UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

ISO New England Inc.	)	
	)	
New England Power Pool Participants Committee	)	Docket No. ER15-2208-0000
	)	
	)	

PROTEST AND COMMENTS OF THE NEW ENGLAND STATES COMMITTEE ON ELECTRICITY

Pursuant to Rule 211 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission ("Commission" or "FERC"), 18 C.F.R. § 385.211 (2014), and the Commission's July 15, 2015 Notice of Combined Filings #2, the New England States Committee on Electricity ("NESCOE")[1] hereby files this protest to the winter reliability program proposed by ISO New England Inc. ("ISO-NE" or "ISO") for the 2015/2016 through 2017/2018 periods (the "ISO-NE Proposal") and comments in support of the New England Power Pool ("NEPOOL") Participants Committee winter program for the same period (the "NEPOOL Proposal").[2] Both proposals—each of which would constitute a "Winter Program III"—are contained in a "jump ball" filing made by ISO-NE and NEPOOL on July 15, 2015 (the "July 15 Filing").[3]

---

1 NESCOE filed a motion to intervene in this docket on July 17, 2015.

2 Capitalized terms not defined in this filing are intended to have the meaning given to such terms in the ISO-NE Transmission, Markets and Services Tariff.

3 Under Section 11.1.5. of the Participants Agreement, "when NEPOOL supports by at least a 60% Vote of the Participants Committee a Market Rule change that is different than what is being proposed by ISO-NE," ISO-NE is required to make a "jump ball" filing whereby both the ISO-NE and NEPOOL proposal are filed pursuant to Section 205 of the Federal Power Act ("FPA") and are considered by the Commission "at the same time and on the same legal footing[.]" July 15 Filing at Attachment N-1a (the "NEPOOL Filing Letter"), at 3-4. The NEPOOL Filing Letter describes the legal standard under a "jump ball" filing in greater detail.

I. INTRODUCTION

The Commission has before it two competing proposals for Winter Program III. NESCOE strongly supports the NEPOOL Proposal because only it meets ISO-NE's identified winter reliability need through a targeted, proven, and cost-effective program. The NEPOOL Proposal would effectively continue the successful design employed for the most recent winter program, which ISO-NE has called a "proven . . . cost-effective interim means to assure fuel inventory"[4] and which the Commission found to be a just and reasonable approach to winter reliability.[5] The NEPOOL Proposal maintains an appropriate and justified level of procurement for incremental reliability benefits, and it targets incentive payments only to those resources that are expected to modify their fuel management practices (or would provide additional demand response service) in exchange for program payments. NESCOE agrees with 87% of NEPOOL market participants and stakeholders—representing every sector—that the region should stay the course for the next three years and employ a successful and reasonably priced approach to winter reliability that New England has relied upon to meet its needs.

There is, quite simply, no need to remake a program that has worked. Yet, that is precisely what ISO-NE proposes. The ISO-NE Proposal would extend payments to additional resources, potentially costing New England consumers an additional $100 million or more over the life of the three-year program (above and beyond what the NEPOOL Proposal would cost), in

---

[4] Rehearing Request of ISO New England Inc., Docket No. ER14-2407-003 (filed Feb. 19, 2015) ("ISO-NE Rehearing Request"), at 12; *see also* Letter from Gordon van Welie, ISO-NE President and CEO, to Judith Judson, Commissioner, Massachusetts Department of Energy Resources, July 6, 2015 ("ISO-NE Letter to DOER"), at 3 (stating that past winter programs "have proven to be a cost-effective short-term solution to help keep the lights on in New England during the winter"), *available at* www.iso-ne.com/static-assets/documents/2015/07/iso_response_doer_info_request_july2015.pdf.

[5] *ISO New England Inc.*, Order Accepting Tariff Revisions, 148 FERC ¶ 61,179 (2014) ("September 2014 Order") at P 40.

an expensive, and, given the circumstances, unnecessary pursuit of a "more market-based" construct. As discussed below, ISO-NE's expanded program eligibility does not promise corresponding incremental reliability benefits, nor is there a demonstrated need for incremental capacity beyond what the most recent program provided. The ISO-NE Proposal would potentially compensate 9,500 MW of additional resources beyond those that participated in the most recent winter program. That almost doubles the incremental capacity expected from oil-fired resources participating in the program, which ISO-NE identified as being capable of addressing winter reliability needs *on their own*.[6] In short, the ISO-NE Proposal is unsupported and imposes unneeded costs on consumers.

NESCOE appreciates ISO-NE's early efforts to explore with states and stakeholders the possibility of expanding program eligibility to more resources, consistent with the Commission's expectation that ISO-NE would "work with stakeholders to expand" the program.[7] Since the first winter program, both ISO-NE and NESCOE have expressed support for the concept of exploring a more resource-neutral approach,[8] which could provide consumer benefits in the form of increased competition. Winter Program II was adjusted to be more resource neutral (with LNG added), and ISO-NE has stated that Winter Program II was resource neutral to the maximum extent possible.[9]

---

6 July 15 Filing at Attachment I-1a ("ISO-NE Filing Letter") at 9.

7 *ISO New England, Inc.*, Order Granting Rehearing, 151 FERC ¶ 61,052 (2015) (the "Rehearing Order") at P 17.

8 *See* ISO New England Inc., Winter 2013-14 Reliability Program, Docket No. ER13-1851-000 (filed June 28, 2013) ("Winter Program I Filing"), at 7; Motion to Intervene and Comments of the New England States Committee on Electricity, Docket No. ER 13-1851-000 (filed July 19, 2013) ("NESCOE Winter Program I Comments"), at 10. *See also* Winter Program I Filing at 5 ("As a transition between the [winter reliability program] and the FCM performance incentives project, the ISO intends to propose a scaled-down version of the performance incentives project to purchase a fuel-neutral, winter-based reliability product for the winters of 2014-15 through 2017-18.").

9 ISO New England Inc., Winter 2014-15 Reliability Program (Part 1 of 2), Docket No. ER14-2407-000 (filed July 11, 2014) ("Winter Program II Filing"), at 8.

However, as alternative structures were considered in greater detail over the past year, a transition away from past successful winter programs began to look increasingly imprudent. First, ISO-NE raised serious concerns around implementation of a market-based solution, citing the potential for a less efficient and effective program and questioning whether the complexity and cost of such an approach was justified for what would be a three-year stopgap measure.[10] Then, when ISO-NE presented to stakeholders its proposal for an "expanded" program, questions arose about the potential high cost of the program relative to past programs and whether expanded eligibility would achieve any incremental reliability benefits.

Since the introduction of winter programs in 2013, NESCOE has urged ISO-NE to pay particular attention to consumer cost implications associated with requiring consumers to fund incremental reliability, given that consumers have already paid for commitments through the Forward Capacity Market ("FCM"). As discussed below, without providing any indication of incremental reliability benefits, the ISO-NE Proposal could *triple* the cost of the winter program each year compared to the expected cost of the NEPOOL Proposal.[11] Unfortunately, rather than explain to the Commission why an expanded program would not be justified given the additional costs, ISO-NE continued to pursue its flawed and unnecessarily costly approach.

The NEPOOL Proposal is the only just and reasonable approach before the Commission, and it is consistent with the Commission's past findings on the winter program. In contrast, the ISO-NE Proposal runs directly contrary to the Commission's finding regarding the most recent winter program that "it would not be appropriate to make separate payments intended to incent resources *to make the same fuel procurement decisions they would have made*, and been

[10] *See* ISO-NE Rehearing Request at 2, 8-12.

[11] *See* Section IV.B below.

compensated for, absent the [winter program]."[12] NESCOE urges the Commission to reject the ISO-NE Proposal and to accept a continuation of the core winter reliability program it has already found to be just and reasonable.

II. SERVICE AND COMMUNICATIONS

Pursuant to Rule 203, 18 C.F.R. § 385.203 (2014), the persons to whom correspondence, pleadings, and other papers in regard to this proceeding should be addressed and whose names are to be placed on the Commission's official service list are designated as follows:

Jason Marshall
General Counsel
New England States Committee on Electricity
655 Longmeadow Street
Longmeadow, MA 01106
Tel: (617) 913-0342
Email: JasonMarshall@nescoe.com

Benjamin S D'Antonio
Counsel & Analyst
New England States Committee on Electricity
655 Longmeadow Street
Longmeadow, MA 01106
Tel: (603) 828-8977
Email: BenDAntonio@nescoe.com

III. BACKGROUND

A. Winter Programs I and II

Winter Program III is the third consecutive program proposed to address risks to reliable service during periods of stressed system conditions in the winter months (the "Winter Reliability Programs").[13] The first two programs covered the winter period from 2013-2014 ("Winter Program I") and the winter period from 2014-2015 ("Winter Program II"). ISO-NE has identified and implemented market rules changes, primarily market design revisions known as Pay for Performance ("PfP"), as obviating the need for a winter program beyond Winter Program III (i.e., the 2017-2018 winter period).[14]

---

[12] September 2014 Order at P 43 (emphasis added).

[13] *See* NEPOOL Filing Letter at 2; ISO-NE Filing Letter at 3-4.

[14] *See* ISO-NE Filing Letter at 4; *see also* ISO New England Inc., Fuel Assurance Status Report, Docket Nos. AD13-7-000 and AD14-8-000 (Feb. 18, 2015) ("Fuel Assurance Status Report"), at 5, *available at*

Winter Program I included four main components. The first two components procured incremental energy provided from resources with oil-fired capability and from demand response resources. Generators were paid in advance to maintain oil inventory.[15] The third component paid certain dual fuel units that conducted a successful test of their ability to switch to oil within a defined time period. The final component put in place changes to market monitoring rules to allow dual fuel units greater flexibility in submitting offers. Winter Program I "supported the procurement of more than three million barrels of oil and generators burned 88% of it[.]"[16]

Winter Program II was similar to the first program but included several important modifications. Among these changes was a shift away from compensating oil-fired resources for inventory procured before the onset of winter, instead paying these resources for unused oil

---

http://www.iso-ne.com/static-assets/documents/2015/02/Final_for_Filing__Fuel_Assurance_Report.pdf. As NESCOE explained in comments on the Fuel Assurance Status Report, although PfP "is expected to influence generator performance and responsiveness, it is not expected to solve the root cause of New England's fundamental energy infrastructure problem and associated exorbitant price increases. . . [and] despite over a decade of conversation in New England about gas and electric markets and the potential development of market mechanisms to address infrastructure inadequacies, not one has been proposed that is expected to solve the problems caused by the region's natural gas constraints in a cost-effective way." *See* Comments of the New England States Committee on Electricity, Docket Nos. AD13-7-000 and AD14-8-000 (filed Mar. 20, 2015), at 8, citing to Fuel Assurance Status Report at 4. *See also* ISO-NE Letter to DOER at 1-2 (stating that PfP "will improve resource performance, but it will not necessarily result in added natural gas pipeline" and will not address significant pricing issues arising from pipeline constraints). Despite implementation of PfP, ISO-NE has identified natural gas pipeline constraints as a continued risk to reliable operations and escalating prices. *See, e.g.,* Gordon Van Welie, ISO-NE, *State of the Grid: Managing a System in Transition*, Presentation and Remarks, Jan. 21, 2015, at 35 ("Reliability will be threatened, and prices will spike, until the effects of the natural gas pipeline constraints are alleviated with additional investments in fuel infrastructure[.]"), *available at* www.iso-ne.com/static-assets/documents/2015/01/stateofgrid_ppt_remarks_01212015.pdf; ISO New England, 2015 Regional Electricity Outlook, at 18 ("Without significant expansion of natural gas pipeline and LNG storage serving New England, the impacts on reliability, price, and emissions are likely to continue."), *available at* http://www.iso-ne.com/static-assets/documents/2015/02/2015_reo.pdf; Fuel Assurance Status Report at 4. The New England states have been closely engaged in collaborative efforts to address regional energy challenges. *See, e.g.,* New England Governors, *Actions for a Cleaner, More Reliable and More Affordable Energy Future*, Apr. 23, 2015, *available at* http://www.nescoe.com/uploads/6_State_Action_Plan_FINAL_4-22-15_1-5.40_pf.pdf; *New England Governors' Statement: Regional Cooperation on Energy Infrastructure*, Apr. 23, 2015, *available at* http://www.nescoe.com/uploads/6_State_Joint_Statement_FINAL_4-22-15_12-3.36pm_w-sealsf.pdf.

[15] ISO-NE Filing Letter at 4.

[16] Winter Program II Filing at 5. *See also* Fuel Assurance Status Report at 7 ("The region relied heavily on oil-fired generators [in the 2013-2014 winter], burning through 1.6 million of the 1.9 million megawatt-hours of oil procured through the program.").

inventory measured as of March 15, 2015 to offset certain carrying costs.[17] Winter Program II also introduced compensation for certain unused Liquid Natural Gas ("LNG") contract volumes, up to a maximum aggregate of 6 Bcf and subject to other conditions, and added incentives for gas generators to invest in dual-fuel capability.[18] The total cost of Winter Program II was approximately $46 million.[19]

The Commission accepted Winter Program II as just and reasonable. Specifically, the Commission found that the program was a "just and reasonable solution to help address these risks to reliability by creating incentives for market participants to provide additional reliability services (i.e. incremental fuel procurement, incremental demand reductions, or dual-fuel switching capabilities) which they would not have provided absent [Winter Program II]."[20]

B. FERC's Guidance for Winter Program III

Even before the commencement of Winter Program II, discussions among ISO-NE, the New England states, and stakeholders began about the design and implementation of a further Winter Reliability Program for the three subsequent years leading up to PfP. While those discussions were underway, the Commission issued an order in January 2015 directing ISO-NE to develop "an appropriate market-based solution" for future temporary winter programs that ISO-NE determines are necessary.[21]

ISO-NE filed a rehearing request asking the Commission to reverse its decision, stating that "the options for developing a market-based solution in the context of existing obligations are, at best, potentially less effective than the winter reliability program, and, at worst, less

---

17 *See* ISO-NE Filing Letter at 4-5; NEPOOL Filing Letter at 7; Winter Program II Filing at 11.

18 Winter Program II Filing at 11-14.

19 *See* NEPOOL Filing Letter at 7.

20 September 2014 Order at P 40.

21 *ISO New England Inc.,* 150 FERC ¶ 61,029 (2015) (the "Clarification Order") at P 10.

effective, inefficient, controversial and expensive to implement."[22] ISO-NE stated that there was no indication that such an approach, while potentially very costly, would provide reliability benefits that would be greater than or equal to Winter Program II.[23] ISO-NE committed that if rehearing were granted, it "would work with stakeholders to develop an expanded version of the current winter program, which has been proven to be a cost-effective interim means to assure fuel inventory while the ISO completes development and implementation of the full PFP market-based solution."[24] ISO-NE continued that it would:

> discuss with stakeholders ways in which the winter program could be expanded from prior versions to include payments to all resources that can supply the region with fuel assurance; in other words, ISO-NE will work to enhance the current program structure to compensate resources such as coal and nuclear units in addition to the oil, LNG and demand resources that have participated in the past. This expansion would more closely resemble a market-based solution in terms of being available to a majority of resources, while meeting the objective of ensuring fuel adequacy in a targeted, efficient, time-limited manner.[[25]]

Following the Clarification Order, some market participants presented to the NEPOOL Markets Committee an outline of a market-based Winter Reliability Program concept.[26] However, no market-based proposal was ultimately identified for implementation within the three-year interim period.

The Commission issued a subsequent order on April 17, 2015, granting ISO-NE's rehearing request. The Commission stated that:

---

22 ISO-NE Rehearing Request at 2.

23 *Id.* at 11.

24 *Id.* at 12.

25 *Id.* at 13.

26 *Market-Based Approach to Winter Reliability: Exelon, Entergy and NextEra*, NEPOOL Markets Committee, April 13, 2015.

