

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**ISO New England Inc. and
New England Power Pool**

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Docket No. ER16-1434-000

**MOTION FOR LEAVE TO ANSWER AND ANSWER
OF ISO NEW ENGLAND INC.**

Pursuant to Rules 212 and 213 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission (“Commission”),¹ ISO New England Inc. (the “ISO”) hereby moves for leave to answer, and submits the included answer, in response to protests submitted in this proceeding on May 13, 2016. For the reasons set forth more fully below, the Commission should reject the protests in their entirety and accept the rule changes that were filed jointly by the ISO and the New England Power Pool (“NEPOOL”) to provide for the use of a consistent set of sloped demand curves in the Forward Capacity Market beginning with the Forward Capacity Auction to be held in February 2017 (“FCA 11”). The package of rule changes that were submitted by the ISO and NEPOOL on April 15, 2016 in this proceeding (the “April 15 Filing”) are referred to hereafter as the “Demand Curve Design Improvements.”

I. INTRODUCTION

On April 15, 2016, the ISO and NEPOOL together submitted the Demand Curve Design Improvements in response to the order issued by the Commission on December 28, 2015 in Docket Nos. EL16-15-000 and ER14-1639-000.² At a high level, the Demand Curve Design

¹ 18 C.F.R. §§ 385.212, 385.213 (2014).

² *ISO New England Inc., et al., Order Instituting Section 206 Proceeding*, 153 FERC ¶ 61,338 (2015) (the “December 28 Order”).

Improvements are intended to redress certain limitations of the existing system-wide and vertical zonal demand curves that are used in the Forward Capacity Market. These limitations include unnecessary price volatility and potential market power concerns at the zonal level, as the Commission recognized in the December 28 Order. The Demand Curve Design Improvements remedy these shortcomings with a new set of curves (at the system and zonal levels) that are based on sound design principles and that reflect the marginal improvement in reliability that results from procuring additional capacity in each capacity zone (including the Rest-of-Pool Capacity Zone). The new set of demand curves significantly improve price formation in the Forward Capacity Market because they set prices that more accurately reflect the locational marginal reliability impact (referred to as “MRI”) of capacity in each capacity zone, including constrained capacity zones and the Rest-of-Pool Capacity Zone.

The ISO submits this answer to address issues raised in protests by the Indicated Suppliers³ and the Public Systems.⁴ In Section III.A of this answer, the ISO demonstrates how, contrary to the protest of the Indicated Suppliers, the April 15 Filing is fully within the scope of the Commission’s compliance directive. As the ISO explains, it was not possible to address satisfactorily the concerns of the December 28 Order in a cost-effective way, or to provide appropriate locational price signals in constrained capacity zones, without conforming revisions to the system demand curve. As such, the revisions to the system demand curve are an essential component of the ISO’s compliance filing.

³ See Protest of Calpine Corporation, the Dominion Companies (which are Dominion Resources Services, Inc., on behalf of Dominion Energy Marketing, Inc., Dominion Nuclear Connecticut, Inc., and Dominion Energy Manchester Street, Inc), Exelon Corporation, and the NRG Companies (which are NRG Power Marketing LLC and GenOn Energy Management, LLC), Docket No. ER16-1434-000 (filed May 13, 2016) (“Indicated Suppliers Protest”).

⁴ See Protest of the Connecticut Municipal Electric Energy Cooperative, Inc. and the New Hampshire Electric Cooperative, Inc., Docket No. ER16-1434-000 (filed May 13, 2016) (“Public Systems Protest”).

In Section III.B of the answer, the ISO describes how, the Indicated Suppliers Protest notwithstanding, the MRI-based curves satisfy the requisite reliability objectives, are consistent with other features of the Forward Capacity Market, and provide appropriate incentives to attract new entry. Specifically, the ISO shows that it is not appropriate under the MRI-based curves to procure an additional “buffer” of capacity; that the MRI-based curves perform well even if Net CONE is underestimated; and that the proper solution to the possibility of chronic mis-estimation of Net CONE is not to corrupt the demand curve design, but rather to review and revise Net CONE. The ISO also rebuts the Indicated Suppliers’ claims concerning price volatility, demonstrating that price volatility with the MRI-based curves is not a concern. Finally, the ISO observes that the claim that ongoing revisions to the Forward Capacity Market will chill investment is flatly contradicted by evidence from recent capacity auctions.

Section III.C of the answer rebuts the Indicated Suppliers’ incorrect, allegations concerning the approach to determining import limits under the Demand Curve Design Improvements. The answer explains that, despite claims to the contrary, the Transmission Security Analysis requirement (“TSA”) is not altered under the design, and the overall approach to import limits has not become more or less conservative. The ISO explains how, in effect, the Indicated Suppliers ask the Commission to shift the capacity demand curves to the right of their position under the ISO’s cost-effective, MRI-based design, and explains that the result would be to procure excess capacity and to remunerate suppliers in excess of Net CONE.

Finally, in Section III.D of the answer, the ISO explains why the Commission should deny Public Systems’ request to eliminate the transition period and refutes certain unsubstantiated claims upon which the Public Systems Protest is based.

II. MOTION FOR LEAVE TO ANSWER

The ISO moves for leave to file an answer to protests in this proceeding pursuant to Rule 212 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.212 (2014). The Commission has found good cause to permit answers where they are otherwise prohibited in various circumstances, including where a protester has provided an inaccurate interpretation of the contents of a filing,⁵ and where the answer would assure a complete record in the proceeding,⁶ provide information helpful to the disposition of an issue,⁷ or permit the issues to be narrowed or clarified.⁸ The ISO's answer fulfills these purposes because it will resolve possible misunderstandings, assist in the disposition of the issues presented, and permit those issues to be narrowed and clarified.

III. ANSWER

A. The Zonal Curves and the System-Wide Curve are Within the Scope of the Commission's Compliance Directive

The Indicated Suppliers first argue that the Commission "should reject the non-linear demand curves and, in particular, the proposed system-wide demand curve ... as beyond the scope of the Commission's compliance directive."⁹ They claim the ISO "should not be rewarded for its continued refusal to comply with the Commission's straightforward directives simply to implement zonal sloped demand curves, [and that] the Commission and interested stakeholders

⁵ See, e.g., *Alliance Cos., et al.*, 91 FERC ¶ 61,152, at pp. 61,577-78 (2000).

⁶ See, e.g., *Pacific Interstate Transmission Co.*, 85 FERC ¶ 61,378, at p.62,443 (1998), *reh'g denied*, 89 FERC ¶ 61,246 (1999).

⁷ See, e.g., *CNG Transmission Corp.*, 89 FERC ¶ 61,100, at p.61,287 n.11 (1999).

