UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

ISO New England Inc.	)	Docket No. ER19-1428-000
	)	

PROTEST OF NRG POWER MARKETING LLC

The Federal Energy Regulatory Commission (the "Commission") previously and appropriately has recognized the need for changes to New England's energy market design to address fuel security concerns,[1] specifically directing that ISO New England Inc. ("ISO-NE") file proposed fuel security market design improvements this year.[2] While NRG Power Marketing LLC ("NRG")[3] wholeheartedly agrees with the Commission's conclusion that market design changes relating to fuel security in New England must be implemented to ensure just, reasonable and not unduly discriminatory rates, terms and conditions of service consistent with the dictates of the Federal Power Act (the "FPA"), NRG is left in the unfortunate position of protesting ISO-NE's Inventoried Energy Program ("IEP") filing[4] because the market rule changes proposed therein are not just and reasonable.

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[1] *ISO New England Inc*., 164 FERC ¶ 61,003 (2018) (Order Denying Waiver Request, Instituting Section 206 Proceeding, and Extending Deadlines) ("Waiver Order").

[2] *Id*.

[3] NRG timely intervened in this proceeding on April 3, 2019.

[4] *ISO New England Inc.,* Docket No. ER19-1428-000, Inventoried Energy Program (filed March 25, 2019) ("IEP Filing").

ISO-NE has not met its burden of demonstrating that the changes it has proposed will meet the IEP Filing's stated objectives of enhancing winter energy security during the winters of 2023-2024 and 2024-2025. Instead, quite to the contrary, ISO-NE has conceded in the filing that it "cannot guarantee . . . that the program will incent specific resources to take precise actions that improve winter energy security. . . ."[5] An ineffective approach to addressing an acknowledged problem is not a just and reasonable approach. As indicated by the 67.33% vote in opposition to the IEP Filing by the NEPOOL Participants Committee,[6] a super-majority of stakeholders agree that the proposal is unsuitable and objectionable. NRG will explain herein why, despite the recognized need for market rule changes to address winter fuel security concerns, the IEP should not be implemented as proposed. NRG also will discuss modifications that could be made to address the program's shortcomings.

Because the existing market rules undoubtedly require change as they relate to fuel security, but the IEP Filing is not an effective mechanism to address those concerns, NRG urges the Commission to resolve the fuel security issues pursuant to its previously instituted FPA Section 206 docket in which it directed ISO-NE to submit permanent tariff revisions to improve its market design

[5] IEP Filing, Testimony of Christopher Geissler at 9:8-10. Hereinafter, Geissler Testimony.

[6] IEP Filing, Transmittal at 28.

effectively to address regional fuel security concerns.[7] Since the Commission has an ongoing FPA Section 206 proceeding,[8] it is empowered to reject the ISO-NE IEP Filing and institute an appropriate substitute in that docket. Alternately, the Commission may choose to initiate a new FPA Section 206 proceeding.[9] Although the Commission has authority to "unilaterally impose a new rate scheme" on ISO-NE pursuant to FPA Section 206,[10] the Commission instead may reject the IEP Filing, provide clear guidance to ISO-NE on the parameters of just and reasonable alternative proposal, and require a further filing.[11]

I. BACKGROUND

Winter season fuel security concerns in New England have been recognized at least as early as 2013, when ISO-NE began to approach the Commission to seek a variety of mechanisms to compensate fuel security

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[7] Waiver Order at 36, Ordering Para. F. The Commission recently granted ISO-NE's request for an extension of time from July 1, 2019 to October 15, 2019 to file its long-term fuel security mechanism to provide the time needed to develop a workable proposal. *ISO New England Inc.*, Notice of Extension of Time, Docket No. EL18-182-000 (Mar. 18, 2019).

[8] 16 U.S.C. § 824e (the Commission may act under Section 206 "upon its own motion or upon complaint").

[9] The Commission will transform Section 205 filings into Commission-initiated complaint proceedings when the record indicates that is necessary or appropriate. *Calpine Corporation, et al.*, 163 FERC ¶ 61,236 at P 6 n.9 (2018)*, reh'g pending.*

[10] *NRG Power Mktg., LLC v. FERC*, 862 F.3d 108 (2017).

[11] *Midcontinent Indep. Sys. Operator, Inc.*, 166 FERC ¶ 61,187 at P 19 (2019) ("[W]e find that MISO has not adequately supported aspects of its proposed, integrated reforms as just, reasonable, and not unduly discriminatory or preferential as required by FPA section 205. We therefore reject MISO's proposed Tariff revisions and provide guidance to assist MISO in developing a new proposal.").

providers.[12] The implemented approaches did not lead to a durable solution to the fuel security concerns, but began an annual ritual of winter reliability solutions and other stop-gap measures. Within the last year, ISO-NE sought a number of waivers from the Commission "as a last resort to ensure reliable service in New England"[13] in light of the potential retirement from service of certain generating units the decommissioning of which it determined would create reliability criteria violations.

In seeking tariff waivers, ISO-NE relied in part on an Operational Fuel-Security Analysis ("OFSA") it commissioned to assess risks to its system based on fuel concerns, noting the particular acute concern in winter when "fuel for nearly half the region's generating capacity may become inaccessible due to priority demand for natural gas from the heating sector."[14] ISO-NE indicated that it had initiated a stakeholder process to develop a long-term fuel security plan.[15] The

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[12] *See, e.g.*, *ISO New England Inc.*, 144 FERC ¶ 61,204 (2013) (conditionally accepting ISO-NE's Tariff revisions to provide out-of-market compensation for demand response, oil inventory, and dual-fuel testing services for the 2013-2014 Winter Reliability Program), *reh'g denied*, 147 FERC ¶ 61,026 (2014), *rev'd in part by TransCanada Power Marketing Ltd. v. FERC*, 811 F.3d 1 (2015); *see also ISO New England Inc.*, 147 FERC ¶ 61,172 (2014) (accepting Pay-for-Performance proposal to improve generator performance and reliability in New England), *reh'g denied*, 153 FERC ¶ 61,223 (2015), *aff'd sub nom.*, *NEPGA v. FERC*, 879 F.3d 1192 (D.C. Cir. 2018).

[13] Waiver Order at 10.

[14] *Id*. at n.8.

[15] *Id*. at 11.

OFSA concluded that the loss of fuel secure oil units could result in 600 hours of blackouts.[16]

The Commission ultimately denied the waiver request, making a preliminary finding "that ISO-NE's Tariff may be unjust and unreasonable, based on ISO-NE's demonstration in this proceeding that its Tariff fails to address specific regional fuel security concerns identified in the record that could result in reliability violations as soon as year 2022."[17] Specifically, the Commission stated: "[b]ased on the evidence in this proceeding, including ISO-NE's OFSA and Mystic Retirement Studies, we are concerned that ISO-NE's Tariff does not sufficiently address the fuel security issues currently facing the region, which could result in a violation of mandatory reliability standards."[18]

In response to the Waiver Order, ISO-NE submitted proposed tariff revisions providing a short-term cost-of-service mechanism to address fuel security, and contemporaneously was engaged in negotiating a cost-of-service agreement with the Mystic 8 and 9 units, the potential retirement of which

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[16] ISO New England, Operational Fuel-Security Analysis Presentation - March 28, 2018 Rev. 1, *Stakeholder Requests for Additional Scenarios* at 81 (2018), available at https://www.iso-ne.com/committees/key-projects/implemented/operational-fuel-security-analysis (last visited April 15, 2019).

[17] Waiver Order at 1, 28.

[18] *Id*. at 32.

precipitated the Waiver Order. The Commission ultimately accepted the short-term cost-based mechanism[19] as well as the Mystic cost-of-service agreement.[20]

Given the perceived difficulties in designing a permanent market-based fuel security solution on a timely basis, ISO-NE developed the IEP, which it seeks to rely upon during the winters of 2023-2024 and 2024-2025 for the 14th and 15th Forward Capacity Auctions. ISO-NE claims that "the program will provide incremental revenue to resources that maintain inventoried energy during stressed winter conditions."[21] In particular, ISO-NE notes that the objectives of the IEP include to allow Market Participants reasonably to forecast revenue from the program in their consideration of retirement decisions, to incent resources to take actions to improve the region's winter energy security that they otherwise would not take, and to encourage the acquisition and replenishment of inventoried energy.[22]

II. OVERVIEW OF PRIMARY IEP DEFICIENCIES

The IEP is akin to an effort to forestall a dam breach with a single sandbag. While well-intentioned, the effort is sure to be futile. In the IEP, ISO-NE proposes an approximately $1,500/MWh to $2,700/MWh problem with an $89/MWh solution.

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[19] *Constellation Mystic Power, LLC*, 165 FERC ¶ 61,267 (2018).

[20] *ISO New England Inc.*, 165 FERC ¶ 61,202 (2018).

[21] IEP Filing, Transmittal at 9; *see also* Geissler Testimony at 4:12-13.

[22] IEP Filing, Transmittal at 5, 8; Geissler Testimony at 6-7.

In addition, the program is expected to have a detrimental impact on capacity market revenues, and thus, citing the words of Chairman Chaterjee, may "exacerbate[ ] the very problem it purports to solve."[23]

First and foremost, as explained further in Section III.B *infra*, the stated purpose of the IEP is to provide incremental revenues that will improve New England's winter fuel security.[24] ISO-NE acknowledges in its filing that generators involved in its stakeholder process raised concerns that "the revenue provided by the program would be offset by lower capacity market payments."[25] If the program revenues indeed are offset elsewhere, then there are no incremental revenues provided by the IEP to encourage the desired behavior of fuel security providers, and the premise of the ISO-NE filing fails.