> [W]e find that an expanded version of the current winter program might better produce the desired results in terms of reliability than the introduction, at this point in time, of the market-based solutions examined by ISO-NE. Thus, we grant rehearing to allow the possibility that ISO-NE may file additional out-of-market winter reliability programs until the two-settlement capacity market design becomes effective in 2018. However, the Commission expects ISO-NE to abide by its commitment to work with stakeholders to expand any future out-of-market winter reliability program to include "all resources that can supply the region with fuel assurance," such as nuclear, coal, and hydro resources. To that end, if any future out-of-market program is not fuel neutral, we expect that ISO-NE would provide a detailed description of the options it considered to make the program fuel neutral and why those options were ultimately not included.[27]

C. Adoption of the NESCOE Proposal

As recounted in testimony supporting the NEPOOL Proposal, there were eight NEPOOL Markets Committee meetings where discussion included Winter Program III, stretching from November 2014 to June 2015.[28] In the wake of the Rehearing Order, ISO-NE proposed to stakeholders an "expanded" program.[29] By that time, stakeholders had observed the success of Winter Program II, which ISO-NE noted in this proceeding "was instrumental in allowing the region to withstand . . . severe weather conditions."[30] At the same time, there was concern that ISO-NE's proposed program would increase costs to consumers without any indication that these increased costs would produce incremental reliability benefits.[31]

With the strongest possible support of all six states, NESCOE presented a proposal at the May 2015 Markets Committee meeting to extend the core provisions of Winter Program II

---

27 Rehearing Order at P 17 (footnote omitted).

28 July 15 Filing at Attachment N-1b, Prepared Testimony of Jeffrey W. Bentz in Support of the New England Power Pool's Proposed Winter Reliability Program ("Bentz Testimony"), at 21.

29 NEPOOL Filing Letter at 9.

30 ISO-NE Filing Letter at 5.

31 *See* NEPOOL Filing Letter at 9.

through the subsequent three winters.[32] The proposal received substantial support within NEPOOL. At the June 2015 Markets Committee Meeting, the proposal—co-sponsored by one market participant from each NEPOOL sector[33]—received a vote of almost 85% in favor.[34] At the NEPOOL Participants Committee meeting that followed, the proposal received the support of just over 87% in favor, thus becoming the NEPOOL Proposal.[35] By contrast, a modified ISO-NE proposal received only 19.36% support at the Markets Committee, with the ISO-NE Proposal garnering only 13.43% in favor at the Participants Committee.[36]

D. Winter Program III

The key differences between the two Winter Program III proposals are (i) the resource types eligible for compensation and (ii) associated consumer costs of implementing the respective programs.[37] As explained in the NEPOOL Filing Letter, both proposals "have many common elements that the Commission has already declared to be just and reasonable" with respect to Winter Program II.[38]

The NEPOOL Proposal maintains the "core elements" of Winter Program II: payments for certain unused oil inventory and LNG contract volumes as well incremental demand response service.[39] While the ISO-NE Proposal would continue the same basic eligibility for oil- and

---

[32] NESCOE, *Winter Program: New England States' Preferred Approach*, NEPOOL Markets Committee, May 2015, *available at* http://www.nescoe.com/uploads/MC_Winter_ProposalF.pdf.

[33] *See* Bentz Testimony at 23 ("A market participant from each of the six NEPOOL sectors joined the proposal in support: Conservation Services Group (Alternative Resources Sector), TransCanada Power Marketing Ltd (Generation Sector), the Connecticut Office of Consumer Counsel (End User Sector), the United Illuminating Company (Transmission Sector), the Massachusetts Municipal Wholesale Electric Company (Publicly Owned Entity Sector), and Energy America, LLC. (an affiliate of Direct Energy) (Supplier Sector).").

[34] NEPOOL Filing Letter at 10; Bentz Testimony at 21-23.

[35] NEPOOL Filing Letter at 11.

[36] *Id.*

[37] *See* ISO-NE Filing Letter at 11.

[38] NEPOOL Filing Letter at 14.

[39] *Id.* at 11-14.

LNG-fired resources, it would extend eligibility for compensation to a number of other resources with "on-site" fuel (the "Newly Eligible Resources"), such as "nuclear units (fueled by uranium), coal-fired units, biomass resources, and units fueled by water, including pumped storage resources."[40] The ISO-NE Proposal would also exclude demand response resources from participation.[41] As explained below, the ISO-NE Proposal is estimated to cost consumers over $100 million more than the NEPOOL Proposal.

IV. PROTEST OF THE ISO-NE PROPOSAL

The ISO-NE Proposal, commonly referred to as an "expanded" program, does not promise an expanded reliability benefit. It would certainly *expand* payments made by consumers by paying more resources, but those expanded payments would provide no assurance that Newly Eligible Resources will modify their behavior to provide incremental capacity in exchange for program incentive payments. Nor has ISO-NE demonstrated that incremental capacity beyond what Winter Program II provided is even needed in the first place. Rather, in its attempt to develop a more "market-based" approach—which is not in fact achieved—ISO-NE has put forward a flawed and unduly expensive program. The Commission should reject the ISO-NE Proposal in favor of the NEPOOL Proposal.

A. The ISO-NE Proposal Would Provide Incremental Payments Without a Demonstrated Corresponding Incremental Reliability Benefit, Has Not Been Proven to Be Needed, and Would Result in Excessive Costs

1. Increasing Program Payments Without Obtaining Additional Reliability Is Inconsistent with Program Objectives and Is Not Just and Reasonable

In general, the Winter Reliability Program "identifies a few 'holes in the FCM fence'"—i.e., what ISO-NE "now considers to be a flaw in the definition of the reliability service"

---

[40] July 15 Filing at Attachment I-1b, Testimony of Andrew G. Gillespie in Support of ISO New England Inc. ("Gillespie Testimony"), at 15; *see* ISO-NE Filing Letter at 6.

[41] ISO-NE Filing Letter at 11; NEPOOL Filing Letter at 13.

provided by resources with a Capacity Supply Obligation ("CSO")—then takes action "to patch those holes until the longer-term market-based solution (as part of the PfP reforms) can be implemented."[42] It is a temporary mechanism for bolstering the CSOs that were secured through the relevant Forward Capacity Auctions.[43]

ISO-NE has observed, without any qualification, the successes of past winter programs in patching these holes. Shortly before the July 15 Filing, ISO-NE explained in a letter to a Massachusetts state agency that these programs "have proven to be a cost-effective short-term solution to help keep the lights on in New England during the winter."[44] ISO-NE has characterized Winter Program I as having proven "to be critical to reliability" and touted the oil inventory procured through Winter Program II as "instrumental in allowing the region to withstand [2015] severe weather conditions."[45]

Last year's winter program succeeded in "patching the holes," and it did so at a reasonable price, by providing the hedge system operators needed "when pipelines were constrained and gas-fired generators had limited access to pipeline gas."[46] ISO-NE now seeks to alter that successful program by expanding eligibility to all resources that have on-site fuel storage, with the apparent driving factor that such a program would "more closely resemble a market-based solution" and "better approximates the results of a market-based construct."[47]

---

42 Testimony of James F. Wilson, attached hereto as Attachment A ("Wilson Testimony"), at 9, 20.

43 *See id.* at 4, 9, 19-20.

44 ISO-NE Letter to DOER at 3. *See also* ISO-NE Rehearing Request at 12 (Winter Program II "has been proven to be a cost-effective interim means to assure fuel inventory while the ISO completes development and implementation of the full PFP market-based solution.").

45 ISO-NE Rehearing Request at 4. *See also* ISO-NE Filing Letter at 4-5.

46 ISO-NE Letter to DOER at 3.

47 ISO-NE Filing Letter at 6, 12.

However, as explained in Section IV.A.3 below, the ISO-NE proposal is neither market-based nor resource neutral.

Moreover, and critical to judging the prospects of the program's success, ISO-NE's material change to the program would significantly increase its cost without providing any basis to conclude that Newly Eligible Resources would provide incremental capacity. The Wilson Testimony underscores this critical shortcoming, explaining that the ISO-NE Proposal "would result in many sellers receiving additional compensation without taking on any substantial additional obligations or costs, or providing any additional service."[48] Mr. Wilson, who, working with NESCOE, was closely engaged in the stakeholder process on Winter Program III, explains:

> The ISO does not assert that its proposal would result in additional capacity available during the wintertime, nor am I aware of any work by stakeholders or from other sources suggesting that incremental capacity would be made available from the additional resource types as a result of incentives offered through the Winter Reliability Program. These resources simply do not face fuel decisions that the program's incentives are at all likely to influence.
>
> For example, the ISO Proposal would make compensation available to 4,041 MW of nuclear capacity. However, nuclear units run baseload, and their fuel needs are predictable and steady over time. Nuclear units typically refuel every 18 months during off-peak times, and the outages are coordinated with the ISO approximately 6 months in advance; the Winter Reliability Program compensation would not influence fuel planning for a nuclear unit. Similarly, coal and biomass resources, also included in the ISO Proposal, are unlikely to modify their fuel arrangements in a manner that would result in incremental capacity as a result of the incentives offered through the Winter Reliability Program (they might, however, modify fuel arrangements to ensure maximum payments under the program).[49]

---

48 Wilson Testimony at 15.

49 *Id.* at 15-16 (footnote omitted).

In his testimony supporting the NEPOOL Proposal, Mr. Alan Trotta reached the same fundamental conclusion, stating that he was "not aware of any credible evidence provided by ISO-NE or market participants that demonstrates that [Newly Eligible Resources] would be expected to provide incremental fuel inventory to the region in response to program compensation."[50] However, if the ISO-NE Proposal is implemented, tens of millions of dollars each year "will be transferred from customers to certain generation owners with little or no improvement in reliability of energy supply."[51] Additional testimony supporting the NEPOOL Proposal drew similar conclusions:

- "[T]he ISO-NE Proposal expands out-of-market payments (and costs to consumers) . . . to resources such as nuclear, coal, biomass, and hydro that are not providing incremental fuel inventory beyond those already provided by the market. . . . Neither ISO-NE not any advocate of the ISO-NE Proposal has provided any information suggesting otherwise."[52]

- "[T]here is no incremental benefit that has been identified by ISO-NE or anyone else that these resources are likely or able to provide beyond what they would have provided anyway, to support reliable operation of the electric system during the winter season. Nor has it been suggested that there is a need for any additional reliability benefit beyond the NEPOOL Proposal even if these resources were able to provide an incremental benefit. If these other resources are unlikely or unable to provide any *additional* fuel assurance, it is unclear how they would be providing an *incremental* measure of reliability. "[53]

- "Given the region's experience over the past two winters, it is clear that the fuel oil component of the existing program has proven to be a cost-effective insurance policy that has helped maintain winter reliability. The ISO-NE Proposal, however, would in some cases provide compensation for fuel that a generator already has purchased without the benefit of any subsidy. The most obvious example of this is including nuclear fuel in the program. It is difficult to see how providing a seasonal subsidy to baseload nuclear resources will have any impact on a nuclear power plant's fueling strategy or its ability to operate reliably during

---

50 July 15 Filing at Attachment N-1d, Testimony of Alan A. Trotta, Director of Wholesale Power Contracts for UIL Holdings Corporation ("Trotta Testimony"), at 3.

51 *Id.*

52 July 15 Filing at Attachment N-1e, Affidavit of Brian E. Forshaw, NEPOOL Participants Committee Publicly Owned Entity Sector Vice-Chair, at 6. *See also id.* at 7.

53 Bentz Testimony at 19-20 (emphasis in original).

the winter. Providing additional compensation for behavior that generators undertake in the normal course of business is not necessary, is not cost-effective, and will not lead to any measureable increase in seasonal reliability."[54]

- "The ISO-NE Proposal will incur incremental costs for resources without receiving incremental benefits, due to the expansion of the program to resources that will require no additional efforts or costs to secure fuel for the winter. . . . [E]xpanding the program to include resources that consume more types of fuel (i.e., more 'fuel neutral') will, in my view, result only in incremental costs being incurred without receipt of incremental benefits[.]"[55]

Paying resources more to take the same actions they otherwise would have (or have already taken) does not result in greater fuel supply security for the region. Rather, it results in unreasonable costs imposed on consumers. There was no indication by ISO-NE or others through the lengthy stakeholder process leading up to the July 15 Filing of any expectation that Newly Eligible Resources would modify their practices to provide enhanced fuel assurance during the winter period in exchange for program payments.[56]

Instead, ISO-NE now proposes to compensate all resources with on-site fuel "for their contribution to reliability," and suggests that "the inclusion of these resources *should* provide value to the region . . . [because] a three-year revenue stream *may* cause these generators to invest in additional fuel inventory and in the asset more generally."[57] However, regarding contributions to reliability, Newly Eligible Resources have already undertaken obligations through the FCM and will be compensated through market-based rates set pursuant to the relevant Forward Capacity Auction.[58] Absent some incremental value provided, any payments

---

[54] July 15 Filing at Attachment N-1c, Testimony of John Flumerfelt, Director of Government and Regulatory Affairs, Calpine Corporation ("Flumerfelt Testimony"), at 4-5.

[55] July 15 Filing at Attachment N-1f, Affidavit of Herb Healy, Senior Director of Regulatory Affairs, EnerNOC, Inc., at 4.

[56] Wilson Testimony at 15, 19.

[57] ISO-NE Filing Letter at 12 (emphasis added).

[58] *See* Wilson Testimony at 3.

through a Winter Program III that are over and above what these resources would already be paid in the FCM would be excessive.

In addition, speculation about investments that Newly Eligible Resources *may* make in response to Winter Program III incentive payments fails to provide a sufficient basis to expend tens of millions of ratepayer dollars. Mr. Wilson states that he is unaware of any indication by market participants that such investments would be made and, he explains, in any event, that kind of "'investment' might raise payments under the program without having any appreciable impact on winter reliability."[59] The Commission should give no weight to ISO-NE's conclusory assertion, which spans one sentence in the ISO-NE Filing and is wholly without detail or support in accompanying testimony.

Increasing the winter program's cost "with no resulting impact or benefit"[60] is inconsistent with the overriding Winter Reliability Program objective and will impose unnecessary and therefore unreasonable costs on consumers. In the September 2014 Order, the Commission stated that Winter Program II was designed "to help ensure fuel adequacy by creating incentives for resources to procure more fuel than they would have procured in the absence of the [Winter Program II]."[61] Accordingly, the Commission found that "it would not be appropriate to make separate payments intended to incent resources *to make the same fuel procurement decisions that they would have made*, and been compensated for, absent the [Winter Program II.]"[62] The same reasoning should hold true for subsequent winter programs.

---

[59] *Id.* at 19.

[60] *Id.* at 20.

[61] September 2014 Order at P 43.

[62] *Id.* (emphasis added).

Indeed, if the objective of Winter Program III remains the same as the most recent program—paying resources to obtain incremental fuel they would not have procured in the absence of program incentives—the ISO-NE Proposal departs from such a targeted objective by proposing to pay resources that would, in the absence of the additional payment, do the same thing. NESCOE agrees with Mr. Trotta that "it is inappropriate to provide out-of-market compensation to an expanded pool of generation owners for doing exactly what they will already do in response to existing market signals."[63]

The ISO-NE Proposal effectively would turn what has been a clear and narrow objective into a muddied and expansive one: paying all resources with on-site fuel irrespective of any connection to incremental reliability provided. According to Mr. Wilson, "[t]he ISO Proposal adopts a fundamentally different, ill-defined, and inappropriate objective to justify extending the same payments to additional resources, increasing the cost but with no resulting impact or benefit."[64] When viewed as a whole, "[t]he objective of enhancing reliability by encouraging incremental fuel arrangements has been dropped" from the ISO-NE Proposal, and it now "includes provisions that are not bound by, and do not contribute to, that objective."[65]

The ISO-NE Proposal is plainly contrary to consumers' interests and should be rejected. The Commission has recognized that its "statutory mandate under the FPA entails protecting consumer interests." *ISO New England Inc.*, 146 FERC ¶ 61,038 (2014) at P 26. *See also Martha Coakley, Mass. Attorney Gen. v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234 (2014) (Opinion No. 531), *order on paper hearing*, Opinion No. 531-A, 149 FERC ¶ 61,032 (2014) (Opinion No. 531-A), *order on rehearing*, 150 FERC ¶ 61,165 (2015) (Opinion

---

63 Trotta Testimony at 2.

64 Wilson Testimony at 20.

65 *Id.* at 14.