⁸ See, e.g., *PJM Interconnection, LLC*, 84 FERC ¶ 61,224, at p.62,078 (1998); *New Energy Ventures, Inc. v. Southern California Edison Co.*, 82 FERC ¶ 61,335, at p.62,323 n.1 (1998).

⁹ Indicated Suppliers Protest at 6.

would benefit in several ways *from ISO-NE being required to submit linear zonal sloped demand curves* in a compliance filing.”¹⁰

To begin with, nothing in the December 28 Order directed the ISO to submit *linear* zonal sloped demand curves. In implying otherwise, the Indicated Suppliers are re-interpreting the ISO’s compliance obligation. As discussed below and explained in the April 15 Filing, it is necessary to revise the system curve in order to implement cost-effective, functional zonal demand curves. The MRI-based system-wide demand curve is integral to the design and therefore an integral part of compliance.

The Indicated Suppliers protest that the ISO “should be adapting the zonal sloped demand curves to the existing system-wide demand curve, and not the other way round.” In fact, the ISO and stakeholders initially sought to do just that, but the effort failed to produce a robust design that consistently satisfied the region’s reliability objectives. By way of background, in June of 2014, the ISO began stakeholder discussions to develop downward-sloping zonal demand curves to accompany the system-wide demand curve that had been accepted by the Commission the previous month. After working diligently for nearly a year with stakeholders and external consultants (The Brattle Group) to develop linear zonal curves, the ISO determined that the attempt to fit zonal sloped demand curves to the existing linear system-wide demand curve presented insurmountable problems. Despite significant external pressure to move forward with that initial, deficient approach, the ISO declined to do so and instead took the appropriate time to develop a reliable, cost-effective, and more robust demand curve design. The ISO explained this decision in a May 2015 filing with the Commission, stating:

¹⁰ *Id.* at 10.

While the ISO and its stakeholders have worked diligently over the past year to develop new zonal demand curves that would improve the current demand curve structure, the effort to develop those changes has not yet achieved a design that reasonably satisfies reliability, market efficiency and pricing objectives with reasonable market power protections.

As the Commission is aware, some entities would like the ISO to file the sloped zonal demand curves that have been the focus of discussion during the recent stakeholder review process. For three fundamental reasons, it would be imprudent to immediately adopt a new sloped zonal demand curve design without further analysis and stakeholder review. The preliminary design that has been under consideration by the ISO and stakeholders does not perform adequately by several measures. First, adopting this design would fall far short of meeting the system planning criteria upon which the current system-wide curve design was established. Second, the recent filing of new potential zonal boundaries for FCA 10 that reflect the evolving system topology in New England (which could not be filed until after FCA 9 was completed in February) also indicates the need for more robust “stress testing” of zonal demand curve designs to assure that any new design would produce just and reasonable rates over a broad range of possible auction scenarios. For an auction that only is conducted once per year and results in costs that can vary by hundreds of millions of dollars, it is critical that careful analysis is performed to provide a high level of assurance that the results will be just and reasonable. Third, there is no sound reason to implement new sloped zonal demand curves for FCA 10 given that the current design, which already incorporates the significant benefits of having a system-wide sloped demand curve, has demonstrated better overall performance than the alternatives that have been identified thus far, and that any changes for FCA 10 would have to be modified afterward to address the known deficiencies discussed in this report.¹¹

In sum, under the initial zonal curve approach, the ISO was not able to develop zonal curves that, in concert with the existing linear system curve, were sufficiently robust to produce reliable outcomes under varying zonal configurations (including the configuration that had been established for FCA 10). With the benefit of time and detailed, well-developed analyses, the ISO modified its initial approach to allow zonal demand curves to specify congestion prices and to accommodate the partial substitutability of capacity between zones. With these insights, the

¹¹ ISO New England Inc. and New England Power Pool Participants Committee, Docket No. ER14-1639-000, Report on Progress Toward Developing Zonal Demand Curve Improvements (filed May 18, 2015) at 2-3 (footnotes omitted).

performance of the curves became more robust, overcame the shortcomings of the initial approach, and addressed the shortcomings of the existing vertical zonal demand curves.

In hindsight, it is clear that to achieve optimal results, the FCA demand curves – system-wide, import-constrained, and export-constrained – must be designed in conjunction with one another, as part of an integrated, coherent package. Providing the proper price signals for capacity in all zones – at root, the central objective of zonal demand curves – could not be obtained without concurrent revisions to the system curve: The system curve not only determines the locational price signal in the Rest-of-Pool Capacity Zone, it also determines – because the zonal curves specify congestion price “adders” – the total price to be paid in each constrained capacity zone.¹² In other words, the system demand curve also helps determine, in material part, the locational price signal present in *every* constrained capacity zone. Thus, it is not possible to address satisfactorily the concerns of the December 28 Order in a cost-effective way, and to provide appropriate locational price signals in constrained capacity zones, without conforming revisions to the system demand curve.¹³ In short, the revisions to the system demand curve are an essential component of the ISO’s compliance filing.

B. The MRI-Based Curves Satisfy the FCM’s Reliability Objectives and Procure Capacity Cost-Effectively

Without any quantitative evidence, the Indicated Suppliers assert that the MRI-based curves are not just and reasonable because they “fail to provide adequate assurances of reliability

¹² See Geissler-White Testimony at 60-65 (for explanation of congestion price adders in the context of import-constrained capacity zones) and at 74-80 (for explanation of congestion price adders in the context of export-constrained capacity zones).

¹³ As explained in the April 15 Filing (at 14-15), in evaluating the scope of changes filed in response to a compliance directive, the Commission considers whether the changes are “closely and plainly” related to the compliance directive. Given the highly inter-dependent nature of the system and zonal demand curves, it is clear that the filing of the complete set of MRI-based demand curves is within the scope of compliance.

and revenue sufficiency and could ultimately result in higher prices for New England consumers.”¹⁴

The Indicated Suppliers speculate that the MRI-based curves could “prove suboptimal relative to realized market conditions in the delivery year.”¹⁵ Their first supporting argument relies on the treatment of Net CONE under the existing system-wide demand curve, and evinces a misunderstanding of the MRI-based design. Specifically, the Indicated Suppliers assert that the existing system-wide demand curve purchases capacity in excess of the amount deemed necessary in order to provide a “hedge” against “the limitations of economic modeling and the uncertainty of the future.” They argue that the MRI-based curves should similarly provide such a “hedge.” What the Indicated Suppliers term as a “hedge” occurs with the existing system-wide curve because the Installed Capacity Requirement intersects the existing system demand curve at 1.19 times Net CONE. As the ISO explained when filing the existing system demand curve with the Commission, this point of intersection results in “pay[ing] nearly 20% more than Net CONE at [the Installed Capacity Requirement,] ... an important safeguard against underestimating Net CONE.”¹⁶ The Indicated Suppliers correctly note that, in the initial demand curve proceeding, the ISO observed that under the then-proposed linear demand curve, the adverse consequences of underestimating the actual cost of new entry were far greater than those of overestimating it.¹⁷

However, the conclusion the Indicated Suppliers proffer – that the failure to purchase an excess

¹⁴ Indicated Suppliers Protest at 12.

