

Paragraph 5000 Class D Airspace.

AEA MD D Hagerstown, MD [Amended]

Hagerstown Regional Airport-Richard A. Henson Field, MD (Lat. 39°42'31" N., long. 77°43'35" W.)

That airspace extending upward from the surface to and including 3,200 feet MSL within a 4.1-mile radius of Hagerstown Regional Airport-Richard A. Henson Field. This Class D airspace area is effective during the specific dates and times established in advance by Notice to Airmen. The effective date and time will thereafter be continuously published in the Airport/Facility Directory.

Paragraph 6002 Class E Surface Area Airspace.

* * * * *

AEA MD E2 Hagerstown, MD [Amended]

Hagerstown Regional Airport-Richard A. Henson Field, MD (Lat. 39°42'31" N., long. 77°43'35" W.)

That airspace extending upward from the surface to and including 3,200 feet MSL within a 4.1-mile radius of Hagerstown Regional Airport-Richard A. Henson Field. This Class E2 airspace area is effective during the specific dates and times when the Class D airspace area, as published in the Airport/Facility Directory, is not in effect.

Paragraph 6004 Class E Airspace Designated as an Extension to a Class D Surface Area.

* * * * *

AEA MD E4 Hagerstown, MD [Amended]

Hagerstown Regional Airport-Richard A. Henson Field, MD (Lat. 39°42'31" N., long. 77°43'35" W.)

Hagerstown VOR (Lat. 39°41'52" N., long. 77°51'21" W.)

Hagerstown Regional Airport-Richard A. Henson Field ILS Runway 27 Localizer (Lat. 39°42'22" N., long. 77°44'41" W.)

That airspace extending upward from the surface within 2.7 miles each side of the Hagerstown VOR 237° radial and 057° radial extending from 7.4 miles southwest of the VOR to 1.8 miles northeast of the VOR and within 2.7 miles each side of the Hagerstown VOR 082° radial extending from the 4.1-mile radius of Hagerstown Regional Airport-Richard A. Henson Field to the VOR, and within 4 miles each side of the Hagerstown Regional Airport-Richard A. Henson Field ILS Runway 27 localizer course extending from the localizer to 11.8 miles east of the localizer, excluding that portion within Prohibited Area P-40.

Paragraph 6005 Class E Airspace Areas Extending Upward From 700 Feet or More Above the Surface of the Earth.

* * * * *

AEA MD E5 Hagerstown, MD [Amended]

Hagerstown Regional Airport-Richard A. Henson Field, MD (Lat. 39°42'31" N., long. 77°43'35" W.)

Hagerstown VOR (Lat. 39°41'52" N., long. 77°51'21" W.)

St. Thomas VORTAC (Lat. 39°56'00" N., long. 77°57'03" W.)

Hagerstown Regional Airport-Richard A. Henson Field ILS Runway 27 Localizer (Lat. 39°42'22" N., long. 77°44'41" W.)

That airspace extending upward from 700 feet above the surface within a 6.6-mile radius of the Hagerstown Regional Airport-Richard A. Henson Field and within 3.1 miles each side of the Hagerstown VOR 237° radial and 057° radial extending from 9.6 miles southwest of the VOR to 2.7 miles northeast of the VOR and within 4.4 miles each side of the Hagerstown Regional Airport-Richard A. Henson Field ILS Runway 27 localizer course extending from the localizer to 12.6 miles east of the localizer and within 4.4 miles each side of the St. Thomas VORTAC 141° radial extending from the 6.6-mile radius to the St. Thomas VORTAC, excluding that portion within Prohibited Area P-40.

Issued in College Park, Georgia, on January 27, 2016.

Ryan W. Almsay,

Acting Manager, Operations Support Group, Eastern Service Center, Air Traffic Organization.

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DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

18 CFR Part 35

[Docket No. RM16-5-000]

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

AGENCY: Federal Energy Regulatory Commission, Energy.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Federal Energy Regulatory Commission is proposing to revise its regulations to require that each regional transmission organization (RTO) and independent system operator (ISO) cap each resource's incremental energy offer to the higher of \$1,000/MWh or that resource's verified cost-based incremental energy offer.

DATES: Comments are due April 4, 2016.

ADDRESSES: Comments, identified by docket number, may be filed in the following ways:

• Electronic Filing through http://www.ferc.gov. Documents created electronically using word processing software should be filed in native applications or print-to-PDF format and not in a scanned format.

• Mail/Hand Delivery: Those unable to file electronically may mail or hand-deliver comments to: Federal Energy Regulatory Commission, Secretary of the Commission, 888 First Street NE., Washington, DC 20426.

Instructions: For detailed instructions on submitting comments and additional information on the rulemaking process, see the Comment Procedures Section of this document.

FOR FURTHER INFORMATION CONTACT:

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1. In this Notice of Proposed Rulemaking (NOPR), the Federal Energy Regulatory Commission (Commission) is proposing to revise its regulations to require that each regional transmission organization (RTO) and independent system operator (ISO) cap each resource's incremental energy offer¹ to the higher of \$1,000/MWh or that resource's verified cost-based incremental energy offer. Under this proposal, verified cost-based incremental energy offers above \$1,000/MWh would be used for purposes of calculating Locational Marginal Prices (LMPs).

2. The Commission preliminarily finds that the offer cap² on incremental energy offers (offer cap) may no longer be just and reasonable for several reasons. The offer cap may unjustly prevent a resource from recouping its costs by not permitting that resource to include all of its short-run marginal costs within its energy supply offer (supply offer). The offer cap may result in unjust and unreasonable rates because it can suppress LMPs to a level below the marginal cost of production. Further, because of the offer cap, a resource with short-run marginal costs above that cap may choose not to offer its supply to the RTO/ISO, even though the market may be willing to purchase that supply.³ Finally, when several

resources have short-run marginal costs above the offer cap but are unable to reflect those costs within their incremental energy offers due to the offer cap, the RTO/ISO is not able to dispatch the most efficient set of resources because it will not have access to the underlying costs associated with the multiple incremental energy offers above the offer cap.

3. To remedy these potential problems associated with the offer cap, the Commission proposes to require that each RTO/ISO cap each resource's incremental energy offer to the higher of \$1,000/MWh or an incremental energy offer based on that resource's short-run marginal cost (cost-based incremental energy offer). Under the proposal, the costs underlying each cost-based incremental energy offer above \$1,000/MWh must be verified before that offer could be used for purposes of calculating LMPs. Under this proposal, the Market Monitoring Unit or the RTO/ISO, as prescribed in the RTO/ISO tariff and consistent with Order No. 719,⁴ must verify the costs within a cost-based incremental energy offer.⁵ The proposed offer cap would be resource neutral, that is, any resource, regardless of fuel-type, would be eligible to submit a cost-based

resources that are not subject to a must-offer requirement.

⁴ *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, FERC Stats. & Regs. ¶ 31,281, at PP 370–375 (2008), *order on reh'g*, Order No. 719–A, FERC Stats. & Regs. ¶ 31,292 (2009), *order on reh'g*, Order No. 719–B, 129 FERC ¶ 61,252 (2009). *See also* 18 CFR 35.28(g)(3)(iii)(B) (2015).

⁵ Pursuant to 18 CFR 35.28(g)(3)(iii)(B), 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) (2015). 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) (2015).

incremental energy offer above \$1,000/MWh.

4. The Commission proposes to make a generic change to the offer cap applicable to all RTOs/ISOs through a rulemaking to avoid exacerbating seams issues. Seams issues could arise if one RTO/ISO has an offer cap that materially differed from a neighboring RTO/ISO's offer cap. Different offer caps in neighboring RTOs/ISOs could result in flows that depend on the level of the two offer caps as opposed to economics or reliability needs.

5. The Commission seeks comment on these proposed reforms sixty (60) days after publication of this NOPR in the **Federal Register**.

I. Background

6. On June 19, 2014, the Commission initiated the price formation proceeding.⁶ In initiating that proceeding, the Commission stated that there may be opportunities for the RTOs/ISOs to improve the energy and ancillary service price formation process. Staff conducted outreach and convened technical workshops on the following four general issues: (1) Use of uplift payments; (2) offer price mitigation and offer caps; (3) scarcity and shortage pricing; and (4) operator actions that affect prices.⁷ During the fall of 2014, Commission staff convened three technical workshops and Commission staff issued reports on these topics. At the October 28, 2014 technical workshop, Commission staff explored, among other topics, the \$1,000/MWh offer cap, including the purpose of the offer cap and the role it plays in market power mitigation.⁸

⁶ *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).

⁷ *Id.* at 1, 3–4.

⁸ *See* Supplemental Notice of Workshop on Price Formation: Scarcity and Shortage Pricing, Offer

¹ The incremental energy offer is the portion of a resource's energy supply offer that varies with the output of the generator.

² The offer cap for purposes of this NOPR refers to the \$/MWh limit on day-ahead and real-time incremental energy offers, and not any limits or penalty rates that may apply in the capacity or ancillary services markets.

³ Resources that are subject to must-offer requirements, such as resources with a capacity supply obligation, are required to submit a supply offer to the energy market. Many resources are subject to must-offer requirements in either the day-ahead or real-time markets. The proposed reform would ensure that such a resource has an economic incentive that matches its tariff obligation. It would also provide an economic incentive to those

While this action proposes to address mitigation relevant to energy offers above \$1,000/MWh in RTO/ISO markets, the Commission has also instructed staff to undertake a more comprehensive review of the market power mitigation rules in the RTO/ISO markets.

7. Two of the Commission's goals in the price formation proceeding are relevant here. First, clearing prices in the energy and ancillary services markets should ideally "reflect the true marginal cost of production, taking into account all physical system constraints."⁹ Second, LMPs should "ensure that all suppliers have an opportunity to recover their costs."¹⁰ Establishing LMPs that accurately reflect the marginal cost of production is a central goal of the price formation effort. This goal is important because LMPs are an effective way to communicate information to market participants about the cost of providing the next unit of energy. In the short-run, accurate price signals from LMPs are particularly important during high price periods because 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, accurate price signals from LMPs are important because they inform investment decisions. It is also important that RTOs/ISOs give resources the opportunity to recover their costs because failing to do so may discourage resources from participating in RTO/ISO energy markets. Adequate investment in resources and participation of resources in RTO/ISO energy markets are necessary to ensure economic and reliable energy for consumers.