Given the criticality of incremental revenues to the series of actions that ISO-NE expects the IEP to precipitate generators to take to enhance fuel security, and the concomitant results it expects those incremental revenues to foreclose, ISO-NE was required, but failed, to address the generators' concerns that the program revenues will be offset. Instead, ISO-NE merely acknowledged that the concerns existed and indicated that it expected them to be aired before the

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[23] *ISO New England Inc.*, 165 FERC ¶ 61,202 (2018) (Chairman's dissent at 1).

[24] ISO-NE relies substantially on these alleged incremental revenues to justify the IEP Filing, indicating that they allow for lower de-list bids in the Forward Capacity Auction, and permit a generator to earn inventoried energy compensation above and beyond energy market revenues. IEP Filing, Transmittal at 21.

[25] *Id.* at 28.

Commission in responsive pleadings to the IEP Filing.[26] Because these concerns, if valid, undermine the very underpinning for the program, in failing to address the concerns and demonstrate that they are ill-founded, ISO-NE fundamentally has failed to justify the IEP.

Second, as explained more fully in Section III.C *infra* and in the attached testimony of NRG witness Tanya L. Bodell of Energyzt Advisors, LLC,[27] even if there were any incremental revenue offered by the IEP, the $89.49 fixed forward rate per MWh per delivery period and $8.25/MWh spot rate that ISO-NE has proposed were developed based on unrealistic and unsupportable assumptions. In addition, since a mere $89.49/MWh payment was insufficient to keep in operation several other New England generators that recently entered into contractual arrangements to avoid retirement, ISO-NE cannot demonstrate and has not demonstrated that other at-risk generators would avoid retirement based on the meager IEP payments. Indeed, rather than $89.49/MWh, the Commission recently determined a New England generator required upwards of $2,600/MWh to avoid retirement.[28] The substantially lower payments that ISO-NE has proposed to make to the remaining balance of inventoried fuel providers through the IEP are unlikely sufficient to avoid retirements and are unjust, unreasonable and unduly discriminatory and preferential for FPA purposes.

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[26] *Id*.

[27] Exhibit NRG-1 at 15.

[28] *Id*. at 5.

Third, as discussed further in Section III.D *infra*, ISO-NE has made flawed, unsupported and unsupportable assumptions about the availability of the fuel input product and transportation rights it expects inventoried fuel suppliers to obtain. In particular, ISO-NE has based its assumptions on the availability of forward liquefied natural gas contracts during the 90 days between December 1 and February 28 that include 10 calls and are fully deliverable based on such calls.[29] At the same time, its witness has acknowledged that "[r]ecent winter periods have seen relatively little forward contracting with LNG terminals by generators operating in the ISO-NE markets."[30] ISO-NE also assumes firm pipeline delivery rights will be available when such rights are not readily accessible due to demand outstripping supply.

To support the IEP Filing, ISO-NE must address, but has not addressed, whether it is reasonable to conclude the LNG and transportation products underpinning the program will be available during the winter months on demand as the program assumes.

III. PROTEST

A. ISO-NE Has Not Met its FPA Section 205 Burden

Rather than meeting its FPA Section 205 burden of proof to support its proposed market rule changes, ISO-NE has relied upon a series of unfounded assumptions in the IEP Filing. These include, but are not limited to, the unfounded

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[29] IEP Filing, Testimony of Todd Schatzki at 3-4; Schatzki Attachment B, Calculation of Rate for Interim Compensation Program at 2.

[30] Schatzki Attachment B at n.2.

assumption: (1) that the revenues provided by the program will be "incremental" to the generator despite the Internal Market Monitor's ("IMM") statement that it plans to account for this revenue in its administration of the Forward Capacity Market and energy market mitigation rules,[31] which led generators such as NRG to conclude they could not rely on the existence of any incremental revenues; (2) that fuel security to be provided by eligible market participants can be provided at prices that are a small fraction of the prices required by Mystic, nuclear plants in New England responding to state issued requests for proposals for zero-emissions power supply, fuel security providers that import the product from Canada, hydro-electric providers, and others; and (3) that LNG contracts in sufficient quantities to alleviate winter fuel security concerns will be available over the winter months providing full deliverability on the coldest days of the year with just 10 calls at a relatively modest price, along with associated pipeline contracts for firm delivery.

ISO-NE argues that the Commission is to exercise a passive and reactive role when it assesses an FPA Section 205 filing, and that the limited reason such a filing can be rejected is when the changes have not been shown to be just and reasonable.[32] Even if the Commission or another party suggests a better proposal, ISO-NE claims its proposal should be accepted.[33] Unfortunately, ISO-NE appears

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[31] IMM Comments of the Internal Market Monitor of ISO New England Inc. on the Inventoried Energy Program, Docket No. ER19-1428-000 (filed April 8, 2019) ("IMM Comments").

[32] IEP Filing, Transmittal at 2.

[33] *Id*. at 3.

to have relied too heavily on its view of diminished Commission review for FPA Section 205 purposes to buttress its filing. ISO-NE has not provided a sufficient evidentiary basis to support its proposal, and NRG will show herein the fundamental flaws in a variety of the ISO-NE filing premises that should lead the Commission to reject the ISO-NE filing and to substitute its own just and reasonable alternative pursuant to FPA Section 206.

Although ISO-NE is not incorrect that an FPA Section 205 proposal need not be the best proposal, it remains the case that parties proposing changes to existing rates, terms and conditions such as ISO-NE is doing in the IEP Filing must demonstrate affirmatively that the proposed changes are just and reasonable and not unduly discriminatory or preferential.[34] The Commission rejects proposals made pursuant to Section 205 of the FPA when such a showing has not been made.[35]

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[34] 16 U.S.C. § 824d(e). *See also Nantahala Power & Light Co. v. FERC*, 727 F.2d 1342, 1351 (4th Cir. 1984) (holding that rate change proponent "bears the burden of justifying each component of a rate increase and the overall increase itself under section 205(e) of the Federal Power Act."); *Nw. Corp. v. Fed. Energy Regulatory Comm'n*, 884 F.3d 1176, 1180 (D.C. Cir. 2018) (indicating that Section 205 of the Federal Power Act places the burden on the utility to show that its proposed revised rate is just and reasonable); *Southwest Power Pool*, 161 FERC ¶ 61,039 at P 1 (2017) (rejecting Section 205 tariff revisions not sufficiently supported by their filer); *Calpine Corporation, et al.*, 163 FERC ¶ 61,236 (2018)*, reh'g pending* (rejecting PJM proposals when PJM did not meet its Section 205 burden); *PJM Interconnection, L.L.C.*, 166 FERC ¶ 61,115 (2019) (rejecting tariff filing).

[35] *See, e.g., Cal. Indep. Sys. Operator Corp.*, 160 FERC ¶ 61,047 at P 32 (2017) (rejecting tariff amendments not supported as just and reasonable); *Midcontinent Indep. Sys. Operator, Inc.*, 165 FERC ¶ 61,015 at P 32 (2018) (rejecting tariff revisions not shown just and reasonable and not unduly discriminatory or preferential); *Midcontinent Indep. Sys. Operator, Inc.*, 166 FERC ¶ 61,187 at P 19 (2019) (rejecting Section 205 tariff filing when aspects were not adequately supported as just, reasonable, and not unduly discriminatory or preferential per FPA section 205).

B. ISO-NE Has Not Demonstrated that the Incremental Revenues that are the Underpinning of the IEP Will Materialize

The premise of the ISO-NE IEP is that the program will provide incremental revenues to encourage desirable fuel security behavior, including (1) spurring generators to enter into winter fuel supply contracts for service on the coldest of winter days and (2) avoiding retirement. ISO-NE concedes that incremental revenues are critical to achieving these goals. Indeed, ISO-NE explained that one of the reasons it excluded units with cost-of-service agreements from IEP eligibility is because their cost-of-service agreement payments would be lowered by any IEP revenues and, given the resulting absence of incremental revenues caused by this netting, it would be unlikely they would have any incentive to participate in IEP.[36]

Notably, ISO-NE was aware of, but deferred addressing substantively in its IEP Filing, concerns that the IMM would lower program participants' capacity payments by the amount of any incremental IEP revenues.[37] However, having recognized in the cost-of-service agreement context that if revenues received through one payment are netted out of another, there is no incentive to take on the risks and obligations to provide the fuel security service, ISO-NE should have

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[36] IEP Filing, Transmittal at 18.

[37] On February 1, 2019, as what ultimately became the IEP was being discussed in the ISO-NE stakeholder process, the ISO-NE IMM issued a memorandum relating to ISO-NE's plans to submit the IEP to the Commission that confirmed that the IMM "will account" for the expected compensation through the program in both the capacity market and the energy market. In particular, the IMM noted the immediate impact such compensation would have on capacity market bids that were due in the upcoming weeks, and the longer term need to change reference level calculations that it uses in energy market mitigation. *See* https://www.iso-ne.com/static-assets/documents/2019/02/a2_imm_memo_interim_compensation_treatment_and_market_mitigation.pdf (last visited April 15, 2019).

recognized the substantial problem that the IMM proposal raises for the viability of the IEP. The Commission can resolve the issue that the program will not provide incremental revenue, and must do so before it can accept the program. The Commission can do so by holding in any order that it issues on the IEP Filing that the IMM cannot deduct the IEP revenues from capacity market revenues as doing so would eviscerate the basis for the program.

