine whether a resource's offer was based upon the best information available at the time the resource submitted the cost-based incremental energy offer. n309 The PJM Market Monitor states that, in cases where an offer above $ 1,000/MWh is not permitted, the PJM Market Monitor would perform a timely after-the-fact review to determine the actual incurred costs of a resource, and uplift would be paid if the costs exceeded the market clearing price. n310 Any uplift payments for such offers would be based on the actual gas cost incurred. The PJM Market Monitor also recommends that the $ 1,000/MWh offer cap apply to a resource's "operating rate," which is calculated by adding a resource's incremental offer to its no-load offer. n311

n306 PJM Market Monitor Comments at 4-5.

n307 *Id.* at 5.

n308 *Id.* at 6.

n309 *Id.* at 7-8.

n310 *Id.*

n311 *Id.* at 2.

132. The PJM Market Monitor also maintains that it is essential that any verification process include a rigorous and timely after-the-fact review and a requirement that a resource follows the cost-based offer submission rules and abides by its approved fuel cost policy. The PJM Market Monitor states that the verification process requires strong compliance incentives, and the Commission should impose significant penalties if a resource violates the cost-based incremental energy offer guidelines. n312

n312 *Id.* at 7.

133. Commenters representing generator and load interests also proposed verification processes. ***Competitive*** Suppliers and NEI state that lifting the offer cap to a level that does not artificially constrain LMPs is preferable to developing a verification process, as removing the cap allows the market price to convey accurate information of the state of the system even during high stress. n313

n313 ***Competitive*** Suppliers Comments at 18; NEI Comments at 4. **[\*87788]**

134. ***Competitive*** Suppliers prefer no verification requirement but contends that if the Commission requires that all cost-based incremental energy offers above $ 1,000/MWh be verified, the RTO/ISO and the generator should be able to identify a set of accepted criteria and data inputs such that resources can submit offers that can be accepted and thus eligible to set LMP. n314 ***Competitive*** Suppliers state that PJM's Cost Development Guidelines provide a means of verifying resource costs and may provide an alternative approach to the proposed verification requirement. n315

n314 ***Competitive*** Suppliers Comments at 19.

n315 *Id.*

135. Exelon proposes that the Commission require RTOs/ISOs to adopt tariff provisions that will permit timely review and approval of resources' cost-based offers based on a resource-specific "safe harbor" formula that is agreed upon in advance. n316 Exelon proposes that, at a minimum, the safe harbor formula should include a ten percent uncertainty component and a fuel cost component based on a daily natural gas index, natural gas adders, balancing costs, transportation costs, and a risk adder. n317

n316 Exelon Comments at 11.

n317 *Id.* at 17-20 (citing Testimony of Leslie O. Dedrickson at 29-31).

136. Dominion supports a verification process that uses fuel estimates based on recent prices, historical prices during similar conditions, or a combination of both. n318 Dominion would support allowing market participants to submit cost-based offers within a reasonable range of a reference price that would be based on a historical fuel price index or an average of ask prices within a given fuel market, and that offers which fall in the range of that reference price and clear the market should be eligible to set LMP. n319

n318 Dominion Comments at 5.

n319 *Id.*

137. The New Jersey and Pennsylvania Commissions and OPSI maintain that in order to implement the proposal in PJM, resources should be required to have a fuel cost policy approved by the Market Monitoring Unit prior to submission of cost-based incremental energy offers above $ 1,000/MWh. n320 The Pennsylvania Commission states that pre-approved resource fuel cost policies in PJM would speed up the verification process, foster market stability, and provide certainty to resources. n321 The New Jersey Commission and OPSI assert that resource fuel cost policies should be derived from a verifiable, algorithmic, and systematic approach consistent with the PJM Market Monitor's fuel cost policy guidelines. n322 The Delaware and Pennsylvania Commissions and OPSI argue that PJM should clarify the role of PJM and the PJM Market Monitor in the review and approval of fuel cost policies and assert that the PJM Market Monitor should have the authority to verify offers above $ 1,000/MWh. n323

n320 New Jersey Commission Comments at 12-13; Pennsylvania Commission Comments at 9; OPSI Comments at 7-9. This issue was also raised in comments in PJM's offer flexibility proposal in Docket No. ER16-372-000.

n321 Pennsylvania Commission Comments at 9.

n322 New Jersey Commission Comments at 13; OPSI Comments at 8 (citing Monitoring Analytics, Fuel Cost Policy Guidelines: Gas Replacement Cost (Sept. 24, 2015), *available at* [*http://www.monitoringanalytics.com/reports/Market\_Messages/Messages/IMM\_Fuel\_Cost\_Policy\_Guidelines\_20150924.pdf*](http://www.monitoringanalytics.com/reports/Market_Messages/Messages/IMM_Fuel_Cost_Policy_Guidelines_20150924.pdf)).

n323 Delaware Commission Comments at 12; OPSI Comments at 7-9.

138. SCE argues that each RTO/ISO should utilize its own stakeholder processes to develop specific verification rules, which may reflect regional factors such as differences in market power mitigation processes and region-specific costs such as emissions and greenhouse gas costs. n324

n324 SCE Comments at 1-2.

3. Determination

139. We adopt the NOPR proposal and clarify that each RTO/ISO or Market Monitoring Unit is required to verify that any incremental energy offer above $ 1,000/MWh reasonably reflects the associated resource's actual or expected costs prior to using that offer to calculate LMPs. We find that this verification requirement is necessary for incremental energy offers above $ 1,000/MWh because market power concerns are heightened when a resource's short-run marginal costs exceed $ 1,000/MWh.

140. Based on the record, it is not practical to require that RTOs/ISOs or Market Monitoring Units verify a resource's actual costs in all circumstances because a resource may not know its actual short-run marginal costs at the time it submits an incremental energy offer to the RTO/ISO for various reasons, including the timing of natural gas procurement. Accordingly, we clarify that an RTO/ISO or a Market Monitoring Unit must verify that cost-based incremental energy offers above $ 1,000/MWh reasonably reflect a resource's actual or expected costs. Under this requirement, the verification process for cost-based incremental offers above $ 1,000/MWh must ensure that a resource's cost-based incremental energy offer reasonably reflects that resource's actual or expected costs.

141. The RTO/ISO or Market Monitoring Unit, as prescribed in the RTO/ISO tariff and consistent with Order No. 719, n325 must verify the costs within a cost-based incremental energy offer above $ 1,000/MWh before that offer is used to calculate LMP, subject to the condition that such offers are capped at $ 2,000/MWh for purposes of calculating LMP. n326 To create such a verification process, we expect that the RTO/ISO would build on its existing mitigation processes for calculating or updating cost-based incremental energy offers. n327 However, we appreciate statements from RTOs/ISOs, market monitors, and others about potential verification processes for incremental energy offers above $ 1,000/MWh. We recognize that the verification process for incremental energy offers may be a fact-specific inquiry, and we have previously provided Market Monitoring Units with flexibility to make case-specific determinations. n328 Given the potential complexities involved in verifying incremental energy offers as well as the Commission's recognition of the need for proper mitigation methods in energy markets, we will require that RTOs/ISOs explain in their compliance filings what factors will be considered by the RTO/ISO or its Market Monitoring Unit in the verification process for cost-based incremental energy offers above $ 1,000/MWh and whether such factors are currently considered in existing market power mitigation provisions or whether new practices or tariff provisions are necessary given the verification requirement adopted in this Final Rule. Therefore, we disagree that the verification requirement is needlessly cumbersome because RTOs/ISOs may build on existing processes for market power mitigation.

n325 *Wholesale* ***Competition*** *in Regions with Organized Electric Markets,* Order No. 719, FERC Stats. & Regs. [paragraph] 31,281, at PP 370-375 (2008), *order on reh'g,* Order No. 719-A, FERC Stats. & Regs. [paragraph] 31,292 (2009), *order on reh'g,* [*Order No. 719-B, 129 FERC [paragraph] 61,252 (2009).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:4Y0T-8MW0-01KR-D07H-00000-00&context=) *See also* [*18 CFR 35.28(g)(3)(iii)(B) (2016)*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:5S77-WV10-008G-Y1H0-00000-00&context=).

n326 Pursuant to [*18 CFR 35.28(g)(3)(iii)(B)*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:5S77-WV10-008G-Y1H0-00000-00&context=), either the internal or external market monitor can "provide the inputs required to conduct prospective mitigation . . . including, but not limited to reference levels, identification of system constraints, and cost calculations." [*18 CFR 35.28(g)(3)(iii)(B) (2016)*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:5S77-WV10-008G-Y1H0-00000-00&context=). However, prospective mitigation may only be carried out by an internal market monitor if the RTO/ISO has a hybrid Market Monitoring Unit structure. [*18 CFR 35.28(g)(3)(iii)(D) (2016)*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:5S77-WV10-008G-Y1H0-00000-00&context=).

n327 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 63.

n328 *See* New England Power Generators Association, Inc. v. ISO New England Inc., 144 FERC [paragraph] 61,157, at P 62 (2015).

142. Most RTOs/ISOs prohibit incremental energy offers above $ 1,000/MWh, a prohibition that some market **[\*87789]** monitors characterize as a backstop market power mitigation measure. n329 The offer cap adopted in this Final Rule retains the backstop function that the current $ 1,000/MWh offer cap plays in existing RTO/ISO market power mitigation because it limits incremental energy offers that are not cost-based to $ 1,000/MWh. Under this Final Rule, incremental energy offers below $ 1,000/MWh will remain subject to existing market power mitigation measures. However, this Final Rule will require that all incremental energy offers equal to and above $ 1,000/MWh be cost-based, which essentially requires mitigation of all incremental energy offers above $ 1,000/MWh.

n329 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 23.

143. In this way, the verification requirement requires RTOs/ISOs to make only an incremental change to their existing market power mitigation procedures because the market power mitigation provisions that apply to incremental energy offers below $ 1,000/MWh will be unchanged. While in this Final Rule we increase the offer cap for cost-based incremental energy offers, we also subject offers above $ 1,000/MWh to additional market power mitigation in the form of the verification requirement. The verification requirement is designed to ensure that a cost-based incremental energy offer above $ 1,000/MWh is not an attempt by the associated resource to exercise market power. The verification requirement is part-and-parcel with the increase of the offer cap for cost-based incremental energy offers. We find that it would be inappropriate to raise the offer cap without imposing a verification requirement. The verification requirement thus serves as an additional backstop market power mitigation measure. n330

n330 Moreover, existing Commission ***regulations*** establish that misrepresenting costs when submitting cost-based incremental energy offers as part of a supply offer may be in violation of [*18 CFR 35.41(b) (2016)*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:5RVS-Y1W0-008G-Y51T-00000-00&context=) and [*18 CFR 1c.2(a)(2) (2016)*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:5PWY-CWP0-008G-Y3R8-00000-00&context=).