A. Offer Caps and Market Power Mitigation in RTOs/ISOs

8. Supply offers in day-ahead and real-time energy markets consist of both physical components and financial components. The physical components of a supply offer describe the resource's physical operating parameters, such as its minimum and maximum operating limits in a given day-ahead or real-time interval, and are denominated in MW, MWh, time, or some combination thereof. 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 interval. The key financial components of a supply offer are the start-up cost, no-load cost, and incremental energy offers. A resource includes its costs that vary with output in its incremental energy offer, which typically consists 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.¹¹

9. The LMP reflects the marginal cost of serving load at a specific location, given the set of generators that are dispatched and the limitations of the transmission system.¹² The LMP is calculated by an RTO/ISO as the sum of three components: An energy charge, a congestion charge, and a charge for transmission losses. The energy and congestion components of the LMP are established based on several factors, including the marginal resource's incremental energy offer, specifically the \$/MWh price associated with the MW output of the marginal resource.

10. All six Commission-jurisdictional RTOs/ISOs have imposed a \$1,000/MWh cap on incremental energy offers.¹³ The offer cap remains at \$1,000/MWh in all RTOs/ISOs except PJM because, as discussed further below, the Commission recently approved PJM's proposal to raise the offer cap on cost-based offers in PJM to \$2,000/MWh.¹⁴ In each RTO/ISO, a resource's incremental energy offer is subject not only to the offer cap, but also to market power mitigation provisions.¹⁵ The Market Monitoring Unit for each RTO/ISO currently

oversees, and in some cases implements, the market power mitigation provisions. In general, when a resource's incremental energy offer is mitigated, that offer is replaced with an estimate of a competitive offer or an estimate of that resource's short-run marginal cost.¹⁶ In most instances, once mitigated, a resource's offer is eligible to set LMP.¹⁷ Mechanically, the RTOs/ISOs have adopted mitigation rules that either develop a proxy for a competitive offer or explicitly estimate short-run marginal cost. Because we expect that a competitive offer will closely track a resource's short-run marginal cost, both methods for mitigating offers should arrive at roughly the same result. The Market Monitoring Units in CAISO, MISO, ISO-NE., and NYISO typically mitigate the resource's incremental energy offer to the proxy of a competitive offer that is calculated by the Market Monitoring Unit.¹⁸ However, these RTOs/ISOs also have provisions whereby the Market Monitoring Unit, often after consultation with the resource itself, can estimate the resource's short-run marginal cost, which will form the basis of that resource's mitigated incremental energy offer. In PJM and SPP, resource owners develop cost-based incremental energy offers consistent with the requirements of these RTOs' tariffs and business practice manuals and those cost-based offers are subject to review by the Market Monitoring Unit.¹⁹

11. While the offer cap restricts incremental energy offers, the offer cap does not limit LMPs to the level of the offer cap (be it \$1,000/MWh or \$2,000/MWh) because the congestion and loss components of the LMP can cause the LMP to exceed the offer cap. Scarcity pricing and emergency purchases can

¹¹ RTOs/ISOs typically restrict incremental energy supply curves to ten price and quantity pairs (i.e., (\$/MWh, MW)).

¹² See Federal Energy Regulatory Commission, Division of Energy Market Oversight Office of Enforcement, *Energy Primer*, at 60 (Nov. 2015), <http://www.ferc.gov/market-oversight/guide/energy-primer.pdf>.

¹³ See, e.g., California Independent System Operator Corporation (CAISO), eTariff, 39.6.1.1 (11.0.0); ISO New England Inc. (ISO-NE), Transmission, Markets and Services Tariff, Market Rule 1, III.1.10.1A(d)(ix), III.1.10.1A(c)(iv), III.2.6(b)(i), and III.A.15.1(b) (27.0.0); Midcontinent Independent System Operator, Inc. (MISO), FERC Electric Tariff, 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), NYISO Tariffs, NYISO Markets and Services Tariff, 21.4 and 21.5.1 (7.0.0); PJM Interconnection, L.L.C. (PJM), Intra-PJM Tariffs, OATT, Tariff Operating Agreement, Attachment K, Appendix, 1.10.1A(d) (24.0.0); Southwest Power Pool, Inc. (SPP), OATT, Sixth Revised Volume No. 1, Attachment AE, Section 4.1.1 (2.0.0).

¹⁴ *PJM Interconnection L.L.C.*, 153 FERC ¶ 61,289, at P 25 (2015) (PJM 2015/16 Offer Cap Order). The tariff provisions related to the offer cap do not have a sunset date.

¹⁵ See 18 CFR 35.28(g)(3)(iii)(B)-(D) (2015).

¹⁶ The RTOs/ISOs use different terms for a mitigated offer. ISO-NE., MISO, and NYISO mitigate supply offers to a "Reference Level." See ISO-NE., Transmission Markets and Services Tariff, Market Rule 1, III.A.7.2; MISO FERC Electric Tariff, 64.1.4 (30.0.0); NYISO, NYISO Tariffs, NYISO Markets and Services Tariff, 23.3.1.4 (11.0.0). CAISO mitigates supply offers to "Default Energy Bids." See CAISO, eTariff, 39.7.1 (11.0.0). PJM mitigates supply offers to a "cost-based offer." See PJM Operating Agreement, Schedule 1, 1.10.1A (24.0.0) and 6.4.1 (7.0.0). SPP mitigates supply offers to a "Mitigated Energy Bid." See SPP OATT, Sixth Revised Volume No. 1, Attachment AF, 3.2 (7.0.0). For purposes of this NOPR, the offers RTOs/ISOs use for purposes of mitigation will be referred to as "cost-based offers."

¹⁷ There are exceptions to this eligibility, for instance, when a resource is committed outside of the market clearing process.

¹⁸ See *supra* n.16.

¹⁹ PJM resources develop cost-based offers pursuant to PJM Manual 15: Cost Development Guidelines. SPP resources develop Mitigated Energy Bids pursuant to SPP's Mitigated Offer Guidelines in the SPP Market Protocols.

Mitigation, and Offer Caps in RTO and ISO Markets, Docket No. AD14-14-000 (Oct. 10, 2014).

⁹ Price Formation Notice at 2.

¹⁰ See *Price Formation in Energy and Ancillary Servs. Mkts. Operated by Reg'l Transmission Orgs. & Indep. Sys. Operators*, 153 FERC ¶ 61,221, at P 2 (2015); see also Price Formation Notice at 2.

also cause LMPs to exceed the offer cap even though incremental energy offers are limited by the offer cap.

B. Offer Cap Waivers and Tariff Changes

12. The \$1,000/MWh offer cap dates back to 1999 when PJM first launched its market.²⁰ According to PJM's market monitor, PJM's offer cap was then set to a level that stakeholders considered "beyond the possible pale" of a resource's short-run marginal cost.²¹ PJM states that its \$1,000/MWh offer cap was never intended to limit incremental energy offers below a resource's marginal cost to produce energy.²²

13. Extreme weather during the winter of 2013/14, dubbed the "Polar Vortex," caused PJM and NYISO to request tariff waivers associated with the \$1,000/MWh offer cap. During the Polar Vortex, various weather-related conditions led to a significant increase in the price of natural gas.²³ Natural gas prices at two key pricing points in PJM rose above \$120 per million British Thermal Units (MMBtu), which could have caused some PJM resources with must-offer requirements to operate at a loss because their short-run marginal costs were above the \$1,000/MWh offer cap.²⁴

14. In response, on January 23, 2014, 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.²⁵ 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 offers in excess of \$1,000/MWh

and cost-based offers were used for purposes of calculating LMPs.²⁶

15. Similarly, high natural gas prices in New York prompted NYISO to file a waiver request related to its offer cap.²⁷ Natural gas prices at the Transco Zone 6 NY hub in New York rose above \$120/MMBtu in January 2014. In response, NYISO requested that resources be permitted to recover any unrecovered costs above \$1,000/MWh through uplift payments. The Commission granted NYISO's requested waiver for the January 22–February 28, 2014 period.²⁸

16. In the following winter of 2014/15, citing concerns about the potential for a repeat of the high natural gas prices experienced during the Polar Vortex, PJM and MISO submitted filings to allow recovery of costs above \$1,000/MWh during the winter months. Both PJM²⁹ and MISO³⁰ expressed concerns that the \$1,000/MWh offer cap could prevent a resource from recouping its short-run marginal costs. The Commission accepted tariff provisions that temporarily raised PJM's offer cap on cost-based offers to \$1,800/MWh during the January 16–March 31, 2015 period.³¹ The Commission granted a waiver that permitted resources in MISO to include incremental energy costs in excess of \$1,000/MWh in the no-load component of their supply offers during the December 20, 2014–April 30, 2015 period.³² When accepting PJM's proposal and granting MISO's waiver request, the Commission reasoned that market conditions during the previous 2013/14 winter demonstrated that the \$1,000/MWh offer cap could prevent resources from submitting incremental energy offers that reflect their marginal costs and could therefore force resources to offer to sell electricity below cost.³³ Tariff provisions related to the offer cap in both MISO and PJM reverted back to their original form in spring 2015.

17. For the winter of 2015/16, PJM³⁴ and MISO³⁵ again filed requests to modify their respective offer caps. The Commission accepted tariff revisions in PJM that would raise the offer cap on cost-based offers to \$2,000/MWh for purposes of calculating LMPs going forward.³⁶ In accepting the changes, the Commission reasoned that PJM's proposal would send transparent market signals, promote efficient resource selection, and address the risks caused by high natural gas prices while protecting consumers by requiring cost verification of incremental energy offers above \$1,000/MWh.³⁷ The Commission granted MISO's request to waive provisions related to the offer cap for the January 1, 2016–April 30, 2016 period. The MISO waiver for the winter of 2015/16 was virtually identical to the waiver for the winter of 2014/15 and allowed MISO resources to include incremental energy costs in excess of \$1,000/MWh in the no-load component of their offers.³⁸

C. Comments About Offer Caps

18. In its January 2015 notice inviting post-technical workshop comments in the price formation proceeding, the Commission asked specific questions about the \$1,000/MWh offer cap and asked stakeholders to comment on various alternative offer cap designs.³⁹ Comments about the \$1,000/MWh offer cap focus on the need to modify the offer cap, the role that the offer cap plays in market power mitigation, alternative offer cap designs, potential seams issues, and other considerations.

1. Need To Modify the Offer Cap

19. Commenters differ about the need to raise or remove the \$1,000/MWh offer cap. Several commenters argue that the \$1,000/MWh offer cap should be raised or removed entirely, given recent occurrences of high natural gas prices.

²⁰ See Docket Nos. OA97–261–000 and ER97–1082–000 (Apr. 1, 1997); *Pennsylvania-New Jersey-Maryland Interconnection*, 81 FERC ¶ 61,257 (1997).