No. 531-B), Commissioner Honorable Concurring Statement at 2 ("As intended by Congress and confirmed by the Courts, consumer protection is in the DNA of FERC's ratemaking authority."). There is unquestionably no consumer interest advanced by extending payments to resources that provide no incremental reliability benefit. Consistent with its statutory mandate to guard against excessive consumer costs, the Commission should not approve the ISO-NE Proposal.

2. There is No Demonstrated Incremental Need Beyond What the Most Recent Winter Program Provided

The introduction of payments made to any resource that has on-site fuel storage through expanded program eligibility ignores a critical, and potentially costly threshold question: does a need exist beyond what would be met through an extension of the core Winter Program II provisions? The ISO-NE Proposal would potentially compensate just over 9,500 MW of Newly Eligible Resources, in addition to the participation of 10,778 MW from oil-fired resources and up to 6 billion cubic feet of LNG.[66] Even if Newly Eligible Resources could provide some incremental reliability beyond what they are obligated to provide pursuant to their CSO—and, as discussed above, there is no indication they would—there has been no suggestion that the additional capacity is needed as part of a stop-gap solution for the next three winters.

Mr. Bentz underscored this point in his testimony accompanying the NEPOOL Filing, stating that "increased costs need to be accompanied by a measurable, *needed* incremental reliability benefit."[67] The Bentz Testimony further observes that no market participant or stakeholder appeared to assert that there was an additional need beyond the incremental reliability provided by a program structured like Winter Program II.[68] Mr. Trotta also summed

---

[66] *See* Gillespie Testimony at 17.

[67] Bentz Testimony at 20 (emphasis added).

[68] *Id.*

up this threshold issue, testifying that Winter Program III "needs to remain limited in scope to exactly what's necessary to meet the reliability need – no more, no less."[69]

As discussed above, ISO-NE has heralded past winter programs as "instrumental," "critical to reliability," and, just last month, as "proven to be a cost-effective short-term solution to help keep the lights on in New England during the winter."[70] Notably, the ISO-NE Filing Letter does not propose its expanded program based on a stated additional reliability need but because it is purportedly more market-based.[71] In fact, the ISO-NE Filing Letter states that "the reliability need for New England can be met through the unused oil program alone."[72] That statement—acknowledging that the additional 9,500 MW the ISO-NE Proposal would compensate is superfluous in meeting the region's reliability need—is itself reason enough for the Commission to reject the ISO-NE Proposal in favor of the NEPOOL Proposal.[73]

To the extent the Winter Program III can be analogized to patching holes in a fence, expanding payments to units that are not needed to provide additional reliability is like replacing large portions of the fence that have no holes. If the fence has already been patched, and a new fence is due to be installed in three years, it is best to let the proven tailored repairs work and move on to the many other tasks at hand.

Again, even assuming that Newly Eligible Resources could or would provide an incremental reliability benefit, there has been no demonstrated need in excess of what the established and cost-effective Winter Program II obtained. Nor has any further incremental

---

69 Trotta Testimony at 2.

70 *See* ISO-NE Letter to DOER at 3; ISO-NE Rehearing Request at 4, 12; ISO-NE Filing Letter at 4-5.

71 ISO-NE Filing Letter at 6, 12.

72 *Id.* at 9.

73 While some might argue for the exclusion of LNG and demand response resources from Winter Program III under the same rationale, these resources have proven to make limited but cost-effective contributions to the Winter Reliability Programs and, unlike the Newly Eligible Resources, they have a more direct nexus to gas pipeline constraints which motivated the advent of these programs.

reliability benefit associated with the Newly Eligible Resources been justified as warranting increased costs to consumers. These 9,500 MW that ISO-NE would potentially compensate under its program would represent an almost 100% increase over the oil inventory secured through Winter Program II—the same amount that ISO-NE has identified as alone capable of meeting the region's winter reliability need. Almost doubling the resources compensated under Winter Program III (and at triple the cost), absent a demonstrated incremental need, is not a just and reasonable outcome for New England consumers.

3. The ISO-NE Proposal is Neither Market-Based Nor Resource Neutral

NESCOE appreciates that the impetus behind the ISO-NE Proposal was likely to attempt to satisfy the Commission's expressed preference for a fuel-neutral or market-based approach.[74] However, despite ISO-NE's attempt to portray its proposal as a more market-based or resource neutral program, it is neither of these. And in any event, as discussed below, a market-based program cannot serve as a preferable approach in the context of the narrow and time-limited objectives of the Winter Reliability Program.

a. The ISO-NE Proposal Is Not Market-Based.

ISO-NE's description of its program as "better approximat[ing] the results of a market-based construct" is based on the eligibility of a greater number of resources for compensation under the program.[75] But paying *more* resources and spending *more* money does not make a program *more* market-based. Mr. Wilson explains that under a market-based structure, there needs to be a defined "product or service" that entities compete to provide, and that the purpose

---

[74] *See* September 2014 Order at P 43; Rehearing Order at P 17. *See* Section IV.C below explaining why the Rehearing Order did not require ISO-NE to file its "expanded" program.

[75] ISO-NE Filing Letter at 12.

of such a market-based approach is "to achieve some of the potential benefits of markets."[76] Although market-based approaches are generally preferable "where they can achieve the short-term and/or longer-term benefits of competition," Mr. Wilson concludes that the ISO-NE Proposal "would not lead to any additional competition or economic efficiency" and, therefore, any "resemblance [to a market-based program] is entirely superficial."[77] He explains that the ISO-NE Proposal "would extend payments to additional resources without much prospect of influencing any actions by these resources" and that "[c]onsumers should not be asked to pay tens of millions of dollars to dress up the Winter Reliability Program so that it looks more like a market-based mechanism, but with no additional value provided."[78] Mr. Trotta is succinct in his assessment: "[T]he ISO-NE Proposal is no more market-based than the NEPOOL Proposal – it just sends more consumer dollars to more generators."[79] NESCOE agrees.

b. The ISO-NE Proposal Is Not Resource Neutral.

Similarly, the ISO-NE Proposal cannot be characterized as "resource neutral." Like Winter Program II (and the NEPOOL Proposal), the ISO-NE Proposal would limit eligibility to certain resources. The Bentz Testimony explains why calling the ISO-NE Proposal an "expanded" program is thus a misnomer: "by way of example, [the ISO-NE Proposal] would favor nuclear and coal-fired resources over demand response, solar and wind resources."[80] In actuality, the ISO-NE Proposal simply substitutes some resources for others. Neither the ISO-NE Proposal nor the NEPOOL Proposal can claim to be "resource neutral." Mr. Flumerfelt also

---

[76] Wilson Testimony at 8; *see also id.* at 9.

[77] *Id.* at 8, 18.

[78] *Id.* at 18-19.

[79] Trotta Testimony at 4. *See also* Bentz Testimony at 22 ("NESCOE, along with other stakeholders, concluded that the ISO-NE Proposal was no more market-based than the Winter Program II, and were concerned that the additional costs of the ISO-NE proposal provided no identifiable benefits.").

[80] Bentz Testimony at 14.

testifies that "simply including additional fuel types" in a proposed non-market solution does not result "in a fuel neutral program.[81]

There are, of course, compelling reasons to structure market mechanisms in the most resource neutral manner as possible. Mr. Wilson discusses why, in general and for the Winter Reliability Program, this is an important objective:

> [A]s a general matter, market design elements that are resource neutral are preferred, despite the complexity that inevitably is introduced by attempting to accommodate very different resource types.
>
> There are two principal reasons why, in general, we should strive for resource neutrality. First, markets will be most competitive and efficient when they are open to the broadest participation possible. Markets that are only open to certain types of resources will generally be less competitive, and result in higher prices, than markets for which the product definition and eligibility requirements have been designed to accommodate a broader group of resource types.
>
> Second, when market design elements are crafted in a more resource-neutral manner, they are more likely to avoid potentially unfair or discriminatory treatment of some resource types. This can be a difficult challenge, because different resource types have different characteristics which ultimately may be of some commercial significance. For instance, in most contexts, it is not appropriate to overlook that some resource types are intermittent, or that some have slower ramp rates, than others.
>
> . . .
>
> In pursuing the objective of the [winter reliability] program – to encourage *incremental* winter capacity – it is appropriate to strive for resource neutrality. In this regard, from the original concern about oil storage, the program was extended to compensate unused LNG contractual amounts, and to encourage incremental demand response.[82]

---

81 Flumerfelt Testimony at 3.

82 Wilson Testimony at 10-11 (emphasis in original).

However, as explained above, there is an overriding interest and legal requirement that program incentive payments be extended *only to those resources that can provide incremental capacity*, which justified the limitation of resource eligibility in Winter Program II.[83] Winter Program II, as ISO-NE stated, was thus resource neutral *to the maximum extent possible*.[84] That same principle must apply with equal force to Winter Program III.

c. Fuel Neutrality and Market-Approaches Cannot Become the End-Goal at the Expense of Just and Reasonable Rates.

Since Winter Program I, NESCOE has been directionally supportive of steps to make the Winter Reliability Program more fuel neutral. ISO-NE stated in its filing with the Commission on Winter Program I that it preferred a fuel-neutral approach, and that future Winter Reliability Programs should achieve that neutrality.[85] NESCOE agreed with ISO-NE and, while generally supportive of Winter Program I, NESCOE stated a preference for the concept of ISO-NE taking a more fuel-neutral approach for future programs in order to promote greater competition.[86] NESCOE also supported changes to Winter Program II to expand eligibility to a set level of LNG "take-or-pay" contract holders.[87]

However, as NESCOE stated in prior comments to the Commission, any modification to future winter programs, whether compensating more resource types or moving to a market-based structure, must be a means to an end: providing consumers with a cost-effective solution to

---

83 *See* September 2014 Order at P 43.

84 Winter Program II Filing at 8.

85 Winter Program I Filing at 7. *See also id.* at 5 ("As a transition between the Winter Reliability Project and the FCM performance incentives project, the ISO intends to propose a scaled-down version of the performance incentives project to purchase a fuel-neutral, winter-based reliability product for the winters of 2014-15 through 2017-18.").

86 NESCOE Winter Program I Comments at 10.

87 Motion to Intervene and Comments of the New England States Committee on Electricity, Docket Nos. ER14-2407-000 et al. (filed Aug. 1, 2014), at 5.

winter fuel supply security challenges.[88] It has become increasingly clear since implementation of Winter Program II that a market-based structure presents risks to the effectiveness of the program and could cost significantly more than the most recent (and successful) program. In its rehearing request, ISO-NE described the adverse implications of adopting a market-based approach, stating that "the options for developing a market-based solution in the context of existing obligations are, at best, potentially less effective than the winter reliability programs, and, at worst, less effective, inefficient, controversial and expensive to implement."[89] ISO-NE identified a number of concerns about the complexity, efficiency, effectiveness, and cost of such a market-based structure implemented for the three-year period preceding PfP.[90]

Mr. Wilson also concluded that a market-based structure would be a less effective approach than continuing the most recent winter program.[91] He stated that such an approach might not achieve the same fuel assurance as Winter Program II, either because it fails to attract sufficient participation or is inadequate in providing "sufficient incentives for additional fuel arrangements."[92] Furthermore, while a truly market-based solution might secure the same level of fuel assurance by imposing "substantial obligations and penalties," it would do so "at a much higher cost."[93]

ISO-NE has not proposed a market-based program for subsequent winters until PfP becomes operative. That is the appropriate result. While market-based structures are generally preferable given the potential consumer benefits they can provide, in this case, they do not match

---

88 Motion for Leave to Answer and Limited Answer of the New England States Committee on Electricity, Docket No. ER14-2407-003 (filed Mar. 4, 2015), at 3.

89 ISO-NE Rehearing Request at 8.

90 *Id.* at 2, 8-12.

91 Wilson Testimony at 910.

92 *Id.* at 10.

93 *Id. See also id.* at 20 (a market-based approach "would likely be ineffective and costly.").

the instant problem. Given the risks and costs identified by ISO-NE and others, a market-based structure is not an acceptable interim approach.[94]

B. There are Significant and Unjustified Cost Increases Resulting from the ISO-NE Proposal

The ISO-NE Proposal will cost consumers considerably more than the NEPOOL Proposal. Using the estimated compensation rate set by ISO-NE, $12.90 per equivalent barrel of oil,[95] Mr. Wilson calculates that the maximum cost exposure of the ISO-NE Proposal would be more than 50% higher than the costs of a Winter Program II design, adding almost $35 million in new program payments per year, or more than $100 million over the life of the three year program.[96] The Wilson Testimony includes the following table breaking out these cost components:[97]

---

[94] Indeed, one way to erode support for genuine market-based approaches is to label an approach market-based and, through it, force consumers to pay more for resources with no apparent incremental value.

[95] Memorandum from ISO-NE to NEPOOL Members, 2015-2016 Winter Program Payment Rate, July 15, 2015, *available at* http://www.iso-ne.com/markets-operations/markets/winter-program-payment-rate.

[96] Wilson Testimony at 16-17.

[97] *Id.*

Table 1: Estimated Cost of Winter Reliability Program Alternatives						
	Total MW	Equiv. bbl (maximum)	Payment Rate $/bbl	Max. Cost Exposure ($ mil.)	Equiv. bbl (cold winter, @ 25%)	Total cost, cold winter ($ mil.)
Current program resources:						
Oil	10,778	4.10	$12.9	$52.89	1.03	$13.22
LNG	[6 Bcf]	1.00	$12.9	$12.90	0.25	$3.23
Total		5.10		**$65.79**	1.28	**$16.45**
Additional resources under ISO Proposal:						
Nuclear	4,041	1.62	$12.9	$20.90	(no changes)	(no changes)
Coal	2,002	0.80	$12.9	$10.32		
Biomass	577	0.23	$12.9	$2.97		
Hydro	2,941	0.05	$12.9	$0.65		
Total		3.30		**$34.83**		**$34.83**
Total Cost: Current plus Additional Resources				**$100.62**		**$51.28**
Sources: Total MW and equivalent bbl: Gillespie Testimony, p. 17; payment rate: *2015-2016 Winter Program Payment Rate,* memo from ISO New England to NEPOOL Members, July 15, 2015; equivalent bbl under moderate conditions: Wilson assumption. Due to the small quantity of demand response, their costs were excluded from this summary.						

This analysis is based upon and consistent with ISO-NE's own estimate of program participation and costs. The Gillespie Testimony, using an assumed $13 rate, calculates a high-end estimate of $35.1 million per year in costs related to adding the Newly Eligible Resources.[98] In total over three years, when compared to the NEPOOL Proposal, consumers could therefore pay $105.3 million more for a program without demonstrated additional value. Furthermore, at an expected cost of $51 million under a cold winter scenario compared to the NEPOOL Proposal's expected cost of $16.45 million, the ISO-NE Proposal would *triple* the cost of the program.[99]

[98] Gillespie Testimony at 18.

[99] As explained in the Wilson Testimony, these are the expected costs assuming 75% of the oil inventory and LNG contract amounts are used. In a cold winter during which the oil and LNG stocks are drawn down such that the program only pays for 25% of the maximum inventory quantity for these resources, the cost of the program for these resources would be roughly $16.5 million, while the other resources compensated under the ISO-NE Proposal would likely still receive close to the $34.8 million maximum amount. *See* Wilson Testimony at 16-17.