To be clear, the risk that the IMM will take action to ensure there is no incremental revenue from the IEP is not hypothetical or remote. The IMM has disclosed to the Commission its plans to eliminate incremental energy revenues accruing to fuel security providers from the IEP.[38] In its pleading on the IEP Filing, the IMM explains that it intends to consider positive net revenue from the IEP just like any other ancillary services revenue received by a generator and reduce what the resource is permitted to bid in the Forward Capacity Auction by the amount of such IEP incremental revenues.[39] The IMM reasons that the IEP reduces the revenues a generator needs to recover from the capacity market and reducing a fuel security provider's permissible capacity offer by the amount of its incremental IEP revenues would make it more likely the capacity resource will clear.[40]

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[38] IMM Comments.

[39] *Id*. at 3, 5-9.

[40] *Id*. at 8.

If the IMM were to take away from generators through energy market mitigation or changes to capacity market bidding levels the revenue stream that ISO-NE proposes to provide through the IEP, generators such as NRG believe the avoided retirements and fuel contracting actions ISO-NE hoped those payments would encourage will not come to fruition. Instead, if the left hand takes away what the right hand gives, any benefits of the program would be nullified and the payments will be for naught.

The IMM's planned mitigation eviscerates the purpose of the IEP, and if the IMM will be permitted to mitigate the incremental revenues, there is no merit to implementing the program. The IMM misses a handful of fundamental points in the IMM Comments, not the least of which are that:

(1) Retirements of needed resources have been threatened and occur because the total of the existing revenues received in the energy, capacity and ancillary services markets are deemed insufficient to continue economic operations. Forcing those revenues to remain static by taking away incremental IEP revenue earned from available capacity revenue leads to no net improvement in the generator's financial situation and will not foreclose retirements. Only the availability of sufficient incremental revenue from the program to materially improve the provider's financial wherewithal will foreclose retirements and encourage generators to take action to improve fuel security; and

(2) Generators assume risks and obligations upon entering into the fuel security contracts underlying the IEP, including the risk that the LNG will not be delivered during every one of the generator's call option exercises and the potential need to post credit, among other things. It is unrealistic for the IMM to conclude that generators will assume such risks and obligations if they have no opportunity to earn incremental revenues. Indeed, ISO-NE has conceded as much by noting that cost-of-service providers will not have an incentive to participate because any program revenues would be netted from their cost-of-service payments.

In fact, the IMM's proposal is fundamentally at odds with many of ISO-NE's premises expressed in the IEP Filing. For example,

(1) ISO-NE has stated that proper compensation should be provided to those providing both resource adequacy and fuel security, and explained that through the IEP it seeks to provide incremental compensation to encourage inventoried energy to be maintained.[41] Incremental means "additional." If an entity earns overall net revenues of $50/MWh now, the IMM intends for that entity to earn $50/MWh of net revenues in the future regardless of what extra services it provides, precluding the ability to capture incremental revenues.

(2) ISO-NE intends that program compensation will provide an incentive to resources to take action that they are not taking now, and otherwise would not take. Specifically it intends they will arrange for sufficient stores of inventoried energy and replenish those stores given the ability "to earn greater program revenues".[42] Only incremental revenues that a generator can keep will incent changed behavior.

(3) ISO-NE seeks to deter generator retirements.[43] The availability of incremental revenue that is sufficient to cause an uneconomic facility to become economic is required to deter retirements. Static revenue opportunities are unlikely to deter retirements.

As presently anticipated, units that participate in the IEP that also participate in the capacity market will have lower capacity market de-list bids. If one of these units is the marginal unit that sets the capacity market clearing price, the price will be lower than it otherwise would have been. Ms. Bodell concludes that an expected result is that most generators will receive less capacity market revenues with IEP than they would have received without it.[44] The Commission has been

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[41] IEP Filing, Transmittal at 4.

[42] *Id*. at 5, 8.

[43] *Id*.

[44] Ex. NRG-1 at 31.

down this road in New England before. Back in 2003, several New England suppliers at risk of retirement sought Reliability Must Run cost-of-service agreements from the Commission. The Commission was concerned about the ramifications of approving such agreements because when a potentially marginal unit is removed from the competitive market bid stack, the next unit in line will become marginal. The resulting lower capacity market revenues make economical operations that much more difficult for the remaining market generators, and lead to a slippery slope in which more and more generators failing to receive sufficient revenues to participate in the market, but nonetheless needed, seek to rely on out-of-market compensation.[45] While IEP may seem innocuous on its face, the Commission should avoid reaching the conclusion that even if it may not help, it won't hurt. As this historical experience makes clear, when revenue insufficiency for needed generators is a problem, any outcome that creates a domino effect by reducing clearing prices may prove more harmful than helpful.

C. ISO-NE Has Not Demonstrated the Propriety of its Forward and Spot Market Rates

1. ISO-NE Has Not Shown the IEP Rates are Sufficient to Incentivize the Desired Behavior

ISO-NE proposes to pay program participants a fixed forward rate of $82.49 for each MWh sold forward during the delivery period and a rate of $8.25 on a spot

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[45] *Devon Power LLC*, *et al.*, 103 FERC ¶ 61,082 at PP 29, 31 (2003) (noting that the elimination of marginal units from the bid stack will suppress market clearing prices, erode the ability of other generators to earn competitive revenues in the market and lead to a slippery slope in which additional needed generators require financial support).

basis per MWh for each trigger condition during the delivery period.[46] In exchange for these payments, ISO-NE intends that generators able to support winter reliability will acquire inventoried fuel that they would not have otherwise acquired to provide such support, and will defer retirement decisions. However, ISO-NE has not demonstrated that payments at these levels will prove sufficient to achieve either of these goals. Instead, as noted *supra*, ISO-NE has admitted that it "cannot guarantee . . . that the program will incent specific resources to take precise actions that improve winter energy security. . . ."[47]

NRG Witness Bodell explains in her testimony that IEP payments are not likely to reduce the level of retirements because the payments are too low and the risks of participation are too high.[48] She explains that the impending retirement of several units in New England recently were forestalled by contractual arrangements that provide payments many multiples of the revenues proposed in the IEP Filing. In particular, she discusses the cost-of-service agreement that the Commission approved recently for Mystic Units 8 and 9, noting that these units will receive total annual payments of approximately $175 million annually for the winters of 2022/23 and 2023/24.[49] Translated to IEP forward payment price terms, Ms. Bodell calculates that the payments range from $1,457/MWh if Mystic supplied

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[46] IEP Filing, Transmittal at 11.

[47] *See* n.5 *supra*.

[48] Ex. NRG-1 at 22.

[49] *Id*. at 14.

65,000 MWh or $2,689 MWh if it supplied 120,000 MWh.[50] These values are between 17 and 33 times the proposed IEP forward rate of $82.49/MWh. The Commission would presumably not have approved payments 17 to 33 times higher than what were needed to avoid these units' retirements. Indeed, the IEP unrealistically seeks to procure 15 times the inventoried fuel provided by Mystic for 85 percent less money.[51] While NRG understands that precise break-even costs are unique to each generator, this dichotomy is substantial, and forces the conclusion that the IEP payments are a far cry from those that would be needed to deter retirements. Similarly, while the payment pursuant to the contractual arrangement with a 10 year term that was negotiated by Millstone to avoid retirement is not yet public, Ms. Bodell notes that its need for a long term contract to avoid retirement is indicative of the inability of the IEP to provide the kind of incentive needed to avoid losing units through retirement.[52] Ms. Bodell further explains that the declining compensation levels associated with increased inventoried energy days will detract from participation incentives because the forward program fixed payment "only covers the average number of Inventoried Energy Days, but the program is meant to provide an insurance policy for the most extreme winters when the weather is much colder than average."[53]

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[50] *Id*. at 24.

[51] *Id*. at 14.

[52] *Id*. at 26.

[53] *Id*. at 32.

Another shortcoming is that ISO-NE has not factored into its financial equation for IEP compensation the price suppression in the capacity market associated with marginal units bidding as price takers or having lower de-list bids. Declines in the capacity market of $1.50/kw-month already occurred between Forward Capacity Auction ("FCA") 11 and 13,[54] and another $0.50/kw-month to $4.12/kw-month reduction is expected for FCA 14 in light of the Mystic zero-price bids.[55] The program payments are not sufficient to make up for the price suppressing effect on capacity market revenues of the expanded universe of price-taking bidders, no less to provide additional revenues that will improve the financial wherewithal of generators sufficiently to cause them to defer retirement. Generators' economic prospects are declining despite IEP.[56]

As to providing the incentive to obtain inventoried fuel, there are various concerns, including whether fuel will be sufficiently available at the assumed prices, whether transportation to deliver the fuel is available in sufficient quantities and within the assumed prices, and whether the assumed costs and risks outweigh any potential upside to the generator. As an initial matter, Ms. Bodell explains that while the forward revenue stream is a fixed sum, the costs of participation are not fixed. Moreover, while the imputed compensation is based on an assumed 10

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[54] *Id*. at 21 and 17.