²¹ Scarcity and Shortage Pricing, Offer Mitigation and Offer Caps Workshop, Docket No. AD14–14–000, Tr. 209:18–22 (Oct. 28, 2014).

²² PJM Comments at 2. All comments cited herein were submitted in Docket No. AD14–14–000 on or about March 6, 2015.

²³ See, e.g., FERC Staff, *Commission and Industry Actions Relevant to Winter 2013–14 Weather Events* (Oct. 16, 2014), <https://www.ferc.gov/media/news-releases/2014/2014-4/10-16-14-A-4-presentation.pdf>.

²⁴ *PJM Interconnection, L.L.C.*, 146 FERC ¶ 61,041, at P 2, *order on reh'g*, 149 FERC ¶ 61,059 (2014). For example, a natural gas resource with a heat rate of 8,350 Btu/kWh could have short-run marginal fuel costs above \$1,000/MWh if the natural gas price exceeds \$120/MMBtu.

²⁵ *Id.* P 1.

²⁶ *PJM Interconnection, L.L.C.*, 146 FERC ¶ 61,078, at PP 3–4 (2014).

²⁷ *N.Y. Indep. Sys. Operator, Inc.*, 146 FERC ¶ 61,061, at PP 2–4 (2014).

²⁸ *Id.* P 24.

²⁹ *PJM Interconnection L.L.C.*, 150 FERC ¶ 61,020, at P 5 (2015) (PJM 2014/15 Offer Cap Order).

³⁰ *Midcontinent Indep. Sys. Operator, Inc.*, 150 FERC ¶ 61,083, at P 3 (2015) (MISO 2014/15 Offer Cap Order).

³¹ PJM 2014/15 Offer Cap Order, 150 FERC ¶ 61,020.

³² MISO 2014/15 Offer Cap Order, 150 FERC ¶ 61,083.

³³ See PJM 2014/15 Offer Cap Order, 150 FERC ¶ 61,020 at P 34; MISO 2014/15 Offer Cap Order, 150 FERC ¶ 61,083 at P 17.

³⁴ PJM, Proposed Tariff Revisions, Docket No. ER16–76–000 (filed Oct. 14, 2015).

³⁵ MISO, Request for Waiver, Docket No. ER16–248–000 (filed Nov. 2, 2015).

³⁶ PJM 2015/16 Offer Cap Order, 153 FERC ¶ 61,289 at P 25. The tariff provisions related to the offer cap do not have a sunset date.

³⁷ *Id.* PP 25–26. Resources can submit cost-based offers above \$2,000/MWh and PJM will use such offers for merit order dispatch, but incremental energy offers used for purposes of calculating LMP are capped at \$2,000/MWh.

³⁸ *Midcontinent Indep. Sys. Operator, Inc.*, 154 FERC ¶ 61,006 (2015) (MISO 2015/16 Offer Cap Order).

³⁹ *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 2–3 (Jan. 16, 2015). A list of commenters and the abbreviated names the Commission will use for them in this document appears in Appendix A.

Some commenters cite the recent offer cap waiver orders as evidence that the current offer cap is not just and reasonable.⁴⁰ Several commenters reference the Polar Vortex in the winter of 2013/14, when resources experienced marginal production costs in excess of \$1,000/MWh, as evidence that the current offer cap is inappropriate.⁴¹ For example, OMS states that it is appropriate to consider an upward revision or removal of the offer cap to ensure supply adequacy during extreme events such as those that occurred during the winter of 2013/14.⁴²

20. Several commenters also assert that the offer cap distorts price signals and creates market inefficiencies.⁴³ Commenters state that the offer cap artificially suppresses clearing prices.⁴⁴ Some commenters believe that the offer cap restricts market participants from receiving appropriate compensation for costs incurred legitimately.⁴⁵

21. Several commenters stress that the offer cap should be high enough to ensure that resources can reflect their actual costs in supply offers.⁴⁶ EPSCA maintains that the offer cap was never intended to suppress marginal cost bidding.⁴⁷ MISO states that the offer cap should be modified to ensure that all resources are able to recover at least the costs they incur to produce energy.⁴⁸ MISO and PJM contend that an offer cap that prevents resource cost recovery can increase the likelihood that resources will be unavailable to system operators.⁴⁹ SPP and Western Power Trading Forum state that raising the offer cap might reduce out-of-market operator actions and uplift.⁵⁰

⁴⁰ ANGA Comments at 2; Brookfield Comments at 7; EPSCA Comments at 24; Entergy Nuclear Power Marketing Comments at 11–12; Exelon Comments at 10–11; PJM Comments at 2–3; PJM Power Providers Comments at 2–4; SPP Comments at 1; Western Power Trading Forum Comments at 5–6.

⁴¹ EPSCA Comments at 21–24; Exelon Comments at 10–12; OMS Comments at 2; PJM Comments at 2–3; PJM Power Providers Comments at 2.

⁴² OMS Comments at 2.

⁴³ PJM Utilities Coalition Comments at 3–4; Western Power Trading Forum Comments at 5.

⁴⁴ Direct Energy Comments at 2; EPSCA Comments at 21.

⁴⁵ ANGA Comments at 2–3; Xcel Comments at 2.

⁴⁶ ANGA Comments at 2; Brookfield Comments at 7; Entergy Nuclear Power Marketing Comments at 11–12; ISO–NE Comments at 5; IRC Comments at 2–3; MISO Comments at 4; PJM Comments at 2; PJM Power Providers Group Comments at 2–4; Potomac Economics Comments at 3; Powerex Comments at 29–30; PSEG Companies Comments at 5–6; Western Power Trading Forum Comments at 5–6.

⁴⁷ EPSCA Comments at 21–22.

⁴⁸ MISO Comments at 4.

⁴⁹ *Id.*; PJM Comments at 2.

⁵⁰ SPP Comments at 1; Western Power Trading Forum Comments at 5–6.

22. Some commenters oppose modifying the \$1,000/MWh offer cap.⁵¹ CAISO, ISO–NE, and NYISO assert that, because resource marginal costs are well below \$1,000/MWh, there is no evidence that the \$1,000/MWh offer cap should be raised in their respective markets.⁵² CAISO opposes any effort to increase the offer cap until sufficient benefits are identified.⁵³ NCPA, PG&E, and SCE state that the current offer cap ensures just and reasonable rates and mitigates market power in CAISO.⁵⁴ NCPA and SCE state that the offer cap is sufficient in CAISO because generators there have never experienced costs above \$1,000/MWh.⁵⁵ SCE adds that the marginal cost of the least efficient CAISO resource at the highest natural gas price seen in the region is only \$390/MWh.⁵⁶ APPA and NRECA assert that there is insufficient justification to remove offer caps nationwide.⁵⁷

2. Role of the Offer Cap in Market Power Mitigation

23. At the October 28, 2014 price formation technical workshop, several market monitors discussed the backstop role that the \$1,000/MWh offer cap plays in market power mitigation. NYISO's internal market monitor stated that the offer cap provided a “backstop” assurance to protect consumers in the event that NYISO's market mitigation measures fail.⁵⁸ Similarly, ISO–NE's internal market monitor stated that the offer cap is a device that limits the potential damage to consumers or the market in the event that market power mitigation measures are unsuccessful.⁵⁹ CAISO's internal market monitor stated that the offer cap primarily functions as a “damage control cap” but also noted that the offer cap affects the penalty prices of constraints in CAISO's market software.⁶⁰ Potomac Economics, which serves as an external market monitor for MISO, ISO–NE, and NYISO, stated that the offer cap is too high to address

⁵¹ APPA and NRECA Comments at 30; CAISO Comments at 3; ELCON Comments at 6.

⁵² CAISO Comments at 3; ISO–NE Comments at 3 & n.2; NYISO Comments at 4.

⁵³ CAISO Comments at 3.

⁵⁴ NCPA Comments at 2; PG&E Comments at 3; SCE Comments at 3; *see also* California State Water Project Comments at 2; New York Transmission Owners Comments at 2.

⁵⁵ NCPA Comments at 2–3; SCE Comments at 2.

⁵⁶ SCE Comments at 2. According to SCE, the \$390/MWh figure assumes a heat rate of 17,000 Btu/kWh, slightly higher than the least efficient unit in CAISO, and a natural gas price of \$23/MMBtu.

⁵⁷ APPA and NRECA Comments at 32.

⁵⁸ Scarcity and Shortage Pricing, Offer Mitigation and Offer Caps Workshop, Docket No. AD14–14–000, Tr. 205:6–15 (Oct. 28, 2014).

⁵⁹ *Id.* at 206:24–207:7.

⁶⁰ *Id.* at 210:14–23.

general market power concerns, but explained that the offer cap addresses gaming strategies that market participants may engage in to collect undue uplift payments.⁶¹

24. In response to the Commission's request for comments on price formation topics, several commenters suggest that the offer cap's purpose has been supplanted by improvements in market monitoring and mitigation and the Commission's enforcement activity.⁶² Wisconsin Electric asserts that the offer cap is irrelevant because RTO/ISO market monitors have effective mitigation measures in place and can refer suspected manipulation to the Commission's Office of Enforcement.⁶³ Direct Energy states that an offer cap is not necessary when resources cannot exercise market power because competition will discipline offers.⁶⁴ GDF SUEZ argues that offer caps are the least efficient method of protection against uncompetitive offers because offer caps are indifferent to the specifics of a supply offer and do not reflect potentially changed circumstances since the offer cap level was established over ten years ago.⁶⁵

25. Several other commenters assert that the offer cap is a backstop measure to protect consumers against the exercise of market power during tight system conditions.⁶⁶ Other commenters emphasize the importance of strengthening market monitoring and mitigation provisions if offer caps are eliminated or increased.⁶⁷ ISO–NE asserts that while the offer cap has become less important with market power mitigation, the offer cap still serves as a “fail-safe” mechanism to protect consumers in the unlikely event that the market is not competitive and market power mitigation fails to assure competitive supply offers.⁶⁸ OMS warns that any effort to raise or remove the offer cap must be based on the Commission's confidence not only in the ability of RTO/ISO market power mitigation provisions to prevent

⁶¹ *Id.* at 211:25–212:14.

⁶² ANGA Comments at 2–3; Entergy Nuclear Power Marketing Comments at 11; EPSCA Comments at 22–23; Exelon Comments at 11–12; Wisconsin Electric Comments at 2–3; Xcel Comments at 2.

⁶³ Wisconsin Electric Comments at 2.

⁶⁴ Direct Energy Comments at 2.

⁶⁵ GDF SUEZ Comments at 3.