¹⁵ *Id.*

¹⁶ Prepared Testimony of Dr. Robert G. Ethier on Behalf of ISO New England Inc., Docket No. ER14-1639-000 at 23 (filed April 1, 2014).

¹⁷ Indicated Suppliers Protest at 13 citing *ISO New England Inc.*, 147 FERC ¶ 61,173 at P 16 (2014), *reh’g denied*, 150 FERC ¶ 61,065 (2015).

amount of capacity under the MRI-based curves will not adequately maintain reliability – reflects a misunderstanding of how the MRI-based design addresses uncertainty in Net CONE.

The key point is that the adverse consequences of underestimating Net CONE under the existing linear demand curve are far greater than those of overestimating Net CONE *due to the fact that the curve is linear*. If Net CONE is consistently underestimated, then the auction can be expected to clear to the left of the Installed Capacity Requirement, resulting in less procured capacity (and lower reliability). But with a convex demand curve (like the MRI-based curves), the curve rapidly becomes steeper as the level of capacity falls below the Installed Capacity Requirement. This properly indicates that as the total quantity procured decreases, the last increment of capacity becomes more valuable. A linear curve does not have this feature – it does not get steeper (bend “upward”) as capacity decreases – and therefore ignores the fact that, as capacity decreases, each remaining megawatt of capacity avoids ever more lost load (and is therefore ever more valuable). Accordingly, the decrease in cleared capacity that results from underestimating Net CONE with the MRI-based curves is significantly less than with the existing linear system-wide demand curve. This means that the reliability impact associated with underestimating Net CONE is greatly reduced with the MRI-based system curve relative to the linear system curve. The ISO appropriately accounted for this possibility in developing the MRI-based design.

A closely related claim is the Indicated Suppliers’ assertion that “the Geissler/White Testimony concedes that simulations conducted by ISO-NE demonstrate that the proposed curves will not satisfy the “1-in-10” loss of load expectation to the extent that Net CONE is underestimated.”¹⁸ First, while it is true that if Net CONE is consistently underestimated year

¹⁸ Indicated Suppliers Protest at 17.

after year, the MRI-based demand curves will procure less capacity on average than the level of the 1-day-in-10 Loss of Load Expectation (“LOLE”),¹⁹ this assertion can also hold for linear demand curves, including the existing system-wide curve.²⁰ As was noted in the Geissler-White Testimony, “[t]he reliability performance of any set of sloped demand curves is dependent on the supply conditions modeled, and it is always possible to construct supply curves that represent tight conditions and high price levels for which cleared capacity levels in the FCA – when using downward-sloping demand curves instead of fixed requirements – may fall below the “1-day-in-10” LOLE criterion.”²¹

Second, the protesters’ assertion is misleading in that it completely disregards the appropriate remedy, which was documented in the ISO’s simulations. As the ISO demonstrated in detail in the Geissler-White Testimony, under the MRI-based curves, if Net CONE is revised up or downward, the revised demand curves procure, on average, the correct level of capacity to meet the resource adequacy objective.²² The same cannot be said of the existing system curve, which, in cases where Net CONE is correctly estimated, will tend to procure more capacity than is needed to meet the planning standard, leading to unnecessarily high costs. Accordingly, the appropriate solution to errors in estimating Net Cone is not to corrupt the design of the cost-effective MRI-based demand curves – as the Indicated Suppliers protest seeks – but simply to

¹⁹ See Prepared Testimony of Christopher Geissler and Matthew White on Behalf of ISO New England Inc. attachment to the April 15 Filing (“Geissler-White Testimony”) at 137-138.

²⁰ See Prepared Testimony of Dr. Samuel A. Newell and Dr. Kathleen Spees of The Brattle Group on Behalf of ISO New England Inc., attachment to the ISO filing in Docket No. ER14-1639-000 at 40-42 (filed April 1, 2014).

²¹ Geissler-White Testimony at 137.

²² See Attachment 1 to the Geissler-White Testimony. In the modeling results included in the attachment, Model 4b outlines a case in which the actual cost of new entry increases and Net CONE is adjusted upward accordingly. As the results demonstrate, the system continues to meet the reliability standard.

periodically review and, if necessary, revise the estimate of Net CONE.²³ Indeed, the existing market rules require a review of Net CONE every three years and the first such review will be conducted over the next year and the results reflected in the administration of the Forward Capacity Auction scheduled for February 2018 (FCA 12).²⁴

In an attempt to bolster their case that the Demand Curve Design Improvements will not only threaten reliability but will also increase investor risk and drive up the cost of new entry,²⁵ the Indicated Suppliers allege that the price volatility associated with the MRI-based curves will result in a “potentially large increase in Net CONE as the cost of capital increases.”²⁶ This allegation is without evidentiary support, and is contradicted by the analysis of the ISO. The Indicated Suppliers and Mr. Montalvo first allege that the ISO “fixate[ed] exclusively” on reliability and “did not even assess the impact of price volatility.”²⁷ It is difficult to know how they reached such a conclusion as the ISO evaluated price volatility and discussed the results of the evaluation with stakeholders at the January Markets Committee meeting.²⁸ This evaluation

²³ It is worth noting that the Montalvo Affidavit is categorically incorrect in its assertion that “under the proposed MRI based demand curve, Net CONE plays a more significant role in the location of the curve and in its ability to ensure reliability.” Affidavit of Marc D. Montalvo, Attachment A to the Indicated Suppliers Protest (“Montalvo Affidavit”) at 12. In fact, Net CONE plays an identical role under the existing linear system demand curve and the MRI-based curves. In both cases, the Net CONE value is used to “anchor” the curve at a particular price. As a result, if the estimated Net CONE value increases by (say) 10 percent, the price corresponding to each capacity quantity on the demand curve – whether the existing linear curve or the MRI-based curve – will also increase by 10 percent. That is, if Net CONE increases by 10 percent, each curve will produce prices that are 10 percent higher for any given quantity of capacity.

²⁴ ISO Tariff, Section III.13.2.4.