[55] *ISO New England Inc.*, Docket No. ER18-2364-000, Motion to Intervene and Protest of the New England Power Generators Association, Inc., Testimony of Dr. Paul M. Sotkiewicz at 29 n.13 (filed Sept. 21, 2018).

[56] Ex. NRG-1 at 31.

Inventoried Energy Days, generator obligations are triggered whenever sufficiently cold weather occurs, putting the risk of bad weather, high replacement costs and delivery risks on the generator.

Ms. Bodell highlights four types of risks inherent to the program. She notes that there is **price risk**, because the average price declines with each MWH-day the forward sale goes to delivery. She explains that if there are 22 Inventoried Energy Days instead of the program assumed value of 10, the forward price will be $4.05/MWh instead of $8.25/MWh.[57] There is also **quantity risk** because while payment is based on an assumed 10 days, the obligation is to deliver on as many Inventoried Energy Days as occur during the winter season. Ms. Bodell further explains that there is **market risk** because the cost of procuring inventory may exceed the $8.24/MWh spot price and since the average compensation declines with each additional Inventoried Energy Day that occurs. Thus, in order to settle out of its obligation to deliver, a generator could have to pay more than the average price received for that day.[58] Finally, she discusses the **weather risk**, explaining that limited storage could cause inventory to be drawn down if a series of consecutive Inventoried Energy Days occur during a cold snap, imposing price and quantity risk to replenish the inventory. In addition, she notes that penalties may be imposed that eliminate payments or that lead to a negative position.

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[57] *Id*. at 26.

All of these assumed risks, when compared to the relatively modest program payments, and upon consideration of the IMM's plans to deduct program revenues from capacity market revenues, leave generators such as NRG with little incentive to participate in the IEP. Ms. Bodell notes that some generators that already have inventoried energy such as nuclear, coal and hydro-electric units might participate in order to receive program payments they otherwise would forego.[59] These generators provide no incremental program benefits. When gas fired generators will participate depends on their cost to procure firm supply when compared to the program compensation and risks, and is possible in certain quantities, but far from certain in sufficient quantities to achieve the program's goal.

2. ISO-NE Has Not Shown the Rate is Non-Discriminatory

ISO-NE concedes that the IEP Filing deviates from sound market principles in various respects, but argues that one fundamental market design principle it is not compromising is ensuring that those who provide similar service receive similar compensation.[60] In making this claim, ISO-NE takes an overly narrow view of its non-discrimination obligations. While true that within the IEP construct, the opportunity to receive compensation does not vary regardless of the provider of the fuel security service, it is known that certain providers of fuel security service outside of the program will receive substantially higher compensation for the same or similar service.

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[59] *Id*. at 28.

[60] IEP Filing at 6.

The significantly lower level of compensation that is proposed to be provided to IEP participants versus various other fuel security providers in New England is problematic because Section 205 of the FPA proscribes rates that are unduly discriminatory or preferential.[61] Undue discrimination in violation of the FPA exists when there is a difference in rates or services among similarly situated entities.[62] ISO-NE proposes that its tariff establish payment terms for fuel security services but, in establishing the compensation level it proposes to offer, has not looked to the compensation constructs of existing fuel security providers, notwithstanding its acknowledgement that payments received by similarly situated fuel security providers should not vary.[63] Stated another way, the IEP is flawed because rather than basing its compensation on existing determinations of payments that were needed to deter retirements and secure fuel security, which are the best indicators of the payments that others will need to take the same

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[61] 16 U.S.C. § 824d(a) and (b).

[62] *See Calpine Oneta Power, L.P.*, 116 FERC ¶ 61,282 at P 36 (2006)("Discrimination is undue when there is a difference in rates or services among similarly situated entities.") (*citing El Paso Natural Gas Co.*, 104 FERC ¶ 61,045 at P 115 (2003) ("Discrimination is undue when there is a difference in rates or services among similarly situated customers that is not justified by some legitimate factor.")), *order on reh'g and compliance filing*, 119 FERC ¶ 61,177 at PP 31, 35-36 (2007); *see, e.g.*, *Black Oak Energy, L.L.C., et. al. v. PJM Interconnection, L.L.C.*, 128 FERC ¶ 61,262 at P 22 (2009) (finding tariff provision appeared to be unjust and unreasonable when some classes of customers were paid differently than others); *New England Power Pool*, 107 FERC ¶ 61,183 at P 27 (2004)(requiring similar treatment for compensation by similarly situated generators to avoid undue discrimination that could dampen participation in markets), *order on reh'g*, 108 FERC ¶ 61,207 at P 7 (2004).

[63] IEP Filing, Transmittal at 6 (stating "One market design principle not being compromised here, however, is ensuring that the program provides similar compensation for similar service. This property is a bedrock of market design…").

actions, ISO-NE has concocted a hypothetical pricing regime that would provide just a small fraction of the compensation received by existing service suppliers.

In particular, ISO-NE's IEP proposal is unduly discriminatory and preferential for FPA purposes because it would pay some market participants providing fuel security service on a vastly different scale than others. Supply in New England is ample in the non-peak and shoulder periods, but is constrained during peak periods. The reliability concern caused by potential generator retirements is one during the times of highest demand, which are the same days covered by the IEP. ISO-NE erred in basing its proposed pricing on hypothetical LNG contracts rather than considering the prices that are being paid to forestall the potential retirement of and secure fuel security services from other units in the ISO-NE region.

For example, the Commission recently approved a payment amounting to up to $3,077 per MWh for the fuel security provided by Mystic Units 8 and 9, compared to the $82.49 per MWh ISO-NE proposes here.[64] Similarly, in order to avoid the future retirement of the approximately 2,100 MW Millstone nuclear unit, and with the blessing of the Connecticut Public Utilities Regulatory Authority, the Connecticut Department of Energy and Environmental Protection has announced that it will contract for a portion of the Millstone output as a result of an auction pursuant to which it sought bids in response to a zero emission request for proposals. The amount of revenue that was required to forestall Millstone's

[64] *See Constellation Mystic Power, LLC*, 165 FERC ¶ 61,267 (2018).

retirement and retain it as a fuel security provider was established through a competitive auction process, but ISO-NE did not refer to the auction results as a data point or otherwise in establishing pricing for the IEP. In determining the level of payment needed for fuel security and that would be not discriminatory as among providers of the service, ISO-NE should have taken such payments into account. Its failure to do so undermines any conclusion that its proposed payment is reasonable and not unduly discriminatory and preferential.

D. ISO-NE Has Not Shown the Products on Which it Bases the IEP Will be Available

The IEP relies on the feasibility of obtaining commodity supplies that have not historically been obtained by generators and delivery service using scarce transportation capacity. ISO-NE has not demonstrated that either the incremental commodity or transportation service needed to support the IEP is available in meaningful quantities at any price, no less the modest program price.

ISO-NE concedes that delivery of natural gas transported by interstate pipeline can become constrained during cold spells.[65] ISO-NE should expect the same as to LNG during the most inclement winter weather conditions. Just as there are few interstate natural gas pipelines serving the New England market, there are relatively few sources of LNG. One such source is the Everett LNG facility, acquired by Exelon Generation to serve the Mystic Generating Station.[66]

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[65] IEP Filing, Transmittal at 8.

[66] *See* http://www.exeloncorp.com/newsroom/exelon-generation-completes-acquisition-of-everett-lng-facility (last visited April 8, 2018).

LNG originating from the Canaport import terminal near Saint John, New Brunswick in Canada also can be delivered to the region via the Maritimes & Northeast Pipeline. Finally, LNG also may be available via barge or tanker. However, ISO-NE has conceded that LNG, just like natural gas delivered via interstate pipeline, may not be available at the most critical times. It has stated:

- First, LNG is a global commodity that's imported to New England by ocean-going tankers, so it must be contracted for months in advance—an option most generators elect not to pursue.
- Second, the arrival of any spot LNG cargoes depends on global prices and vary from year to year; they also supply the entire Northeast and beyond—not just New England generators.
- Third, severe weather could prevent the timely arrival of ships.[67]

The latter point was highlighted recently by ISO-NE's Chief Executive Officer who discussed the futility of relying on barges and LNG tankers for supply when local rivers and the harbor are frozen.[68] Not only is expecting stocked LNG tankers to remain close enough to New England waterways to meet the full extent of generators' calls on a mere 10 out of the 90 total winter days based on the assumed prices in the program unlikely at best, but, even if LNG suppliers were willing to provide this service at the relatively modest prices embedded in ISO-NE's assumptions, impassable conditions precluding delivery by water are the most likely to occur on those handful of the coldest days during the winter when the

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[67] https://www.iso-ne.com/about/regional-electricity-outlook/grid-in-transition-opportunities-and-challenges/natural-gas-infrastructure-constraints (last visited April 8, 2019).

[68] https://www.naturalgasintel.com/articles/117525-iso-new-england-facing-reality-not-expecting-new-natural-gas-pipelines-ceo-says (last visited April 8, 2019).

program is triggered. Finally, ISO-NE has not demonstrated that the firm pipeline transportation service that would be required to meet the program's deliverability requirements is available. In NRG's experience, these pipeline services are fully subscribed and not available to new customers.