⁶⁶ ISO–NE Comments at 4; MISO Comments at 5–6; New York Transmission Owners Comments at 2–3; NYISO Comments at 3; TAPS Comments at 10–11; California State Water Project Comments at 2–3.

⁶⁷ Direct Energy Comments at 2; MISO Comments at 9; NCPA Comments at 3; New York Transmission Owners Comments at 4; Wisconsin Electric Comments at 2–3.

⁶⁸ ISO–NE Comments at 4.

generator market power abuses, but also in whether the prices of input costs were developed in a competitive market.⁶⁹

26. Potomac Economics maintains that the offer cap is necessary to keep resources from exploiting any previously unknown flaws in market rules.⁷⁰ Some commenters assert that due to load's inelastic demand for electricity, offer caps are necessary to protect consumers from excessive prices and to maintain confidence that rate structures are fair and nondiscriminatory.⁷¹ TAPS states that on normal days when there are no generators with marginal costs "anywhere close to" \$1,000/MWh, there are still 3,000 to 4,000 MW offered at the offer cap.⁷² TAPS suggests that weakening the offer cap is particularly dangerous because energy markets cannot be halted, so if widespread abuse occurs, after-the-fact resettlements incur massive costs and diversion of resources.⁷³ APPA and NRECA assert that the offer cap should only be increased if RTOs/ISOs can guarantee that all offers are cost-based in order to guarantee appropriate prices and prevent the need to re-run markets after-the-fact.⁷⁴

3. Alternative Offer Cap Designs

27. In its January 2015 notice inviting post-technical workshop comments in the price formation proceeding, the Commission sought comment on potential alternative offer cap designs, including (1) maintaining the \$1,000/MWh offer cap and compensating resources for incremental energy costs above the \$1,000/MWh offer cap through uplift; (2) adopting a floating offer cap that changes with natural gas prices; (3) raising the offer cap to a higher fixed level; and (4) allowing resources to submit cost-based offers above \$1,000/MWh and allowing verified cost-based offers above \$1,000/MWh to set LMP.

a. Maintain Current Offer Cap With Uplift

28. Some commenters assert that infrequent events where production

costs exceed \$1,000/MWh can be addressed effectively through uplift payments without raising the offer cap or otherwise including such costs in the LMP.⁷⁵ APPA and NRECA state they support generator recovery of legitimate and verified costs but assert that such costs should not necessarily be included in LMP.⁷⁶ APPA and NRECA add that uplift will ensure cost recovery without risking market power abuse and what APPA and NRECA say would be the attendant increased unjust and unreasonable rates.⁷⁷

29. APPA and NRECA assert that the market clearing process does not allow sufficient time to verify whether incremental energy offers above \$1,000/MWh are in fact cost-based; thus, these commenters argue, such cost verification should occur after-the-fact, with costs in excess of the offer cap recovered through uplift.⁷⁸ SCE and PG&E state that CAISO has tools to accommodate the rare instances when the \$1,000/MWh offer cap is insufficient to recover a resource's costs.⁷⁹

b. Floating Offer Cap

30. Several commenters support a floating offer cap that changes with generator input costs, such as the price of natural gas. Calpine asserts that offer caps should be flexible and responsive to changes in natural gas prices,⁸⁰ and recommends that the Commission encourage each RTO/ISO to implement a floating offer cap.⁸¹ Powerex suggests that the offer cap could equal the higher of \$1,000/MWh or some multiple of a pre-defined regional natural gas index.⁸² SPP states that a seasonal fixed offer cap might be appropriate.⁸³ Similarly, OMS maintains that the offer cap need not be constant throughout the year if resource costs vary throughout the year.⁸⁴

31. ISO-NE and MISO, however, argue that a floating offer cap would be difficult to implement.⁸⁵ ISO-NE opposes basing the offer cap on an index that attempts to track fuel prices, arguing that doing so would be complex and difficult to implement because intra-day natural gas indices are opaque and day-ahead natural gas indices,

while arguably less opaque, can become "stale" during the operating day.⁸⁶ MISO argues that although it may consider a floating offer cap in the longer term, a transition to such an offer cap would likely require substantial system changes.⁸⁷ ISO-NE asserts that if the Commission is concerned that a fixed offer cap lacks flexibility, the Commission should revisit the offer cap over time as the markets for the major fuels used in power generation continue to evolve.⁸⁸

c. Higher Fixed Offer Cap

32. Some commenters support raising the offer cap to a higher level. ANGA states that, at a minimum, the offer cap should be increased significantly to reduce unnecessary market distortions.⁸⁹ Exelon argues that the current \$1,000/MWh cap on market-based offers in PJM should be eliminated, but maintains that, if the offer cap remains in place, it should be raised to account for the highest reasonably expected offer, and that cost-based offers should be allowed to exceed the market-based offer cap.⁹⁰

33. If the Commission chooses to raise the offer cap, ISO-NE urges using a simple numerical value rather than a more complicated formula.⁹¹ ISO-NE is neutral on raising the offer cap but suggests that any changes to the offer cap level be made in a straightforward manner so that participants know with certainty what the offer cap will be when they make advance fuel-supply arrangements.⁹² MISO does not oppose raising the offer cap but favors a fixed offer cap to a floating offer cap in the short term.⁹³ MISO states that a fixed offer cap simplifies the process of implementing related market mechanisms such as scarcity or shortage pricing, ancillary services, and transmission demand curves and notes that MISO's current market software systems were designed based upon a fixed offer cap.⁹⁴

34. TAPS asserts that permanently increasing the offer cap to allow incremental energy offers above \$1,000/MWh "day-in and day-out" would sacrifice the benefits of the current offer cap as a "backstop" protection against market power abuse to address "extreme circumstances" that rarely, if ever,

⁶⁹ OMS Comments at 2.

⁷⁰ Potomac Economics Comments at 3-4.

⁷¹ ELCON Comments at 6; TAPS Comments at 10-11.

⁷² TAPS Comments at 12-13 (citing Scarcity and Shortage Pricing, Offer Mitigation and Offer Caps Workshop, Docket No. AD14-14-000, Tr. 217:17-21 (Oct. 28, 2014)).

⁷³ TAPS Comments at 11 (citing Written Statement of Patrick T. Connors on Behalf of WPPI Energy and the Transmission Access Policy Study Group Regarding Impacts of Offer Caps and Market Power Mitigation, at 5 (Dec. 3, 2014)).

⁷⁴ APPA and NRECA Comments at 31-32.

⁷⁵ *Id.* at 29-31; California State Water Project Comments at 2-3; New York Transmission Owners Comments at 2-3.

⁷⁶ APPA and NRECA Comments at 31.

⁷⁷ *Id.* at 31.

⁷⁸ *Id.* at 31-32.

⁷⁹ PG&E Comments at 3-4; SCE Comments at 3.

⁸⁰ Calpine Comments at 4-6.

⁸¹ *Id.* at 21.

⁸² Powerex Comments at 30.

⁸³ SPP Comments at 1.

⁸⁴ OMS Comments at 3.

⁸⁵ ISO-NE Comments at 4-6; MISO Comments at 5-7.

⁸⁶ ISO-NE Comments at 6.

⁸⁷ MISO Comments at 5-6.

⁸⁸ ISO-NE Comments at 6-7.

⁸⁹ ANGA Comments at 3.

⁹⁰ Exelon Comments at 12.

⁹¹ ISO-NE Comments at 6.

⁹² *Id.* at 3-4.

⁹³ MISO Comments at 4-5.

⁹⁴ *Id.* at 5.

occur.⁹⁵ APPA and NRECA argue that it is not necessary to increase the offer cap broadly because APPA and NRECA say there is no evidence that the \$1,000/MWh offer cap is persistently flawed.⁹⁶ APPA and NRECA add that resources' incremental energy offers only exceeded \$1,000/MWh in PJM on "just a few days in one month of one year."⁹⁷

d. Permitting Cost-Based Incremental Energy Offers Above \$1,000/MWh

35. Some commenters argue that cost-based incremental energy offers should not be capped.⁹⁸ PJM states that cost-based offers should not be subject to offer caps because offer caps impose arbitrary limits.⁹⁹ PJM suggests that one approach may be to set a market-based offer cap on an annual basis at some percentage above the highest cost-based incremental energy offer from previous time periods.¹⁰⁰ PJM Power Providers and PSEG Companies assert that cost-based offers should not be capped and should be eligible to set the LMP.¹⁰¹ APPA and NRECA state that if the Commission wishes to revise the offer cap, it should limit any increase in the offer cap to periods when production costs exceed \$1,000/MWh and ensure that any changes to the offer cap are accompanied by assurances that protect consumers against market power abuse.¹⁰² Although TAPS does not support increasing the \$1,000/MWh offer cap, TAPS similarly states that if the Commission wants to take temporary or seasonal action, the Commission should at the very least require that any incremental energy offer above \$1,000/MWh be verified by the market monitor to be cost-justified.¹⁰³

36. APPA and NRECA, CAISO and NCPA, however, argue that cost-based incremental offers must be verified *before* the market clears in order to avoid potentially disruptive after-the-fact corrections to clearing prices, and these commenters raise concerns that it is not feasible to do so.¹⁰⁴ CAISO does not believe there is a firm basis to verify the natural gas price included in supply offers because market participants might

not purchase natural gas before submitting offers and because natural gas quotes might not be available. CAISO also states that natural gas prices and quotes may be subject to manipulation, thereby making fuel cost verification difficult.¹⁰⁵ CAISO requests that if the Commission directs RTOs/ISOs to pay resources uplift for fuel costs above the offer cap, then only incremental fuel costs associated with the incremental energy offer be reimbursable. In contrast, CAISO states that costs such as natural gas pooling, imbalance penalties, or risk premiums should be recovered through capacity payments.¹⁰⁶

37. TAPS contends that advance review and verification of cost-based incremental offers should be possible for most generators.¹⁰⁷ Direct Energy states that RTOs/ISOs have sufficient time to verify natural gas costs in the day-ahead and real-time markets and suggests that LMPs can be "flagged" and revised after-the-fact should the RTOs/ISOs have any concerns.¹⁰⁸