²⁵ See, e.g., Indicated Suppliers Protest at 2, 12, 15, 16.

²⁶ *Id.* at 16.

²⁷ Indicated Suppliers Protest at 16 citing Montalvo Affidavit, ¶¶ 21-22.

²⁸ This analysis included a detailed comparison of ISO’s proposed MRI-based curves versus the existing set of curves with respect to price volatility, available on slides 39 through 44, which is available at: www.iso-ne.com/static-assets/documents/2016/01/a02_iso_presentation_01_12_16.pptx.

concluded that the MRI-based design does not increase price volatility materially; therefore, the claim that suppliers face greater risk under the MRI-based design than under the existing design is unfounded. Consequently, the claim that the cost of capital (which is proportionate to risk) will increase under the MRI-based design is similarly unfounded – indeed, its root premise about price volatility is contradicted by the ISO’s results.

The Indicated Suppliers also provide an incomplete and misleading picture of the External Market Monitor’s (the “EMM’s”) assessment of the relationship between the MRI-based curves and price volatility. In the same memo quoted by the Indicated Suppliers, the External Market Monitor writes, “However, price volatility that is driven by underlying fundamentals of supply and demand is expected and even beneficial. Hence, while it is important to avoid artificial price volatility that is driven by artifacts of the market design, it is equally important to not suppress price volatility that is driven by market fundamentals.”²⁹ The External Market Monitor’s memo went on to note that “[b]ecause the proposed shapes of the demand curves are a reflection of the planning criteria employed by the ISO, we are not concerned that the resulting price volatility will be excessive or inconsistent with the underlying reliability value of the product.”³⁰

The Indicated Suppliers next claim that the MRI-based design and other revisions to the Forward Capacity Market rules “perpetuate an uncertain capacity market environment” that creates regulatory risk and weakens market signals and investor confidence. Cognizant of this potential (but unrelated to the MRI-based design), in 2014 the ISO introduced and the

²⁹ EMM Comments on ISO-NE’s Zonal Demand Curve Proposal (letter dated Jan. 11, 2016), Attachment 4 to the Geissler-White Testimony at 5.

³⁰ *Id.*

Commission accepted a seven-year price lock for new resources,³¹ which reduces the financial risk to new entrants in the Forward Capacity Market. As the Commission acknowledged, by reducing risk for new entrants, this design feature serves to facilitate new entry.³²

The Indicated Suppliers' claim that ongoing Forward Capacity Market rule changes will chill investment is contradicted by the region's actual experience. In the last two auctions alone, at a time of the various market design improvements enumerated in the protest, the FCA cleared multiple new generating facilities, replaced close to 10 percent of the generating fleet,³³ and the Interconnection Queue for new capacity has more than doubled (from 6 GW to over 12 GW)

³¹ See 147 FERC ¶ 61,173 at P 5, 54. Arguments about the appropriateness of the seven year price-lock and the Renewable Technology Resource ("RTR") minimum offer price exemption are outside the scope of this proceeding and should be disregarded. In addition, the RTR exemption already is under consideration by the Commission in another proceeding. In fact, the Commission issued its latest order on this issue on April 8, 2016 in Docket No. ER14-1639, *ISO New England Inc. and New England Power Pool Participants Committee, Order on Remand*, 155 FERC ¶ 61,023 (2015). A request for rehearing was filed on May 9, 2016.

The ISO and other parties have addressed the appropriateness of the RTR exemption at length in the ongoing proceeding in Docket No. ER14-1639. In its initial April 1, 2014 filing in that docket (at pages 12-13), and in the accompanying testimony of Dr. Robert G. Ethier (at pages 37-42), the ISO explained why it is reasonable to have a limited and narrow exemption from the minimum offer price rules for Renewable Technology Resources that are built to advance state policy objectives. The ISO provided additional explanation in an answer it submitted on May 1, 2014 (pages 14-19). In fact, the request for rehearing filed by NextEra, PSEG and NRG on May 9, 2016 in that docket directly asks the Commission to resolve the appropriateness of having an RTR exemption when sloped demand curves are used in constrained zones (see Section II.C at pages 41-42 of the rehearing request). The Commission should continue to address arguments about the RTR exemption in the proceeding in Docket No. ER14-1639.

³² See 147 FERC ¶ 61,173 at P 56-59.

³³ A total of 2,519 MW of new generating capacity resources cleared in the last two auctions; the total capacity of all generating resources with a Capacity Supply Obligation is 29,726 MW. The data are available at, for FCA 9, http://www.iso-ne.com/static-assets/documents/2015/02/fca_9_cso_flow_diagram.pdf (slide 2, showing that 1,060 MW of new generation cleared); for FCA 10, http://www.iso-ne.com/static-assets/documents/2016/02/fca_10_cso_flow_diagram.pdf (slide 2, showing that 1,459 MW of new generation cleared). The 2016 CELT Report provides the generating fleet totals and can be found at http://www.iso-ne.com/static-assets/documents/2016/05/2016_celt_report.xls.

since 2014.³⁴ Thus, the central assertion of protesters that the market design improvements the ISO has carefully developed over the last several years will chill new entry is plainly contradicted by the facts – a surge of recent new investment in the region.

C. The ISO’s Approach to Determining the Import Limit in Constrained Zones Satisfies Reliability Standards and is Consistent With the Forward Capacity Market Design

Much of the Indicated Suppliers’ protest of the ISO’s Transmission Security Analysis (“TSA”) rests on the premise that the April 15 Filing modified the TSA. This is incorrect.

Despite the Indicated Suppliers’ assertions to the contrary,³⁵ the ISO *is not changing the manner in which the TSA is calculated.*

More broadly, as discussed in the McBride Testimony,³⁶ the new sloped demand curves for import-constrained zones fully reflect the approach used to establish the existing fixed (or vertical) zonal demand curves.³⁷ Under the existing Tariff, the vertical zonal demand curves set demand at a single, fixed, megawatt quantity of capacity (the Local Sourcing Requirement).³⁸ The ISO determines this megawatt quantity by calculating the amount of capacity that must be located within the zone to maintain resource adequacy. The megawatt quantity is determined

³⁴ See March 2014 Chief Operating Officer Report at slide 51 (showing 6,100 MW in the queue), available at: http://www.iso-ne.com/static-assets/documents/committees/comm_wkgrps/prtcpnts_comm/prtcpnts/mtrls/2014/mar72014/coo_report_mar_2014.pdf; and March 2016 Chief Operating Officer Report at slide 54 (showing 14,000 MW in the queue), available at: <http://www.iso-ne.com/static-assets/documents/2016/03/march-2016-coo-report.pdf>

³⁵ See, e.g., Indicated Suppliers Protest at 5 (the ISO is modifying its LRA and TSA requirements); 19 (the ISO is modifying its TSA approach for the FCM); 21 (the Commission should require the ISO to use a TSA value based on N-1-1); 23 (the revised TSA approach is inconsistent with the treatment of TSA in other contexts); 25 (the relaxed import limit falls partway between the LRA and the TSA); 26-27 (providing solutions in case the Commission decides to accept the TSA).