IV. COMMUNICATIONS

NRG respectfully requests that counsel below to be added to receive all correspondence or communications with respect to these proceedings:[69]

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V. RECOMMENDATIONS AND CONCLUSION

The Commission should address the identified shortfalls with the IEP rather than accepting the proposal that was filed. NRG's recommendations are that the Commission should preclude the IMM from reducing de-list bids by program revenues, as doing likely would eliminate incremental revenues. To achieve the objective of increasing inventoried energy levels, the Commission should: [70]

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[69] To the extent necessary, NRG respectfully requests waiver of 18 C.F.R. § 385.203(b)(3) to permit the designation of more than two persons for service in this proceeding.

[70] Ex. NRG-1 at 39.

(1) direct that the program be based on a true forward contract. As discussed by Ms. Bodell, this would involve eliminating the penalties for cold days in excess of 10.

(2) eliminate the monotonically decreasing rate when additional weather events occur and instead allow for increased recovery when the days on which service is provided increase;

(3) allow for the use of a forward call option that permits program participants to offer the number of days they are able and willing to provide the service;

(4) allow for the program price to change based on operational experience such as continued retirements of needed generators or flagging participation levels.

To reduce the risks of retirements, the Commission should:[71]

(1) improve the certainty of compensation levels if service is provided at needed levels. In the IEP, revenue certainty was a stated goal but is not present in part because compensation declines as weather events increase.

(2) if de-list bids are adversely affected in the capacity market, redistribute the lost amount back to inventoried fuel providers, funded by an uplift charge.

WHEREFORE, for the reasons stated herein, NRG respectfully requests that the Commission find that IEP, as proposed, is not just and reasonable, and either impose adjustments as discussed herein, or require that ISO-NE revise the program to eliminate the flaws inherent in the IEP herein delineated.

[71] *Id*. at 41.

Respectfully submitted,

/s/ Sandra E. Rizzo

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April 15, 2019

CERTIFICATE OF SERVICE

I hereby certify that I served a copy of the foregoing pleading this 15th day of April 2019, upon each person designated on the official service list compiled by the Secretary in this proceeding.

/s/ Jason Y. Lee
Jason Y. Lee

EXHIBIT NRG-1

PREPARED DIRECT TESTIMONY
OF
TANYA L. BODELL

EXHIBIT NO. NRG-1

UNITED STATES OF AMERICA

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

ISO-New England Inc.	**)** **)** **)** **)** **)**	**Docket No. ER19-1428-000**

PREPARED DIRECT TESTMIONY
OF
TANYA L. BODELL

ON BEHALF OF
NRG POWER MARKETING LLC

April 15, 2019

TABLE OF CONTENTS

I. INTRODUCTION 1
II. PURPOSE OF TESTIMONY 3
III. BRIEF SUMMARY OF THE PROPOSED PROGRAM 6
IV. IEP PRICES ARE INADEQUATE TO PREVENT RETIREMENTS 11
V. THE PROGRAM FAILS TO CREATE REVENUE CERTAINTY 18
VI. THE IEP IS UNLIKELY TO INCENTIVIZE NEEDED INVESTMENT 32
VII. RECOMMENDED CHANGES TO ACHIEVE STATED OBJECTIVES 37
VIII. CONCLUSION 41

TABLE OF FIGURES

Figure 1: Eligibility and Compensation of the IEP 8
Figure 2: Forward versus Spot Compensation by Actual Annual Inventoried Energy Days 11
Figure 3: Histogram of Historical Inventoried Energy Days Assuming a 17° F Threshold 20
Figure 4: Forward versus Spot Compensation ($/MWh-day) 21
Figure 5: Incentives to Maintain Incremental Inventoried Energy 34

EXHIBIT NO. NRG-1

UNITED STATES OF AMERICA

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

ISO-New England Inc.	)	**Docket No. ER19-1428-000**

PREPARED DIRECT TESTIMONY OF TANYA L. BODELL

I. INTRODUCTION

Q PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

A My name is Tanya L. Bodell. I am the Executive Director of Energyzt Advisors, LLC and co-founder of the Energyzt companies that include Energyzt Development Partners, LLC and Energyzt Analytics, LLC. I am based in Boston, Massachusetts. My business address is PO Box 174, Cohasset, MA, 02025.

Q WHAT ARE YOUR DUTIES IN YOUR CURRENT POSITION?

A As the Executive Director of Energyzt, a global collaboration of energy experts who create value for clients through actionable insights, I manage the business operations of the Energyzt entities and provide advisory services to clients on business strategy and investment decisions. I also am responsible for overseeing the development and maintenance of our power market models and the quantitative analysis of industry data that allows our clients to make informed investment decisions. Our analytical service offerings include energy market assessments, long-term price projections using fundamental analyses, and stochastic analyses to create a distribution of potential

outcomes and risk assessments. I also have be involved in competitive electricity market design starting in the late 1990s in Ontario, Canada and Singapore, continuing to the present expert testimony, research, analysis, and advice to clients on the impacts of proposed market rules in ISO-NE and other markets.

Q PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.

A I have been a consultant for more than twenty years, providing business advice and expert support to market participants, regulators and policy makers in the energy industry in general and the power sector in particular. Prior to establishing Energyzt in 2012, I was a Managing Director and co-founder of the Electricity Consulting Group at FTI Consulting. Prior to FTI, I was Vice President in the Energy and Environment practice at Charles River Associates, a company I joined in 2000. Prior to that, I was a consultant at Putnam, Hayes & Bartlett which subsequently merged with Hagler Bailly to become PHB Hagler Bailly before being acquired by PA Consulting. While at Putnam, Hayes & Bartlett, I served as a primary member of the consulting teams charged with developing and implementing competitive markets in Ontario, Canada and Singapore, providing me with a deep understanding of market design and market rules, how wholesale electricity markets price physical constraints, and economic expectations concerning short-term and long-run market equilibriums. My role at each of these firms served clients in the power sector as well as other industries. My detailed *curriculum vitae* is incorporated herein as Exhibit No. NPG-2.

Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A I received a B.A. in mathematical economics from Pomona College, an M.A. in public policy from the Harris School of Public Policy at the University of Chicago, and an

M.B.A. from the Massachusetts Institute of Technology Sloan School of Management as a Sloan Fellow.

Q HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY TO FERC?

A Yes. I have submitted testimony to FERC in three other matters:

- **PJM Quadrennial Review (Docket No. ER19-105-000):** In 2018, on behalf of the PJM Power Providers Group ("P3 Group"), I submitted direct testimony on issues pertaining to the shape of the Variable Resource Requirement, focused primarily on the reference unit and appropriate after-tax weighted average cost of capital associated with the estimated net cost of new entry (i.e., Net CONE).
- **ISO-NE Triennial Review (Docket No. ER17-795-000):** In 2017, on behalf of the New England Power Generators Association ("NEPGA"), I submitted direct and surrebuttal testimony on issues pertaining to the ISO-NE Net CONE proceedings.
- **Atlantic Path 15, LLC (Docket No. ER11-2909-004):** In 2011, on behalf of Atlantic Path 15, LLC, I submitted testimony estimating the benefits of a transmission upgrade using a production cost model to project locational marginal prices in the CAISO market with and without the upgrade.

II. PURPOSE OF TESTIMONY

Q WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A The purpose of this testimony is to explain my assessment of the implications of the interim fuel security program that the ISO-New England ("ISO-NE") proposes to administer to compensate generation resources for maintaining inventoried energy during the months of December through February for the 2023/24 and 2024/25 periods (i.e., the

"Inventoried Energy Program" or "IEP"), and why those implications make the program as proposed highly unlikely to achieve its stated objectives. I also recommend a set of simple adjustments to the program that would improve the likelihood that the proposed program could achieve its stated objective of increasing inventoried energy and discuss broader changes that would be required to prevent power generation resources that can offer inventoried energy resources from retiring.

Q BASED ON YOUR ASSESSMENT, WHAT DO YOU CONCLUDE?

A Based on the analysis presented in my Direct Testimony, my high-level conclusions are as follows:

1. **Forward and spot sales compensation rates in the IEP are inadequate to prevent known retirements of fuel secure units.** The proposed rates decisions for the Mystic Generation and Millbrook Nuclear Plants indicate what is required to prevent potential retirements of generation resources that ISO-NE considers valuable. By this metric, the forward and spot compensation rates and the uncertainty embedded in the proposed IEP would have been woefully insufficient to prevent the threatened retirements of those two fuel secure units. Assessing whether the IEP would address the threatened retirements of fuel secure units we already know have threatened to retire is an excellent test of whether the IEP is "fit for purpose."

2. **The program does not provide certainty of any particular level of revenues or cost recovery to incremental resources.** Prices established by the program, and potential adjustments by the Independent Market Monitor ("IMM"), do not ensure any incremental revenues to providers of inventoried energy and fail to

mitigate the risk associated with purchasing and maintaining inventoried fuel. As a result, the Forward Program is likely to fall short of attracting and retaining fuel secure resources and generators at risk of retirement may be worse off because of the proposed program and its potential treatment in the capacity market.

3. **The program should be strengthened to provide stronger incentives to increase incremental fuel inventory levels.** Most of the eligible resources already either maintain more than sufficient inventoried energy (e.g., hydro, nuclear, and coal), or have to invest in investments or commitments to regular replenishment. The investment in these up-front commitments that would be required to hedge against the risks in the program may not be recouped. Furthermore, failure to deliver under the Forward Program could cause negative revenues. Although the program could provide a new revenue stream to existing resources, it needs to increase payment levels and certainty to motivate incremental investment in energy inventory.