144. Contrary to Potomac Economics' assertion that ***competition*** is not diminished when short-run marginal costs rise above $ 1,000/MWh, we find that market power concerns are heightened during such periods because short-run marginal costs in this range may indicate that very few resources are available to provide additional supply. Supply may be limited during such periods because of fuel supply limitations or the physical limitations of resources (*e.g.,* ramping constraints). Accordingly, resources with available supply during such periods likely face little ***competition***, particularly in real-time, and may therefore be able to exercise market power. We find that the verification requirement reasonably addresses market power concerns associated with incremental energy offers above $ 1,000/MWh because such offers will be required to be cost-based, which should deter attempts by resources to exercise market power.

145. As discussed above, this Final Rule will require RTOs/ISOs to limit incremental energy offers to $ 2,000/MWh when calculating LMPs, which may be below the cost-based incremental energy offer of a resource. Thus, we revise the verification requirement proposed in the NOPR as indicated below and add new language (underlined below) to account for any uplift associated with the $ 2,000/MWh hard cap and adopt the following verification requirement:

The costs underlying a resource's cost-based incremental energy offer above $ 1,000/MWh must be verified before that offer can be used for purposes of calculating Locational Marginal Prices. If a resource submits an incremental energy offer above $ 1,000/MWh and the costs underlying that offer cannot be verified before the market clearing process begins *,* that offer may not be used to calculate Locational Marginal Prices and the resource would be eligible for a make-whole payment if that resource is dispatched and the resource's costs are verified after-the-fact. *A resource would also be eligible for a make-whole payment if it is dispatched and its verified cost-based incremental energy offer exceeds $ 2,000/MWh.*

146. We will retain the proposal in the NOPR which ensures that, if a resource's incremental energy offer above $ 1,000/MWh is not verified but that resource is nonetheless dispatched, that resource would be eligible to receive an uplift payment to recover its verified costs. The basis of the uplift payment would be the difference between a given resource's energy market revenues and that resource's actual short-run marginal costs of the MWs dispatched, as verified after-the-fact by the RTO/ISO or Market Monitoring Unit. n331 We find that such uplift payments are necessary given the challenges associated with the verification processes, to ensure that resources have an incentive to offer into RTO/ISO energy markets, and to ensure that resources are compensated for the service they provide.

n331 The Commission notes that the clarification regarding use of a resource's actual or expected short-run marginal costs during the verification process that occurs prior to the market clearing process is not applicable to such uplift payments. Any such uplift payment, which is paid after-the-fact, must be based on a resource's actual short-run marginal costs.

147. This Final Rule will permit regional variation in the process for treating incremental energy offers above $ 1,000/MWh that the RTO/ISO or Market Monitoring Unit cannot verify prior to the start of the market clearing process. For example, the RTO/ISO could have procedures to change the incremental energy offer to $ 1,000/MWh or to mitigate that offer to a level below $ 1,000/MWh pursuant to other applicable market power mitigation provisions.

*C. Resource Neutrality*

1. NOPR Proposal

148. In the NOPR, the Commission proposed the following resource neutrality requirement:

All resources, regardless of type, are eligible to submit cost-based incremental energy offers in excess of $ 1,000/MWh. n332

n332 NOPR, FERC Stats. & Regs, [paragraph] 32,714 at P 69.

The Commission reasoned that this requirement would ensure that the eligibility to submit cost-based incremental energy offers in excess of $ 1,000/MWh would not be applied in an unduly discriminatory or unduly preferential manner. n333 The Commission also stated that the proposed resource neutrality requirement is consistent with prior orders related to the offer cap in PJM and MISO. n334

n333 *Id.*

n334 *Id.* (citing [*MISO 2014/15 Offer Cap Order, 150 FERC [paragraph] 61,083 at P 16;*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5F8N-WM20-01KR-D4C0-00000-00&context=) [*PJM 2014/15 Offer Cap Order, 150 FERC [paragraph] 61,020 at P 39).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5F3B-M070-01KR-D46J-00000-00&context=)

2. Comments

149. Several commenters support the proposed resource neutrality requirement. n335 For example, MISO supports the resource neutrality requirement and notes that the MISO tariff currently allows any resource, regardless of type, to establish a cost-based reference level. n336 MISO adds that some resources could be constrained by the $ 1,000/MWh cap because they may be unable to provide evidence of high fuel costs. n337

n335 EEI Comments at 1, 3; Ohio Commission Comments at 12; MISO Comments at 12.

n336 MISO Comments at 12 (citing MISO Tariff, Module D, 64.1.4.a, 64.3.a, and 64.1.4.h).

n337 *Id.*

150. Commenters disagree about whether demand response resources should be able to submit incremental energy offers above $ 1,000/MWh. Some commenters argue that demand response resources should be treated the same as other physical generation resources that provide offers. n338 **[\*87790]** Additionally, MISO questions why a demand response resource should be prevented from submitting an offer at the same level (in $ /MWh) as physical resources. n339

n338 API Comments at 12-13; ***Competitive*** Suppliers Comments at 23-24; Exelon Comments at 23 (citing PJM Manual 11 2.3.3); Industrial Customers Comments at 28; PJM Market Monitor Comments at 12-13.

n339 MISO Comments at 7.

151. However, other commenters argue that demand response should not be able to submit incremental energy offers above $ 1,000/MWh. PJM/SPP argue that the proposed offer cap revisions should not apply to demand response resources because demand response resource offers are intended to capture foregone commercial revenues, not the short-run marginal cost of reducing output. n340 ISO-NE asserts that a demand response resource's costs would be based on its marginal opportunity cost of foregone consumption, which could routinely exceed $ 1,000/MWh or $ 2,000/MWh, and that verifying such costs could not be accomplished on short notice. ISO-NE surmises that allowing demand resources to submit incremental energy offers above $ 1,000/MWh could create perverse incentives and may give physical resources the incentive to move behind the meter to exploit asymmetries in the application of the offer cap. Accordingly, ISO-NE requests that the Commission carefully consider its position on verification of the actual costs of demand response resources. n341

n340 PJM/SPP Comments at 5.

n341 ISO-NE Comments at 7-8.

152. The New Jersey Commission argues that in the absence of a comprehensive definition of short-run marginal costs for demand response resource offers, demand response resources should not be permitted to offer and set the market clearing price above the Commission's determined offer cap. n342 The Pennsylvania Commission asserts that demand response resources should not be eligible to set LMP and should be treated as price takers, asserting that such resources do not generally exhibit ***competitive*** behavior in energy markets because the energy revenues of such resources are *de minimis* relative to their capacity market revenues. n343

n342 New Jersey Commission Comments at 18.

n343 Pennsylvania Commission Comments at 14 (citing PJM, Demand Response Operations Market's Activity Report: February 2016 (Feb. 16, 2016), Fig. 23; Monitoring Analytics, LLC, State of the Markets Report for PJM, Vol. 1., Fig. 10 (Mar. 10, 2016)).

153. Several commenters express concerns about whether RTOs/ISOs or Market Monitoring Units can verify the costs of demand response resources. For example, ISO-NE asserts that a demand response resource's costs would be based on that resource's marginal opportunity cost of foregone consumption and other information that is difficult to validate, particularly if the demand response resource's costs increase significantly from the prior day. n344 PJM/SPP state that it is not clear what demand response resource costs could be validated to justify an offer above the $ 1,000/MWh offer cap. n345 The Pennsylvania Commission states that with the limited exception of on-site backup generation costs, the incremental energy costs of demand response capacity resources are largely unknown. n346 ISO-NE urges the Commission to carefully consider whether the verification of actual costs should be imposed on a resource-neutral basis, and explains its concerns regarding its ability to timely verify the offers of demand response resources. n347 AEMA argues that it is impractical, if not impossible, to verify the costs of a demand response resource in the same manner as a physical generation resource, particularly before-the-fact. n348 AEMA also cites a prior Commission order on ISO-NE's Order No. 745 compliance where the Commission found that "unlike with supply resources, it would be very difficult to develop a ***competitive*** offer or reference price to which to mitigate each demand response resource." n349 AEMA asserts that there is no need to create an additional verification requirement for demand response resources, because the Commission has recognized that comparability does not require identical treatment. n350

n344 ISO-NE Comments at 7-8.

n345 PJM/SPP Comments at 5.

n346 Pennsylvania Commission Comments at 14.

n347 ISO-NE Comments at 7-8.

n348 AEMA Comments at 7-8.

n349 *Id.* at 8 (citing [*ISO New England Inc., 138 FERC [paragraph] 61,042, at P 138 (2012)).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:54SG-FCT0-01KR-D12Y-00000-00&context=)

n350 *Id.* at 8-9 (citing *Preventing Undue Discrimination and Preference in Transmission Service,* Order No. 890, FERC Stats. & Regs. [paragraph] 31,241, *order on reh'g,* Order No. 890-A, FERC Stats. & Regs. [paragraph] 31,261 (2007), *order on reh'g,* [*Order No. 890-B, 123 FERC [paragraph] 61,299, at P 216 (2008),*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:4SV9-R6F0-01KR-D0CG-00000-00&context=) *order on reh'g,* [*Order No. 890-C, 126 FERC [paragraph] 61,228,*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:4VWT-8PJ0-01KR-D31H-00000-00&context=) *order on clarification,* [*Order No. 890-D, 129 FERC [paragraph] 61,126 (2009);*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:4XRT-H3X0-01KR-D01C-00000-00&context=) [*Indep. Market Monitor for PJM v. PJM Interconnection, L.L.C., 155 FERC [paragraph] 61,059, at P 31 (2016)*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5JPV-JT20-01KR-D2PF-00000-00&context=) ("comparability does not require identical application to demand response resources and generation resources of PJM's offer cap and the must-offer requirement")).

154. AEMA requests that the Commission clarify that the offer cap proposed in the NOPR only impacts demand response resources that participate in energy markets and would not apply to demand resources that exclusively participate in capacity markets. n351 AEMA explains that demand response resources that participate exclusively in capacity markets do not make incremental energy offers. AEMA explains that capacity-only demand response resources are only dispatched on a reliability-based trigger that determines the price the demand resource is paid as opposed to an offer price-based trigger that does not represent the LMP at which the customer wishes to be dispatched, or the costs of the customer to curtail its load. AEMA asserts that forcing these resources to make "incremental energy offers" in the energy market would drive them away from participation. n352

n351 *Id.* at 3.

n352 *Id.* at 3-5.