The NEPOOL filing also includes a cost estimate for the two proposals. In his testimony supporting the NEPOOL Proposal, based on an assumed rate of $14 per equivalent barrel of oil,[100] Mr. Bentz calculated an approximate $46 million price delta between the programs per year.[101] Mr. Bentz testified that the "$46 million cost *difference* is almost equal to the *entire* cost of last year's program ($47.48 million) and more than double what the cost would have been last year under the expected $14 rate."[102] Mr. Bentz further stated that "the difference in cost between the proposals is even larger if oil returns to prices used to calculate the 2014/2015 program rate."[103]

Another flaw in the ISO-NE Proposal is that Newly Eligible Resources could receive "considerably larger" payments than oil- and gas-fired resources.[104] Mr. Wilson explains that Newly Eligible Resources "likely would be compensated for the full amount of 'inventory' under the program each year, while resources compensated for oil and LNG stocks are compensated only for the (potentially much lower) remaining inventory or contractual amount at the end of the winter."[105] ISO-NE's flawed design and unclear program objective thus could produce a perverse and avoidable outcome, whereby the majority of payments are made to resources that are not the focus of the Winter Reliability Program and that have not demonstrated any likelihood of changes to their fuel procurement practices as a result of program payments.[106]

---

[100] Prior to the July 15 Filing, ISO-NE had not provided an estimate of program costs or an assumed compensation rate for subsequent winters. The $14 assumed rate was based on an estimate at the time of what the expected payment rate might be for subsequent winters.

[101] Bentz Testimony at 17.

[102] *Id.* (emphasis in original).

[103] *Id.*

[104] Wilson Testimony at 17-18.

[105] *Id.*

[106] *See id.* at 18.

As discussed below, NESCOE supports the NEPOOL Proposal because of the value consumers would receive under the proposal in exchange for program payments. Indeed, "the consumer costs of the Winter Reliability Programs must be considered in the context of providing important insurance against risks to reliable operation of the electric system resulting from natural gas pipeline constraints[.]"[107] Consumers buy insurance for the promise of the benefit it will deliver, and there is a nexus between the premium for that product and the benefit received. Here, in the context of the ISO-NE Proposal, consumers could be made to pay in excess of $100 million above the cost of the NEPOOL Proposal without a demonstrated corresponding benefit. No economically rational consumer would increase the limits on an auto insurance policy when umbrella coverage is already in place: material price increases to the Winter Reliability Program must be supported by a corresponding increased value beyond what a resource with an existing CSO already provides.

The cost increases reflected in the ISO-NE Proposal are material, without sufficient support or attendant benefit, and it would not be just and reasonable to impose those cost increases on consumers, particularly when an alternative is available to the Commission that would achieve the desire objective of the Winter Reliability Program. The Commission should reject the proposal in favor of the NEPOOL Proposal.

C. The Rehearing Order Does Not Require ISO-NE to File an "Expanded" Program

ISO-NE's change in direction for Winter Program III was motivated by the Commission's guidance in the Rehearing Order. The ISO-NE Filing Letter recounts that ISO-NE "committed to work with stakeholders to expand the winter program to include payments to all resources that can supply the region with fuel assurance" and that such an expansion "would

[107] Bentz Testimony at 18.

more closely resemble a market-based solution through its availability to a majority of resources . . . ."[108]

In the Rehearing Order, the Commission found that:

> [A]n expanded version of the current winter program might better produce the desired results in terms of reliability than the introduction, at this point in time, of the market-based solutions examined by ISO-NE. Thus, we grant rehearing to allow the possibility that ISO-NE may file additional out-of-market winter reliability programs until the two-settlement capacity market design becomes effective in 2018. However, the Commission expects ISO-NE to abide by its commitment to work with stakeholders to expand any future out-of-market winter reliability program to include "all resources that can supply the region with fuel assurance," such as nuclear, coal, and hydro resources. To that end, if any future out-of-market program is not fuel neutral, we expect that ISO-NE would provide a detailed description of the options it considered to make the program fuel neutral and why those options were ultimately not included.[[109]]

NESCOE appreciates ISO-NE's initial pursuit through the stakeholder process of a discussion about a more resource-neutral option for Winter Program III. As discussed above, NESCOE has been directionally supportive since implementation of the first winter program of the concept of expanding eligibility to other resources. NESCOE also recognizes that the Commission stated a preference for a fuel neutral approach for future Winter Reliability Programs, and appreciates ISO-NE's interest in pursuing an approach favored by the Commission.

However, there is nothing in the Rehearing Order *requiring* ISO-NE to file an expanded program. The Rehearing Order states an expectation that ISO-NE will "abide by its commitment to *work with* stakeholders" on expanding any future program, but, critically, it provides ISO-NE

---

[108] ISO-NE Filing Letter at 6, citing to ISO-NE Rehearing Request at 12-13.

[109] Rehearing Order at P 17 (footnote omitted).

the flexibility to file a program taking a different approach.[110] In such a case, where the proposed program is not "fuel neutral," ISO-NE must explain "options it considered to make the program fuel neutral and why those options were ultimately not included."[111]

ISO-NE met its commitment by proposing and discussing with states and stakeholders a program with expanded eligibility for Winter Program III. For the reasons set forth above, however, that is where the proposal should have ended. As stakeholder discussions progressed, it became increasingly clear that (i) a so-called expanded program (one that is not resource neutral as advertised) would cost significantly more than an effective extension of Winter Program II while not providing corresponding value for consumers, and (ii) states and stakeholders were coalescing around a proposal that would continue implementation of core Winter Program II elements as a proven and cost justified program. These were intervening events that should have persuaded ISO-NE to make use of the flexibility provided in the Rehearing Order by filing the most appropriate solution for needed incremental reliability for consumers, with the explanation that NEPOOL and NESCOE are now forced to provide in support of the NEPOOL Proposal.

Unfortunately, despite its own repeated recognition of the critical success of past winter programs, ISO-NE filed with the Commission a proposal that is neither market-based nor resource neutral and that would charge consumers potentially over $100 million for no assurance of greater reliability benefits. The Commission did not elevate form over substance in its Rehearing Order and neither should have ISO-NE. By according ISO-NE flexibility in its approach, the Commission allowed for the possibility that stakeholder discussions would reveal flaws in an expanded approach and that an alternative solution might emerge. That is precisely

[110] *Id.* (emphasis added).

[111] *Id.*

what transpired within the region. What appears to be ISO-NE's more prescriptive view of the Rehearing Order is misplaced and would be very costly if the ISO-NE Proposal is implemented.

V. COMMENTS IN SUPPORT OF THE NEPOOL PROPOSAL

A. The NEPOOL Proposal Addresses Fuel Assurance Concerns Through a Proven, Effective, and Cost Justified Approach

The overarching objective of the Winter Reliability Program has been "to ensure that certain resources procure *incremental* levels of fuel to support reliable operation of the electric system over the course of the winter seasons."[112] The NEPOOL Proposal would accomplish this objective in the same manner as past programs, by "encouraging fuel arrangements to provide insurance against extreme winter events, for the winter periods before PfP takes effect."[113] The NEPOOL Proposal incentivizes resources to make fuel arrangements consistent with ISO-NE's identified need for the winter period. It would also continue to offer compensation to incentivize incremental demand response and enhanced dual fuel capability. As with Winter Program II, the NEPOOL Proposal focuses primarily on oil inventory and LNG stocks, compensating resources to bolster supply to address concerns that a cold winter could deplete available fuel.[114]

In short, the NEPOOL Proposal is a narrowly targeted program aimed at "patching the hole" in the winter reliability fence at a reasonable and justified cost. It is a more consumer-oriented approach to winter reliability than the ISO-NE Proposal, achieving the objectives of the Winter Reliability Program at a lower cost to consumers. The reason for this outcome is

---

[112] *See* Bentz Testimony at 13 (emphasis in original), citing to *Winter Reliability Solution: Committee Discussion*, presentation by Andrew Gillespie, Principal Analyst, Market Development, ISO-NE, March 10-11, 2015 NEPOOL Markets Committee Meeting, at Slide 7; *Winter Reliability Solution: Committee Discussion*, presentation by Andrew Gillespie, Principal Analyst, Market Development, ISO-NE, Jan. 13-14, 2015 NEPOOL Markets Committee Meeting, at Slide 7; *Winter Reliability Solution: Winter Periods Prior to June 1, 2018*, presentation by Andrew Gillespie, Principal Analyst, Market Development, ISO-NE, Nov. 11-12, 2014 NEPOOL Markets Committee Meeting, at Slide 6.

[113] Wilson Testimony at 13.

[114] *See id.* at 18.

straightforward: the NEPOOL Proposal promises to pay only those resources that provide needed, incremental reliability benefits. It is thus, like ISO-NE's characterization of Winter Program II, resource neutral *to the maximum extent possible*.[115] The NEPOOL Proposal stands in stark contrast to the ISO-NE Proposal, which would seek to compensate approximately 9,500 MW of *additional* resources beyond what Winter Program II purchased and to purchase that capacity from resources without any indication that they would alter fuel management practices in exchange for compensation received.

The NEPOOL Proposal seeks to meet the same stated reliability need at a much lower expected cost. It is an effective, proven, and just and reasonable interim solution. The NEPOOL Proposal essentially mirrors the core program that Commission found last year to be just and reasonable and should be accepted.

B. There is a Known, Reasonable and Justified Cost Associated with the NEPOOL Proposal

ISO-NE recognizes that one of the key differences between the ISO-NE Proposal and the NEPOOL Proposal is the material cost implication resulting from different eligibility requirements.[116] The NEPOOL Proposal would maintain a reasonably priced program with a direct nexus between reliability value provided and cost expended. On the other hand, the ISO-NE Proposal could potentially triple the price tag of the program each year—costing an additional $100 million or more over the three-year life of the program—without a demonstration that expanded eligibility is necessary or that Newly Eligible Resources would provide incremental capacity.

---

[115] Winter Program II Filing at 8.

[116] *See* ISO-NE Filing Letter at 11; Gillespie Testimony at 17-18.

These cost differences are set forth in detail in Section IV.B above. To summarize, under ISO-NE's $12.90 compensation rate, the ISO-NE Proposal would add $35 million each year to the program cost, increasing last year's program costs by approximately 50%.[117] Over the three-year term of the program, that translates to $105.3 million in extra consumer costs compared to the NEPOOL Proposal. And as discussed above, that extra cost is unsupported and without nexus to value consumers would receive.

Unlike the ISO-NE Proposal, there is a direct connection between payments made under the NEPOOL Proposal and incremental reliability benefits received. While the major difference between the two programs relates to resource eligibility, the cost implications of the ISO-NE Proposal explain why this difference matters.

C. The NEPOOL Proposal Received Almost Unanimous Regional Support

NEPOOL describes the "overwhelming" and "broad" support for the NEPOOL Proposal.[118] The program, sponsored by a participant from each of the NEPOOL sectors, received an 87.10% vote in support.[119] Of the six market participants that voted in favor of the ISO-NE Proposal at the Participants Committee meeting, five of those participants would potentially reap financial gains from the expanded eligibility.[120] Also, having originated as NESCOE's preferred approach, the New England states strongly support the NEPOOL Proposal and unanimously endorse its implementation. The ISO-NE Proposal did not receive support

---

[117] Gillespie Testimony at 18; Wilson Testimony at 16-17.

[118] NEPOOL Filing Letter at 18.

[119] *Id.*

[120] *See* July 15 Filing at Attachment N-1g, Tabulation of NEPOOL Participants Committee Votes Taken on the ISO-NE and NEPOOL Proposals. Those participants referenced above— Dominion, Entergy, NextEra, GDF SUEZ, and Dynegy—own assets that rely on Newly Eligible Resources, specifically nuclear, coal, or pumped hydro.

from any state entity, and it received only a 13.43% vote in favor at the Participants Committee meeting.[121]

Stakeholder support is not, as NEPOOL observes, dispositive of how the Commission should rule on a particular issue.[122] However, the broad spectrum of support for the NEPOOL Proposal—from states and generators to end users and suppliers, entities whose economic interests are not always aligned—provides a marked contrast to the ISO-NE Proposal. The region has spoken with a largely unified voice on which program is preferable in New England.

D. The NEPOOL Proposal Provides Regulatory Certainty for a Temporary Program Originally Intended to Last for One Year Only

When ISO-NE proposed Winter Program I, it was intended as "a time-limited, discrete, out-of-market solution."[123] But for changed operating conditions, ISO-NE did not intend to propose a subsequent program.[124] This proceeding now represents the third such program, which, if approved in either the form presented by ISO-NE or NEPOOL, would extend the total length of all three programs to five years.

The NEPOOL Proposal is effectively an extension of the most recent program and, as discussed above, provides reliability benefits at a known, reasonable and justified cost. Accepting this program would provide regulatory certainty regarding winter reliability mechanisms that have so far been proposed as one-off programs.

Regulatory certainty is a priority for the Commission. It is among FERC's five guiding principles: "In each of the thousands of orders, opinions and reports issued by the Commission

---

[121] *See* NEPOOL Filing Letter at 18.

[122] *See id.*, quoting *Am. Elec. Power Serv. Corp. v. Midwest Indep. Transmission Sys. Operator, Inc.*, 122 FERC ¶ 61,083 (2008) at P 172 ("While stakeholder support does not alone prove that the NEPOOL Proposal is just and reasonable and preferable, 'stakeholder consensus is an important factor to be considered in reviewing the justness and reasonableness of a rate design.'").

[123] September 2014 Order at P 33.

[124] Winter Program II Filing at 5-6.

each year, the Commission strives to provide regulatory certainty through consistent approaches and actions."[125] In this case, the just and reasonable solution to winter reliability issues over the next three years is encapsulated in the NEPOOL Proposal, which has the added benefit of continuing a program that market participants (and consumers) know, understand, and have successfully employed.

VI. CONCLUSION

For the reasons stated herein, NESCOE respectfully requests that the Commission (i) reject the ISO-NE Proposal, (ii) accept the NEPOOL Proposal, and (iii) take other necessary and appropriate actions consistent with the foregoing protest and comments.

Respectfully submitted,

/s/ Jason Marshall

Jason Marshall
General Counsel
Ben D'Antonio
Counsel and Analyst
New England States Committee on Electricity
655 Longmeadow Street
Longmeadow, MA 01106
Tel: (617) 913-0342
Email: jasonmarshall@nescoe.com

Date: August 5, 2015

[125] About FERC, Guiding Principles, *available at* http://www.ferc.gov/about/about.asp.

Attachment A

Testimony of James F. Wilson

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

ISO New England Inc.	)	Docket No. ER15-2208-000

TESTIMONY OF JAMES F. WILSON
ON BEHALF OF THE
NEW ENGLAND STATES COMMITTEE ON ELECTRICITY

CONTENTS

TESTIMONY OF JAMES F. WILSON
ON BEHALF OF THE
NEW ENGLAND STATES COMMITTEE ON ELECTRICITY

I. INTRODUCTION AND QUALIFICATIONS

Q 1: Please state your name, position and business address.

A: My name is James F. Wilson. I am an economist and independent consultant doing business as Wilson Energy Economics. My business address is 4800 Hampden Lane Suite 200, Bethesda, Maryland 20814.

Q 2: Please describe your experience and qualifications.

A: I have 30 years of consulting experience, primarily in the electric power and natural gas industries. Many of my assignments have pertained to the economic and policy issues arising from the interplay of competition and regulation in these industries, including restructuring policies, market design, market analysis and market power. Other recent engagements have involved resource adequacy and capacity markets, contract litigation and damages, forecasting and market evaluation, pipeline rate cases and evaluating allegations of market manipulation. I also spent five years in Russia in the early 1990s advising on the reform, restructuring, and development of the Russian electricity and natural gas industries for the World Bank and other clients.

I have been involved in electricity restructuring and wholesale market design for over twenty years in PJM, New England, California, Russia, and other regions. With regard to the resource adequacy and capacity market design issues that are the subject of this proceeding, I have been involved in these issues in PJM, New England, California, the Midwest, and other regions over the past several years.