³⁶ See Prepared Testimony of Alan McBride on Behalf of ISO New England Inc., attachment to the April 15 Filing (“McBride Testimony”).

³⁷ See *id.* at 13-17.

³⁸ See *id.* at 2, 4. For a discussion of the treatment of transfer capability for import-constrained zones under the current Tariff, see McBride Testimony at Section III.A.

using two different methods (the Local Resource Adequacy requirement or “LRA” and the Transmission Security Analysis requirement or “TSA”); the higher of the two becomes the fixed procurement target.³⁹

With sloped zonal demand curves (as with the sloped system curve), there is no longer a single, fixed, procurement target.⁴⁰ Rather than representing a fixed target, an MRI-based curve represents a range of quantities within the zone, and is determined using the transfer capability into the relevant zone. (Note that transfer capability is an *input* into the LRA and TSA calculations, and should not be confused with the LRA and the TSA themselves, though protesters appear to make just that mistake.⁴¹) While the TSA or LRA value serves as the capacity quantity of the vertical demand curve, neither the TSA nor the LRA value are direct inputs into the MRI calculation. Instead, the MRI calculation requires the input of a *transfer capability* between zones.

The determination of the transfer capability used in the zonal MRI calculation is fully consistent with the “higher of” the TSA or LRA approach presently used to determine the vertical zonal demand curves. It is developed as follows. An MRI-based curve for an import constrained zone is initially formed using the same transfer capability (N-1) as is used for the

³⁹ The Indicated Suppliers incorrectly assert that the TSA methodology is more stringent than the LRA methodology. *See, e.g.*, Indicated Suppliers Protest at 22-23, Affidavit of William S. Fowler, Attachment B to the Indicated Suppliers Protest (“Fowler Affidavit”) at 7. It is not. While the TSA analysis uses a more conservative transfer capability assumption (N-1-1 contingency conditions), because the LRA analysis (which assumes N-1 contingency conditions) employs an entirely different methodology, the TSA does not always produce a higher requirement value.

⁴⁰ *See* McBride Testimony at 11. For a discussion of the treatment of transfer capability for import-constrained zones under the Demand Curve Design Improvements, see McBride Testimony at Section III.B.

⁴¹ For example, the Indicated Suppliers claim that the “TSA limit is 4,600 MW” for the South East New England zone in FCA 10 when, in fact, it was 10,028 MW. This mistaken assertion appears to be rooted in confusing the import capability limits with the Local Sourcing Requirement. Indicated Suppliers Protest at 21.

LRA assessment. However, if the TSA value calculated for the zone exceeds the LRA value calculated for the zone, an adjustment is made that appropriately increases the resulting curve.⁴² Specifically, if the TSA value calculated for the zone is higher than the LRA value calculated for the zone, the transfer capability used in the MRI calculation will be set based on the N-1 transfer capability used to calculate the LRA value *minus the positive difference between the TSA and LRA* (TSA minus LRA). Because decreasing the transfer capability has the effect of *increasing* the Local Sourcing Requirement, this adjustment shifts the demand curve to the right compared to the position of the curve when N-1 conditions are used for capacity transfer capability (as in the LRA calculation). In other words, by starting with the transfer limit used in the LRA assessment, and allowing this limit to be adjusted to account for the TSA assessment, the MRI-based curves use a methodology that mathematically captures the “higher of” TSA and LRA methodology used to determine the fixed values of the current vertical zonal demand curves.

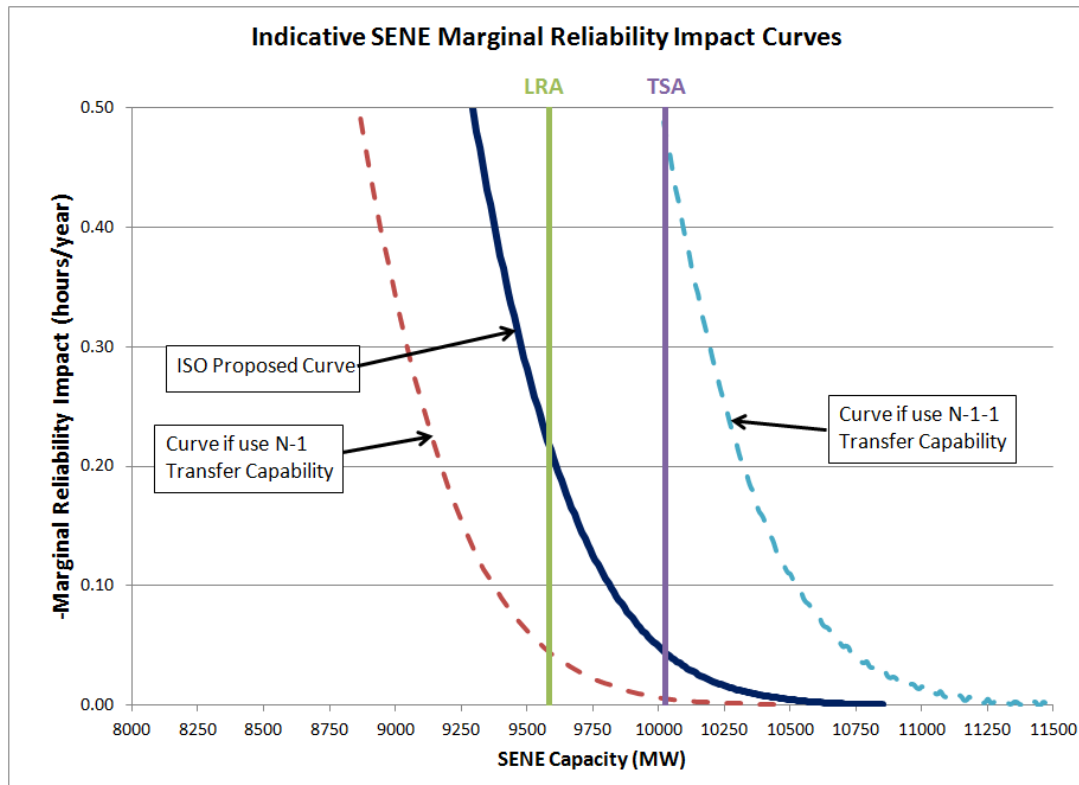
The Indicated Suppliers’ make other incorrect statements regarding the TSA calculation. For example, the Indicated Suppliers ask that the Commission require the ISO “to use a TSA value determined on an N-1-1 basis.”⁴³ This request must be rejected because the ISO *does* determine the TSA value on an N-1-1 basis, and will continue to do so under the Demand Curve Design Improvements. If, instead, what the Indicated Suppliers meant was to request that the *capacity transfer capability* used to determine the MRI-based curves for import-constrained zones should be based on N-1-1 conditions, such a request is equivalent to requesting that the

⁴² As explained below, it is not appropriate to simply use the transfer capability underlying the TSA analysis (with N-1-1 contingency conditions) as an input into the MRI calculation, because the MRI calculation, like the LRA calculation, is probabilistic in nature. The result of using the more conservative transfer limits in the probabilistic calculation would be to procure capacity in excess of the applicable standards.