155. AEMA requests that the Commission continue to allow demand response resources to submit offers up to the offer cap in energy markets and not impose additional verification requirements on demand response resource energy market offers beyond what has already been accepted. n353 AEMA asserts that the Final Rule should not impact existing or proposed methods for monitoring and evaluating demand resource offers in energy markets or create additional verification hurdles for demand resource offers beyond those that currently exist. n354

n353 *Id.* at 5-6.

n354 *Id.* at 2-3, 7-9.

3. Determination

156. We adopt the NOPR proposal and find that resources with costs above $ 1,000/MWh should be able to submit cost-based incremental energy offers to recover their costs, regardless of the type of resource. Prohibiting a particular set of resources from submitting cost-based incremental energy offers above $ 1,000/MWh could preclude them from recovering their costs.

157. In the NOPR the term "resource" referred to all supply resources, including demand response resources, that offer incremental energy to RTO/ISO energy markets. n355 As such, a demand response resource that submits incremental energy offers to the energy market based on short-run marginal cost would be subject to the verification requirement if that incremental energy offer exceeds $ 1,000/MWh. For such a resource, the short-run marginal cost may equal its opportunity costs.

n355 This is consistent with prior uses of the term. *See, e.g., Settlement Intervals and Shortage Pricing in Markets Operated by Regional Transmission Organizations and Independent System Operators,* Order No. 825, [*81 FR 42,882*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:5K4B-C560-006W-81V4-00000-00&context=) (June 30, 2015), FERC Stats. & Regs. [paragraph] 31,384, at P 98 (2016).

158. We recognize that the verification process for demand response resources will necessarily differ from the verification process for generation resources, as noted by ISO-NE and AEMA. The Commission has **[\*87791]** recognized that demand response resources should receive comparable, but not necessarily identical treatment to generation resources. n356 However, we decline AEMA's request to exempt demand response resources that submit incremental energy offers in RTO/ISO energy markets from any additional verification requirements associated with this Final Rule, because such an exemption does not constitute comparable treatment. However, as noted above, n357 this Final Rule does not prescribe how RTOs/ISOs should verify cost-based incremental energy offers above $ 1,000/MWh, including offers from demand response resources.

n356 *Demand Response Compensation in Organized Wholesale Energy Markets,* Order No. 745, FERC Stats. & Regs. [paragraph] 31,322, at P 66, *order on reh'g and clarification,* [*Order No. 745-A, 137 FERC [paragraph] 61,215 (2011)*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:54HN-CJK0-01KR-D0WF-00000-00&context=) ("as a general matter demand response providers and generators should be subject to comparable rules that reflect the characteristics of the resource.").

n357 *See supra* P 141.

159. Finally, we find that the New Jersey and Pennsylvania Commissions' comments that demand response resources should not be able to set LMP are beyond the scope of this Final Rule, which only applies to incremental energy offers above $ 1,000/MWh, and not the general eligibility of demand response resources to set LMPs in RTO/ISO energy markets. We clarify, however, that reforms adopted in this Final Rule, which provide that resources are eligible to submit cost-based incremental energy offers in excess of $ 1,000/MWh and require that those offers be verified, do not apply to capacity-only demand response resources that do not submit incremental energy offers in energy markets.

**V. Other Issues**

*A. Virtual Transactions*

160. Although the Commission preliminarily found in the NOPR that virtual supply offers and virtual demand bids (virtual transactions) could not provide a cost basis for offers above $ 1,000/MWh, it sought comment about whether prohibiting virtual transactions above $ 1,000/MWh could limit hedging opportunities, present opportunities for manipulation or gaming, create market inefficiencies, or have other undesirable consequences. n358

n358 NOPR, FERC Stats. & Regs [paragraph] 32,714 at PP 64, 73.

1. Comments

161. CAISO states that virtual transactions do not face short-run marginal production costs and would thus be unable to justify costs above $ 1,000/MWh. n359 However, CAISO notes that if physical resources can submit incremental energy offers above $ 1,000/MWh, then virtual participants should also be able to bid above $ 1,000/MWh to arbitrage those physical offers. n360

n359 CAISO Comments at 13.

n360 *Id.*

162. ISO-NE states that market participants should be able to submit virtual supply offers at levels as high as offers from physical resources to ensure that there is a liquid supply of offers that can ***compete*** with physical resources in the day-ahead market under all market conditions, which can reduce the potential exercise of market power during tight day-ahead conditions. n361 ISO-NE asserts that if the Commission adopts a new hard cap, there is no cost-basis or market power rationale to limit virtual supply offers below the level of any hard cap. n362

n361 ISO-NE Comments at 8.

n362 *Id.* at 8-9.

163. PJM argues that virtual transactions should be permitted to exceed $ 1,000/MWh or be subject to a reasonableness screen because virtual transactions increase ***competition*** in the day-ahead markets and reduce market share, and thus reduce market power. n363 MISO states that prohibiting virtual transactions above $ 1,000/MWh could limit hedging opportunities which could increase the price differentials between the day-ahead and real-time energy markets. n364 MISO adds that revising the offer cap for virtual transactions could conceivably expose other market participants to high prices but notes that MISO already has mitigation measures in place for virtual transactions and that years of market experience have shown that such manipulation concerns are improbable. n365

n363 PJM/SPP Comments at 27.

n364 MISO Comments at 18; *see also* PJM/SPP Comments at 27-28.

n365 MISO Comments at 18.

164. NYISO states that cost-based incremental energy offers, interchange transactions (*e.g.,* imports and exports), and virtual transactions should be capped at the level of the hard cap, which will allow market participants to continue to ***compete*** to the maximum extent practicable. n366 NYISO also argues that a hard cap is appropriate for virtual transactions because such transactions are based on price expectations as opposed to verifiable costs. n367 SPP states that it takes no position on the application of the proposed reforms to virtual transactions. n368

n366 NYISO Comments at 7-8.

n367 *Id.* at 7.

n368 PJM/SPP Comments at 28.

165. Potomac Economics states that ***competitive*** virtual transactions should be permitted to exceed $ 1,000/MWh when real-time prices are expected to exceed $ 1,000/MWh. n369 Potomac Economics states that although virtual transactions do not have production costs, they do have marginal costs, and notes that the marginal cost of selling virtual energy in the day-ahead market is the expected cost of buying the energy in the real-time market. n370 Potomac Economics states that virtual transactions support the ***competitive*** performance of day-ahead markets and thus argues that it is important to structure the rules for virtual transactions in a manner that does not impede their participation in the market. n371

n369 Potomac Economics Comments at 10.

n370 *Id.*

n371 *Id.*

166. Potomac Economics proposes that virtual transactions be permitted to exceed $ 1,000/MWh when real-time LMPs are expected to exceed $ 1,000/MWh for more than a specified period (*e.g.,* 30 minutes). n372 The PJM Market Monitor argues that market participants should not be permitted to submit virtual transactions above $ 1,000/MWh because increasing the offer cap on virtual transactions would create opportunities for the exercise of market power and manipulation of markets and permit resource owners to avoid the requirement that incremental energy offers above $ 1,000/MWh be cost-based. n373 The PJM Market Monitor states there is no evidence that virtual supply offers have increased ***competition*** or would increase ***competition*** in extreme circumstances. n374 The PJM Market Monitor recommends that if the Commission wishes to permit some virtual transactions to exceed $ 1,000/MWh, the Commission should: (1) Limit virtual transactions above $ 1,000/MWh to liquid trading hubs; (2) require market participants to explain why virtual offers or bids above $ 1,000/MWh are appropriate; and (3) subject such virtual transactions to a "reasonableness screen" and an after-the-fact review for whether they resulted in manipulation or market power. n375 The PJM Market Monitor states that the asserted benefits of virtuals with respect to hedging, ***competition***, and price convergence have not been empirically established, and, thus, it is unnecessary to create **[\*87792]** market power risks when revising the offer cap. n376

n372 *Id.* at 9-10.

n373 PJM Market Monitor Comments at 11; PJM Market Monitor Answer at 6.

n374 PJM Market Monitor Answer at 5.

n375 PJM Market Monitor Comments at 11-12.

n376 PJM Market Monitor Answer at 5.

167. Separately, the PJM Market Monitor recommends that up-to-congestion transactions in PJM be excluded from any offer cap reforms stating that because up-to-congestion transactions are spread bids between nodes there is no reason to relax the current rules that govern such transactions. n377

n377 PJM Market Monitor Comments at 11; PJM Market Monitor Answer at 6.

168. Several commenters argue that the Commission should allow virtual transactions to exceed $ 1,000/MWh. n378 Some commenters focus on the use of virtual transactions to hedge physical transactions and argue that virtual transactions should thus be subject to the same offer caps as physical resources. n379 Dominion states that in extreme winter conditions, a physical resource that faces a start-up risk and is likely to receive a day-ahead award may submit a virtual demand bid to hedge against the potential outage in real-time. n380 Exelon also argues that hedging the risk of physical transactions through virtual transactions is especially important when the system is stressed, and that doing so may improve market performance by converging day-ahead and real-time prices. n381 ***Competitive*** Suppliers assert that the same argument articulated in the NOPR for having a uniform offer cap across regions demands similar treatment of virtual transactions, imports, and emergency demand response across regions. n382

n378 ***Competitive*** Suppliers Comments at 23-24; Dominion Comments at 7; Exelon Comments at 23-24; ISO-NE Comments at 8; PJM/SPP Comments at 27; SPP Market Monitor Comments at 12; NY Department of State Comments at 6.

n379 SPP Market Monitor Comments at 12; ***Competitive*** Suppliers Comments at 23-24; NY Department of State Comments at 6; Dominion Comments at 7.

n380 Dominion Comments at 7.

n381 Exelon Comments at 23-24.

n382 ***Competitive*** Suppliers Comments at 23.

169. Dominion states that limiting the ability to submit virtual transactions above $ 1,000/MWh to physical resources with verified cost-based incremental energy offers above $ 1,000/MWh in order to allow such resources to hedge would minimize concerns about market manipulation. n383 The PJM Market Monitor responds that Dominion's proposal creates a significant risk of manipulation because Dominion does not propose to limit the virtual bids to the cost-based offer of the generator. n384

n383 Dominion Comments at 7.

n384 PJM Market Monitor Answer at 6.