4. RTO/ISO Seams and the Offer Cap

38. Most commenters state that offer caps should be the same for each RTO/ISO, to minimize potential seams issues.¹⁰⁹ IRC, PJM, and PSEG Companies assert that transmission congestion and other market-to-market coordination will be disrupted if offer caps differ across markets.¹¹⁰ ISO-NE and NYISO contend that different offer caps in neighboring markets could create perverse interchange flows resulting from the level of the offer caps instead of based on economic merit or reliability needs.¹¹¹ NYISO states that materially different offer caps between regions that depend on the same natural gas supply could require out-of-market operator actions to avoid reliability issues when natural gas prices are high.¹¹² MISO maintains that consistent offer caps across RTOs/ISOs will also

establish consistent shortage pricing between neighboring RTOs/ISOs.¹¹³

39. In contrast, APPA and NRECA and NCPA state that offer cap levels should be set according to the needs of each individual RTO/ISO.¹¹⁴ APPA and NRECA assert that the Commission should only consider raising the offer cap on a region-by-region basis where the evidence demonstrates a need for a higher offer cap.¹¹⁵ Direct Energy and PJM Utilities Coalition, respectively, state that different offer caps may be appropriate if the RTOs/ISOs use the same methodology to determine the offer caps or where the different offer cap levels represent true differences in cost.¹¹⁶

5. Other Considerations

40. CAISO and MISO note that the offer cap level impacts other market parameters that affect LMPs, such as penalty prices associated with violating thermal or operating constraints that are contained in the RTO/ISO software used to calculate LMPs. SCE explains that when CAISO relaxes a transmission constraint, it uses the offer cap to set the congestion price.¹¹⁷ CAISO states it would have to increase constraint penalty prices, currently set to levels above the offer cap, to ensure that the market operators would dispatch economic offers prior to relaxing transmission constraints.¹¹⁸ MISO notes that some market parameters may be intrinsically tied to the maximum LMP in the energy market, including transmission constraint demand curves, emergency or scarcity pricing regimes, and some pricing of ancillary services.¹¹⁹

41. IRC and New York Transmission Owners state that changing the offer cap could affect natural gas markets.¹²⁰ New York Transmission Owners argue that allowing higher offers to set the LMP might increase the price generators will pay for spot natural gas beyond competitive levels since there is no mitigation procedure to test whether resources paid too much for natural gas.¹²¹ IRC states that the Commission should focus on ensuring transparency and flexibility in natural gas markets to

⁹⁵ TAPS Comments at 13.

⁹⁶ APPA and NRECA Comments at 30–31.

⁹⁷ *Id.* at 30–31.

⁹⁸ Direct Energy Comments at 2; Exelon Comments at 12; PJM Comments at 3; PJM Power Providers Comments at 3–4; PSEG Companies Comments at 5.

⁹⁹ PJM Comments at 2–3.

¹⁰⁰ *Id.* at 4.

¹⁰¹ PJM Power Providers Comments at 4; PSEG Companies Comments at 6.

¹⁰² APPA and NRECA Comments at 30–32.

¹⁰³ TAPS Comments at 13–14.

¹⁰⁴ APPA and NRECA Comments at 32; CAISO Comments at 6–7, NCPA Comments at 2.

¹⁰⁵ CAISO Comments at 4–6.

¹⁰⁶ *Id.* at 6.

¹⁰⁷ TAPS Comments at 14–15.

¹⁰⁸ Direct Energy Comments at 3–4.

¹⁰⁹ Brookfield Comments at 8; Calpine Comments at 5; EEI Comments at 9; EPSA Comments at 21; Exelon Comments at 13–14; IRC Comments at 2; ISO-NE Comments at 6–7; MISO Comments at 8; New York Transmission Owners Comments at 3–4; NYISO Comments at 4; PJM Comments at 4; PJM Power Providers Comments at 5–6; PJM Utilities Coalition Comments at 6; PSEG Companies Comments at 6–7; Potomac Economics Comments at 5; Western Power Trading Forum Comments at 6; Wisconsin Electric Comments at 4.

¹¹⁰ IRC Comments at 2; PJM Comments at 4; PSEG Companies Comments at 6–7.

¹¹¹ ISO-NE Comments at 7; NYISO Comments at 5.

¹¹² NYISO Comments at 4–5.

¹¹³ MISO Comments at 8.

¹¹⁴ APPA and NRECA Comments at 29–30; NCPA Comments at 3.

¹¹⁵ APPA and NRECA Comments at 32.

¹¹⁶ Direct Energy Comments at 4; PJM Utilities Coalition Comments at 6.

¹¹⁷ SCE Comments at 2.

¹¹⁸ CAISO Comments at 5.

¹¹⁹ MISO Comments at 5.

¹²⁰ IRC Comments at 3; New York Transmission Owners Comments at 5.

¹²¹ New York Transmission Owners Comments at 5.

assist RTOs/ISOs with gas price verification and to ameliorate natural gas price spikes.¹²²

II. Need for Reform and Commission Proposal

42. In the following section, the Commission first explains the need to reform the current offer caps. The Commission next summarizes the alternative proposals that the Commission considered but declined to adopt. Finally, the Commission describes its proposal and the three requirements that underlie it.

A. Need for Reform

43. As stated above, five of the six Commission-jurisdictional RTOs/ISOs currently have a \$1,000/MWh offer cap.¹²³ As noted previously, PJM currently has a \$2,000/MWh offer cap on cost-based incremental energy offers used for purposes of calculating LMPs.¹²⁴ When the Commission first accepted these offer caps, the Commission did so, in many instances, as temporary measures until larger market reforms were implemented.¹²⁵ The offer caps have persisted, and are now viewed as a component of the market power mitigation measures adopted by RTOs/ISOs.¹²⁶ The Commission has reviewed the offer caps and preliminarily finds that the offer caps currently in effect in all RTOs/ISOs are unjust and unreasonable for several reasons.

44. First, the offer cap can prevent a resource from recouping its short-run marginal costs. With the current \$1,000/MWh offer cap, a resource whose short-run marginal cost exceeds \$1,000/MWh may operate at a loss. For example, in January 2014, resources in PJM faced high natural gas prices that caused their short-run marginal costs to exceed the \$1,000/MWh offer cap in place at the time.¹²⁷ Similarly, MISO states that high natural gas prices in January and March 2014 caused some MISO resources to experience costs in excess of the \$1,000/MWh offer cap.¹²⁸

45. Second, the offer cap can impair price formation because it can result in

LMPs that are suppressed below the marginal cost of production. An LMP that is less than the marginal cost of production may not be just and reasonable because it sends an inaccurate signal to load about the actual cost of producing the electricity, and to resources about the value of the next increment of supply. For example, if the marginal resource at a given location has a \$1,100/MWh short-run marginal cost but faces a \$1,000/MWh cap, that resource's incremental energy offer will be constrained to \$1,000/MWh, and as a result, the energy component of LMP will be \$100/MWh below the marginal cost of production. In a properly functioning market, the LMP should accurately reflect the costs of serving load and both customers and resources will be aware of that cost through an accurate and transparent price signal.

46. Third, the offer cap may discourage resources from offering their supply to the RTO/ISO when their short-run marginal costs exceed the offer cap, even though market participants may be willing to purchase that supply. For example, a resource may not be subject to a must-offer requirement, and thus be under no obligation to offer its supply to the energy market and therefore simply decide not to offer its supply to the market if its short-run marginal cost exceeds the offer cap. Both PJM and MISO state that an offer cap that prevents cost recovery can reduce the likelihood that resources with short-run marginal costs above the cap will offer their supply to the RTO/ISO.¹²⁹

47. Fourth and finally, if several resources have short-run marginal costs above \$1,000/MWh, the \$1,000/MWh offer cap requires those resources to submit incremental energy offers equal to \$1,000/MWh, even if the resources face different costs. Under this scenario, the \$1,000/MWh offer cap will prevent the RTO/ISO from observing the cost differences among these resources and the RTO/ISO will not be able to select the most efficient resources because the resources with costs above \$1,000/MWh were not able to submit incremental energy offers consistent with their short-run marginal cost. For these reasons, the Commission preliminarily finds that the current offer caps result in rates that are unjust and unreasonable. In addition, these reasons illustrate that the current offer caps may not achieve the price formation goals discussed above.

48. The Commission considered several alternatives to achieve the price formation goals. On balance, the

Commission has preliminarily determined that the alternative that best achieves the price formation goals is to retain the existing \$1,000/MWh offer cap except in circumstances when a resource has verifiable short-run marginal costs in excess of \$1,000/MWh. The discussion at the technical workshop and subsequent comments received suggest that the \$1,000/MWh offer cap is appropriate in most circumstances and serves as an appropriate backstop to the existing market power mitigation rules. However, recent experience also suggests that some resources may face short-run marginal costs greater than \$1,000/MWh and, in such infrequent circumstances, the \$1,000/MWh offer cap inappropriately limits those resources' incremental energy offers and the resulting LMP. To the extent incremental energy offers can be verified, we believe a generic reform to allow offers and LMPs to exceed \$1,000/MWh will enhance market efficiency and mitigate the potential for seams issues.

B. Alternative Offer Cap Proposals Discussed in Comments

49. This section briefly discusses why the Commission has not proposed the other alternative offer cap designs. The Commission is not proposing the alternative that uses uplift payments to compensate resources with costs above the offer cap because, while uplift payments may ensure that a resource recoups its costs, such a proposal would not ensure that LMPs accurately reflect the marginal cost of production—a key goal of the price formation effort.¹³⁰

50. The Commission is not proposing a floating offer cap that would change with natural gas prices. This alternative proposal would be unduly preferential to natural gas-fueled resources and discriminatory towards resources that do not use natural gas as fuel because such a cap would only vary with the cost inputs of resources that use natural gas as fuel. As such, this alternative proposal could prevent a resource that does not use natural gas as a fuel to generate electricity from submitting a legitimate cost-based incremental energy offer if that offer is above the natural gas-based floating cap. Although natural gas fueled resources are currently the most likely resources to have short-run marginal costs above \$1,000/MWh, this may not always be

¹²² IRC Comments at 3.

¹²³ See *supra* P 10.

¹²⁴ See *supra* P 17.

¹²⁵ See, e.g., *Midwest Indep. Transmission Sys. Operator, Inc.*, 108 FERC ¶ 61,163, at PP 380–381, order on reh'g, 109 FERC ¶ 61,157 (2004); order on clarification, 111 FERC ¶ 61,367 (2005); *N.Y. Indep. Sys. Operator, Inc.*, 97 FERC ¶ 61,095, at 61,496–97 (2001); *ISO New England, Inc.*, 97 FERC ¶ 61,090, at 61,471.

¹²⁶ See *supra* PP 23–26.

¹²⁷ PJM 2014/15 Offer Cap Order, 150 FERC ¶ 61,020 at P 2.

¹²⁸ MISO 2014/15 Offer Cap Order, 150 FERC ¶ 61,083 at P 2.

¹²⁹ MISO Comments at 4; PJM Comments at 2.