⁴³ Indicated Suppliers Protest at 21.

current LRA be calculated under N-1-1 conditions, and would result in a zonal requirement far to the right of any zonal requirement that has ever been used by the ISO. As explained in the McBride Testimony, using an N-1-1 limit would “increase the *de facto* reliability standard for import-constrained zones as a whole – well above the levels of reliability procured under the current ‘higher of’ methodology.”⁴⁴

The graph below, which appears in the McBride Testimony, shows the result for the Southeast New England (“SENE”) import-constrained zone using FCA 10 system planning parameters, when the adjustment of the capacity transfer capability is applied because in this year the zone’s TSA is higher than its LRA. The graph shows that an MRI-based curve using N-1-1 limits results in higher capacity requirements than the TSA value over almost all of the modeled conditions.



⁴⁴ McBride Testimony at 17.

In other words, the effect of using the N-1-1 capacity transfer capability in the probabilistic reliability calculation would be to increase the reliability objective beyond the amounts necessary to meet applicable engineering standards (NERC, NPCC or ISO).⁴⁵ Thus, using the N-1-1 limit is not appropriate insofar as it is not the intent of the Demand Curve Design Improvements to increase overall zonal reliability standards.⁴⁶

The Indicated Suppliers denounce the ISO for “tak[ing] a deterministic TSA value (a minimum amount that must be purchased) and convert[ing] it to a probabilistic one (one that is acceptable to violate at times).”⁴⁷ The charge that the Demand Curve Design Improvements do not incorporate an inviolate “minimum amount that must be purchased” is condemnation that can only be assuaged by either *maintaining a vertical demand curve* at a fixed quantity or by setting the sloped demand curve *entirely to the right of the fixed requirement*. The very purpose of a sloped demand curve is to *avoid* the requirement to purchase a fixed quantity. By definition, any sloped demand curve will sometimes purchase more capacity and sometimes purchase less. In contrast, setting the curve entirely to the right of the existing fixed requirement would result in a level of over-procurement similar to that discussed in the prior paragraph.

The Indicated Suppliers warn repeatedly – with no supporting evidence at all – that the ISO’s TSA “proposal” will “undermine”⁴⁸ and result in “significant threats”⁴⁹ and “risks”⁵⁰ to reliability. In contrast, the ISO provided detailed evidence and quantitative analyses

⁴⁵ *See id.* at 8-9.

⁴⁶ *See id.* at 17.

⁴⁷ Indicated Suppliers Protest at 21 quoting Fowler Affidavit at ¶ 13.

⁴⁸ Indicated Suppliers Protest at 19, 20, 22.

⁴⁹ *Id.* at 19.

⁵⁰ Fowler Affidavit at 7.

demonstrating that the Demand Curve Design Improvements satisfy the requisite reliability standards across a broad range of market conditions.⁵¹ The Indicated Suppliers claim (again without support) that the ISO’s analysis is “based on flawed assumptions,”⁵² specifically, the assumptions that the supply curve is flat and that the clearing price will perpetually equal Net CONE. The Indicated Suppliers again miss the mark. Incorporating ample stakeholder feedback over several months, the ISO modeled thousands of scenarios using different aggregate capacity supply curves that varied widely in their elasticity (in other words, in their “flatness”), and simulated a wide variety of tight and long market conditions. Though it is not possible to know which specific supply model will be “right” (as no-one can perfectly predict the future), some models are more realistic than others,⁵³ and the results show the MRI-based curves perform well across a wide variety of models and scenarios, including extreme (in all likelihood, unrealistic) supply models.

Moreover, the scant empirical data that the Indicated Suppliers muster actually contradicts their position. For instance, the Fowler Affidavit provides an example in which the system has a surplus of 1,240 MW, but Southeast New England is 500 MW short of its Local Sourcing Requirement because the zonal demand curve does not specify a sufficiently high price to reach the existing, fixed Local Sourcing Requirement.⁵⁴ Mr. Fowler cites this as a risk to reliability. But in such a scenario, the system would have an LOLE of 0.082, which in fact

⁵¹ See, e.g., Section VIII of the Geissler-White Testimony; Attachment 1 to the Geissler-White Testimony; Section IV.E of the April 15 Filing transmittal letter; Section III.D of the McBride Testimony.

⁵² Indicated Suppliers Protest at 21.

⁵³ For example, the Geissler-White Testimony at Section VIII provided support for the expectation that the supply curve will be relatively flat under the Pay for Performance capacity market design. And even if this does not promptly occur, the detailed simulation results in Attachment 2 to the Geissler-White Testimony indicate that the MRI-based demand curves perform well under a wide range of other possible supply curves.

⁵⁴ Fowler Affidavit at 7.

exceeds (provides more reliability than) the 1-day-in-10 LOLE standard.⁵⁵ In a similar vein, the Indicated Suppliers make assertions about what specific resources might or might not have cleared in prior auctions if the MRI-based design curves had been used.⁵⁶ These assertions are overly simplistic and do not account for the substitutability of capacity across zones and other factors. As a result, they should not be used as a basis for determining whether the MRI-based curves will achieve reasonable reliability outcomes

Next, the Indicated Suppliers erroneously claim that the ISO's proposed import limit is "inconsistent with the treatment of TSA in other contexts,"⁵⁷ which will produce "important and undesirable consequences."⁵⁸ These assertions of inconsistency are false and should be rejected. The Indicated Suppliers' first charge relates to the purported inconsistency in the manner in which the ISO calculates import limits, which the Indicated Suppliers argue will give "a heavy preference" to transmission,⁵⁹ resulting in "undue discrimination between supply and transmission solutions."⁶⁰ The protests' references to inconsistencies with transmission planning approaches seek to inappropriately draw equivalence between different processes.⁶¹ Transmission planning analyses of network reliability make use of N-1 and N-1-1 contingency analysis as required by NERC, NPCC and ISO criteria. At this time, transmission planning needs assessments are fully deterministic and the level of modeled interface flow is determined by the

⁵⁵ The data to support this claim were provided to stakeholders (available at http://www.iso-ne.com/static-assets/documents/2016/03/a03_iso_indicative_demand_curve_values_fca_zones_03_02_16.xlsx) and a similar example was explained in detail in the Geissler-White Testimony at 115-117.