I have submitted affidavits and presented testimony in proceedings of the Federal Energy Regulatory Commission ("Commission", "FERC"), state regulatory agencies, and U.S. district court. I hold a B.A. from Oberlin College and an M.S. in Engineering-Economic Systems from Stanford University. My curriculum vitae, summarizing my experience and listing past testimony, is attached hereto.

II. PURPOSE AND SCOPE OF TESTIMONY

Q 3: On whose behalf are you testifying in this proceeding?

A: I prepared this testimony on behalf of the New England States Committee on Electricity, Inc. ("NESCOE"). NESCOE is the Regional State Committee for New England and is governed by a board of managers appointed by the Governors of the six New England states. Its stated mission is to represent the interests of the citizens of the New England region by advancing policies that will provide electricity at the lowest reasonable cost over the long-term, consistent with maintaining reliable service and environmental quality.

Q 4: What is the purpose and scope of your testimony?

A: In 2014, ISO New England Inc. ("ISO-NE", the "ISO") began a stakeholder process to develop modifications to Appendix K to Market Rule 1 of its tariff (the "Winter Reliability Program"). This stakeholder process resulted in two packages of changes that were put to a vote at the June 2, 2015 meeting of the New England Power Pool ("NEPOOL") Markets Committee and the June 25, 2015 meeting of the NEPOOL Participants Committee. The ISO and NEPOOL have filed both packages in this proceeding, one advocated by the ISO ("ISO Proposal") and one preferred by NEPOOL ("NEPOOL Proposal"). My assignment was to evaluate the two packages and provide

recommendations. I was also asked to evaluate whether it would be feasible to apply a more market-based approach to this problem.

III. WINTER RELIABILITY PROGRAM: THE PROBLEM

Q 5: Please describe the problem the ISO's Winter Reliability Program is designed to address.

A: The ISO arranges to have adequate capacity to meet resource adequacy objectives through its Forward Capacity Market ("FCM") capacity construct. Under FCM, commitments to provide capacity (Capacity Supply Obligations, or "CSOs") are put in place on a three-year forward basis through the FCM Forward Capacity Auctions ("FCAs"). Accordingly, FCAs have already been held and capacity is already committed for winter seasons through 2017-2018.

While adequate capacity has consistently been committed for future winters, in 2013 the ISO became concerned that during extended cold periods, limitations on natural gas and/or oil for power plants could jeopardize resource adequacy. The ISO felt that the owners of some oil- or gas-fueled power plants might face inadequate incentives (under their CSOs, in combination with the incentives provided by energy and ancillary services markets) to arrange the fuel supplies that could be needed for an unusually cold winter. The Winter Reliability Program was proposed for the winter of 2013-2014 to address this concern. The program in a modified form was also in place for the winter of 2014-2015.

Q 6: Please describe the main elements of the most recent Winter Reliability Program.

A: The Winter Reliability Program provides compensation for oil inventory and liquefied natural gas ("LNG") contractual amounts that remain unused at the end of winter. The compensation encourages fuel arrangements that might not otherwise be made by

generation owners. The program also provides incentives for incremental winter demand response and for implementing dual fuel capability.

Q 7: Does the problem that the Winter Reliability Program is intended to address still exist in future planning years?

A: The ISO states that once the Commission-approved Pay for Performance ("PfP") market reforms are in place, the Winter Reliability Program will no longer be needed, as the PfP reforms will create stronger incentives for winter fuel arrangements. However, these reforms will only be implemented starting in June 2018. The ISO believes the Winter Reliability Program is still needed for the 2015-2016 winter and for the following two winters before PfP is implemented.[1]

Q 8: Has the ISO quantified the risk to reliability if a Winter Reliability Program is not in place?

A: No. A detailed analysis of the risk, or of the cost-benefit of the Winter Reliability Program, has not been performed. The concern is the following scenario: that certain resource owners (taking into account the potential revenues from energy and ancillary services markets, and potential consequences under their CSOs) may choose to store less fuel than they could; and extended cold and/or other circumstances could cause rarely-used resources to run many more hours than their owners expected; and circumstances prevent timely in-season replenishment, leading to loss of some capacity due to lack of fuel; and when this occurs, other resources and imports are not available in sufficient quantities to avoid loss of load.

[1] ISO New England Inc. and New England Power Pool Participants Committee, Filings of Winter Reliability Program, Docket No. ER15-2208-000, July 15, 2015 (the "July 15 Filing"), at Attachment I-1b, Testimony of Andrew G. Gillespie on behalf of ISO New England Inc. ("Gillespie Testimony"), p. 3.

It would be very difficult to quantify the likelihood and impact of this scenario, and the ISO has not attempted to perform such an analysis. However, stakeholders have generally supported the implementation of a targeted and relatively low-cost Winter Reliability Program as insurance against the potential for bad outcomes under such a scenario.

IV. WINTER RELIABILITY PROGRAM: THE ALTERNATIVES

Q 9: What was the purpose and scope of the recent stakeholder process regarding the Winter Reliability Program?

A: In approving the Winter Reliability Program for the 2014-2015 winter, the Commission expressed a preference for market-based solutions, and directed the ISO to initiate a stakeholder process "to develop a proposal to address reliability concerns for the 2015-2016 winter and future winters, as necessary."[2] In kicking off the stakeholder process in November 2014, the ISO identified the objective of the Winter Reliability Program as follows:[3]

> Objective: Ensure generator winter fuel inventories, based on ISO estimates, are sufficient for winter operation where/when they might not otherwise be as readily available or suitably provisioned.

The ISO further described two options: to either continue the current program in some manner, or to develop a market-based mechanism to achieve the same, or perhaps broader, objectives.[4]

---

[2] *ISO New England Inc. & New England Power Pool Participants Committee*, 148 FERC ¶ 61,179 (2014), Order Accepting Tariff Revisions ("September 2014 Order").
[3] *Winter Reliability Solution: Winter Periods Prior to June 1, 2018*, presentation by Andrew Gillespie, Principal Analyst, Market Development, ISO New England, November 12, 2014 NEPOOL Markets Committee, slide 6.
[4] *Id.*, slide 3.

In a January 2015 order clarifying the September 2014 Order, the Commission stated that it "intended that ISO-NE would determine whether a winter reliability solution is necessary for the 2015-2016 winter and future winters, and, if so, develop an appropriate market-based solution through the stakeholder process that can be implemented beginning with the 2015-2016 winter."[5] The ISO filed for rehearing of the requirement to develop a market-based solution, noting various difficulties with implementing a market-based solution in the context of the existing obligations.[6] On April 17, 2015, the Commission granted rehearing, allowing that out-of-market approaches might still be used, and expressing support for expanding the program to be more fuel-neutral.[7]

Q 10: What changes to the Winter Reliability Program did the ISO ultimately recommend?

A: The ISO's recommended approach builds on the most recent Winter Reliability Program, and includes two types of changes.

1. Miscellaneous minor changes and updates to the program;
2. Revisions to extend the compensation to additional resource types.

The ISO provided some initial thoughts on a market-based approach in its various presentations to the NEPOOL Markets Committee. However, a detailed proposal was never fully developed for stakeholders to consider (a group of stakeholders did put forward an outline of a market-based approach[8]). The ISO has noted various complexities

[5] *ISO New England Inc. & New England Power Pool Participants Committee*, 150 FERC ¶ 61,029 (2015), Order on Clarification ("Clarification Order"), P. 10.
[6] *ISO New England Inc.,* Rehearing Request of ISO New England, Inc. Docket No. ER14-2407-003, February 19, 2015 ("Rehearing Request").
[7] *ISO New England Inc. & New England Power Pool Participants Committee*, 151 FERC ¶ 61,052 (2015), Order Granting Rehearing, P. 17.
[8] *Market-Based Approach to Winter Reliability: Exelon, Entergy and NextEra*, NEPOOL Markets Committee, April 13, 2015.

and logistical difficulties with implementing a market-based solution in the context of the existing obligations and within the available timeframe.[9]

Q 11: Please summarize the first group of changes (miscellaneous changes and updates).

A: These changes extend the program for additional winters until PfP is implemented (tariff section III.K.1.a), clarify the eligibility requirements for external and self-scheduled resources (III.K.1.b), clarify requirements in instances of shared fuel supply (III.K.1.f), remove the demand response provisions (III.K.6), update the compensation rate (III.K.1.g), revise reporting requirements (III.K.2.c, III.K.6), and add a provision regarding protracted outages (III.K.5.f). With the exception of the removal of demand response provisions, these changes were generally uncontroversial with stakeholders.

Q 12: Please summarize the second group of changes, to extend compensation to additional resource types.

A: These changes extended eligibility for compensation under the program to generation assets with "Other Stored Fuels" (III.K.4) citing as examples "uranium, coal, biomass feedstock and water" (III.K.4a). The ISO estimates that over 9,000 additional MW could receive compensation under its proposal.[10]

Q 13: What changes to the Winter Reliability Program did stakeholders ultimately choose to move forward?

A: At the June NEPOOL Markets Committee and Participants Committee meetings, stakeholders endorsed a proposal that included nearly all of the miscellaneous changes and updates (except for removal of demand response), but not the revisions to provide

[9] *See* Rehearing Request.
[10] Gillespie Testimony, p. 17.

compensation to additional types of resources. This became the NEPOOL Proposal. Stakeholders rejected the ISO's proposal.

V. DISCUSSION

Q 14: You noted that in the September 2014 Order, the Commission expressed a preference for a market-based solution to this problem. Please describe what in general constitutes a "market-based" approach to a procurement problem.

A: A market-based approach would be one that is structured to define a product or service, and then allow eligible entities to compete to provide the product or service. The purpose of this approach would be to achieve some of the potential benefits of markets. The alternative to a market-based approach could be bilateral or "out of market" procurement, in which the ISO as buyer might purchase from individual sellers or groups of sellers based on prices set through negotiation or through administrative calculations.

Q 15: In general, are market-based approaches to be preferred, and if so, why?

A: Market-based approaches in general are preferred under circumstances where they can achieve the short-term and/or longer-term benefits of competition. In the short term, a market-based approach can achieve efficient production and consumption reflecting the marginal cost of production. The sellers with the lowest marginal costs are selected to satisfy the demand; and a price is set that generally reflects the marginal cost. Over the longer term, a market-based approach can lead to efficient exit and entry resulting again in efficient production and consumption from the long-term perspective. Prices over time reflect the full incremental cost of production and the most efficient producers are in the market.

Q 16: Under what circumstances can market-based approaches be applied effectively?

A: To use a market-based approach, the product must be clearly defined so that sellers know exactly what they must provide and can determine their cost to provide the product. Then

sellers can compete based on price to provide the product. This requires defining a single product (or perhaps a small number of products), or at least defining how different product attributes will be valued for the purpose of selecting among competing providers. In addition, there must be multiple potential sellers of the product for a market-based approach to achieve some degree of competition and be worthwhile.

Q 17: Would you characterize the ISO's Forward Capacity Market construct as a market-based approach?

A: Yes. Under FCM, the FCA auctions are held to acquire commitments from multiple potential providers to provide capacity under well-defined CSOs. This is a market-based approach.

Q 18: Is the specific problem that is addressed by the Winter Reliability Program one to which a market-based approach can effectively be applied?

A: No. As described earlier, the problem here is that the ISO has come to believe that the CSOs resulting from earlier FCAs, in combination with the ISO's energy and ancillary services markets, may not provide certain types of resources sufficient incentive to make fuel arrangements to the extent the ISO would like. The Winter Reliability Program, in essence, identifies a few "holes in the FCM fence", and attempts to patch those holes until the longer-term market-based solution (as part of the PfP reforms) can be implemented.

Q 19: Would a market-based approach be as effective as the most recent Winter Reliability Program for addressing the ISO's concern about fuel assurance?

A: A market-based approach would be less effective. To use a market-based approach, it would be necessary to define a standard service and to allow sellers to make offers to provide the service. Depending upon how the service is defined and the associated penalties, this approach might not attract as much participation as the most recent Winter

Reliability Program, or might not provide sufficient incentives for additional fuel arrangements. Thus, this approach might not achieve fuel assurance to the extent the most recent Winter Reliability Program has. Or, if the service imposes substantial obligations and penalties, it might achieve the same level of fuel assurance, but only at a much higher cost. The ISO has also noted that a market-based approach would likely be less effective.[11]

Q 20: You also noted that the Commission expressed support for making the program more resource-neutral. As a general matter, do you agree that the ISO should strive for its market design elements to be resource neutral?

A: Yes, as a general matter, market design elements that are resource neutral are preferred, despite the complexity that inevitably is introduced by attempting to accommodate very different resource types.

There are two principal reasons why, in general, we should strive for resource neutrality. First, markets will be most competitive and efficient when they are open to the broadest participation possible. Markets that are only open to certain types of resources will generally be less competitive, and result in higher prices, than markets for which the product definition and eligibility requirements have been designed to accommodate a broader group of resource types.

Second, when market design elements are crafted in a more resource-neutral manner, they are more likely to avoid potentially unfair or discriminatory treatment of some resource types. This can be a difficult challenge, because different resource types have different characteristics which ultimately may be of some commercial significance. For

[11] Rehearing Request, pp. 9-11.

instance, in most contexts, it is not appropriate to overlook that some resource types are intermittent, or that some have slower ramp rates, than others.

Q 21: Is resource neutrality an appropriate objective in the context of the Winter Reliability Program?

A: Yes. In pursuing the objective of the program – to encourage *incremental* winter capacity – it is appropriate to strive for resource neutrality. In this regard, from the original concern about oil storage, the program was extended to compensate unused LNG contractual amounts, and to encourage incremental demand response.

Q 22: Should the Winter Reliability Program be defined in a more resource-neutral manner to extend its compensation to additional resource types, even if the additional resources are not expected to provide incremental capacity?

A: No. Extending payments to additional resources that are not expected to provide incremental capacity would be contrary to what should be the objective of the program, as stated by the ISO last year (quoted above: " Ensure generator winter fuel inventories… are sufficient … where/when they might not otherwise be…"), and as recognized by the Commission in accepting the most recent program:[12]

> 43. We also reject arguments that, because the Winter Reliability Program does not pay all resources for providing firm fuel service, it is unduly discriminatory. The Program is designed to help ensure fuel adequacy by creating incentives for resources to **procure more fuel than they would have procured in the absence of the Program**. Given this objective, we find that ISO-NE reasonably limited participation in the Program to market participants that ISO-NE, as the system operator responsible for ensuring reliability in the region, determined will procure additional fuel ahead of winter as a result of payments through the Program. For instance, ISO-NE explained that identifying incremental fuel requirements for hydro or nuclear resources is challenging because those resources typically have low-cost fuels or extended fuel supplies. Thus, **it would not be appropriate to make separate payments intended to incent resources to make the same**

[12] September 2014 Order, P. 43.

> **fuel procurement decisions they would have made, and been compensated for, absent the Program.** To the extent that the Program is not entirely fuel-neutral, we expect that a long-term market-based solution should address these concerns in the future. [citations omitted, emphasis added]

More recently, ISO-NE stated that the narrow program objective would still be to compensate generators for adopting ISO-NE's rather than their own estimates of fuel needed at the beginning of the winter.[13] It would be inconsistent and inappropriate to extend compensation under the Winter Reliability Program to additional resources not expected to provide incremental capacity as a result.

VI. RECOMMENDATIONS

Q 23: In light of this discussion, what do you conclude with respect to the Winter Reliability Program as proposed by NEPOOL?