¹³⁰ *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 2 (Jan. 16, 2015).

the case. Furthermore, setting the offer cap for all resources based on the price of natural gas would allow non-natural gas resources to submit offers above \$1,000/MWh and below the natural-gas based offer cap with no cost basis for doing so, thereby potentially allowing them to exercise market power when natural gas prices rise but when these resources' costs do not similarly rise.

51. Finally, the Commission is not proposing to raise the offer cap to a higher fixed level. A higher fixed offer cap could still limit a resource's incremental energy offer below its short-run marginal cost and potentially suppress LMPs if that resource's costs rose above the fixed offer cap. Additionally, like the floating offer cap, a higher fixed offer cap could raise market power concerns.

C. Commission Proposal

52. To remedy any potentially unjust and unreasonable rates, the Commission proposes, pursuant to section 206 of the Federal Power Act (FPA),¹³¹ to revise its regulations to require that each RTO/ISO cap a resource's incremental energy offer used for purposes of setting LMPs to the higher of \$1,000/MWh or that resource's verified cost-based incremental energy offer. Under the proposal, consistent with Order No. 719¹³² and as prescribed in the RTO/ISO tariffs, the Market Monitoring Unit or the RTO/ISO would verify the costs within such a cost-based incremental energy offer before that offer could be used to calculate LMPs. The proposed offer cap would apply to incremental energy offers in both the day-ahead and real-time energy markets. Under the proposal, each RTO/ISO must comply with the following three requirements: an offer cap structure, cost-based incremental energy offer verification, and resource neutrality, discussed in detail below. The Commission would not prescribe the precise manner in which the RTO/ISO must comply with the requirements in implementing the proposal. Each requirement, as established in the proposed regulations, is discussed in turn below.

1. Offer Cap Structure

53. The first proposed requirement is as follows:

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.

This requirement would ensure that a resource is given the opportunity to recoup its short-run marginal costs during intervals when those costs exceed \$1,000/MWh because the resource could include such costs within its cost-based incremental energy offer. Additionally, this requirement would ensure that LMPs are no longer suppressed by the offer cap when marginal production costs exceed \$1,000/MWh. This requirement would permit RTOs/ISOs to accept cost-based incremental energy offers above \$1,000/MWh and use those offers in the market clearing process that calculates LMPs, but only when such offers are cost-based. Accordingly, all incremental energy offers above \$1,000/MWh would be subject to market power mitigation and the attendant requirement that the offer be equal to the short-run marginal cost of the associated resource. Incremental energy offers at or below \$1,000/MWh will continue to be subject to existing market power mitigation provisions.

54. The Commission preliminarily finds that it is necessary to permit resources to submit cost-based incremental energy offers above \$1,000/MWh, because as PJM and MISO indicated in recent filings, the \$1,000/MWh offer cap appears to have limited some resources' incremental energy offers to a level below their short-run marginal cost during intervals with high natural gas prices.¹³³ In addition, allowing all resources to offer consistent with short-run marginal cost will enhance an RTO/ISO's ability to dispatch the lowest cost resources, particularly when multiple resources have short-run marginal cost greater than \$1,000/MWh. Furthermore, allowing a resource to submit a cost-based incremental energy offer above \$1,000/MWh would help ensure that resources with short-run marginal costs above \$1,000/MWh have an incentive to offer electricity into the market during high price periods, when their electricity may be needed. Allowing LMPs to reflect a given RTO/ISO's marginal cost of production could result in more economic power flows across seams because electricity would flow to where it is most valued.

55. The Commission, however, does not propose to eliminate the \$1,000/MWh offer cap entirely because the

\$1,000/MWh functions as a backstop for existing market power mitigation rules. Several market monitors at the Scarcity and Shortage Pricing, Offer Mitigation and Offer Caps Workshop held on October 28, 2014,¹³⁴ as well as many commenters¹³⁵ noted this function of the offer cap. For example, ISO-NE states that the \$1,000/MWh offer cap still serves as a "fail-safe" mechanism to protect consumers in the unlikely event that the market is not competitive and market power mitigation fails to assure competitive supply offers.¹³⁶ Additionally, ISO-NE, NYISO, and CAISO indicate that the \$1,000/MWh offer cap is currently above the short-run marginal cost of resources in those RTOs/ISOs (*i.e.*, the offer cap does not currently force a resource to submit an incremental energy offer below its short-run marginal cost).¹³⁷ Under this proposal, verified cost-based incremental energy offers are not capped. The Commission recently approved tariff revisions in PJM that required all incremental energy offers above \$1,000/MWh to be cost-based and also placed a \$2,000/MWh hard cap on cost-based incremental energy offers used for purposes of calculating LMPs.¹³⁸ The Commission seeks comment on whether such a hard cap 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. Cost-Based Incremental Energy Offer Verification

56. The second proposed requirement is as follows:

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.

¹³⁴ Scarcity and Shortage Pricing, Offer Mitigation and Offer Price Caps Workshop, Docket No. AD14-14-000, Tr. 205:11-19, 206:24-207:7, 210:14-211:8, 212:12-213:3 (Oct. 28, 2015).

¹³⁵ See *supra* PP 25-26.

¹³⁶ ISO-NE Comments at 3.

¹³⁷ CAISO Comments at 4; ISO-NE Comments at 3; NYISO Comments at 4.

¹³⁸ See *supra* n.36.

¹³¹ 16 U.S.C. 824e(b).

¹³² *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, FERC Stats. & Regs. ¶ 31,281, at PP 370-375 (2008), *order on reh'g*, Order No. 719-A, FERC Stats. & Regs. ¶ 31,292 (2009), *order on reh'g*, Order No. 719-B, 129 FERC ¶ 61,252 (2009).

¹³³ PJM 2015/16 Offer Cap Order, 153 FERC ¶ 61,289, at PP 2-3 (2015); MISO, Transmittal at 4, Docket No. ER16-248-000 (filed Nov. 2, 2015); MISO 2015/16 Offer Cap Order, 154 FERC ¶ 61,006.

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.

57. The Commission preliminarily finds that verification of the costs underlying cost-based incremental energy offers above \$1,000/MWh is warranted to reduce the potential exercise of market power. Without such verification, a resource may be able to submit an offer above \$1,000/MWh not because its costs exceed \$1,000/MWh, but rather because it recognizes that its energy is necessary to serve load and that it does not face competition from other resources. Using such an uncompetitive offer to calculate LMPs could result in unjust and unreasonable rates.

58. Under the proposal, the Market Monitoring Unit or the RTO/ISO would be required to verify that each cost-based incremental energy offer above \$1,000/MWh is in fact cost-based. The Market Monitoring Unit or the RTO/ISO would verify that a resource's cost-based offer is an accurate reflection of that resource's short-run marginal cost. The Commission notes that for purposes of mitigation, the RTO/ISO tariffs use different terminology to describe the market power mitigation process, short-run marginal costs, and mitigated offers.¹³⁹ The Market Monitoring Units in some RTOs/ISOs currently have processes whereby the Market Monitoring Unit or the market participant itself can derive cost-based incremental energy offers that are specific to a given resource.¹⁴⁰ Additionally, ISO-NE and NYISO currently have processes in place where a resource can contact, before the close of the day-ahead or real-time markets, the Market Monitoring Unit to update the resource's cost-based incremental energy offer (*e.g.*, due to a change in fuel prices).¹⁴¹ These updates are subject to verification by the Market Monitoring Unit.

59. Under the proposal, the Market Monitoring Unit or the RTO/ISO must verify the costs within a cost-based incremental energy offer above \$1,000/

MWh *before* that offer is used for purposes of calculating LMPs. The Commission seeks comment regarding the Market Monitoring Unit's or the RTO/ISO's ability to timely verify the costs within 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. The Commission seeks comment on whether the Market Monitoring Unit or RTO/ISO 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. For example, cost-based offers in PJM include a ten percent adder, which may account for such cost components. To the extent that RTOs/ISOs currently include an adder above cost in cost-based incremental energy offers, is such an adder appropriate for incremental energy offers above \$1,000/MWh? The Commission also seeks comment on whether the Market Monitoring Unit or RTO/ISO may need additional information or new authority to require revisions or corrections to cost-based incremental energy offers to ensure that a cost-based incremental energy offer is an accurate reflection of a resource's short-run marginal cost.

60. Under this proposal, each RTO/ISO would be required to include in its tariff a process by which the Market Monitoring Unit or RTO/ISO verifies the costs included in cost-based incremental energy offers above \$1,000/MWh. To create such a verification process, the Commission expects that the Market Monitoring Unit or RTO/ISO would build on its existing mitigation processes for calculating or updating cost-based incremental energy offers. The Commission notes that the nature of before-the-fact and after-the-fact cost verification processes often differ. The Commission expects that a market participant that seeks to submit a cost-based incremental energy offer above \$1,000/MWh must provide appropriate documentation to the Market Monitoring Unit or the RTO/ISO. The Market Monitoring Unit or RTO/ISO should then have a before-the-fact verification process that would allow for timely cost verification such that an offer submitted in a reasonable period of time could be used for purposes of calculating LMPs. As noted already, the Commission emphasizes that this before-the-fact verification should build upon existing procedures.

61. Currently, RTOs/ISOs use different processes to develop and

update offers for mitigation purposes. Under this proposal, the Commission would not require RTOs/ISOs to adopt the same approach to implement the cost-based incremental energy offer verification requirement.

62. RTOs/ISOs also differ in how they define the components of cost-based incremental energy offers for purposes of mitigation.¹⁴² Each RTO/ISO has tariff provisions that set out the elements of a resource's short-run marginal cost for purposes of mitigation.¹⁴³ The Commission expects each RTO/ISO to use the elements set forth in its tariff provisions for purposes of determining a resource's cost-based incremental energy offer. Thus, the Commission is not proposing to define the elements of a short-run marginal cost as part of this proceeding.

63. Given that the verification process for cost-based incremental energy offers is intended to build on an RTO/ISO's existing mitigation processes, as proposed, 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 apply to internal resources alone. However, the Commission would consider RTO/ISO proposals to develop cost-based incremental energy offers for external transactions in their respective compliance filings for any final rule in this proceeding.¹⁴⁴ The Commission seeks comments on whether the offer cap proposal should apply to imports and whether a cost verification process for import transactions is feasible.

64. The Commission preliminarily finds that, as financial instruments, virtual transactions have no short-run marginal production costs and, thus, could not provide a cost-basis for a virtual transaction above \$1,000/MWh. Accordingly, virtual transactions in RTOs/ISOs which currently limit virtual transaction bid/offer caps to existing incremental energy offer caps, could not exceed \$1,000/MWh under the proposal.¹⁴⁵ The Commission seeks

¹⁴² For example, CAISO and PJM mitigate resources to cost-based offers that include a ten percent adder, while the standard cost-based offers in MISO, ISO-NE, and NYISO do not include an adder above cost.