170. Several other commenters argue that virtual transactions should be prohibited from submitting transactions above $ 1,000/MWh. n385 For example, several commenters argue that virtual transactions should not be permitted to exceed $ 1,000/MWh because allowing transactions in this range could raise clearing prices without a commensurate increase in short-run marginal production costs. n386 Six Cities argues that permitting virtual transactions to submit offers above the $ 1,000/MWh cap would be inconsistent with the Commission's goals of allowing recovery of actual production costs in excess of the cap and establishing LMPs consistent with actual production costs under extreme market conditions. n387 TAPS argues that the Commission does not need to allow virtual transactions to exceed $ 1,000/MWh to encourage price convergence between the day-ahead and real-time markets. n388

n385 APPA, NRECA, and AMP Comments at 19; Industrial Customers Comments at 28-29; Ohio Commission Comments at 14; New Jersey Commission Comments at 17-18; Six Cities Comments at 3.

n386 Industrial Customers Comments at 28-29; New Jersey Commission Comments at 17-18; Six Cities Comments at 3; Ohio Commission Comments at 14; TAPS Comments at 20-21.

n387 Six Cities Comments at 4.

n388 TAPS Comments at 21.

171. Some commenters argue, as the PJM Market Monitor does, that allowing virtual transactions above the $ 1,000/MWh cap could lead to undesirable consequences, such as creating the opportunity for market manipulation and the exercise of market power. n389 For example, SCE cautions that allowing virtuals above $ 1,000/MWh would undermine the purpose of having a backstop for existing market power mitigation rules. n390 APPA, NRECA, and AMP state that although they oppose the idea, any proposal to allow virtual transactions above $ 1,000/MWh must be accompanied by an assurance that the RTO/ISO and/or Market Monitoring Unit will be able to address any gaming or anti-***competitive*** conduct. n391 PG&E asks that the Commission direct market monitors to study the potential impacts and gaming opportunities associated with permitting virtual transactions above $ 1,000/MWh before revising any caps on virtual transactions. n392 Midcontinent Joint Consumer Advocates state that while it generally supports applying the same offer cap to physical and virtual transactions, the issue should be monitored to ensure that inappropriate virtual transactions do not affect real-time energy prices. n393 The Delaware Commission recommends that virtual transactions in PJM be limited to $ 400/MWh. n394

n389 APPA, NRECA, and AMP Comments at 19; ODEC Comments at 1; KEPCo/NCEMC Comments at 5; New Jersey Commission Comments at 18; PJM Market Monitor Comments at 11-12; TAPS Comments at 21.

n390 SCE Comments at 2.

n391 APPA, NRECA, and AMP Comments at 19.

n392 PG&E Comments at 3-4.

n393 Midcontinent Joint Consumer Advocates Comments at 9.

n394 Delaware Commission Comments at 14. The Delaware Commission recommends that in PJM, virtual transactions and incremental energy offers that are not cost-based be limited to $ 400/MWh.

2. Determination

172. In light of the comments received and our adoption of a $ 2,000/MWh hard cap, we find that it is just and reasonable to permit market participants to submit virtual transactions up to $ 2,000/MWh. We do not require that virtual transactions be subject to the cost verification described above. Allowing virtual transactions above $ 1,000/MWh could improve price convergence between day-ahead and real-time markets. n395 An offer cap that is lower for virtual transactions than for physical resources could increase divergence between day-ahead and real-time LMPs. This finding is consistent with prior Commission precedent, which finds it is reasonable to permit market participants to submit virtual transactions at levels commensurate with the levels that real-time LMPs can reach. n396

n395 [*PJM Interconnection, L.L.C., 139 FERC [paragraph] 61,057 (2012).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:55FM-YF40-01KR-D1VV-00000-00&context=)

n396 *Id.* PP 123-126. In that order, the Commission found that "if virtual traders and demand cannot submit higher bids in the day-ahead market [commensurate with the $ /MWh value that real-time LMPs can reach if shortage pricing is in effect], that market may not converge with prices in the real-time market during times when PJM experiences shortage conditions in the real-time market." *Id.* P 124.

173. We find that market participants should be allowed to submit virtual transactions up to the hard cap, as they can today. As such, this Final Rule is therefore less likely to result in unintended consequences associated with capping virtual transactions at a level below the hard cap. For example, capping virtual transactions at $ 1,000/MWh when the incremental energy offers used to calculate LMPs are capped at $ 2,000/MWh could encourage some market participants to place virtual demand bids at $ 1,000/MWh, a transaction that may be profitable if real-time prices exceed $ 1,000/MWh but would not contribute to day-ahead and real-time price convergence.

174. Under this Final Rule, LMPs may rise above $ 1,000/MWh. By permitting virtual transactions to exceed $ 1,000/MWh, we preserve a market participant's ability to use virtual **[\*87793]** transactions to hedge its exposure to real-time LMPs above $ 1,000/MWh. Otherwise, if virtual transactions are limited to $ 1,000/MWh, as proposed in the NOPR, a market participant would be barred from placing virtual transactions commensurate with its market risks.

175. We also find that allowing virtual transactions above $ 1,000/MWh may add liquidity to day-ahead markets. Permitting virtual transactions in the $ 1,000/MWh--$ 2,000/MWh range could result in additional demand bids and supply offers (*i.e.,* virtual demand bids and virtual supply offers) and will thus allow virtual transactions to continue to perform the functions that they do today by adding liquidity to the day-ahead market.

176. We recognize that virtual transactions, by their nature, cannot be subjected to the type of cost-verification discussed above. However, in response to comments arguing that virtual transactions above $ 1,000/MWh will raise LMPs above verifiable costs and/or result in market power abuse, we note that Market Monitoring Units currently monitor for anti-***competitive*** behavior by market participants. While they are not required to do so, if RTOs/ISOs determine that additional measures are necessary to address any concerns that arise from permitting virtual transactions up to $ 2,000/MWh, RTOs/ISOs may propose such additional measures in a separate filing under section 205 of the Federal Power Act.

177. Dominion proposes to limit the ability to submit virtual transactions above $ 1,000/MWh to physical resources that have cost-based offers above $ 1,000/MWh. We find that Dominion's proposal to limit virtual transactions to certain market participants would be unduly discriminatory. Such a limitation would treat market participants differently depending on whether they owned physical generation assets, and would be unduly discriminatory because it would limit the benefits of virtual transactions above $ 1,000/MWh to those participants with physical assets. Further, such a limitation could limit the other potential benefits of virtual transactions above $ 1,000/MWh, such as increased liquidity and increased convergence between day-ahead and real-time LMPs. Additionally, we find that the PJM Market Monitor's and Potomac Economics' proposals to limit virtual transactions above $ 1,000/MWh to certain time periods or certain locations lack sufficient detail and record evidence to make a finding that either proposal is just and reasonable. Finally, we clarify that this Final Rule does not apply to up-to-congestion transactions in PJM, because such transactions are spread bids and not virtual supply offers or virtual demand bids.

*B. External Transactions*

178. In the NOPR, the Commission stated that external RTO/ISO resources (*i.e.,* imports) would not be eligible to submit cost-based incremental energy offers above $ 1,000/MWh because RTO/ISO processes to develop cost-based incremental energy offers for mitigation purposes typically only apply to internal RTO/ISO resources. n397 The Commission added, however, that it would consider RTO/ISO proposals to verify cost-based incremental energy offers from external transactions in their respective compliance filings. n398 The Commission also sought comment on whether the offer cap proposal should apply to imports and whether a cost verification process for import transactions is feasible. n399

n397 NOPR, FERC Stats. & Regs [paragraph] 32,714 at P 63.

n398 *Id.*

n399 *Id.* PP 63, 73.

1. Comments

179. CAISO maintains that the consistent treatment of internal resources and external resources (*e.g.,* imports) is key to an efficient market and to avoid unintended consequences. n400 CAISO surmises that capping import offers to a level below the cap that internal resource incremental energy offers are subject to could reduce supply offers from imports during periods when natural gas prices in the West rise to a level that would justify LMPs above $ 1,000/MWh. n401

n400 CAISO Comments at 13.

n401 *Id.*

180. ISO-NE states that it cannot verify the costs associated with energy import transactions in real-time. n402 ISO-NE explains that an importer's actual cost to import power into ISO-NE from an adjacent market is the adjacent market's real-time LMP, which is determined at the same time as ISO-NE's LMP. ISO-NE adds that, given the lack of organized markets in some control areas adjacent to ISO-NE., it is unclear how actual costs would be verified for import transactions from those areas. Accordingly, ISO-NE requests additional guidance from the Commission about the application of the proposed rule to imports and exports. n403

n402 ISO-NE Comments at 9.

n403 *Id.*

181. PJM asserts that non-emergency imports should be allowed to submit offers above $ 1,000/MWh to ensure that economic import transactions occur even when PJM LMPs exceed $ 1,000/MWh because such purchases and sales will benefit the market and provide electric supplies by allowing the lowest cost energy to serve customers. n404 PJM adds that imports may also defer operational emergency procedures in extreme situations. n405

n404 PJM/SPP Comments at 25.

n405 *Id.*

182. PJM explains that under PJM's current rules, economic transactions are capped at the maximum energy price (absent congestion and losses) of $ 2,700/MWh while emergency import transactions are not. PJM states that the value of lost load may exceed this level and states that PJM is thus willing to pay more than $ 2,700/MWh to procure emergency energy to prevent load shedding. n406 PJM notes that the verification of import's cost would have to follow a different process than internal resources because the resource behind the import is frequently unknown. n407

n406 *Id.* at 26 (citing PJM, Intra-PJM Tariffs, OATT, Tariff Operating Agreement, Attachment K-Appendix, section 3.2.3.A).

n407 *Id.*

183. SPP states that verifying the costs of imports could be problematic because it is difficult to obtain cost information from resources outside of SPP. n408 SPP asks the Commission to allow regional flexibility for this issue, noting that it would investigate the issue further in response to any Final Rule issued in this proceeding. n409

n408 *Id.* at 27.

n409 *Id.*

184. According to the PJM Market Monitor, 99.99 percent of PJM imports are price takers but imports that are not price takers should continue to be limited to $ 1,000/MWh offers. n410 Potomac Economics contends that external transactions should be eligible to submit offers above $ 1,000/MWh when prices in the real-time market exceed $ 1,000/MWh for more than a specified period of time (*e.g.,* 30 minutes). Potomac Economics also asserts that Coordinated Transaction Schedules should be exempt from the proposed reforms because they reflect a forecast of the price spread between RTO/ISO markets and thus would not set the LMP in either market. n411

n410 PJM Market Monitor Comments at 10.

n411 Potomac Economics Comments at 9-10.