4. **The program should be modified to increase certainty and compensation to achieve its objectives.** The program purports to be a simple solution that can be implemented quickly in time for delist and bidding decisions related to winter 2023/24. In reality, the program undercompensates for participation and fails to mitigate the risk that generating resources bear in deciding whether or not to secure additional inventoried energy. Payments should cover the cost of more Inventoried Energy Days than what is expected in order to protect against extreme winters versus simply average conditions.

Q HOW IS YOUR TESTIMONY ORGANIZED?

A This testimony is organized as follows:

- Section III provides a brief summary of the proposed program to provide context for the rest of the testimony.
- Section IV explains why the forward and spot compensation rates proposed by ISO-NE are discriminatory and inadequate compared to recent real-world examples.
- Section V describes why the program does not provide sufficient certainty regarding any revenues or profit margins to generation resources and therefore is defective in ensuring fuel inventory will be maintained and retirements deferred.
- Section VI explains why the incentives being offered by IEP are inadequate to compensate the targeted level of incremental inventoried investments.
- Section VII suggests simple adjustments to the program to increase the probability of meeting the objective of investment in fuel inventory and highlighting the broader requirements for deferring retirement of resources that provide fuel security.
- Section VIII summarizes the conclusions.

III. BRIEF SUMMARY OF THE PROPOSED PROGRAM

Q PLEASE SUMMARIZE YOUR UNDERSTANDING OF HOW INVENTORIED ENERGY IS COMPENSATED UNDER THE PROPOSED PROGRAM?

A The program effectively groups potential generation resources that can qualify their inventoried energy[1] into three compensation categories:

[1] The proposed program lists three requirements that must be met in order for a generation resource to be able to offer inventoried energy:

1) **Forward Program:** Forward sales at $82.49 per MWh with spot true-up for excess/shortfalls on each delivery day;
2) **Spot Program:** Sales on an opportunistic basis at the pre-established spot price of $8.25/MWh times inventoried fuel; and
3) **No Participation:** No direct participation in the IEP because i) the generation resource does not have qualified inventoried energy; or ii) the generation resource does have qualified inventoried energy but chooses not to participate.

Participants can offer designated shares of qualified inventoried energy resources across all three categories; resources that do not qualify would have no direct participation. Different types of generation resources may be eligible to participate in the first two categories, but may choose not to participate at all or on a partial basis in one or both of the program offerings. Furthermore, each of the categories that do receive direct or indirect revenues associated with the program,[2] also may suffer offsetting costs or reductions in other revenue streams that could reduce or eliminate program revenues (discussed in **Section V**). **Figure 1** summarizes the eligible resources and compensation opportunities associated with each category.

1) *Control:* Inventory must be able to convert to energy at the ISO-NE's direction;
2) *Opportunity Cost:* Conversion of the inventoried energy to electric energy must reduce the amount of electric energy available for the resource to produce in the future (before replenishment); and
3) *Measurability:* The generation resource must be able to measure the inventoried energy on a daily basis.

Letter to The Honorable Kimberly D. Bose dated March 25, 2019, "Re: ISO New England Inc., Docket No. ER19-1639-000; Inventoried Energy Program," pp. 14-15, https://www.iso-ne.com/static-assets/documents/2019/03/inventoried_energy_program.pdf, (hereinafter referred to the "IEP Filing").

[2] Direct revenues include payments for inventoried energy; indirect revenues include higher or lower energy prices due to opportunity cost bidding and capacity market offsets.

Figure 1: Eligibility and Compensation of the IEP

IEP Condition	Forward Program	Spot Program	No Participation
Eligible Generation Resources	• Nuclear (limited by days until next refueling) • Coal (on-site supply) • Oil (in-service tanks) • Biomass (on-site supply) • Electric Storage (existing charge) • Pumped hydro (measurable reservoir levels) • Hydro with pond storage (< 12 hours to turbines) • Gas-fired generators with liquified natural gas ("LNG") supply contract (subject to cap) • Gas-fired generators (firm pipeline supply/ delivery contracts and price < 250% energy spot price)		• Imported energy • Solar • Wind • Run-of-river hydro • Hydro with pond storage more than 12 hours from turbines • Eligible resources that choose not to participate or that exceed eligibility caps (LNG or gas)
Inventoried Fuel - Payment for Forward Sales	$82.49 x Presold MWh for the 3-month winter period	NA	NA
Inventoried Fuel - Payment for Spot Sales	$8.25 x Total Inventoried Energy Days x (Average MWh on Inventoried Energy Days – Presold MWh)[3]	$8.25 x Total Inventoried Energy Days x Average MWh on Inventoried Energy Days	NA

Q WHAT IS AN INVENTORIED ENERGY DAY?

A An Inventoried Energy Day is defined as a day on which the average of the highest and lowest temperature at Bradley International Airport at Windsor Locks, Connecticut is equal to or less than 17° Fahrenheit. Inventoried energy is measured as of the morning after an Inventoried Energy Day for purposes of determining the spot price compensation and/or penalties tied to replacement costs required to meet the presold energy obligation.

[3] The program makes payments or deductions at the spot price of $8.25 for each incremental MWh of inventoried energy (i.e., MWh – Presold MWh) on the morning following an Inventoried Energy Day. Total payments are:

$$\sum_i^N [8.25\ x\ (MWh_i - Presold\ MWh_i)]$$
$$= 8.25 \text{ x N } x\ (\sum_i^N (\frac{MWh_i}{N}) - \sum_i^N (\frac{Presold\ MWh_i}{N})$$
$$= 8.25 \text{ x N x (Average MWh Inventoried Energy – Presold MWh)}$$

across all *i* Inventoried Energy Days (totaling X) where MWh_i is the inventoried energy on day *i*.

Q WHAT IS THE "PRESOLD MWH" REFERENCED IN THE TABLE ABOVE?

A "Presold MWh" reflects the energy offer that an eligible resource sells into the Forward/Spot category ("Forward Program"). It is measured in megawatt hours (MWh) of inventoried energy (e.g., fuel available from firm delivery commitments, in storage facilities or on-site) that is available to a participating generation resource that can be converted into energy at the direction of ISO-NE. The program caps the amount of inventoried energy that can compensated under the program for each Inventoried Energy Day (whether at the Forward Program or Spot Program) at the maximum available fuel (in MWh) that could be converted into electrical energy over the course of 72 hours.

Q WHAT IS THE RELEVANCE OF THE "AVERAGE MWH ON INVENTORIED ENERGY DAYS" IN THE SUMMARY TABLE ABOVE?

A The average MWh on Inventoried Energy Days represents the average MWh of eligible inventoried energy across all Inventoried Energy Days in the 3-month winter period. Although the program will be based on a daily calculation for each Inventoried Energy Day, comparing the "Average MWh on Inventoried Energy Days" that was available over the program period to what was obligated or presold in the forward market (or zero if participating in the Spot Program) is mathematically equivalent to summing total compensation for each Inventoried Energy Day in the 3-month investment period.

Q DOES THE PROGRAM PROVIDE A FIXED NUMBER OF INVENTORIED ENERGY DAYS FOR PURPOSES OF COMMITMENT AND COMPENSATION?

A No. Therefore, neither the Forward Program nor the Spot Program provide a fixed amount of revenue for a fixed amount of delivery.

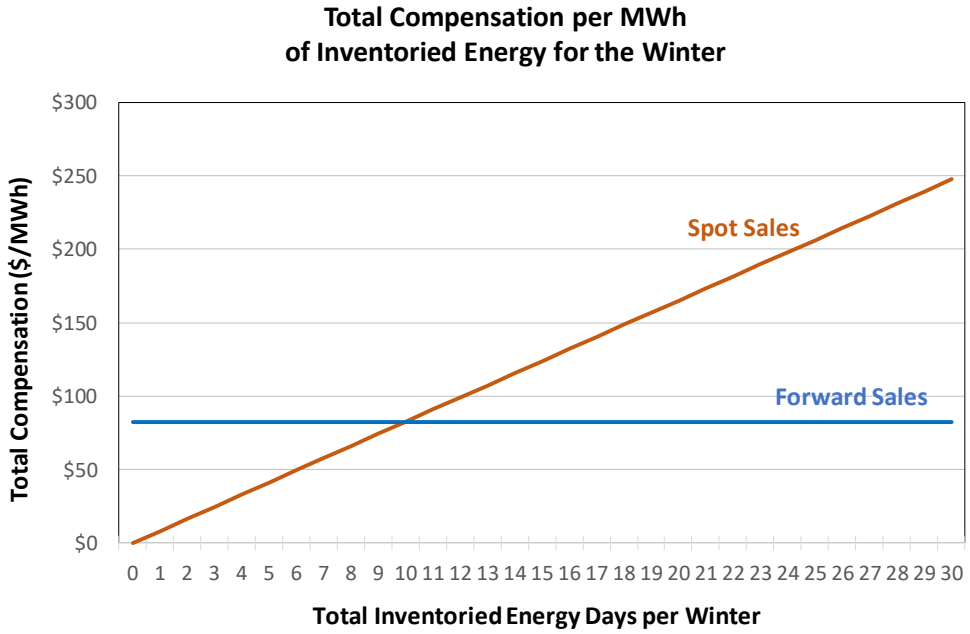
- **Forward Program:** Although the Forward Program fixes the potential payment at 10 days, total compensation can be higher or lower than the forward payment according to the spot settlement. However, the commitment is not fixed at 10 days. Instead, the forward obligation requires the participant to deliver the Presold MWh on every Inventoried Energy Day that occurs during the 3-month winter period. Yet, the generation resource that presold inventoried energy is only paid the equivalent of the spot sales price of $8.25 / MWh for ten days. Therefore, there is no fixed number of delivery days established for the forward commitment and no fixed revenues.
- **Spot Program:** With respect to spot sales, there is no fixed commitment or fixed number of Inventoried Energy Days. If the spot participant has inventory on the morning after an Inventoried Energy Day, a payment is made. Payments will depend on the amount of inventoried energy capped at the qualified amount and the number of Inventoried Energy Days. There is no penalty for under-delivery since there is no pre-determined amount.