A: This package is an incremental update to the programs that have been used the past two winters. The ISO states that the Winter Reliability Program "has been proven to be a cost-effective interim means to assure fuel inventory" while the ISO completes the implementation of the full PfP market-based solution.[14]

As with previous versions of the Winter Reliability Program, the NEPOOL Proposal would remain focused on the objective of offering compensation to encourage additional fuel arrangements that in most winters are unlikely to be needed, and likely to be uneconomic. It would also continue to encourage additional dual fuel capability and

[13] July 15 Filing at Attachment I-1a, ISO New England Inc. Filing Letter ("ISO Proposal Filing Letter"), p. 2.
[14] Rehearing Request, p. 12.

winter demand response. As the ISO has stated, "the current program is, to the maximum extent possible, resource neutral."[15]

These measures are focused on the objective of encouraging incremental capacity in the wintertime. The NEPOOL Proposal is a proven approach to encouraging fuel arrangements to provide insurance against extreme winter events, for the winter periods before PfP takes effect. The NEPOOL Proposal would be a sound and effective approach to addressing the ISO's concern about winter fuel assurance at moderate cost.

Q 24: Under the ISO Proposal, compensation is extended to additional resource types. What is the purpose of this, according to the ISO?

A: The ISO's purpose in proposing to expand the resources eligible for Winter Reliability Program payments is apparently to have the program be more resource neutral and to "better approximat[e] the results of a market-based construct."[16] This was also stated in the ISO's request for rehearing of the Clarification Order:[17]

"In order to continue to improve program participation and resource neutrality, the ISO will commit to discuss with stakeholders ways in which the winter program could be expanded from prior versions to include payments to all resources that can supply the region with fuel assurance; in other words, ISO-NE will work to enhance the current program structure to compensate resources such as coal and nuclear units in addition to the oil, LNG and demand resources that have participated in the past. This expansion would more closely resemble a market-based solution in terms of being available to a majority of resources, while meeting the objective of ensuring fuel adequacy in a targeted, efficient, time-limited manner."

Q 25: Is the ISO Proposal based on the same fundamental objective as prior Winter Reliability Programs – to enhance reliability by encouraging incremental fuel arrangements?

---

[15] ISO New England, Inc., and New England Power Pool, *Winter 2014-15 Reliability Program (Part 1 of 2)*, Docket No. ER14-2407-000 (July 11, 2014), p. 8.
[16] ISO Proposal Filing Letter , p. 12.
[17] Rehearing Request, p. 13.

A: This is not clearly stated in the ISO's filing letter. The ISO suggests its proposal is the same as the NEPOOL proposal, with differences having to do with eligibility and associated costs:

"While the ISO and NEPOOL concur that a winter reliability program is necessary for the next few winters, and agree on many of the design features, they do not agree on the types of resources that should be eligible to participate in the program."[18]

"In sum, the ISO and NEPOOL agree on the need for a winter program and the inclusion of oil- and LNG-fired resources within that program; in fact, the proposals are identical with respect to those two resource types. The difference between the proposals relates to the inclusion of other types of resources, and the related costs."[19]

However, the ISO Proposal does not appear to be based on the narrow objective stated in its filing letter and the objective pursued by prior Winter Reliability Programs, which is adhered to in the NEPOOL Proposal: incremental capacity during the winter period. While the new objective is not clearly stated, it is apparently to compensate all resources that have "on-site fuel."[20]

The objective of enhancing reliability by encouraging incremental fuel arrangements has been dropped – the ISO Proposal includes provisions that are not bound by, and do not contribute to, that objective.

Q 26: Does the ISO Proposal, with its revised objective, continue to compensate all resources that were included in prior Winter Reliability Programs consistent with the objective of the prior programs?

A: No. The ISO Proposal eliminates compensation for incremental winter demand response "due to the incompatibility of demand response with the Program's fuel assurance

[18] ISO Proposal Filing Letter, p. 1.
[19] *Id.*, p. 11.
[20] *Id.*, p. 2, p. 6-7, 12.

objective"[21] and because ISO considers demand response "outside the program's objective of ensuring fuel adequacy."[22]

Q 27: What do you conclude with regard to the Winter Reliability Program as proposed by ISO?

A: The ISO Proposal would increase the cost of the Winter Reliability Program, but it would not result in additional capacity available in the wintertime. The ISO Proposal would result in many sellers receiving additional compensation without taking on any substantial additional obligations or costs, or providing any additional service.

Q 28: Please explain why the ISO Proposal will not lead to any incremental fuel assurance or capacity.

A: The ISO does not assert that its proposal would result in additional capacity available during the wintertime, nor am I aware of any work by stakeholders or from other sources suggesting that incremental capacity would be made available from the additional resource types as a result of incentives offered through the Winter Reliability Program. These resources simply do not face fuel decisions that the program's incentives are at all likely to influence.

For example, the ISO Proposal would make compensation available to 4,041 MW of nuclear capacity. However, nuclear units run baseload, and their fuel needs are predictable and steady over time. Nuclear units typically refuel every 18 months during off-peak times, and the outages are coordinated with the ISO approximately 6 months in

[21] *Id.*, p. 10.
[22] *Id.*, p. 11.

advance;[23] the Winter Reliability Program compensation would not influence fuel planning for a nuclear unit. Similarly, coal and biomass resources, also included in the ISO Proposal, are unlikely to modify their fuel arrangements in a manner that would result in incremental capacity as a result of the incentives offered through the Winter Reliability Program (they might, however, modify fuel arrangements to ensure maximum payments under the program).

Q 29: Please describe the potential increase in cost that would result from the ISO Proposal.

A: Based on the ISO's estimated quantities and estimated compensation rate of $12.9 per equivalent barrel of oil,[24] the ISO Proposal would increase the maximum cost exposure by $35 million per year, or over 50% (Table 1). In a cold winter during which the oil and LNG stocks are drawn down such that the program only pays for 25 percent of the maximum inventory quantity for these resources, the cost of the program for these resources would be $16.5 million, while the other resources compensated under the ISO Proposal would likely still receive close to the $34.8 million maximum amount, more than tripling the total cost of the program.

[23] See, for instance, Brandien, Peter, *ISO New England Testimony to Joint Committee on Environment, Natural Resources and Agriculture*, *et al*, April 6, 2011, slide 23, available at http://www.iso-ne.com/static-assets/documents/pubs/pubcomm/pres_spchs/2011/iso_comments_ma_nuclear_hearing_4_6_11.pdf

[24] *2015-2016 Winter Program Payment Rate*, memo from ISO New England to NEPOOL Members, July 15, 2015.

Table 1: Estimated Cost of Winter Reliability Program Alternatives						
	Total MW	Equiv. bbl (maximum)	Payment Rate $/bbl	Max. Cost Exposure ($ mil.)	Equiv. bbl (cold winter, @ 25%)	Total cost, cold winter ($ mil.)
Current program resources:						
Oil	10,778	4.10	$12.9	$52.89	1.03	$13.22
LNG	[6 Bcf]	1.00	$12.9	$12.90	0.25	$3.23
Total		5.10		**$65.79**	1.28	**$16.45**
Additional resources under ISO Proposal:						
Nuclear	4,041	1.62	$12.9	$20.90	(no changes)	(no changes)
Coal	2,002	0.80	$12.9	$10.32		
Biomass	577	0.23	$12.9	$2.97		
Hydro	2,941	0.05	$12.9	$0.65		
Total		3.30		**$34.83**		**$34.83**
Total Cost: Current plus Additional Resources				**$100.62**		**$51.28**
Sources: Total MW and equivalent bbl: Gillespie Testimony, p. 17; payment rate: *2015-2016 Winter Program Payment Rate,* memo from ISO New England to NEPOOL Members, July 15, 2015; equivalent bbl under moderate conditions: Wilson assumption. Due to the small quantity of demand response, their costs were excluded from this summary.						

The additional cost under the ISO Proposal amounts to $0.43/kW-mo for the 6,620 MW of nuclear, coal, biomass and other additional resources (excluding hydro) that would receive payments. This compares to the FCA payment rates for 2016/2017 (from FCA 7) of $2.744/kW-mo for resources in Rest of Pool and Maine, $2.883/kW-mo for Connecticut, and $6.661/kW-mo for existing resources in the NEMA/Boston zone.[25]

Q 30: How would the expected payments to the additional resource types under the ISO Proposal compare to the payments to the resources originally targeted by the Winter Reliability Program?

A: The expected payments to nuclear, coal, and biomass resources, on a per-MW basis, would be considerably larger. These resources likely would be compensated for the full amount of "inventory" under the program each year, while resources compensated for oil

[25] ISO New England, *FCA 7 Auction Results*, February 4, 2012.

and LNG stocks are compensated only for the (potentially much lower) remaining inventory or contractual amount at the end of the winter.

In a very cold winter when oil and LNG stocks are nearly depleted by the end of the winter, New England will have benefited from the Winter Reliability Program that contributed to fuel assurance. However, under this scenario, essentially all of the payments under the program would go to the nuclear, coal, and biomass participants that were not the target of the program and who likely took no actions as a result of the program.

This is an absurd outcome, whereby nearly all of the payments go to resources that are not the target of the program and that take no action as a result of the program.

Q 31: Does ISO take the position that its proposal is preferable to the NEPOOL Proposal?

A: Yes. ISO states as follows:[26]

> "ISO-NE believes that the ISO-NE Proposed Winter Program is preferable to the NEPOOL Proposed Winter Program because, by including all resources that can supply the fuel assurance service, it better approximates the results of a market-based construct, and is nondiscriminatory because all resources that have the requisite on-site fuel are compensated for their contribution to reliability. Moreover, the inclusion of these resources should provide value to the region, in that the expectation of a three-year revenue stream may cause these generators to invest in additional fuel inventory and in the asset more generally.

Q 32: Is it true that the ISO Proposal "better approximates the results of a market-based construct", and is that a valid reason to extend the payments to additional resource types?

A: The resemblance is entirely superficial; the expansion would not lead to any additional competition or economic efficiency. As explained above, the ISO Proposal would extend

[26] ISO Proposal Filing Letter, p. 12.

payments to additional resources without much prospect of influencing any actions by these resources. Consumers should not be asked to pay tens of millions of dollars to dress up the Winter Reliability Program so that it looks more like a market-based mechanism, but with no additional value provided.

Q 33: ISO also claims that the additional compensation to additional resources could lead them to "invest in additional fuel inventory." Has any evidence or argument been put forward that nuclear, coal, biomass or hydro resources might invest in additional "inventory" as a result of such payments?

A: I am not aware of any such argument. In any case, as suggested earlier, such "investment" might raise payments under the program without having any appreciable impact on winter reliability.

Q 34: The Winter Reliability Program has sometimes been characterized as a program to acquire a broader "reliability service", with the suggestion that all resources that provide this service should be compensated under the program. Please comment on this concept.

A: This will be the applicable concept under PfP. This was also the applicable concept when the rules were developed under which past FCAs were held. And this could potentially be the applicable concept under a market-based approach, if one were developed.

The ISO has already acquired CSOs from resources cleared in the FCAs, and resources with CSOs for future planning periods are committed to providing the "reliability service" as it was defined for the purpose of each past FCA. The CSOs obligate resources to provide capacity, subject to penalties, and this requires, of course, fuel. The problem is that the ISO is concerned that some resource types may not have sufficient total incentives (including both capacity and energy market payment "carrots" and capacity market penalty "sticks") to provide as much fuel assurance as the ISO would

like. The Winter Reliability Program is designed to address a problem that arises from what the ISO now considers to be a flaw in the definition of the reliability service.

This broader "reliability service" concept suggests re-running the FCAs, and/or layering another product on top of what the FCAs have already acquired. As explained earlier, such market-based approaches would fail to "patch the holes" in the current set of commitments in an effective manner, while also likely resulting in many sellers receiving additional compensation without taking on any additional obligations or costs.

Q 35: Please summarize your conclusions and recommendations with regard to the Winter Reliability Program.

A: The NEPOOL Proposal extends a proven approach that addresses the ISO's concerns about fuel assurance at moderate cost, and should be approved. The objective of the NEPOOL Proposal remains the same as prior Winter Reliability Programs – to enhance reliability by encouraging incremental fuel arrangements. The provisions of the NEPOOL Proposal are consistent with this objective.

The ISO Proposal adopts a fundamentally different, ill-defined, and inappropriate objective to justify extending the same payments to additional resources, increasing the cost but with no resulting impact or benefit. The ISO Proposal should not be approved.

Nor is a market-based approach appropriate for this short-term problem pertaining to the shortcomings of the product definition used in past FCM auctions; while a proposal has not been developed in any detail, any such program would likely be ineffective and costly.

Q 36: Does this complete your testimony?

A: Yes it does.

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

ISO New England Inc.	)	Docket No. ER15-2208-000

James F. Wilson, being first duly sworn, states he is the same James F. Wilson whose Testimony on Behalf of the New England States Committee On Electricity accompanies this affidavit; and that the facts set forth therein are true and correct to the best of his knowledge, information, and belief.

James F. Wilson

Subscribed and sworn before me, a Notary Public in and for the State of Maryland this 3rd day of August, 2015.

Notary Public
My Commission expires:

LAWRENCE P REDNICK
NOTARY PUBLIC
MONTGOMERY COUNTY
MARYLAND
MY COMMISSION EXPIRES JAN 10, 2016

James F. Wilson
Principal, Wilson Energy Economics

4800 Hampden Lane Suite 200
Bethesda, Maryland 20814 USA

Phone: (240) 482-3737
Cell: (301) 535-6571
Fax: (240) 482-3759
Email: jwilson@wilsonenec.com
www.wilsonenec.com

SUMMARY

James F. Wilson is an economist with 30 years of consulting experience, primarily in the electric power and natural gas industries. Many of his assignments have pertained to the economic and policy issues arising from the interplay of competition and regulation in these industries, including restructuring policies, market design, market analysis and market power. Other recent engagements have involved resource adequacy and capacity markets, contract litigation and damages, forecasting and market evaluation, pipeline rate cases and evaluating allegations of market manipulation. Mr. Wilson has been involved in electricity restructuring and wholesale market design for over twenty years in California, PJM, New England, Russia and other regions. He also spent five years in Russia in the early 1990s advising on the reform, restructuring and development of the Russian electricity and natural gas industries.

Mr. Wilson has submitted affidavits and testified in Federal Energy Regulatory Commission and state regulatory proceedings. His papers have appeared in the *Energy Journal*, *Electricity Journal*, *Public Utilities Fortnightly* and other publications, and he often presents at industry conferences.

Prior to founding Wilson Energy Economics, Mr. Wilson was a Principal at LECG, LLC. He has also worked for ICF Resources, Decision Focus Inc., and as an independent consultant.

EDUCATION

MS, Engineering-Economic Systems, Stanford University, 1982

BA, Mathematics, Oberlin College, 1977

RECENT ENGAGEMENTS

- Various consulting assignments on wholesale electric capacity market design issues in PJM, New England, the Midwest, Texas, and California.
- Cost-benefit analysis of a new natural gas pipeline.
- Evaluation of the impacts of demand response on electric generation capacity mix and emissions.
- Panelist on a FERC technical conference on capacity markets.
- Affidavit on the potential for market power over natural gas storage.
- Executive briefing on wind integration and linkages to short-term and longer-term resource adequacy approaches.
- Affidavit on the impact of a centralized capacity market on the potential benefits of participation in a Regional Transmission Organization (RTO).
- Participated in a panel teleseminar on resource adequacy policy and modeling.
- Affidavit on opt-out rules for centralized capacity markets.
- Affidavits on minimum offer price rules for RTO centralized capacity markets.
- Evaluated electric utility avoided cost in a tax dispute.
- Advised on pricing approaches for RTO backstop short-term capacity procurement.

- Affidavit evaluating the potential impact on reliability of demand response products limited in the number or duration of calls.
- Evaluated changing patterns of natural gas production and pipeline flows, developed approaches for pipeline tolls and cost recovery.
- Evaluated an electricity peak load forecasting methodology and forecast; evaluated regional transmission needs for resource adequacy.
- Participated on a panel teleseminar on natural gas price forecasting.
- Affidavit evaluating a shortage pricing mechanism and recommending changes.
- Testimony in support of proposed changes to a forward capacity market mechanism.
- Reviewed and critiqued an analysis of the economic impacts of restrictions on oil and gas development.
- Advised on the development of metrics for evaluating the performance of Regional Transmission Organizations and their markets.
- Prepared affidavit on the efficiency benefits of excess capacity sales in readjustment auctions for installed capacity.
- Prepared affidavit on the potential impacts of long lead time and multiple uncertainties on clearing prices in an auction for standard offer electric generation service.