185. The SPP Market Monitor states that the proposed offer cap requirements should apply to imports because imports have the same potential impact on LMPs as internal resources. However, the SPP Market Monitor acknowledges that it is more challenging to verify the offers of **[\*87794]** imports as compared to offers from internal SPP resources because the SPP market monitor may have limited access to the cost data of external resources. n412

n412 SPP Market Monitor Comments at 11.

186. Several commenters assert that imports should be able to offer above $ 1,000/MWh provided the costs in their offers are verified beforehand, n413 and some commenters say it is possible to develop a workable solution for such verification. n414 For example, the New Jersey Commission argues that imports that clear the PJM capacity auctions, which are pseudo-tied, will have short-run marginal production costs that are available for the market monitor to review, and should thus be permitted to offer into the PJM energy market above $ 1,000/MWh when their costs exceed $ 1,000/MWh. n415 Midcontinent Joint Consumer Advocates explain that offers from imports are provided in the day-ahead market and then only scheduled in real-time, and imports cannot set real-time LMPs in MISO. n416 However, Midcontinent Joint Consumer Advocates state that if imports are the source of higher prices in MISO markets, then it would be important to verify the costs of imports and in such cases, Midcontinent Joint Consumer Advocates would support verification for imports so that all suppliers are treated equally. n417 The Delaware Commission supports the NOPR proposal to require verification of exchange transactions provided the process in an exporting region is not less objective or rigorous than the process in the importing region. n418

n413 Delaware Commission Comments at 13; Midcontinent Joint Consumer Advocates Comments at 8; Ohio Commission Comments at 13; Six Cities Comments at 3.

n414 Midcontinent Joint Consumer Advocates Comments at 8; Six Cities Comments at 3; CEA Comments at 7-8.

n415 New Jersey Commission Comments at 18.

n416 Midcontinent Joint Consumer Advocates Comments at 8.

n417 *Id.*

n418 Delaware Commission Comments at 13.

187. Powerex asks the Commission to consider adopting a verification process for external resources that is distinct from the process used for internal resources because the two resource types differ. n419 Powerex states that verifying external resource costs is challenging in WECC because large hydroelectric storage facilities in the Pacific Northwest do not have easily calculable and verifiable short-run marginal costs, and because CAISO does not require that import offers be associated with a specific resource. n420 As an alternative, Powerex suggests that the Commission could direct the RTOs/ISOs to implement an offer cap tied to prevailing market prices, such as capping offers from external resources at the higher of $ 1,000/MWh or 120 percent of the highest market price index report in the region for the previous seven days. n421 TAPS and APPA, NRECA, and AMP assert that the Commission should give individual RTOs/ISOs the discretion to determine whether to allow imports to submit cost-based incremental energy offers over $ 1,000/MWh. n422

n419 Powerex Comments at 7-8.

n420 *Id.* at 8-9.

n421 *Id.* at 9.

n422 TAPS Comments at 19-20; APPA, NRECA, and AMP Comments at 18-19.

188. Several commenters argue that limiting external resources to $ 1,000/MWh offers may dissuade them from offering electricity to the RTO/ISO in periods when it is most needed. n423 For example, CEA states that in light of the Commission's price formation proceeding, there is no compelling reason to adopt an asymmetrical offer cap for internal resources and imports and questions the wisdom of excluding external transactions when price signals indicate scarcity and extreme conditions. n424 Powerex states that the Western Interconnection has a robust market for energy and ancillary services outside of CAISO and that non-CAISO resources may make the economically rational choice to sell power to a non-CAISO customer if CAISO has a lower offer cap compared to the non-CAISO WECC bilateral market. n425

n423 NY Transmission Owners Comments at 5-6; CEA Comments at 7-8; NY Department of State Comments at 5; Powerex Comments at 7-8.

n424 CEA Comments at 7-8.

n425 Powerex Comments at 7-8.

189. NYISO and ***Competitive*** Power Providers state that all market transactions, including imports and virtual transactions, should be capped at the level of the hard cap, which will allow for a greater degree of ***competition***. n426

n426 ***Competitive*** Suppliers Comments at 23-24; NYISO Comments at 7.

190. Some commenters discussed emergency imports. For example, PJM Power Providers agrees with PJM that the Commission should not apply the proposed offer requirements to emergency imports because an offer cap on emergency energy or emergency load reductions would limit PJM's ability to procure sufficient resources and could threaten reliability. n427

n427 PJM Power Providers Answer at 6-7.

191. However, the PJM Market Monitor argues that emergency imports above $ 1,000/MWh should be subject to cost verification before they are eligible to set LMP in PJM and asserts that such imports currently have an unmitigated opportunity to exercise market power in PJM markets. n428 The PJM Market Monitor states that the rules of ***competitive*** markets should apply, even during emergency conditions. n429 The PJM Market Monitor adds that verifying the costs of emergency imports is feasible because they occur infrequently. n430 PJM Market Monitor asserts that PJM/SPP offer no rationale for exempting emergency imports from the proposed offer cap requirements, which the PJM Market Monitor states are most critical during emergency situations. n431

n428 PJM Market Monitor Comments at 11; PJM Market Monitor Answer at 2-3.

n429 PJM Market Monitor Answer at 2.

n430 PJM Market Monitor Comments at 11; PJM Market Monitor Answer at 3.

n431 PJM Market Monitor Answer at 3.

2. Determination

192. We find that it is just and reasonable to permit economic exchange transactions (*i.e.,* imports and exports) to offer up to the level of the $ 2,000/MWh hard cap. We do not require that import or export transactions above $ 1,000/MWh be subject to the verification requirement prior to the market clearing process.

193. While in the NOPR the Commission proposed to make imports ineligible to offer above $ 1,000/MWh, *i.e.,* to prohibit imports from making such offers, we now are persuaded that such a prohibition could discourage imports at times when they are most needed. Imports benefit the market because they offer additional supply and increase ***competition***. A prohibition on imports above $ 1,000/MWh would discourage external resources with short-run marginal costs above $ 1,000/MWh from supplying energy to the RTO/ISO market, even though the market is willing to purchase that supply, and such a prohibition would thus put upward pressure on energy prices. We applied this rationale above in adopting the offer structure requirement and find that it applies equally to imports. Additionally, similar to the rationale outlined above for virtual transactions, allowing imports to offer up to $ 2,000/MWh without cost verification is generally consistent with the current market structures in RTOs/ISOs, which typically allow imports to offer up to the same offer cap that internal RTO/ISO resources are subject to. A similar logic applies to export transactions.

194. Further, prohibiting imports from offering above $ 1,000/MWh could result in uneconomic flows between RTOs/ISOs. For example, if the LMP in one **[\*87795]** RTO/ISO is $ 1,500/MWh and an external resource would like to offer an import at a price of $ 1,400/MWh, a prohibition on import offers above $ 1,000/MWh would restrict that transaction and result in inefficient flows across RTO/ISO boundaries.

195. Additionally, we will not require import offers above $ 1,000/MWh be cost-verified and find that imports are not similarly situated to internal generation resources. Unlike incremental energy offers from internal resources, import offers are often not resource-specific and, thus, it is difficult--some commenters say impossible--to ascertain the underlying costs of most import offers. This approach is consistent with current market power mitigation measures in RTOs/ISOs that apply to internal resources but do not typically apply to imports.

196. Additionally, RTO/ISO market participants can import energy from adjacent markets and sell that energy in the RTO/ISO energy market. Therefore, it is difficult for external resources in an adjacent market to withhold because internal RTO/ISO resources can import energy from that adjacent market. Additionally, provided the adjacent market is ***competitive***, which is expected if the adjacent market is an RTO/ISO with market power mitigation, it would be difficult for an external resource to exercise market power in the importing RTO/ISO.

197. Though it is not required, the Commission would consider proposals by RTOs/ISOs to verify or otherwise review the costs of imports or exports and/or develop additional mitigation provisions for import and export transactions above $ 1,000/MWh. Such proposals should be submitted in a separate filing under section 205 of the Federal Power Act.

198. We clarify that this Final Rule will not apply to Coordinated Transactions Schedules, which are spread bids as opposed to energy offers. Additionally, the Final Rule will not apply to emergency purchases, which would go beyond the scope of this Final Rule because such transactions are administratively priced rather than based on short-run marginal cost.

**VI. Other Comments**

199. The Commission also sought comment on various aspects of the verification process and the types of costs that should be considered in the verification. Specifically, the Commission sought comment on (1) whether the Market Monitoring Unit or RTOs/ISOs may need additional information to ensure that all short-run marginal cost components that are difficult to quantify, such as certain opportunity costs, are accurately reflected in a resource's cost-based incremental energy offer, and (2) to the extent that RTOs/ISOs currently include an adder above cost in cost-based incremental energy offers, whether such an adder is appropriate for incremental energy offers above $ 1,000/MWh. n432 Commenters also discussed the impact that the proposed offer cap reforms could have on other market constructs, such as shortage pricing.

n432 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 73.

*A. Verification Requirement Details*

1. Comments

200. Commenters express differing views on whether opportunity costs are legitimate costs, and if so, whether it is appropriate to include them within cost-based incremental energy offers. The PJM Market Monitor states that it currently calculates opportunity costs at the request of PJM members and does not need additional information about the details of opportunity costs. n433 The SPP Market Monitor explains that SPP currently allows an opportunity cost adder above mitigated offers, which would still be appropriate to include if costs exceed $ 1,000/MWh. n434

n433 PJM Market Monitor Comments at 8.

n434 SPP Market Monitor Comments at 10. The SPP Market Monitor notes that resources can use forecasted LMPs and production costs to estimate price-cost margins for each hour of the day to determine the opportunity cost component of the mitigated offer.

201. Midcontinent Joint Consumer Advocates and TAPS oppose opportunity cost adders in the verification methodology for cost-based incremental energy offers above $ 1,000/MWh. n435 Midcontinent Joint Consumer Advocates add that if the Commission finds that opportunity costs may be recoverable, then the Market Monitoring Unit should review such costs to ensure they are just and reasonable. n436

n435 Midcontinent Joint Consumer Advocates Comments at 6-7; TAPS Comments at 16.

n436 Midcontinent Joint Consumer Advocates Comments at 6-7.