⁵⁶ Indicated Suppliers Protest at 22-23.

⁵⁷ *Id.* at 23.

⁵⁸ *Id.*

⁵⁹ *Id.* at 24 quoting Fowler Affidavit at ¶ 32.

⁶⁰ Indicated Suppliers Protest at 2, 20.

⁶¹ In addition, arguments about the transmission planning process are outside the scope of this proceeding.

area load and resource availability assumptions. For example, if the transmission needs assessment assumes two area generators out-of-service, this may result in an interface transfer flow that is less than the N-1-1 capacity transfer capability. It is important to note that these analyses are always updated based on the results of the Forward Capacity Market, for example to include new resources or to capture retirements. These updates may cause the need for transmission projects to be accelerated or deferred. As such, there is no preference for transmission solutions given that they can be deferred by the arrival of new resources.

The next inconsistency-related charge is the Fowler Affidavit's claim that "[t]he failure to target procurement at [the TSA] level could lead to revenue inadequacies that undermine the [Pay for Performance] structure."⁶² This claim is false: the Pay for Performance capacity market design ensures that settlements balance even in cases where total energy and reserves demanded at the system or zonal level exceeds the total quantity of capacity with a supply obligation.⁶³ Likewise, the request that the Commission direct the ISO to employ the same approach to reliability reviews of de-list bids as to transmission planning is flawed.⁶⁴ The analysis of de-list bids is conducted at the local (sub-zonal) level, not at the zonal level; it is therefore entirely appropriate that the reviews be different. As noted in the McBride Testimony, under the existing Tariff and under the Demand Curve Design Improvements, de-list bids shall not be rejected for reliability solely on the basis that acceptance of the de-list bid may result in the procurement of less capacity than the amount specified by the zonal demand curve (or the TSA or LRA). As to

⁶² Fowler Affidavit at 13.

⁶³ See Prepared Testimony of Matthew White on Behalf of the ISO, Attachment I-1c to the ISO filing in Docket ER14-1050, at 181-182 (filed Jan. 17, 2014) (explaining how the Pay For Performance capacity market design properly and fully provides for the allocation of deficient or excess Capacity Performance Payments, ensuring that settlements always balance among suppliers).

⁶⁴ Indicated Suppliers Protest at 25-27. The request is also outside the scope of this proceeding.

the charges of inconsistency between the MRI-based curves and the rules for reconfiguration auctions and bilateral transactions: the ISO has indicated on several occasions that it will address revisions to those rules in subsequent stakeholder meetings after the Commission's determination on the instant filing (just as it did after the design of the initial system-wide demand curve).

Finally, the Indicated Suppliers suggest that the Commission, as a way of “attempting to minimize the market and reliability consequences of ISO-NE’s TSA proposal[,] ... require ISO-NE to use the demand curve that ISO-NE originally proposed to stakeholders in December 2015.”⁶⁵ This is a repeat of the request that the MRI calculation be based on an N-1-1 import capability, and would result in right-shifting the demand curves. As discussed above (and in the April 15 Filing), such curves are not acceptable because they would “result in a zonal requirement far to the right of any zonal requirement that has ever been used by the ISO”⁶⁶ and “increase the reliability objective beyond the amounts necessary to meet applicable engineering standards (NERC, NPCC or ISO).”⁶⁷ That is, such right-shifted curves would, as the ISO’s extensive analysis and evidence (described above and documented in the April 15 Filing) show, either: (i) clear at an average price higher than the estimated Net CONE, (ii) procure on average more than the capacity required to meet the 1-day-in-10 LOLE planning standard, or (iii) both. In other words, Indicated Suppliers seek to persuade the Commission to modify the demand curves to procure excess capacity and to remunerate themselves in excess of Net CONE. As the ISO amply demonstrated in the initial filing, any such right-shifted alternative to the MRI-based

⁶⁵ Indicated Suppliers Protest at 26.

⁶⁶ Page 16 above.

⁶⁷ McBride Testimony at 8-9.

design would not be cost-effective. The result of such a right-shift would procure unneeded capacity at greater cost than necessary to meet the region's reliability objectives.

D. The MRI Transition Period is a Reasonable Means of Phasing In the MRI-Based System Demand Curve and Avoiding an Abrupt Change that Could Harm Investor Confidence in the Stability of the Market

The Public Systems support the revisions to use capacity demand curves based on marginal reliability impacts, but oppose the transition period.⁶⁸ Because the existing linear system-wide demand curve does not procure capacity in a cost-effective manner, they ask the Commission to find it unjust and unreasonable and to direct the ISO to implement the MRI-based curve design immediately.⁶⁹ They state, without supporting analysis, that the incremental costs of the transition would be between \$480 million and \$800 million for FCA 11 and FCA 12 alone.⁷⁰

Phasing in the new MRI-based system-wide demand curve over a period of up to three years is a reasonable means of addressing two considerations concurrently. The first is to implement the new MRI-based design as early as is reasonable given the significant benefits of the new design. The second is to avoid unnecessarily abrupt administrative changes in Forward Capacity Market outcomes, given that participation in this market by potential new entrants can entail significant up-front project investments well before the auction is to be conducted. The possibility of abrupt changes in demand conditions due to new market rules (for instance, the Demand Curve Design Improvements), even while desirable and cost-effective market design enhancements over the long run, can increase investors' perceptions of regulatory risks inherent in new project development in New England. Since it is not possible to both immediately

⁶⁸ Public Systems Protest at 3-4.

⁶⁹ *Id.* at 10.

⁷⁰ *Id.* at 3.

implement the final MRI-based system curve and avoid an abrupt potential change in market outcomes under the MRI-based design, the MRI transition period balances the two goals by allowing the new design to be phased in over a period of up to three years. During each year of the transition period, the system-wide demand curve gradually moves toward the final MRI-based curve design.