Q HOW DOES COMPENSATION COMPARE ACROSS THE TWO DIFFERENT OPTIONS?

A **Figure 2** illustrates the difference in total compensation in a given year by Inventoried Energy Days assuming exact delivery of the promised MWh under the Forward and Spot Programs. As described in the Testimony of Christopher Geissler (pp. 29-32), selling at the spot price would be more lucrative on a dollar per MWh basis for the season if total Inventoried Energy Days were higher than the fixed quantity of 10 days assumed under

the forward price; selling forward is more lucrative than spot if it is a mild winter and the number of Inventoried Energy Days for the season totals less than 10.

Figure 2: Forward versus Spot Compensation by Actual Annual Inventoried Energy Days



IV. IEP PRICES ARE INADEQUATE TO PREVENT RETIREMENTS

Q DO YOU AGREE THAT THE IEP IS LIKELY TO ACHIEVE THE OBJECTIVE OF PREVENTING RETIREMENTS?

A No. Although the program was intended to ensure inventoried fuel and reduce future retirements, low compensation rates and failure to provide sufficient certainty with respect to cost recovery counteracts these objectives and renders the IEP unlikely to prevent retirements.

Q WHAT IS THE BASIS FOR YOUR OPINION?

A There are two reasons:

1) Proposed prices are too low;

2) Risks associated with the Forward Program are too high.

The arrangement with the Mystic Generation Plant ("Mystic") provides a real-world example of why the proposed program is unlikely to achieve its objectives of preventing certain plants with inventoried energy from retiring.

Q WHY IS MYSTIC A GOOD EXAMPLE OF WHY THE PROGRAM WILL NOT PREVENT RETIREMENTS OF CERTAIN TYPES OF POWER PLANTS THAT OFFER FUEL SECURITY?

A Mystic threatened to retire and received a cost-of-service contract with the ISO-NE to provide fuel security. This contract guaranteed cost recovery and provides Mystic with significantly higher expected revenues than what the IEP offers. Mystic therefore offers a comparison of what is required to prevent retirement of a fuel security resource and, based on the fact that Mystic actually received a contract, could serve as the marginal, price setting unit for valuing the price to prevent retirement.

Q PLEASE DESCRIBE THE MYSTIC EXAMPLE IN MORE DETAIL.

A In March 2018, Exelon -- the current owner of Mystic -- announced it intended to retire the 2,000 MW generation plant on June 1, 2022. Two of the main units -- Mystic Unit 8 and Mystic Unit 9 -- have combined winter capacity of 1,700 MW and receive natural gas fuel directly from LNG supplies by incoming LNG carriers. These deliveries are not tied into the natural gas pipeline network but depend on nearby LNG storage and incoming LNG tankers at the Everett Marine Terminal. The other two units, Mystic 7(dual-fueled by oil and natural gas) and a jet unit are not included in the contract with ISO-NE.

Mystic 8 and 9 typically generate about 7 million MWh/year and have an average capacity factor of about 47 percent.[4]

Q WHY IS MYSTIC RELEVANT?

A Mystic provides a quantifiable example of what it would cost to prevent retirement of a diversified fuel source in New England. When Mystic announced its retirement, ISO-NE determined that the diversity of Mystic's fuel supply contributed to winter reliability during extreme weather conditions when pipeline natural gas prices have spiked to levels above the price of oil, indicative of high natural gas demand and a potential gas transportation constraint. The direct LNG deliveries to Mystic 8 and 9 meet the IEP definition of an inventoried energy source. Mystic and ISO-NE negotiated a cost-of-service contract, which FERC approved on December 20, 2018.[5] The original cost-of-service contract proposed to pay Mystic to keep Mystic 8 and 9 open for two years through May 2024 for around $400 million;[6] a subsequent compliance filing modified the annual payments to be:[7]

[4] EIA Form 923 data.
[5] 165 FERC ¶ 61,267, Constellation Mystic Power, LLC, Docket No. ER18-1639-000, (Issued December 20, 2018); 164 FERC ¶ 61.022, ORDER ACCEPTING AND SUSPENDING FILING AND ESTABLISHING HEARING PROCEDURES, Constellation Mystic Power, LLC, Docket No. ER18-1639-000, July 13, 2018.
[6] Bradley, David, "FERC Okays ISO-NE Plan to keep Mystic Units Operating through 2024," Natural Gas Intel, July 17, 2018, https://www.naturalgasintel.com/articles/115087-ferc-oks-iso-ne-plan-to-keep-gas-fired-mystic-units-open-through-2024
[7] Transmittal Letter from McGuire Woods to Ms. Kimberly D. Bose Secretary Federal Energy Regulatory Commission, Re: Constellation Mystic Power, LLC, Compliance Filing, Docket No. ER18-1639-003, March 1, 2019, p. 9.

Winter 2022/23: $190,351,878

Winter 2023/24: $159,208,815

Q HOW DO PAYMENTS UNDER THE MYSTIC CONTRACTS COMPARE TO WHAT ISO-NE INTENDS TO PROCURE UNDER THE IEP?

A Simply comparing the total annual payment to Mystic of an average $175 million per year for up to 120,000 MWh[8] to the total estimated cost of forward contracts under the IEP of $148 million per year for 1.8 million MWh[9] illustrates the shortfall in IEP payments under the forward sales program. The IEP intends to procure 15 times the inventoried fuel provided by Mystic for around 85 percent less than the contractual cost.

Q HOW WOULD THE PROPOSED IEP FORWARD SALES PRICE TRANSLATE INTO PAYMENTS TO MYSTIC?

A Under the Forward Program, if Mystic qualified its maximum potential of 120,000 MWh for IEP forward sales, payments for the winter season would total only $9.9 million,[10] well short of the payments Mystic is receiving under the FERC-approved contracts. Under the Spot Program, Mystic could expect to receive the same value under ISO-NE's

[8] The most that Mystic could sell is the inventoried energy that could be converted into energy over a three-day period. Assuming a 2 percent forced outage rate, this equates to:
1,700 MW x 0.98 capacity factor x 3 days x 24 hours/day = 119,952 MWh or around 120,000
Using historical delivery levels, total MWh delivered by Mystic 8 and 9 from December 2017 through February 2018 was 1.949 million MWh for an average delivery of 65,000 MWh for 3 days = 1.949 million MWh / 89 days x 3 days. Mystic energy production is based on EIA Form-923 filings, https://www.eia.gov/electricity/data/eia923/.

[9] IEP Filing, p. 19 of 31. "Under these assumptions, Dr. Schatzki estimates representative program costs of $148 million per year. This corresponds to roughly 1.8 million MWh of inventoried energy sold forward and maintained for each Inventoried Energy Day."

[10] If the average generation from December 2017 to 2018 is used, the revenues generated would be only $5.4 million. The calculations are as follows:
65,000 MWh x $82.49 / MWh = $5,361,850
119,952 MWh x $82.49 / MWh = $9,894,840

assumption of 10 average Inventoried Energy Days, with a range from zero to as much as $27 million assuming the highest number of Inventoried Energy Days since 1978.[11]

Q WHAT IEP PRICE WOULD ALLOW MYSTIC TO RECEIVE THE EQUIVALENT REVENUES THAT IT REQUESTED UNDER THE COST-OF-SERVICE CONTRACT?

A As the Commission found that Mystic needed $175 million to avoid retirement, the IEP revenues would not suffice. The amount that Mystic could receive under the IEP (if it were not already contracted) would be around 5 percent or less of what Mystic requires.

Q WHAT WOULD THE IEP PRICE FOR FORWARD DELIVERIES HAVE TO BE IN ORDER TO EQUATE TO MYSTIC'S CONTRACTUAL REVENUES?

A Translating the annual average payment to Mystic into an equivalent IEP forward payment price, assuming 10 Inventoried Energy Days per 3-month winter period, and a potential range of Mystic inventoried energy over a three day period of 65,000 MWh to 120,000 MWh equates to a forward price of $1,457 / MWh to $2,689 / MWh,[12] or roughly more than 17 to 33 times the forward price established by ISO-NE as part of the IEP of $82.49/MWh.

Q DO YOU THINK THAT THE ISO-NE SHOULD ESTABLISH THE IEP FORWARD PRICE AT THE SAME LEVEL AS WHAT MYSTIC REQUIRED TO STAY OPERATIONAL?