EARLIER PROFESSIONAL EXPERIENCE

LECG, LCC, Washington, DC 1998–2009.
Principal

- Reviewed and commented on an analysis of the target installed capacity reserve margin for the Mid Atlantic region; recommended improvements to the analysis and assumptions.
- Evaluated an electric generating capacity mechanism and the price levels to support adequate capacity; recommended changes to improve efficiency.
- Analyzed and critiqued the methodology and assumptions used in preparation of a long run electricity peak load forecast.
- Evaluated results of an electric generating capacity incentive mechanism and critiqued the mechanism's design; prepared a detailed report. Evaluated the impacts of the mechanism's flaws on prices and costs and prepared testimony in support of a formal complaint.
- Analyzed impacts and potential damages of natural gas migration from a storage field.
- Evaluated allegations of manipulation of natural gas prices and assessed the potential impacts of natural gas trading strategies.
- Prepared affidavit evaluating a pipeline's application for market-based rates for interruptible transportation and the potential for market power.
- Prepared testimony on natural gas industry contracting practices and damages in a contract dispute.
- Prepared affidavits on design issues for an electric generating capacity mechanism for an eastern US regional transmission organization; participated in extensive settlement discussions.
- Prepared testimony on the appropriateness of zonal rates for a natural gas pipeline.
- Evaluated market power issues raised by a possible gas-electric merger.
- Prepared testimony on whether rates for a pipeline extension should be rolled-in or incremental under Federal Energy Regulatory Commission ("FERC") policy.
- Prepared an expert report on damages in a natural gas contract dispute.
- Prepared testimony regarding the incentive impacts of a ratemaking method for natural gas pipelines.
- Prepared testimony evaluating natural gas procurement incentive mechanisms.
- Analyzed the need for and value of additional natural gas storage in the southwestern US.
- Evaluated market issues in the restructured Russian electric power market, including the need to introduce financial transmission rights, and policies for evaluating mergers.

- Affidavit on market conditions in western US natural gas markets and the potential for a new merchant gas storage facility to exercise market power.
- Testimony on the advantages of a system of firm, tradable natural gas transmission and storage rights, and the performance of a market structure based on such policies.
- Testimony on the potential benefits of new independent natural gas storage and policies for providing transmission access to storage users.
- Testimony on the causes of California natural gas price increases during 2000-2001 and the possible exercise of market power to raise natural gas prices at the California border.
- Advised a major US utility with regard to the Federal Energy Regulatory Commission's proposed Standard Market Design and its potential impacts on the company.
- Reviewed and critiqued draft legislation and detailed market rules for reforming the Russian electricity industry, for a major investor in the sector.
- Analyzed the causes of high prices in California wholesale electric markets during 2000 and developed recommendations, including alternatives for price mitigation. Testimony on price mitigation measures.
- Summarized and critiqued wholesale and retail restructuring and competition policies for electric power and natural gas in select US states, for a Pacific Rim government contemplating energy reforms.
- Presented testimony regarding divestiture of hydroelectric generation assets, potential market power issues, and mitigation approaches to the California Public Utilities Commission.
- Reviewed the reasonableness of an electric utility's wholesale power purchases and sales in a restructured power market during a period of high prices.
- Presented an expert report on failure to perform and liquidated damages in a natural gas contract dispute.
- Presented a workshop on Market Monitoring to a group of electric utilities in the process of forming an RTO.
- Authored a report on the screening approaches used by market monitors for assessing exercise of market power, material impacts of conduct, and workable competition.
- Developed recommendations for mitigating locational market power, as part of a package of congestion management reforms.
- Provided analysis in support of a transmission owner involved in a contract dispute with generators providing services related to local grid reliability.
- Authored a report on the role of regional transmission organizations in market monitoring.
- Prepared market power analyses in support of electric generators' applications to FERC for market-based rates for energy and ancillary services.
- Analyzed western electricity markets and the potential market power of a large producer under various asset acquisition or divestiture strategies.
- Testified before a state commission regarding the potential benefits of retail electric competition and issues that must be addressed to implement it.
- Prepared a market power analysis in support of an acquisition of generating capacity in the New England market.
- Advised a California utility regarding reform strategies for the California natural gas industry, addressing market power issues and policy options for providing system balancing services.

ICF RESOURCES, INC., Fairfax, VA, 1997–1998.
Project Manager

- Reviewed, critiqued and submitted testimony on a New Jersey electric utility's restructuring proposal, as part of a management audit for the state regulatory commission.
- Assisted a group of US utilities in developing a proposal to form a regional Independent System Operator (ISO).
- Researched and reported on the emergence of Independent System Operators and their role in reliability, for the Department of Energy.

- Provided analytical support to the Secretary of Energy's Task Force on Electric System Reliability on various topics, including ISOs. Wrote white papers on the potential role of markets in ensuring reliability.
- Recommended near-term strategies for addressing the potential stranded costs of non-utility generator contracts for an eastern utility; analyzed and evaluated the potential benefits of various contract modifications, including buyout and buydown options; designed a reverse auction approach to stimulating competition in the renegotiation process.
- Designed an auction process for divestiture of a Northeastern electric utility's generation assets and entitlements (power purchase agreements).
- Participated in several projects involving analysis of regional power markets and valuation of existing or proposed generation assets.

IRIS MARKET ENVIRONMENT PROJECT, 1994–1996.
Project Director, Moscow, Russia

Established and led a policy analysis group advising the Russian Federal Energy Commission and Ministry of Economy on economic policies for the electric power, natural gas, oil pipeline, telecommunications, and rail transport industries (*the Program on Natural Monopolies,* a project of the IRIS Center of the University of Maryland Department of Economics, funded by USAID):

- Advised on industry reforms and the establishment of federal regulatory institutions.
- Advised the Russian Federal Energy Commission on electricity restructuring, development of a competitive wholesale market for electric power, tariff improvements, and other issues of electric power and natural gas industry reform.
- Developed policy conditions for the IMF's $10 billion Extended Funding Facility.
- Performed industry diagnostic analyses with detailed policy recommendations for electric power (1994), natural gas, rail transport and telecommunications (1995), oil transport (1996).

Independent Consultant stationed in Moscow, Russia, 1991–1996

Projects for the WORLD BANK, 1992-1996:

- Bank Strategy for the Russian Electricity Sector. Developed a policy paper outlining current industry problems and necessary policies, and recommending World Bank strategy.
- Russian Electric Power Industry Restructuring. Participated in work to develop recommendations to the Russian Government on electric power industry restructuring.
- Russian Electric Power Sector Update. Led project to review developments in sector restructuring, regulation, demand, supply, tariffs, and investment.
- Russian Coal Industry Restructuring. Analyzed Russian and export coal markets and developed forecasts of future demand for Russian coal.
- World Bank/IEA Electricity Options Study for the G-7. Analyzed mid- and long-term electric power demand and efficiency prospects and developed forecasts.
- Russian Energy Pricing and Taxation. Developed recommendations for liberalizing energy markets, eliminating subsidies and restructuring tariffs for all energy resources.

Other consulting assignments in Russia, 1991–1994:

- Advised on projects pertaining to Russian energy policy and the transition to a market economy in the energy industries, for the Institute for Energy Research of the Russian Academy of Sciences.
- Presented seminars on the structure, economics, planning, and regulation of the energy and electric power industries in the US, for various Russian clients.

DECISION FOCUS INC., Mountain View, CA, 1983–1992
Senior Associate, 1985-1992.

- For the Electric Power Research Institute, led projects to develop decision-analytic methodologies and models for evaluating long term fuel and electric power contracting and procurement strategies. Applied the methodologies and models in numerous case studies, and presented several workshops and training sessions on the approaches.
- Analyzed long-term and short-term natural gas supply decisions for a large California gas distribution company following gas industry unbundling and restructuring.
- Analyzed long term coal and rail alternatives for a midwest electric utility, including alternative coal supply regions, suppliers and contract structures; spot/contract mix; rail arrangements; power purchases; conversion to gas.
- Evaluated bulk power purchase alternatives and strategies for a New Jersey electric utility.
- Performed a financial and economic analysis of a proposed hydroelectric project.
- For a natural gas pipeline company serving the Northeastern US, forecasted long-term natural gas supply and transportation volumes. Developed a forecasting system for staff use.
- Analyzed potential benefits of diversification of suppliers for a natural gas pipeline company.
- Evaluated uranium contracting strategies for an electric utility.
- Analyzed telecommunications services markets under deregulation, developed and implemented a pricing strategy model. Evaluated potential responses of residential and business customers to changes in the client's and competitors' telecommunications services and prices.
- Analyzed coal contract terms and supplier diversification strategies for an eastern electric utility.
- Analyzed oil and natural gas contracting strategies for an electric utility.

TESTIMONY AND AFFIDAVITS

Affidavit in Support of the Motion to Intervene and Comments of the Public Power Association of New Jersey, Joint Consumer Representatives v. PJM Interconnection, L.L.C., FERC Docket No. EL15-83, July 20, 2015.

In the Matter of the Tariff Revisions Filed by ENSTAR Natural Gas Company, a Division of SEMCO Energy, Inc., Regulatory Commission of Alaska Case No. U-14-111, Testimony on Behalf of Matanuska Electric Association, Inc., May 13, 2015.

In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company for Authority to Provide for a Standard Service Offer Pursuant to R.C. 4928.143 in the Form of an Electric Security Plan, Public Utilities Commission of Ohio Case No. 14-1297-EL-SSO: Direct Testimony on Behalf of the Office of the Ohio Consumers' Counsel and Northeast Ohio Public Energy Council, December 22, 2014; deposition, February 10, 2015; supplemental testimony May 11, 2015; second deposition May 26, 2015.

PJM Interconnection, L.L.C., FERC Docket No. ER14-2940 (RPM Triennial Review), Affidavit in Support of the Protest of the PJM Load Group, October 16, 2014.

In the Matter of the Application of Duke Energy Ohio for Authority to Establish a Standard Service Offer in the Form of an Electric Security Plan, Public Utilities Commission of Ohio Case No. 14-841-EL-SSO: Direct Testimony on Behalf of the Office of the Ohio Consumers' Counsel, September 26, 2014; deposition, October 6, 2014; testimony at hearings, November 5, 2014.

In the Matter of the Application of Ohio Power Company for Authority to Establish a Standard Service Offer in the Form of an Electric Security Plan, Public Utilities Commission of Ohio Case No. 13-2385-EL-SSO: Direct Testimony on Behalf of the Office of the Ohio Consumers' Counsel, May 6, 2014; deposition, May 29, 2014; testimony at hearings, June 16, 2014.

PJM Interconnection, L.L.C., FERC Docket No. ER14-504 (Clearing of Demand Response in RPM), Affidavit in Support of the Protest of the Joint Consumer Advocates and Public Interest Organizations, December 20, 2013.

New England Power Generators Association, Inc. v. ISO New England Inc., FERC Docket No. EL14-7, Testimony in Support of the Protest of the New England States Committee on Electricity, November 27, 2013.

Midwest Independent Transmission System Operator, Inc., FERC Docket No. ER11-4081, Affidavit In Support of Brief of the Midwest TDUs, October 11, 2013.

ANR Storage Company, FERC Docket No. RP12-479, Prepared Answering Testimony on behalf of the Joint Intervenor Group, April 2, 2013; Prepared Cross-answering Testimony, May 15, 2013; testimony at hearings, September 4, 2013.

In the Matter of the Application of The Dayton Power and Light Company for Approval of its Market Rate Offer, Public Utilities Commission of Ohio Case No. 12-426-EL-SSO: Direct Testimony on Behalf of the Office of the Ohio Consumers' Counsel, March 5, 2013; deposition, March 11, 2013.

PJM Interconnection, L.L.C., FERC Docket No. ER13-535 (Minimum Offer Price Rule), Affidavit in Support of the Protest and Comments of the Joint Consumer Advocates, December 28, 2012.

In the Matter of the Application of Ohio Edison Company, et al for Authority to Provide for a Standard Service Offer in the Form of an Electric Security Plan, Public Utilities Commission of Ohio Case No. 12-1230-EL-SSO: Direct Testimony on Behalf of the Office of the Ohio Consumers' Counsel, May 21, 2012; deposition, May 30, 2012; testimony at hearings, June 5, 2012.

PJM Interconnection, L.L.C., FERC Docket No. ER12-513, Affidavit in Support of Protest of the Joint Consumer Advocates and Demand Response Supporters (changes to RPM), December 22, 2011.

People of the State of Illinois *ex rel*. Leon A. Greenblatt, III v Commonwealth Edison Company, Circuit Court of Cook County, Illinois, deposition, September 22, 2011; interrogatory, Feb. 22, 2011.

In the Matter of the Application of Union Electric Company for Authority to Continue the Transfer of Functional Control of Its Transmission System to the Midwest Independent Transmission System Operator, Inc., Missouri PSC Case No. EO-2011-0128, Testimony in hearings, February 9, 2012; Rebuttal Testimony and Response to Commission Questions On Behalf Of The Missouri Joint Municipal Electric Utility Commission, September 14, 2011.

PJM Interconnection, L.L.C., and PJM Power Providers Group v. PJM Interconnection, L.L.C., FERC Docket Nos. ER11-2875 and EL11-20 (Minimum Offer Price Rule), Affidavit in Support of Protest of New Jersey Division of Rate Counsel, March 4, 2011, and Affidavit in Support of Request for Rehearing and for Expedited Consideration of New Jersey Division of Rate Counsel, May 12, 2011.

PJM Interconnection, L.L.C., FERC Docket No. ER11-2288 (Demand response "saturation" issue), Affidavit in Support of Protest and Comments of the Joint Consumer Advocates, December 23, 2010.

North American Electric Reliability Corporation, FERC Docket No. RM10-10, Comments on Proposed Reliability Standard BAL-502-RFC-02: Planning Resource Adequacy Analysis, Assessment and Documentation, December 23, 2010.

In the Matter of the Reliability Pricing Model and the 2013/2014 Delivery Year Base Residual Auction Results, Maryland Public Service Commission Administrative Docket PC22, Comments and Responses to Questions On Behalf of Southern Maryland Electric Cooperative, October 15, 2010.

PJM Interconnection, L.L.C., FERC Docket No. ER09-1063-004 (PJM compliance filing on pricing during operating reserve shortages): Affidavit In Support of Comments and Protest of the Pennsylvania Public Utility Commission, July 30, 2010.

ISO New England, Inc. and New England Power Pool, FERC Docket No. ER10-787-000 on Forward Capacity Market Revisions: Direct Testimony On Behalf Of The Connecticut Department of Public Utility Control, March 30, 2010; Direct Testimony in Support of First Brief of the Joint Filing Supporters, July 1, 2010; Supplemental Testimony in Support of Second Brief of the Joint Filing Supporters, September 1, 2010.

PJM Interconnection, L.L.C., FERC Docket No. ER09-412-006: Affidavit In Support of Protest of Indicated Consumer Interests, January 19, 2010.

In the Matter of the Application of Ohio Edison Company, et al for Approval of a Market Rate Offer to Conduct a Competitive Bidding Process for Standard Service Offer Electric Generation Supply, Public Utilities Commission of Ohio Case No. 09-906-EL-SSO: Direct Testimony on Behalf of the Office of the Ohio Consumers' Counsel, December 7, 2009; deposition, December 10, 2009, testimony at hearings, December 22, 2009.