202. Commenters expressed a range of opinions regarding whether it is appropriate to account for cost uncertainty or other risks through an adder in cost-based incremental energy offers above $ 1,000/MWh. SPP takes no position on the appropriateness of the adder but argues that the different RTOs/ISOs should be allowed to develop verification rules that are consistent with their existing rules, including adders. n437 PJM, MISO, the PJM Market Monitor, and Potomac Economics support an adder of up to ten percent to account for uncertainty and risk. n438 The ISO-NE Market Monitor states that the primary function of a ten percent adder is to provide for errors or under-estimation of a resource's marginal cost and contends that the Commission should not require such an adder unless it identifies specific and valid costs that are unique to days with abnormally high natural gas prices. n439

n437 PJM/SPP Comments at 24.

n438 *Id.* at 22-23; MISO Comments at 15; PJM Market Monitor Comments at 9; Potomac Economics Comments at 7.

n439 ISO-NE Market Monitor Comments at 12

203. Dominion, Exelon, ODEC, and PJM support the inclusion of a ten percent adder to cost-based incremental offers. n440 Dominion and Exelon contend that a ten percent adder to cost-based incremental offers is appropriate because the adder accounts for some of the uncertainty that accompanies fuel cost estimation as well as dispatch instructions. n441 ODEC maintains that the ten percent adder in cost-based incremental energy offers is both justified and necessary in PJM and should not be removed because it accounts for the fact that some costs are unknown when PJM resources compute their cost-based incremental energy offers. n442 APPA, NRECA, and AMP state that adders above cost are not necessary when a resource's costs can be accurately verified prior to the market clearing process. n443

n440 Dominion Comments at 6; Exelon Comments at 20 (citing Testimony of Kevin A. Libby at 8-9 (Libby Test.)); ODEC Comments at 5-6; PJM/SPP Comments at 22.

n441 Dominion Comments at 6; Exelon Comments at 20 (citing Libby Test. at 8-9).

n442 ODEC Comments at 6 (citing [*PJM 2015 Offer Cap Order, 153 FERC [paragraph] 61,289 at P 30).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5HV8-F410-01KR-D1S6-00000-00&context=)

n443 APPA, NRECA, and AMP Comments at 17.

204. However, the New Jersey Commission, Direct Energy, PG&E, TAPS, and Industrial Customers oppose including a ten percent adder in cost-based incremental energy offers above $ 1,000/MWh. n444 The New Jersey Commission argues that such an adder would simply afford the generators an additional ten percent margin of profit above their costs that consumers would fund. n445 TAPS and Industrial Customers state that the ten percent adder should not be included in incremental energy offers above $ 1,000/MWh because the **[\*87796]** adder does not constitute an actual cost. n446

n444 Direct Energy Comments at 5; PG&E Comments at 3; New Jersey Commission Comments at 17; TAPS Comments at 16; Industrial Customers Comments at 25-26 (citing PJM Market Monitor Comments, Docket No. ER14-1144, at 2, n. 5 (filed Mar. 26, 2015)).

n445 New Jersey Commission Comments at 17.

n446 TAPS Comments at 16; Industrial Customers Comments at 25-26 (citing PJM Market Monitor Comments, Docket No. ER14-1144, at p. 2, n. 5 (filed Mar. 26, 2015)).

205. With respect to other short-run marginal cost components, the Pennsylvania Commission, CAISO, and Industrial Customers argue that a resource's permissible short-run marginal costs should not include unauthorized natural gas costs and natural gas pipeline penalties. n447 CAISO requests that the Commission convene a technical conference to discuss limitations in fuel markets and the appropriate parameters for determining prudently incurred costs. n448 Industrial Customers recount the Commission's reasoning that allowing recovery for costs and penalties of unauthorized gas consumption could jeopardize gas pipeline and transmission system reliability, and that generators would still have sufficient flexibility. n449

n447 Pennsylvania Commission Comments at 5, 10; CAISO Comments at 11-12; Industrial Customers Comments at 26.

n448 CAISO Comments at 12.

n449 Industrial Customers Comments at 26-27 (citing [*N.Y. Indep. Sys. Operator, Inc., 154 FERC [paragraph] 61,111, at P 1 (2016)).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5J45-B090-01KR-D204-00000-00&context=)

206. The Commission also sought comment on whether the verification of physical offer components is necessary. n450 The ISO-NE Market Monitor states that ISO-NE's existing process to verify physical offer components takes significant time because such changes to physical offer parameters cannot be completed on the day that offers are due. n451 The ISO-NE Market Monitor advises the Commission to avoid imposing time limitations that interfere with the ISO-NE Market Monitor's ability to review and verify physical parameters before-the-fact. n452 The PJM Market Monitor requests that the Commission clarify that the cost-based offers contemplated in the NOPR include the same limits on offer parameters as all other cost-based offers. n453 Potomac Economics advises that any Final Rule not address physical parameters because additional verification of physical parameters is not needed, and the proposal only addressed incremental energy offers. n454 Midcontinent Joint Consumer Advocates note that physical offer components such as generation minimum and maximum levels are already known and reviewed by the Market Monitoring Unit, and therefore, there is no need for additional verification of physical offer components. n455

n450 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at P 73.

n451 ISO-NE Market Monitor Comments at 10.

n452 *Id.* at 11.

n453 PJM Market Monitor Comments at 2-3.

n454 Potomac Economics Comments at 11 (citing Potomac Economics Post-Technical Workshop Comments. Docket No. AD14-14-000, at 5 (filed Feb. 24, 2015)).

n455 Midcontinent Joint Consumer Advocates Comments at 6.

2. Determination

207. Several commenters state that adders above costs should be included in cost-based offers to account for cost uncertainty or risk. n456 While we will not require RTOs/ISOs to include such an adder, if an RTO/ISO chooses to retain an adder above cost or proposes to include a new adder above cost in cost-based incremental energy offers above $ 1,000/MWh, such adders may not exceed $ 100/MWh. On balance, we find that limiting adders above cost to $ 100/MWh is just and reasonable because as clarified above, the verification process may involve reviewing a resource's expected, rather than actual, costs, which could involve the use of imperfect information. Given that practical reality, we find that it is necessary to place an upper bound on the level of adders above cost when incremental energy offers exceed $ 1,000/MWh in order to ensure that cost-based incremental energy offers above $ 1,000/MWh reasonably and accurately reflect actual or expected short-run marginal cost. n457 The Commission has previously found in PJM that adders above cost are unjust and unreasonable as applied to an after-the-fact review of documented costs because the costs are no longer uncertain. n458 Applying that same reasoning here, if a resource receives uplift after-the-fact because that resource's cost-based incremental energy offer above $ 1,000/MWh could not be verified prior to the market clearing process or because its cost-based incremental energy offer exceeded $ 2,000/MWh, the uplift payments that the resource receives should not include any adders above costs. As noted above, after-the-fact uplift would be based on a resource's actual costs. n459

n456 *See supra* P 203.

n457 The Commission notes that it previously accepted adders above costs in PJM that exceed $ 100/MWh. However, after reviewing the record before us in this proceeding, we find that it is just and reasonable to limit the adder to $ 100/MWh. *See* [*PJM 2015 Offer Cap Order, 153 FERC [paragraph] 61,289 at P 31.*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5HV8-F410-01KR-D1S6-00000-00&context=)

n458 [*PJM 2015 Offer Cap Order, 153 FERC [paragraph] 61,289 at P 31*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5HV8-F410-01KR-D1S6-00000-00&context=) (citing [*PJM Interconnection, L.L.C., 149 FERC [paragraph] 61,059 at P 13).*](https://advance.lexis.com/api/document?collection=administrative-materials&id=urn:contentItem:5DDT-0P60-01KR-D3JV-00000-00&context=)

n459 *See supra* P 146.

208. Based on the record before us, we will not require that additional information on short-run marginal cost components be provided to the RTO/ISO or Market Monitoring Unit. Furthermore, we will not prescribe the manner in which RTOs/ISOs or Market Monitoring Units verify cost-based incremental energy offers above $ 1,000/MWh. As indicated in the NOPR, RTOs/ISOs use different processes to develop and update the incremental energy offers used for mitigation and differ in how they define the components of cost-based incremental energy offers. n460 While we are taking no action at this time on these issues and comments, we do not prejudge what RTOs/ISOs may file with the Commission in the future. Accordingly, the Final Rule will not require verification of physical offer parameters or financial offer components other than the incremental energy offer.

n460 NOPR, FERC Stats. & Regs. [paragraph] 32,714 at PP 61-62.

*B. Impact of Offer Cap Reforms on Other Market Elements*

209. The Commission recognized in the NOPR that revising the offer cap may impact other RTO/ISO market elements that depend on the offer cap, such as shortage pricing levels or various penalty factors. n461

n461 *Id.* P 72.

1. Comments

210. Four RTOs/ISOs commented that RTO/ISO market elements other than the offer cap may need to be revised if the offer cap is revised. CAISO states that it will face significant implementation challenges if it changes its current $ 1,000/MWh offer cap because the administrative penalty prices CAISO uses in its market model to indicate that constraints have been relaxed, such as the power balance constraint, are based on the offer cap. n462

n462 CAISO Comments at 14-17. CAISO requests that, prior to issuing the Final Rule, the Commission conduct a technical conference to better understand the challenges of implementation. CAISO Comments at 3, 17.

211. PJM states that it would likely need to adjust shortage pricing rules in PJM in light of any Final Rule on offer caps. n463 SPP states that it would likely need to revise its scarcity prices and violation relaxation limits to prevent instances in which LMPs exceed scarcity values. n464 MISO states that it may need to revise its Operating Reserve Demand Curve, $ 3,500/MWh LMP cap, and Transmission Constraint Demand Curves if MISO's $ 1,000/MWh offer cap is revised. n465

n463 PJM/SPP Comments at 28.

n464 *Id.* at 29.

n465 MISO Comments at 3-5.

212. APPA, NRECA, and AMP and ODEC state that any Final Rule **[\*87797]** regarding offer caps should be restricted to changing the offer cap and not address potentially associated issues such as scarcity pricing. n466 In contrast, PG&E recommends that before allowing the offer cap to rise above $ 1,000/MWh, the Commission and the individual RTOs/ISOs should determine all related changes to the markets that would be needed to ensure that the markets would function properly. n467

n466 ODEC Comments at 1; APPA, NRECA, and AMP Comments at 20-21.

n467 PG&E Comments at 2.

2. Determination

213. An RTO/ISO may file, pursuant to section 205 of the Federal Power Act, to propose modifications to shortage prices or other market elements that require revision in light of the offer cap reforms adopted in this Final Rule. However, we do not require such modifications to comply with this Final Rule. We find that it is not appropriate to determine in this Final Rule the changes that individual RTOs/ISOs should make to market elements that are not the subject of these reforms.