¹⁴³ See *supra* n.16

¹⁴⁴ Any proposal to develop cost-based incremental energy offers for external transactions could address external resources generically or address certain scheduling practices (*e.g.*, dynamic or pseudo tie schedules).

¹⁴⁵ To the extent they currently exist, this proposal would not affect existing RTO/ISO tariff provisions that permit virtual transactions to exceed \$1,000/MWh.

¹³⁹ See *supra* n.16.

¹⁴⁰ *Id.*

¹⁴¹ ISO-NE, Markets and Services Tariff, Market Rule 1, III.A.3.1 (43.0.0); NYISO, NYISO Tariffs, NYISO Markets and Services Tariff, 23.3.1.4.6.7 (11.0.0). Resources in SPP may also contact the Market Monitoring Unit during the operating day and request a mitigation exception pursuant to SPP, OATT, Sixth Revised Volume No. 1, Attachment AF, 3.8 (7.0.0). Additionally, in MISO resources may consult with the Market Monitoring Unit to change reference levels as soon as practicable. MISO, FERC Electric Tariff, 64.1.4.h (30.0.0).

comment on 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. Additionally, the Commission seeks comment on alternatives which would allow virtual increment offers and decrement bids to be submitted and cleared at prices above \$1,000/MWh.¹⁴⁶

65. The cost-based incremental energy offer verification requirement also ensures that a resource with short-run marginal costs above \$1,000/MWh recoups its costs in the event that the Market Monitoring Unit or RTO/ISO cannot verify that resource's costs prior to the market clearing process. The Commission emphasizes that RTOs/ISOs would be expected to adopt a verification process that allows timely submitted and appropriately documented cost-based incremental energy offers to be used to calculate LMPs; compensating resources through make-whole payments should be treated only as a backstop. Under this proposal, the RTO/ISO would adopt a procedure to include the offer, modified as discussed below, in its market clearing process. Accordingly, if such an offer clears the energy market, that resource may be entitled to a make-whole payment if the Market Monitoring Unit or RTO/ISO can verify after-the-fact that the resource's short-run marginal cost was above \$1,000/MWh. The basis of the make-whole payment would be the difference between a given resource's energy market revenues and that resource's total offer costs, including the cost-based incremental energy offer.¹⁴⁷

66. The Commission's proposal would permit regional variation in the process for treating incremental energy offers above \$1,000/MWh that the Market Monitoring Unit or RTO/ISO 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 and to mitigate that offer further to a level below \$1,000/MWh pursuant to other applicable market power mitigation provisions. The Commission continues to find that regional variation is acceptable here because incremental energy offers are currently subject to the

existing RTO/ISO mitigation procedures that vary across RTOs/ISOs to appropriately account for regional differences. Further, RTO/ISO mitigation procedures only affect resources within the RTO/ISO. However, as discussed below, the offer cap also affects inter-regional trading such that generic action is required to avoid exacerbating seams.

67. Existing Commission regulations, as described below, already create a framework that ensures cost-based incremental energy offers submitted as part of a supply offer are based on legitimate costs.¹⁴⁸ In existing mitigation processes, a resource must submit accurate cost information to the market monitor. In submitting a cost-based incremental energy offer above \$1,000/MWh, a resource that misrepresents its costs would be in violation of the Commission's regulations requiring accurate statements. Section 35.41(b) of the Commission's regulations requires market participants to provide "accurate and factual information and not submit false or misleading information, or omit material information, in any communication with the Commission, Commission-approved market monitors . . . [or] Commission-approved independent system operators."¹⁴⁹ Additionally, a resource that intentionally misrepresents its costs could violate the Commission's Anti-Manipulation Rule. That rule prohibits a market participant from intentionally making "any untrue statement of a material fact or to omit[ing] to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading."¹⁵⁰ Thus, any resource that misrepresents its costs may be in violation of the Commission's regulations, even if its offer does not clear the day-ahead or real-time energy market.

68. Some commenters express concern that verification of cost-based incremental energy offers prior to the market clearing process may require RTOs/ISOs to re-run the market if the Market Monitoring Unit or RTO/ISO initially accepts a cost-based incremental energy offer above \$1,000/

MWh and subsequently determines through an after-the-fact review that the offer that established the LMP was not in fact cost-based.¹⁵¹ The Commission preliminarily finds that the verification requirement in this proposal addresses this concern because cost-based incremental energy offers above \$1,000/MWh should result in LMPs that are appropriate because they will accurately reflect the marginal cost of production. Accordingly, such LMPs will not require recalculation after-the-fact.

3. Resource Neutrality

69. The third proposed requirement is as follows:

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

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. During the Polar Vortex, natural gas prices reached levels that caused the short-run marginal cost of natural gas-fueled resources that purchased gas on the natural gas spot market to exceed \$1,000/MWh. However, limiting the opportunity to submit cost-based incremental energy offers in excess of \$1,000/MWh to a particular resource type, such as natural-gas fueled resources, would be unduly preferential to those resources.¹⁵² Even though natural gas resources are currently most likely to have cost-based incremental energy offers above \$1,000/MWh, market conditions may change causing other resource types to have short-run marginal costs above \$1,000/MWh. Accordingly, the Commission proposes that all resource types be eligible to submit a cost-based incremental energy offer above \$1,000/MWh. The resource neutrality requirement is consistent with prior Commission orders related to the offer cap in PJM and MISO.¹⁵³

4. Seams Issues

70. The Commission proposes to make a generic change to the offer cap applicable to all RTOs/ISOs through a rulemaking to avoid exacerbating seams issues. Seams issues could arise if one RTO/ISO has an offer cap that materially differed from a neighboring

¹⁴⁶ The Commission found it just and reasonable for virtual increment offers and decrement bids in PJM to clear up to \$2,700/MWh, equal to the newly established energy and reserve market aggregate price cap. *PJM Interconnection, L.L.C.*, 139 FERC ¶ 61,057, at PP 123–143 (2012).

¹⁴⁷ Under this proposal, any make-whole payments associated with such an after-the-fact cost verification would not be duplicative or overcompensate a resource for the costs included in its energy supply offer.

¹⁴⁸ Several RTOs/ISOs also rely on procedures to temporarily strip resources of the opportunity to make fuel price related adjustments to their reference levels in the event after-the-fact verification processes fail to confirm the need for the reference level update. See ISO-NE, Transmission Markets and Services Tariff, Market Rule 1, III.A.3.4(c) (43.0.0); NYISO, NYISO Tariffs, NYISO Markets and Services Tariff, 23.3.1.4.6.8 (11.0.0).

¹⁴⁹ 18 CFR 35.41(b) (2015).

¹⁵⁰ 18 CFR 1c.2(a)(2) (2015).

¹⁵¹ CAISO Comments at 6–7.

¹⁵² PJM 2014/15 Offer Cap Order, 150 FERC ¶ 61,020 at P 39.

¹⁵³ See MISO 2014/15 Offer Cap Order, 150 FERC ¶ 61,083 at P 16; PJM 2014/15 Offer Cap Order, 150 FERC ¶ 61,020 at P 39; PJM 2015/16 Offer Cap Order, 153 FERC ¶ 61,289; MISO 2015/16 Offer Cap Order, 154 FERC ¶ 61,006.

RTO/ISO's offer cap. For example, NYISO states that offer caps that are materially different in neighboring RTOs/ISOs that rely on the same natural gas market could require out-of-market operator actions to avoid reliability concerns.¹⁵⁴ ISO-NE and NYISO also note that different offer caps in neighboring RTOs/ISOs could result in flows that depend on the level of the two offer caps as opposed to economics or reliability needs.¹⁵⁵ The Commission also has indicated in prior orders approving temporary waivers or tariff changes related to MISO and PJM's respective offer caps that the Commission would address seams issues related to the offer cap beyond the winter of 2014/15 in the price formation proceeding.¹⁵⁶ Therefore, this proposal would revise the market rules in all RTOs/ISOs in a similar manner to ensure that market prices accurately reflect the marginal cost of production.

71. Some commenters have expressed concern that different offer caps in neighboring markets could create seams issues. The Commission acknowledges that the instant proposal 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 other neighboring markets due to different resources with different short-run marginal costs being on the margin. Nonetheless, the Commission believes these differences will not adversely affect seams because these differences would be driven by actual costs and not by offer caps artificially suppressing LMPs. Therefore, the associated differences in LMPs will encourage efficient interchange transactions. The Commission seeks comment on this preliminary finding and other seams issues related to this proposal.

5. Other Considerations

72. In several RTO/ISOs, factors affecting LMPs and other market outcomes depend on the offer cap. For example, CAISO's shortage pricing and penalty factors that apply when transmission constraints are relaxed are based on the \$1,000/MWh offer cap.¹⁵⁷ Such relationships may have to be revised because they may require that the value of the offer cap be known prior to the market clearing process. Under this proposal, the ultimate value of the offer cap may not be known in

advance in periods when marginal production costs exceed \$1,000/MWh. Accordingly, given this proposal, RTOs/ISOs may wish to revise certain market features that relate to or are affected by the offer cap. RTOs/ISOs and their stakeholders may also wish to consider additional tariff revisions, such as changes to scarcity or shortage pricing, raising or removing caps on price-sensitive demand bids, and other means by which load can express its willingness to pay for electricity. Although they are not required to do so, the Commission would consider other market design changes, such as changes to scarcity or shortage pricing or other penalty prices, associated with adopting this proposal in the compliance filing.

6. Comments Sought on This Proposal

73. The Commission seeks comment on its proposal as described herein. Specifically, the Commission seeks comment on the following items: (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 to timely verify the costs within 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 that are difficult to quantify, such as certain opportunity costs, are accurately reflected in a resource's cost-based incremental energy offer and 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; (4) whether the Market Monitoring Unit or RTO/ISO may need additional information or new authority to require revisions or corrections to a cost-based incremental energy offer to ensure that a resource's cost-based incremental energy offer is an accurate reflection of that 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, create market inefficiencies, or have other undesirable consequences, and whether alternatives

exist which would allow virtual increment offers and decrement bids to be submitted and cleared at prices above \$1,000/MWh; and (7) the impact the proposal would have on seams. Comments must be submitted within sixty (60) days of publication of this NOPR in the **Federal Register**.