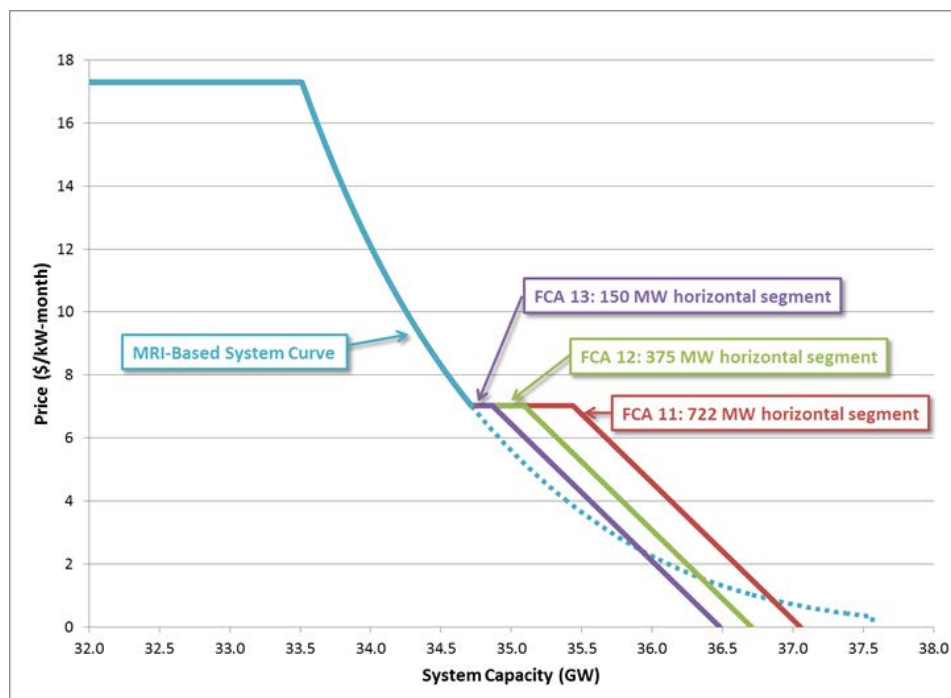
The Public Systems invite the Commission to find that it is not just and reasonable under any circumstances to continue to use any demand curves that do not reflect the full MRI-based design. The primary reason that the Public Systems argue that the immediate implementation of the full MRI-based design is required is that they forecast that capacity market costs to consumers will be too high under the transition period system demand curve. The Public Systems claim the transition approach will result in additional costs of between \$480 and \$800 million for FCA 11 and FCA 12 compared to switching immediately to the full MRI-based system curve. This claim is speculative and unsupported; indeed, the Public Systems do not explain the modeling, assumptions, or analysis (if any) that underlie this claim; there are therefore no means for the Commission to evaluate its validity.

In contrast, the ISO developed and presented to stakeholders extensive analyses of both the reliability and costs to consumers of the MRI-based demand curves. Based on these models, the ISO estimates the impact of implementing the transition, as opposed to implementing the full MRI-based design immediately, would range from \$0 to \$121 million in FCA 11 (and from \$0 to \$83 million in FCA 12 and \$0 to \$44 million in FCA 13, if the transition continues that long).⁷¹

⁷¹ This range of values corresponds to the calculations for specific supply models reported as Model 1 through Model 6 in Attachment 1 to the Geissler-White Testimony, applied here to the transition demand curve, but otherwise applied using the same methodology previously described in detail in Section VII of the Geissler-White Testimony. Because the final transition rules were developed in the final week before
(continued...)

The Public Systems' \$480 to \$800 million estimates differ from the ISO's calculations dramatically and are offered without support, evidence, or even any explanation. In contrast, the ISO's estimates are based on substantial and detailed market impact models, which address a wide range of possible future supply conditions and use a methodology and simulation supply models that were vetted through the stakeholder process.⁷²

Moreover, as can be seen in the figure below, under some scenarios it is conceivable that the hybrid curves used during the transition period would result in costs that are the same or lower than the costs that would be produced by the full MRI-based system curve.



Given that the raw numbers presented by the Public Systems are not supported by any analysis or explanation, the Commission cannot rely on these unsubstantiated assertions as a

(...continued)

the April 15 Filing, it was not possible for the ISO to conduct this additional analysis prior to the April 15 Filing.

⁷² See Section VII of the Geissler-White Testimony.

basis for determining that the hybrid curves used during the MRI transition period would result in unreasonable costs and must be rejected.

Assuming, *arguendo*, that the Commission were to agree with the Public Systems that continued use of any non-MRI-based curve is not “just and reasonable” over the long run, that fact alone would not require the Commission to direct an immediate and abrupt switch to the full MRI-based system demand curve. The Commission’s discretion is at its “zenith” when considering the appropriate remedy to apply to a given situation.⁷³ In the case of the new MRI-based system demand curve, it would be entirely reasonable for the Commission to exercise its remedial discretion to accept the phase-in of the new curve over a relatively short period of time in order to avoid disrupting market outcomes administratively and increasing investors’ perceived risks – which may ultimately harm the market’s cost-effectiveness over the longer term.

While the ISO certainly agrees that MRI-based demand curves will be a significant improvement to the Forward Capacity Market, making this improvement does not mean that it is unjust and unreasonable to use an interim curve to represent demand in the capacity market. The use of the existing non-MRI-based system curve was accepted by the Commission only two years ago and, in these circumstances, the use of a transition approach when making changes to the system curve is appropriate.⁷⁴ The “zone of reasonableness” in the relatively new world of capacity market demand curves must leave room for design enhancements that enable major,

⁷³ As has been stated many times, “the breadth of agency discretion is ... at [its] zenith when the action assailed relates primarily not to the issue of ascertaining whether conduct violates the statute, or regulations, but rather to the fashioning of ... remedies.” *Connecticut Valley Electric Co. v. FERC*, 208 F.3d 1037, 1043 (D.C. Cir. 2000), *citing Towns of Concord v. FERC*, 955 F.2d 67, 72-73, 76 n.8 (D.C. Cir. 1991); *accord Consolidated Edison Co. of New York, Inc. v. FERC*, No. 06-1025, slip op. at 8-10 (D.C. Cir. Dec. 18, 2007) (rejecting claim that Commission *must* order remedial relief).

⁷⁴ 147 FERC ¶ 61,173, *reh’g denied*, 150 FERC ¶ 61,065.

market-changing improvements to be phased in over a short period of time when it will achieve a legitimate goal, such as minimizing abrupt changes to the market and the resulting risk that potential new investors may associate with the market.

IV. CONCLUSION

For the reasons discussed herein, the ISO requests that the Commission accept its answer and also accept the Demand Curve Design Improvements as filed, without modification or hearing and in accordance with the requested effective date.

Respectfully submitted,

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Dated: May 27, 2016

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Holyoke, Massachusetts this 27th day of May, 2016.

/s/ James H. Douglass
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