**VII. Requests Beyond the Scope of This Proceeding**

*A. Comments*

214. Commenters raised issues that are not discussed above and that are outside the scope of this rulemaking. Several commenters argue that the focus of the recommendations in the NOPR is too narrow. API recommends that the Commission look for ways to encourage the appropriate integration of new technologies, including quickly ramping gas-fired generation technology, to meet rapidly changing grid-conditions and allow prices in real-time markets to better reflect the true state of grid reliability at a given moment while addressing any remaining concerns of market power abuse. n468 API further recommends that the Commission initiate an examination of opportunity costs and risk premiums, inclusive of a wider range of resources, in wholesale energy market offer pricing and how they may or may not be considered by various RTO/ISO market rules. n469

n468 API Comments at 2-3.

n469 *Id.* at 8.

215. The PJM Market Monitor argues that because gas is the only fuel likely to result in offers greater than $ 1,000/MWh, the removal of any cap on short run marginal cost therefore relies on the ***competitiveness*** of the gas markets. n470 The PJM Market Monitor suggests that a reconsideration of the structure and design of the gas market and the potential for a gas market RTO/ISO is a longer term solution to address issues of transparency and market power in the gas market. n471

n470 PJM Market Monitor Comments at 4.

n471 *Id.* at 6.

216. The Pennsylvania Commission states that the Commission should direct PJM and other RTO/ISO stakeholders to develop a "circuit breaker" provision to cap energy market revenue during uncontrollable and sustained outage events. n472 The Pennsylvania Commission states that during sustained outages, price signals in energy markets become irrelevant, and the main consideration is the time required to repair infrastructure as opposed to the economic theory behind energy markets. n473 The Pennsylvania Commission also recommends that the Commission direct PJM to introduce some level of aggregate market power mitigation or impose a screen for aggregate market power in the PJM day-ahead and real-time markets. n474 PJM Joint Consumer Advocates argue that shortage prices in PJM should be revised to represent customers' willingness to pay, n475 and the Ohio Commission states that scarcity pricing may no longer be necessary in light of this Final Rule. n476

n472 Pennsylvania Commission Comments at 5-7.

n473 *Id.* at 8.

n474 *Id.* at 13-14.

n475 PJM Joint Consumer Advocates Comments at 5-6.

n476 Ohio Commission Comments at 14-15.

217. Industrial Customers argue that increases to the current $ 1,000/MWh offer cap should be explored simultaneously with the elimination of capacity markets, and that the Commission could act more methodically to explore ways to improve capacity market ***competitiveness*** and transparency. n477

n477 Industrial Customers Comments at 29-30.

*B. Determination*

218. We appreciate the concerns raised by numerous commenters requesting that the Commission undertake various initiatives, as set forth above. However, we find that the requested initiatives go beyond the scope of this rulemaking, which only addresses incremental energy offers above $ 1,000/MWh. Accordingly, we will not address those concerns here.

**VIII. Information Collection Statement**

219. The Paperwork Reduction Act (PRA) n478 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's ***regulations***, n479 in turn, require approval of certain information collection requirements imposed by agency rules. 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 a rule will not be penalized for failing to respond to these collection(s) of information unless the collection(s) of information display a valid OMB control number.

n478 [*44 U.S.C. 3501*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GNM1-NRF4-408K-00000-00&context=)-[*3520*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GKX1-NRF4-44G6-00000-00&context=).

n479 5 CFR 1320 (2016).

220. In this Final Rule, we are amending the Commission's ***regulations*** to improve the operation of organized wholesale electric power markets operated by RTOs/ISOs. We require that each RTO/ISO (1) cap each resource's incremental energy offer at the higher of $ 1,000/MWh or that resource's verified cost-based incremental energy offer; and (2) when calculating LMPs, RTOs/ISOs shall cap verified cost-based incremental energy offers at $ 2,000/MWh. The reforms required in this Final Rule would require a one-time tariff filing with the Commission due 75 days after the effective date of this Final Rule to implement these reforms. We anticipate the reforms required in this Final Rule, once implemented, would not significantly change currently existing burdens on an ongoing basis. With regard to those RTOs/ISOs that believe that they already comply with the reforms required in this Final Rule, they could demonstrate their compliance in the compliance filing required 75 days after the effective date of this Final Rule in this proceeding. The Commission will submit the proposed reporting requirements to OMB for its review and approval under section 3507(d) of the Paperwork Reduction Act. n480

n480 [*44 U.S.C. 3507(d)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GS41-NRF4-44W8-00000-00&context=).

221. In the NOPR, the Commission sought comments on the accuracy of provided burden and cost estimates and any suggested methods for minimizing the respondents' burdens, including the use of automated information techniques. Specifically, the Commission sought detailed comments on the potential cost and time necessary to implement aspects of the reforms proposed in the NOPR, including (1) software and business processes changes, including market power mitigation; (2) increased time spent validating cost-based incremental energy offers; and (3) processes for RTOs/ISOs to vet proposed changes amongst their stakeholders. The Commission also stated that although it did not expect other entities to incur **[\*87798]** compliance costs as a result of the reforms proposed in the NOPR, it sought detailed comments on whether other entities, such as load-serving entities, would incur costs as a result of the reforms proposed in the NOPR. The Commission received no comments in response to these questions.

*Burden Estimate and Information Collection Costs:* The Commission believes that the burden estimates below are representative of the average burden on respondents, including necessary communications with stakeholders. The estimated burden and cost for the requirements contained in this rule follow. n481 The Commission notes that these cost estimates below do not include costs for software or hardware or for increased time spent validating cost-based incremental energy offers above $ 1,000/MWh. n482 Software or hardware upgrades may not be required.

n481 The RTOs/ISOs (CAISO, ISO-NE., MISO, NYISO, PJM, and SPP) are required to comply with the reforms in this Final Rule.

n482 The Commission expects that the validation of cost-based incremental energy offers above $ 1,000/MWh would be an infrequent occurrence. To the extent that the Market Monitoring Unit or the RTO/ISO spends time validating these offers, the Commission estimates such time to be *de minimis.*

| **FERC-516, as Modified by Final Rule in Docket RM16-5-000** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
|  | **Number of** | **Annual** | **Total** | **Average** | **Total** | **Cost per** |
|  | **respond-** | **number** | **number** | **burden** | **annual** | **respond-** |
|  | **ents** | **of** | **of** | **(hours) &** | **burden** | **ent** |
|  |  | **responses** | **responses** | **cost per** | **hours** | **(]** |
|  |  | **per** |  | **response** | **& total** |  |
|  |  | **respond-** |  |  | **annual** |  |
|  |  | **ent** |  |  | **cost** |  |
|  | (1) | (2) | (1) x (2) | (4) | (3) x (4) | (5) / (1) |
|  |  |  | = (3) |  | = (5) |  |
| One-Time Tariff | 6 | 1 | 6 | 500 hrs.; | 3,000 | $ 37,000 |
| Filings (Year 1) |  |  |  | $ 37,000 | hrs.; |  |
|  |  |  |  | n483 | $ 222,000 |  |

*Cost to Comply:* The Commission has projected the total cost of compliance, all within four months of a Final Rule plus initial implementation, to be $ 222,000. After Year 1, the reforms in this Final Rule, once implemented, would not significantly change existing burdens on an ongoing basis.

n483 The estimated hourly cost (salary plus benefits) provided in this section is based on the salary figures for May 2015 posted by the Bureau of Labor Statistics for the Utilities sector (*available at* [*http://www.bls.gov/oes/current/naics2\_22.htm#13-0000*](http://www.bls.gov/oes/current/naics2_22.htm#13-0000)) and scaled to reflect benefits using the relative importance of employer costs in employee compensation from June 2016 (*available at* [*http://www.bls.gov/news.release/ecec.nr0.htm*](http://www.bls.gov/news.release/ecec.nr0.htm)). The hourly estimates for salary plus benefits are:

Legal (code 23-0000), $ 128.94

Computer and mathematical (code 15-0000), $ 60.54

Information systems manager (code 11-3021), $ 91.63

IT security analyst (code 15-1122), $ 63.55

Auditing and accounting (code 13-2011), $ 53.78

Information and record clerk (code 43-4199), $ 37.69

Electrical Engineer (code 17-2071), $ 64.20

Economist (code 19-3011), $ 74.43

Management (code 11-0000), $ 88.94

The average hourly cost (salary plus benefits), weighting all of these skill sets evenly, is $ 73.74. The Commission rounds it to $ 74 per hour.

The Commission notes that these estimates do not include costs for software or hardware. Software or hardware upgrades may not be required.

*Title:* FERC-516C, n484 Electric Rate Schedules and Tariff Filings.

n484 The RM16-5-000 Final Rule reporting requirements should be submitted to FERC-516 (OMB Control No. 1902-0096). Currently, that information collection is under review for an unrelated activity. The FERC-516C is a temporary information collection. The reporting requirements of the RM16-5-000 Final Rule are being submitted to FERC-516C to ensure timely submission to OMB.

*Action:* Proposed revisions to an information collection.

*OMB Control No.* 1902-0287.

*Respondents for this Rulemaking:* RTOs/ISOs.

*Frequency of Information:* One-time.

*Necessity of Information:* The Federal Energy Regulatory Commission approves this rule to improve ***competitive*** wholesale electric markets in the RTO/ISO regions.

*Internal Review:* The Commission has reviewed the changes and has determined that such changes are necessary. These requirements conform to the Commission's need for efficient information collection, communication, and management within the energy industry. The Commission has specific, objective support for the burden estimates associated with the information collection requirements.

222. 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], email: [*DataClearance@ferc.gov*](mailto:DataClearance@ferc.gov), Phone: (202) 502-8663, fax: (202) 273-0873. Comments concerning the collection of information and the associated burden estimate(s), may also be sent to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW., Washington, DC 20503 [Attention: Desk Officer for the Federal Energy Regulatory Commission, phone: (202) 395-0710, fax (202) 395-7285]. Due to security concerns, comments should be sent electronically to the following email address: [*oira\_submission@omb.eop.gov*](mailto:oira_submission@omb.eop.gov)*.* Comments submitted to OMB should include FERC-516C and OMB Control No. 1902-0287.

**IX. Regulatory Flexibility Act Certification**

223. The Regulatory Flexibility Act of 1980 (RFA) n485 generally requires a description and analysis of rules that will have significant economic impact on a substantial number of small entities. The RFA does not mandate any particular outcome in a rulemaking. It only requires consideration of alternatives that are less burdensome to small entities and an agency explanation of why alternatives were rejected.

n485 *5 U.S.C. 601*-12.