Application of PATH Allegheny Virginia Transmission Corporation for Certificates of Public Convenience and Necessity to Construct Facilities: 765 kV Transmission Line through Loudon, Frederick and Clarke Counties, Virginia State Corporation Commission Case No. PUE-2009-00043: Direct Testimony on Behalf of Commission Staff, December 8, 2009.

PJM Interconnection, L.L.C., FERC Docket No. ER09-412-000: Affidavit On Proposed Changes to the Reliability Pricing Model On Behalf Of RPM Load Group, January 9, 2009; Reply Affidavit, January 26, 2009.

PJM Interconnection, L.L.C., FERC Docket No. ER09-412-000: Affidavit In Support of the Protest Regarding Load Forecast To Be Used in May 2009 RPM Auction, January 9, 2009.

Maryland Public Service Commission et al v. PJM Interconnection, L.L.C., FERC Docket No. EL08-67-000: Affidavit in Support Complaint of the RPM Buyers, May 30, 2008; Supplemental Affidavit, July 28, 2008.

PJM Interconnection, L.L.C., FERC Docket No. ER08-516: Affidavit On PJM's Proposed Change To RPM Parameters On Behalf Of RPM Buyers, March 6, 2008.

PJM Interconnection, L.L.C., Reliability Pricing Model Compliance Filing, FERC Docket Nos. ER05-1410 and EL05-148: Affidavit Addressing RPM Compliance Filing Issues on Behalf of the Public Power Association of New Jersey, October 15, 2007.

TXU Energy Retail Company LP v. Leprino Foods Company, Inc., US District Court for the Northern District of California, Case No. C01-20289: Testimony at trial, November 15-29, 2006; Deposition, April 7, 2006; Expert Report on Behalf of Leprino Foods Company, March 10, 2006.

Gas Transmission Northwest Corporation, Federal Energy Regulation Commission Docket No. RP06-407: Reply Affidavit, October 26, 2006; Affidavit on Behalf of the Canadian Association of Petroleum Producers, October 18, 2006.

PJM Interconnection, L.L.C., Reliability Pricing Model, FERC Docket Nos. ER05-1410 and EL05-148: Supplemental Affidavit on Technical Conference Issues, June 22, 2006; Supplemental Affidavit Addressing Paper Hearing Topics, June 2, 2006; Affidavit on Behalf of the Public Power Association of New Jersey, October 19, 2005.

Maritimes & Northeast Pipeline, L.L.C., FERC Docket No. RP04-360-000: Prepared Cross Answering Testimony, March 11, 2005; Prepared Direct and Answering Testimony on Behalf of Firm Shipper Group, February 11, 2005.

Dynegy Marketing and Trade v. Multiut Corporation, US District Court of the Northern District of Illinois, Case. No. 02 C 7446: Deposition, September 1, 2005; Expert Report in response to Defendant's counterclaims, March 21, 2005; Expert Report on damages, October 15, 2004.

Application of Pacific Gas and Electric Company, California Public Utilities Commission proceeding A.04-03-021: Prepared Testimony, Policy for Throughput-Based Backbone Rates, on behalf of Pacific Gas and Electric Company, May 21, 2004.

Gas Market Activities, California Public Utilities Commission Order Instituting Investigation I.02-11-040: Testimony at hearings, July, 2004; Prepared Testimony, Comparison of Incentives Under Gas Procurement Incentive Mechanisms, on behalf of Pacific Gas and Electric Company, December 10, 2003.

Application of Red Lake Gas Storage, L.P., FERC Docket No. CP02-420, Affidavit in support of application for market-based rates for a proposed merchant gas storage facility, March 3, 2003.

Application of Pacific Gas and Electric Company, California Public Utilities Commission proceeding A.01-10-011: Testimony at hearings, April 1-2, 2003; Rebuttal Testimony, March 24, 2003; Prepared

Testimony, Performance of the Gas Accord Market Structure, on behalf of Pacific Gas and Electric Company, January 13, 2003.

Application of Wild Goose Storage, Inc., California Public Utilities Commission proceeding A.01-06-029: Testimony at hearings, November, 2001; Prepared testimony regarding policies for backbone expansion and tolls, and potential ratepayer benefits of new storage, on behalf of Pacific Gas and Electric Company, October 24, 2001.

Public Utilities Commission of the State of California v. El Paso Natural Gas Co., FERC Docket No. RP00-241: Testimony at hearings, May-June, 2001; Prepared Testimony on behalf of Pacific Gas and Electric Company, May 8, 2001.

Application of Pacific Gas and Electric Company, California Public Utilities Commission proceeding A.99-09-053: Prepared testimony regarding market power consequences of divestiture of hydroelectric assets, December 5, 2000.

San Diego Gas & Electric Company, *et al*, FERC Docket No. EL00-95: Prepared testimony regarding proposed price mitigation measures on behalf of Pacific Gas and Electric Company, November 22, 2000.

Application of Harbor Cogeneration Company, FERC Docket No. ER99-1248: Affidavit in support of application for market-based rates for energy, capacity and ancillary services, December 1998.

Application of and Complaint of Residential Electric, Incorporated vs. Public Service Company of New Mexico, New Mexico Public Utility Commission Case Nos. 2867 and 2868: Testimony at hearings, November, 1998; Direct Testimony on behalf of Public Service Company of New Mexico on retail access issues, November, 1998.

Management audit of Public Service Electric and Gas' restructuring proposal for the New Jersey Board of Public Utilities: Prepared testimony on reliability and basic generation service, March 1998.

PUBLISHED ARTICLES

Forward Capacity Market CONEfusion, Electricity Journal Vol. 23 Issue 9, November 2010.

Reconsidering Resource Adequacy (Part 2): Capacity Planning for the Smart Grid, Public Utilities Fortnightly, May 2010.

Reconsidering Resource Adequacy (Part 1): Has the One-Day-in-Ten-Years Criterion Outlived Its Usefulness? Public Utilities Fortnightly, April 2010.

A Hard Look at Incentive Mechanisms for Natural Gas Procurement, with K. Costello, National Regulatory Research Institute Report No. 06-15, November 2006.

Natural Gas Procurement: A Hard Look at Incentive Mechanisms, with K. Costello, Public Utilities Fortnightly, February 2006, p. 42.

After the Gas Bubble: An Economic Evaluation of the Recent National Petroleum Council Study, with K. Costello and H. Huntington, Energy Journal Vol. 26 No. 2 (2005).

High Natural Gas Prices in California 2000-2001: Causes and Lessons, Journal of Industry, Competition and Trade, vol. 2:1/2, November 2002.

Restructuring the Electric Power Industry: Past Problems, Future Directions, Natural Resources and Environment, ABA Section of Environment, Energy and Resources, Volume 16 No. 4, Spring, 2002.

Scarcity, Market Power, Price Spikes, and Price Caps, Electricity Journal, November, 2000.

The New York ISO's Market Power Screens, Thresholds, and Mitigation: Why It Is Not A Model For Other Market Monitors, Electricity Journal, August/September 2000.

ISOs: A Grid-by-Grid Comparison, Public Utilities Fortnightly, January 1, 1998.

Economic Policy in the Natural Monopoly Industries in Russia: History and Prospects (with V. Capelik), Voprosi Ekonomiki, November 1995.

Meeting Russia's Electric Power Needs: Uncertainty, Risk and Economic Reform, Financial and Business News, April 1993.

Russian Energy Policy through the Eyes of an American Economist, Energeticheskoye Stroitelstvo, December 1992, p 2.

Fuel Contracting Under Uncertainty, with R. B. Fancher and H. A. Mueller, IEEE Transactions on Power Systems, February, 1986, p. 26-33.

OTHER ARTICLES, REPORTS AND PRESENTATIONS

Panel on Load Forecasting, Organization of PJM States, Inc. Spring Strategy Meeting, April 13, 2015.

Panelist for Session 2: Balancing Bulk Power System and Distribution System Reliability in the Eastern Interconnection, Meeting of the Eastern Interconnection States' Planning Council, December 11, 2014.

Panel: Impact of PJM Capacity Performance Proposal on Demand Response, Mid-Atlantic Distributed Resources Initiative (MADRI) Working Group Meeting #36, December 9, 2014.

Panel: Applying the Lessons Learned from Extreme Weather Events – What Changes Are Needed In PJM Markets and Obligations? Infocast PJM Market Summit, October 28, 2014.

Panel on RPM: What Changes Are Proposed This Year? Organization of PJM States, Inc. 10th Annual Meeting, Chicago Illinois, October 13-14, 2014.

Panel on centralized capacity market design going forward, Centralized Capacity Markets in Regional Transmission Organizations and Independent System Operators, Docket No. AD13-7, September 25, 2013; post-conference comments, January 8, 2014.

Economics of Planning for Resource Adequacy, NARUC Summer Meetings, Denver, Colorado, July 21, 2013.

The Increasing Need for Flexible Resources: Considerations for Forward Procurement, EUCI Conference on Fast and Flexi-Ramp Resources, Chicago, Illinois, April 23-24, 2013.

Panel on RPM Issues: Long Term Vision and Recommendations for Now, Organization of PJM States, Inc. Spring Strategy Meeting, April 3, 2013.

Comments On: The Economic Ramifications of Resource Adequacy Whitepaper, peer review of whitepaper prepared for EISPC and NARUC, March 24, 2013.

Resource Adequacy: Criteria, Constructs, Emerging Issues, Coal Finance 2013, Institute for Policy Integrity, NYU School of Law, March 19, 2013.

Panel Discussion – Alternative Models and Best Practices in Other Regions, Long-Term Resource Adequacy Summit, California Public Utilities Commission and California ISO, San Francisco, California, February 26, 2013.

Fundamental Capacity Market Design Choices: How Far Forward? How Locational? EUCI Capacity Markets Conference, October 3, 2012.

One Day in Ten Years? Economics of Resource Adequacy, Mid-America Regulatory Conference Annual Meeting, June 12, 2012.

Reliability and Economics: Separate Realities? Harvard Electricity Policy Group Sixty-Fifth Plenary Session, December 1, 2011.

National Regulatory Research Institute Teleseminar: The Economics of Resource Adequacy Planning: Should Reserve Margins Be About More Than Keeping the Lights On?, panelist, September 15, 2011.

Improving RTO-Operated Wholesale Electricity Markets: Recommendations for Market Reforms, American Public Power Association Symposium, panelist, January 13, 2011.

Shortage Pricing Issues, panelist, Organization of PJM States, Inc. Sixth Annual Meeting, October 8, 2010.

National Regulatory Research Institute Teleseminar: Forecasting Natural Gas Prices, panelist, July 28, 2010.

Comments on the NARUC-Initiated Report: Analysis of the Social, Economic and Environmental Effects of Maintaining Oil and Gas Exploration Moratoria On and Beneath Federal Lands (February 15, 2010) submitted to NARUC on June 22, 2010.

Forward Capacity Market CONEfusion, Advanced Workshop in Regulation and Competition, 29th Annual Eastern Conference of the Center for Research in Regulated Industries, Rutgers University, May 21, 2010.

One Day in Ten Years? Resource Adequacy for the Smart Grid, revised draft November 2009.

Approaches to Local Resource Adequacy, presented at Electric Utility Consultants' Smart Capacity Markets Conference, November 9, 2009.

One Day in Ten Years? Resource Adequacy for the Smarter Grid, Advanced Workshop in Regulation and Competition, 28th Annual Eastern Conference of the Center for Research in Regulated Industries, Rutgers University, May 15, 2009.

Resource Adequacy in Restructured Electricity Markets: Initial Results of PJM's Reliability Pricing Model (RPM), Advanced Workshop in Regulation and Competition, 27th Annual Eastern Conference of the Center for Research in Regulated Industries, Rutgers University, May 15, 2008.

Statement at Federal Energy Regulatory Commission technical conference, Capacity Markets in Regions with Organized Electric Markets, Docket No. AD08-4-000, May 7, 2008.

Raising the Stakes on Capacity Incentives: PJM's Reliability Pricing Model (RPM), presentation at the University of California Energy Institute's 13th Annual POWER Research Conference, Berkeley, California, March 21, 2008.

Raising the Stakes on Capacity Incentives: PJM's Reliability Pricing Model (RPM), report prepared for the American Public Power Association, March 14, 2008.

Comments on GTN's Request for Market-Based Rates for Interruptible Transportation, presentation at technical conference in Federal Energy Regulatory Commission Docket No. RP06-407, September 26-27, 2006 on behalf of Canadian Association of Petroleum Producers.

Comments on Policies to Encourage Natural Gas Infrastructure, and *Supplemental Comments on Market-Based Rates Policy For New Natural Gas Storage,* State of the Natural Gas Industry Conference, Federal Energy Regulatory Commission Docket No. AD05-14, October 12 and 26, 2005.

After the Gas Bubble: A Critique of the Modeling and Policy Evaluation Contained in the National Petroleum Council's 2003 Natural Gas Study, with K. Costello and H. Huntington, presented at the 24th Annual North American Conference of the USAEE/IAEE, July 2004.

Comments on the Pipeline Capacity Reserve Concept, State of the Natural Gas Industry Conference, Federal Energy Regulatory Commission Docket No. PL04-17, October 21, 2004.

Southwest Natural Gas Market and the Need for Storage, Federal Energy Regulatory Commission's Southwestern Gas Storage Technical Conference, docket AD03-11, August 2003.

Assessing Market Power in Power Markets: the "Pivotal Supplier" Approach and Variants, presented at Electric Utility Consultants' Ancillary Services Conference, November 1, 2001.

Scarcity and Price Mitigation in Western Power Markets, presented at Electric Utility Consultants' conference: What To Expect In Western Power Markets This Summer (conference chair), May 1-2, 2001.

Market Power: Definition, Detection, Mitigation, pre-conference workshop, with Scott Harvey, January 24, 2001.

Market Monitoring in the U.S.: Evolution and Current Issues, presented at the Association of Power Exchanges' APEx 2000 Conference, October 25, 2000.

Ancillary Services and Market Power, presented at the Electric Utility Consultants' Ancillary Services Conference (New Business Opportunities in Competitive Ancillary Services Markets), Sept. 14, 2000.

Market Monitoring Workshop, presented to RTO West Market Monitoring Work Group, June 2000.

Screens and Thresholds Used In Market Monitoring, presented at the Conference on RTOs and Market Monitoring, Edison Electric Institute and Energy Daily, May 19, 2000.

The Regional Transmission Organization's Role in Market Monitoring, report for the Edison Electric Institute attached to their comments on the FERC's NOPR on RTOs, August, 1999.

The *Independent System Operator's Mission and Role in Reliability*, presented at the Electric Utility Consultants' Conference on ISOs and Transmission Pricing, March 1998.

Independent System Operators and Their Role in Maintaining Reliability in a Restructured Electric Power Industry, ICF Resources for the U. S. Department of Energy, 1997.

Rail Transport in the Russian Federation, Diagnostic Analysis and Policy Recommendations, with V. Capelik and others, IRIS Market Environment Project, 1995.

Telecommunications in the Russian Federation: Diagnostic Analysis and Policy Recommendations, with E. Whitlock and V. Capelik, IRIS Market Environment Project, 1995.

Russian Natural Gas Industry: Diagnostic Analysis and Policy Recommendations, with I. Sorokin and V. Eskin, IRIS Market Environment Project, 1995.

Russian Electric Power Industry: Diagnostic Analysis and Policy Recommendations, with I. Sorokin, IRIS Market Environment Project, 1995.

PROFESSIONAL ASSOCIATIONS

United States Association for Energy Economics

Natural Gas Roundtable

Energy Bar Association

July 2015

CERTIFICATE OF SERVICE

In accordance with Rule 2010 of the Commission's Rules of Practice and Procedure, I hereby certify that I have this day served by electronic mail a copy of the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Cambridge, MA this 5th day of August, 2015.

Respectfully submitted,

/s/ Jason Marshall
Jason Marshall
General Counsel
New England States Committee on Electricity
655 Longmeadow Street
Longmeadow, MA 01106
Tel: (617) 913-0342
Email: jasonmarshall@nescoe.com