III. Compliance

74. The Commission proposes to require that each RTO/ISO submit a compliance filing no later than four months from the effective date of the final rule in this proceeding to demonstrate that it meets the proposed requirements set forth in the final rule. The Commission will accept RTO/ISO proposals that satisfy the three requirements described above and notes that proposals may vary regionally based on the existing RTO/ISO tariff provisions that are used to develop cost-based incremental energy offers and to implement market power mitigation provisions that are to be used as a basis for implementing this proposal. As noted previously, the Commission is also willing to consider proposed revisions to other market design features that may require revision in light of this proposal, such as changes to scarcity or shortage pricing or other market parameters.

75. To the extent that any RTO/ISO believes that it already complies with the reforms adopted in a final rule in this proceeding, the RTO/ISO would be required to demonstrate, in the compliance filing, how it complies.

IV. Information Collection Statement

76. The Paperwork Reduction Act (PRA)¹⁵⁸ 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,¹⁵⁹ 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.

77. The reforms proposed in this NOPR would amend the Commission's regulations to improve the operation of organized wholesale electric power

¹⁵⁴ NYISO Comments at 4–5.

¹⁵⁵ ISO-NE Comments at 7; NYISO Comments at 5.

¹⁵⁶ See PJM 2014/15 Offer Cap Order, 150 FERC ¶ 61,020 at P 42; MISO 2014/15 Offer Cap Order, 150 FERC ¶ 61,083 at P 19.

¹⁵⁷ CAISO Comments at 8.

¹⁵⁸ 44 U.S.C. 3501–3520.

¹⁵⁹ 5 CFR 1320 (2015).

markets operated by RTOs/ISOs. The Commission proposes to require that each RTO/ISO cap a resource's incremental energy offer used for purposes of calculating LMPs in energy markets to the higher of \$1,000/MWh or that resource's cost-based incremental energy offer, as verified by the Market Monitoring Unit or the RTO/ISO. The reforms proposed in this NOPR would require one-time filings of tariffs with the Commission and potential software upgrades to implement the reforms proposed in this NOPR. The Commission anticipates the reforms proposed in this NOPR, 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

proposed in this NOPR, they could demonstrate their compliance in the compliance filing required four months after the effective date of the 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.¹⁶⁰

78. While the Commission expects the adoption of the reforms proposed in this NOPR to provide significant benefits, the Commission understands implementation can be a complex endeavor. The Commission solicits 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 seeks

detailed comments on the potential cost and time necessary to implement aspects of the reforms proposed in this 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.

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 NOPR follow.¹⁶¹

SOFTWARE OR HARDWARE UPGRADES MAY NOT BE REQUIRED

[FERC-516, as modified by NOPR in Docket RM16-5-000]

	Number of respondents	Annual number of responses per respondent	Total number of responses	Average burden (hours) & cost per response	Total annual burden hours & total annual cost	Cost per respondent (\$)
	(1)	(2)	(1) × (2) = (3)	(4)	(3) × (4) = (5)	(5) ÷ (1)
One-Time Tariff Filings (Year 1).	6	1	6	500 hrs.; \$36,000 ¹⁶³	3,000 hrs.; \$216,000	\$36,000

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.¹⁶²

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 \$216,000. After Year 1, the reforms proposed in this NOPR, once implemented, would not significantly change existing burdens on an ongoing basis.

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

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

Action: Proposed revisions to an information collection.

OMB Control No. 1902-0096.

Respondents for this Rulemaking: RTOs/ISOs.

Frequency of Information: One-time during.

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

Internal Review: The Commission has reviewed the proposed 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.

79. 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, 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. Comments submitted to OMB should include FERC-516 and OMB Control No. 1902-0096.

¹⁶⁰ 44 U.S.C. 3507(d).

¹⁶¹ The RTOs and ISOs (CAISO, ISO-NE., MISO, NYISO, PJM, and SPP) are required to comply with the reforms proposed in this NOPR.

¹⁶² 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.

V. Regulatory Flexibility Act Certification

80. The Regulatory Flexibility Act of 1980 (RFA)¹⁶⁴ 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.

81. 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 \$36,000, all in Year 1. This one-time cost of filing and implementing these changes is not significant.¹⁶⁵ Additionally, the RTOs/ISOs are not small entities, as defined by the RFA.¹⁶⁶ This is because the relevant threshold between small and large entities is 500 employees and the Commission understands that each RTO/ISO has more than 500 employees.

¹⁶³ The estimated hourly cost (salary plus benefits) provided in this section are based on the salary figures for May 2014 posted by the Bureau of Labor Statistics for the Utilities sector (available at 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 March 2015 (available at <http://www.bls.gov/news.release/ecec.nr0.htm>). The hourly estimates for salary plus benefits are:

- Legal (code 23-0000), \$129.87
- Computer and mathematical (code 15-0000), \$58.25
- Information systems manager (code 11-3021), \$94.55
- IT security analyst (code 15-1122), \$63.55
- Auditing and accounting (code 13-2011), \$51.11
- Information and record clerk (code 43-4199), \$37.50
- Electrical Engineer (code 17-2071), \$66.45
- Economist (code 19-3011), \$73.04
- Management (code 11-0000), \$78.04

The average hourly cost (salary plus benefits), weighting all of these skill sets evenly, is \$72.48. The Commission rounds it to \$72 per hour.

¹⁶⁴ 5 U.S.C. 601-12.

¹⁶⁵ This estimate does not include costs for software or increased time spent validating cost-based incremental energy offers, for which the Commission requests comment. 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.

¹⁶⁶ 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 define the threshold for a small Electric Bulk Power Transmission and Control entity (NAICS code 221121) to be 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, the Commission certifies that the reforms proposed in this NOPR would not have a significant economic impact on a substantial number of small entities. The Commission does not expect other entities to incur compliance costs as a result of the reforms proposed in this NOPR, but seeks detailed comments on whether other entities, such as load-serving entities, would incur costs as a result of the reforms proposed in this NOPR.

VI. Environmental Analysis

82. 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.¹⁶⁷ The Commission concludes that neither an Environmental Assessment nor an Environmental Impact Statement is required for this NOPR under section 380.4(a)(15) of the Commission's regulations, which provides a categorical exemption for approval of actions under sections 205 and 206 of the FPA relating to the filing of schedules containing all rates and charges for the transmission or sale of electric energy subject to the Commission's jurisdiction, plus the classification, practices, contracts and regulations that affect rates, charges, classifications, and services.¹⁶⁸

VII. Comment Procedures

83. The Commission invites interested persons to submit comments on the matters and issues proposed in this notice to be adopted, including any related matters or alternative proposals that commenters may wish to discuss. Comments are due April 4, 2016. Comments must refer to Docket No. RM16-5-000, and must include the commenter's name, the organization they represent, if applicable, and their address.

84. The Commission encourages comments to be filed electronically via the eFiling link on the Commission's Web site at <http://www.ferc.gov>. The Commission accepts most standard word processing formats. Documents created electronically using word processing software should be filed in

native applications or print-to-PDF format and not in a scanned format. Commenters filing electronically do not need to make a paper filing.

85. Commenters that are not able to file comments electronically must send an original of their comments to: Federal Energy Regulatory Commission, Secretary of the Commission, 888 First Street NE., Washington, DC 20426.

86. All comments will be placed in the Commission's public files and may be viewed, printed, or downloaded remotely as described in the Document Availability section below. Commenters on this proposal are not required to serve copies of their comments on other commenters.

VIII. Document Availability

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

88. 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.

89. 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, or the Public Reference Room at (202) 502-8371, TTY (202) 502-8659. Email the Public Reference Room at public.referenceroom@ferc.gov.

List of Subjects in 18 CFR Part 35

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

By direction of the Commission.

Issued: January 21, 2016.

Nathaniel J. Davis, Sr.,
Deputy Secretary.

In consideration of the foregoing, the Commission proposes to amend part 35, chapter I, title 18, *Code of Federal Regulations*, as follows:

¹⁶⁷ *Regulations Implementing the National Environmental Policy Act of 1989*, Order No. 486, 52 FR 47,897 (Dec. 17, 1987), FERC Stats. & Regs. ¶ 30,783 (1987).

¹⁶⁸ 18 CFR 380.4(a)(15) (2015).

PART 35—FILING OF RATE SCHEDULES AND TARIFFS

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

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

■ 2. Amend § 35.28 by adding paragraph (g)(9) to read as follows:

§ 35.28 Non-discriminatory open access transmission tariff.

* * * * *

(g) * * *

(9) *Incremental energy offer caps.* 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. 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. 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 A: List of Short Names/ Acronyms of Commenters

Short name/acronym	Commenter
APPA and NRECA	American Public Power Association and National Rural Electric Cooperative Association.
ANGA	America’s Natural Gas Alliance.
Brookfield	Brookfield Renewable Energy Marketing LP.
California State Water Project	California Department of Water Resources State Water Project.
CAISO	California Independent System Operator Corporation.
Calpine	Calpine Corporation.
Direct Energy	Direct Energy Business Marketing, LLC, Direct Energy Business, LLC and affiliated companies.
EEL	Edison Electric Institute.
EPSCA	Electric Power Supply Association.
ELCON	Electricity Consumers Resource Council.
Entergy Nuclear Power Marketing	Entergy Nuclear Power Marketing, LLC.
Exelon	Exelon Corporation.
GDF SUEZ	GDF SUEZ North America, Inc.
ISO-NE	ISO New England, Inc.
IRC	ISO/RTO Council.
MISO	Midcontinent Independent System Operator, Inc.
NYISO	New York Independent System Operator, Inc.
New York Transmission Owners	New York Transmission Owners (Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Power Supply of Long Island, New York Power Authority, New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation).
NCPA	Northern California Power Agency.
OMS	Organization of MISO States.
PG&E	Pacific Gas and Electric Company.
PJM	PJM Interconnection, L.L.C.
PJM Power Providers	PJM Power Providers Group.
PJM Utilities Coalition	PJM Utilities Coalition (American Electric Power Service Corporation, the Dayton Power and Light Company, FirstEnergy Service Company, Buckeye Power, Inc., and East Kentucky Power Cooperative).
Potomac Economics	Potomac Economics, Ltd.
Powerex	Powerex Corp.
PSEG Companies	PSEG Companies (Public Service Electric and Gas Company, PSEG Power LLC and PSEG Energy Resources & Trade LLC).
SCE	Southern California Edison Company.
SPP	Southwest Power Pool, Inc.
TAPS	Transmission Access Policy Study Group.
Western Power Trading Forum	Western Power Trading Forum.
Wisconsin Electric	Wisconsin Electric Power Company.
Xcel	Xcel Energy Services Inc.