224. This rule would apply to six RTOs/ISOs (all of which are transmission organizations). The average estimated annual cost to each of the RTOs/ISOs is $ 37,000, all in Year 1. This one-time cost of filing and implementing these changes is not significant. n486 Additionally, the RTOs/ISOs are not small entities, as defined by the RFA. n487 This is because the **[\*87799]** relevant threshold between small and large entities is 500 employees and the Commission understands that each RTO/ISO has more than 500 employees. Furthermore, because of their pivotal roles in wholesale electric power markets in their regions, none of the RTOs/ISOs meet the last criterion of the two-part RFA definition a small entity: "not dominant in its field of operation." As a result, we certify that the reforms in this Final Rule would not have a significant economic impact on a substantial number of small entities.

n486 This estimate does not include costs for software or increased time spent validating cost-based incremental energy offers. As stated above, the Commission expects that the validation of cost-based incremental energy offers above $ 1,000/MWh would be an infrequent occurrence. To the extent that the Market Monitoring Unit or the RTO/ISO spends time validating these offers, the Commission expects such time to be *de minimis.*

n487 The RFA definition of "small entity" refers to the definition provided in the Small Business Act, which defines a "small business concern" as a business that is independently owned and operated and that is not dominant in its field of operation. The Small Business Administrations' ***regulations*** at [*13 CFR 121.201*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:5SH4-RJN0-008G-Y195-00000-00&context=) define the threshold for a small Electric Bulk Power Transmission and Control entity (NAICS code 221121) to be 500 employees. *See* *5 U.S.C. 601(3)*, citing to Section 3 of the Small Business Act, [*15 U.S.C. 632*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GTT1-NRF4-4010-00000-00&context=).

**X. Environmental Analysis**

225. 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. n488 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 Federal Power Act relating to the filing of schedules containing all rates and charges for the transmission or sale of electric energy subject to the Commission's jurisdiction, plus the classification, practices, contracts and ***regulations*** that affect rates, charges, classifications, and services. n489

n488 ***Regulations*** *Implementing the National Environmental Policy Act of 1989,* Order No. 486, [*52 FR 47,897*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:3SDR-XF50-001J-X2DP-00000-00&context=) (Dec. 17, 1987), FERC Stats. & Regs. [paragraph] 30,783 (1987).

n489 [*18 CFR 380.4(a)(15) (2016)*](https://advance.lexis.com/api/document?collection=administrative-codes&id=urn:contentItem:5PWY-CW90-008G-Y0VC-00000-00&context=).

**XI. Document Availability**

226. 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*](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.

227. 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 of this document, excluding the last three digits, in the docket number field.

228. User assistance is available for eLibrary and the Commission's Web site 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*](mailto:ferconlinesupport@ferc.gov), or the Public Reference Room at (202) 502-8371, TTY (202) 502-8659. Email the Public Reference Room at [*public.referenceroom@ferc.gov*](mailto:public.referenceroom@ferc.gov).

**XII. Effective Date and Congressional Notification**

229. These ***regulations*** are effective February 21, 2017. The Commission has determined, with the concurrence of the Administrator of the Office of Information and Regulatory Affairs of OMB, that this rule is not a "major rule" as defined in section 351 of the Small Business Regulatory Enforcement Fairness Act of 1996.

***Regulations***

**List of Subjects in 18 CFR Part 35**

Electric power rates, Electric utilities, Non-discriminatory open access transmission tariffs.

By the Commission.

Issued: November 17, 2016.

**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:

1. **ULES AND TARIFFS**
2. The authority citation for part 35 continues to read as follows:

**Authority:** [*16 U.S.C. 791a*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GMD1-NRF4-4419-00000-00&context=)-825r, [*2601*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GJM1-NRF4-4257-00000-00&context=)-[*2645*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GHY1-NRF4-40JM-00000-00&context=); [*31 U.S.C. 9701*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GMX1-NRF4-4451-00000-00&context=); [*42 U.S.C. 7101*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GR21-NRF4-448N-00000-00&context=)-[*7352*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:4YF7-GJ41-NRF4-42GM-00000-00&context=).

1. Amend § 35.28 by adding paragraph (g)(9) to read as follows:
2. **n access transmission tariff.**

\*    \*    \*    \*    \*

1. \* \* \*
2. A resource's incremental energy offer must be capped at the higher of $ 1,000/MWh or that resource's cost-based incremental energy offer. For the purpose of calculating Locational Marginal Prices, Regional Transmission Organizations and Independent System Operators must cap cost-based incremental energy offers at $ 2,000/MWh. The costs underlying a resource's cost-based incremental energy offer above $ 1,000/MWh must be verified before that offer can be used for purposes of calculating Locational Marginal Prices. If a resource submits an incremental energy offer above $ 1,000/MWh and the costs underlying that offer cannot be verified before the market clearing process begins, that offer may not be used to calculate Locational Marginal Prices and the resource would be eligible for a make-whole payment if that resource is dispatched and the resource's costs are verified after-the-fact. A resource would also be eligible for a make-whole payment if it is dispatched and its verified cost-based incremental energy offer exceeds $ 2,000/MWh. All resources, regardless of type, are eligible to submit cost-based incremental energy offers in excess of $ 1,000/MWh.

The following appendix will not appear in the *Code of Federal* ***Regulations****.*

| **Appendix--List of Short Names/Acronyms of Commenters** | |
| --- | --- |
|  |  |
| **Short name/acronym** | **Commenter** |
| AEMA | Advanced Energy Management Alliance. |
| AF&PA | American Forest & Paper Association. |
| APPA, NRECA, and | American Public Power Association, National Rural |
| AMP | Electric Cooperative Association and American Municipal |
|  | Power, Inc. |
| API | American Petroleum Institute. |
| CAISO | California Independent System Operator Corporation. |
| CEA | Canadian Electricity Association. |
| ***Competitive*** | Electric Power Supply Association, Independent Energy |
| Suppliers | Producers Association, Independent Power Producers of New |
|  | York Inc., New England Power Generators Association Inc., |
|  | Western Power Trading Forum. |
| Delaware | Delaware Public Service Commission. |
| Commission |  |
| Direct Energy | Direct Energy Business, LLC, on behalf of itself and its |
|  | affiliate, Direct Energy Business Marketing, LLC. |
| Dominion | Dominion Resources Services, Inc. |
| EEI | Edison Electric Institute. |
| Exelon | Exelon Corporation. |
| Golden Spread | Golden Spread Electric Cooperative, Inc. |
| Industrial | Electricity Consumers Resource Council, PJM Industrial |
| Customers | Customer Coalition, Coalition of MISO Transmission |
|  | Customers, American Chemistry Council, Association of |
|  | Businesses Advocating Tariff Equity, Connecticut |
|  | Industrial Energy Consumers, Illinois Industrial Energy |
|  | Consumers, Indiana Industrial Energy Consumers, Inc., |
|  | Louisiana Energy Users Group, Minnesota Large Industrial |
|  | Group, Missouri Industrial Energy Consumers, Multiple |
|  | Intervenors, New Jersey Large Energy Users Coalition, |
|  | Wisconsin Industrial Energy Group, Inc. |
| Industrial Energy | Industrial Energy Consumers of America. |
| Consumers |  |
| ISO-NE | ISO New England, Inc. |
| ISO-NE Market | ISO New England Inc. Internal Market Monitor. |
| Monitor |  |
| IRC | ISO/RTO Council. |
| KEPCo/NCEMC | Kansas Electric Power Cooperative, Inc. and North |
|  | Carolina Electric Membership Corporation. |
| Joseph Margolies | Joseph Margolies. |
| Midcontinent Joint | Indiana Office of Utility Consumer Counselor, Iowa Office |
| Consumer Advocates | of Consumer Advocate, Michigan Citizens Against Rate |
|  | Excess, Minnesota Department of Commerce, Minnesota |
|  | Attorney General's Office. |
| MISO | Midcontinent Independent System Operator, Inc. |
| NEI | Nuclear Energy Institute. |
| NESCOE | New England States Committee on Electricity. |
| New Jersey | New Jersey Board of Public Utilities. |
| Commission |  |
| NY Department of | New York State Department of State Utility Intervention |
| State | Unit. |
| NYISO | New York Independent System Operator, Inc. |
| New York | New York State Public Service Commission. |
| Commission |  |
| NY Transmission | New York Transmission Owners (Central Hudson Gas & |
| Owners | Electric Corporation, Consolidated Edison Company of New |
|  | York, Inc., New York Power Authority, New York State |
|  | Electric & Gas Corporation, Niagara Mohawk Power |
|  | Corporation d/b/a National Grid, Orange and Rockland |
|  | Utilities, Inc., Power Supply Long Island, Rochester Gas |
|  | and Electric Corporation). |
| ODEC | Old Dominion Electric Cooperative. |
| OMS | Organization of MISO States. |
| OPSI | Organization of PJM States, Inc. |
| Pennsylvania | Pennsylvania Public Utility Commission. |
| Commission |  |
| PG&E | Pacific Gas and Electric Company. |
| PJM/SPP | PJM Interconnection, L.L.C. and Southwest Power Pool, |
|  | Inc. (Joint Comments). |
| PJM Joint Consumer | Delaware Division of the Public Advocate, Office of |
| Advocates | People's Counsel for the District of Columbia, Illinois |
|  | Citizens Utility Board, Indiana Office of Utility |
|  | Consumer Counselor, Kentucky Office of Rate Intervention, |
|  | Office of Attorney General, Maryland Office of Peoples' |
|  | Counsel, New Jersey Division of Rate Counsel, |
|  | Pennsylvania Office of Consumer Advocate, Consumer |
|  | Advocate Division of the Public Service Commission of |
|  | West Virginia. |
| PJM Market Monitor | Monitoring Analytics, LLC, acting in its capacity as the |
|  | Independent Market Monitor for PJM. |
| PJM Power | PJM Power Providers Group. |
| Providers |  |
| Potomac Economics | Potomac Economics, Ltd. |
| Powerex | Powerex Corp. |
| Ohio Commission | Public Utilities Commission of Ohio. |
| SCE | Southern California Edison Company. |
| Six Cities | Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and |
|  | Riverside, California. |
| SPP | Southwest Power Pool, Inc. |
| SPP Market Monitor | Southwest Power Pool, Inc. Market Monitoring Unit. |
| Steel Producers' | Steel Producers' Alliance. |
| Alliance |  |
| TAPS | Transmission Access Policy Study Group. |

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**Dates**

**DATES:** *Effective Date:* This rule will become effective February 21, 2017.

**Contacts**

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