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[11] Historical temperature data is described later in this section and illustrated in **Figure 3**. The annual number of Inventoried Energy Days between 1978 and 2019 calculated using NOAA data, Daily Climate Data for Windsor Lock, CT, 1978-2019, https://www.ncdc.noaa.gov/cdo-web/search.

[12] The calculations are as follows:
Total Payment = $175 million per year / 65,000 MWh = $2,689 / MWh
Total Payment = $175 million per year / 120,000 MWh = $1,457 / MWh

A It depends on the true objective of the IEP. Clearly, the prices established by Analysis Group and accepted by ISO-NE do not come anywhere near what the Commission found Mystic required to prevent its LNG units from retiring. Simply using Mystic as an example, sets a target price that would be required to keep Mystic in operation. Failing to consider the extent to which that price is applicable to all generating units or at least one similarly situated would be a violation of the economic objectives in market design espoused by ISO-NE, namely to ensure that similar compensation is provided for similar service.[13] By this measure, and in light of the implied price in the Mystic contracts, the proposed program design fails.

On the other hand, if the only objective is to procure seasonal fuel security through inventoried energy, the program needs to be evaluated against what is required to meet that objective while maintaining proper market design principles. To this end, the implied Mystic price can provide a guide to the extent LNG-fueled generation is expected to be the marginal fuel security unit. The implied price from the contracts would indicate that the inventoried energy cost of a marginal LNG-fueled unit is significantly higher than what Analysis Group calculated. Therefore, either the Mystic contracts should set the minimum price for the IEP or those contracts should not have been entered into because there were less costly options which would set the price for fuel security.[14] The

[13] The IEP Filing notes, "A particularly important design principle is that the framework should strive to be technology-neutral by providing similar compensation for similar service" (pp. 5 - 6).
[14] In a dissenting opinion on the initial FERC Order regarding Mystic, Commissioner Powelson noted that there could be lower marginal cost alternatives that had been disregarded by the Commission's decision:

> "Longer-term alternatives, even if done through out-of-market payments, could be more cost effective than retaining Mystic. For example, continuing the Winter Reliability Program could produce similar results as retaining Mystic at a much lower cost. Additionally, transmission

Analysis Group calculation implies that the next more expensive alternative would be only 5 percent of the implied price paid to Mystic for its inventoried energy. Regardless, there is a disconnect between what ISO-NE is offering under the IEP and what Mystic is receiving under its contracts.

Q HOW DO THE IEP VALUES COMPARE TO CAPACITY MARKET REVENUES?

A Assuming the ISO-NE 10-day average Inventoried Energy Days per winter season, Mystic would earn only $0.50 / kW-month to $4.12 / W-month,[15] approximately the amount by which the Mystic zero-priced bids into FCA14 have been estimated to impact capacity market prices.[16]

Q DO YOU THINK THAT THE IEP WILL PREVENT RETIREMENTS OF GENERATION RESOURCES WITH INVENTORIED ENERGY?

A No, not as currently designed. Potential program revenues are too low and the risks are too high. The potential impact on capacity markets also creates an offsetting effect on revenues that could make net revenues negligible or even negative for some resources.

According to the Analysis Group, the Forward Program rate and equivalent Spot Program rate reflects "a market participant with a gas-fired resource (with an

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alternatives may exist that could solve the problem created by the retirement of Mystic at a lower cost. Unfortunately, these options have been disregarded by ISO New England and the majority."

UNITED STATES OF AMERICA FEDERAL ENERGY REGULATORY COMMISSION, Constellation Mystic Power, LLC, Docket No. ER18-1639-000, Issued July 13, 2018, p. 4.

[15] $8.25 / MWh-day * 72 hours * 10 days / (1000 kW/MW) / (12 months/year) = $0.495 / kW-month.

[16] See FERC Docket Nos. ER18-2364-000 EL18-182-000, NEPGA Protest, Ex. 1, Testimony of Paul M. Sotkiewicz (Sotkiewicz Testimony) at 28, 32, 34; see also Calpine Protest at 4. NEPGA also quantifies its estimate that if Mystic Units 8 and 9 were entered as price-takers, it would result in a $0.51/kW-month reduction in price. Referenced in footnote 130, 165 FERC ¶ 61,202, Order, Accepting Compliance Filing and Requiring Informational Filings, December 3, 2018.

intermediate heat rate) for the expected costs of providing inventoried energy by holding a forward contract for natural gas supply delivered by an LNG terminal."[17] Therefore, under the Analysis Group premise, the forward and spot prices would not be expected to provide any incremental revenue to a natural gas plant receiving firm LNG supply by design. Combined with the offsetting impacts of lower capacity market prices tied to either zero-priced bidders or reduced delist bid prices proposed by the IMM (discussed in **Section V**), the program could impose a net negative cost on LNG-fired generators who participate in the program.[18] This outcome therefore fails to produce the incremental revenues required to induce participation by natural gas generation resources receiving LNG and, by design, fails to achieve both of the program objectives of fuel security and reduced retirements.

V. THE IEP FAILS TO CREATE CERTAINTY

Q DO YOU THINK THAT THE IEP WILL ACHIEVE THE STATED OBJECTIVE OF REVENUE CERTAINTY?

A No. The design of both the spot and forward pricing program imposes significant risks on most generators. These risks create revenue uncertainty that preclude a generation resource from making reasonable forecasts of potential net revenues from the program, one of the stated objectives of the program.[19] Key uncertainties include:

[17] Testimony of Todd Schatzki on Behalf of ISO New England, Inc., Before the Federal Energy Regulatory Commission, Docket No. ER19-1428-000, p. 3.
[18] Although there could be a positive impact on the energy market due to opportunity cost bids under extreme conditions, such opportunity cost bids are not likely to occur under average conditions of a winter season with 10 Inventoried Energy Days.
[19] IEP Filing, p. 5 of 31."The first objective is that the program had to be simple enough that: (i) it could be designed and filed by the ISO quickly; and (ii) Market Participants can reasonably forecast potential revenue from the program when making retirement decisions."

- Unknown quantities to be delivered in the Forward Program;
- Monotonically decreasing forward prices; and
- Offsetting impacts from capacity market adjustments.

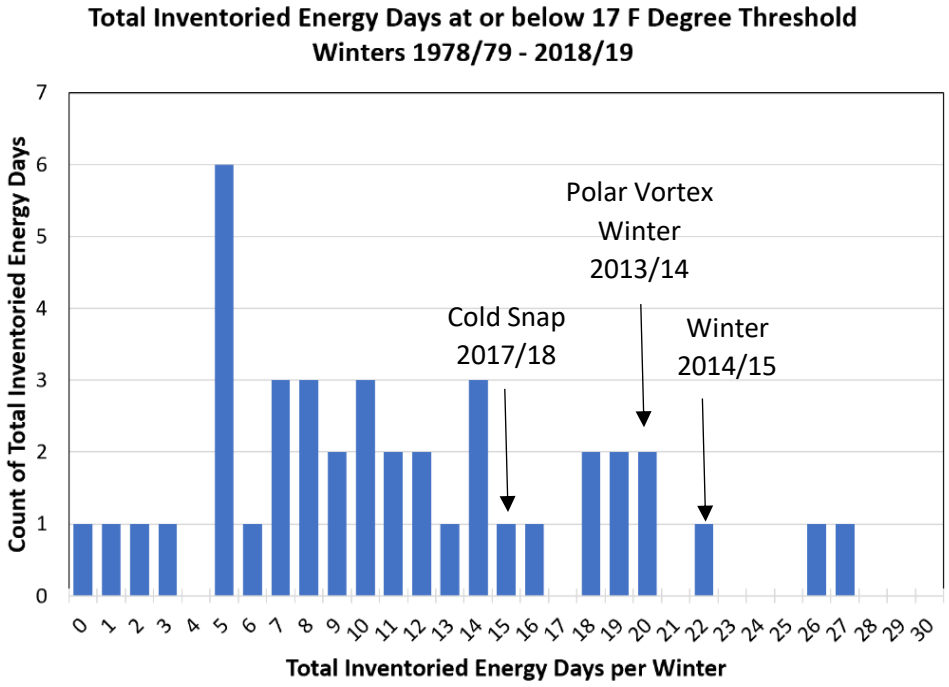
Q WHY ARE QUANTITIES TO BE DELIVERED UNKNOWN?

A Both the Forward and Spot Programs are based on the concept of an Inventoried Energy Day. In the Spot Program, generation resources bear the risk that there are more or less than the expected number of Inventoried Energy Days (i.e., 10 days established by the ISO-NE for purposes of the program). In the Forward Program, generation resources bear the risk that there are more Inventoried Energy Days than expected, potentially resulting in more expensive inventory replenishment costs and higher penalties tied to the difference between average forward prices and the fixed spot price of $8.25 / MWh-day. As a result, even though the Forward Program offers a fixed payment, the IEP does not provide net revenue certainty, which a generation resource would desire in order to make fuel security investment decisions and capital expenditures to prevent retirement.

Q HOW MANY INVENTORIED ENERGY DAYS CAN THERE BE IN A 3-MONTH WINTER PERIOD?

A Using the past 41 years of data at Windsor Locks, there is a wide array in winter weather conditions that results in a potential number of Inventoried Energy Days ranging from zero days where the temperatures fall below the threshold level (e.g., 2001/02) to as many as 27 days (e.g., 1993/94). **Figure 3** provides a distribution of Inventoried Energy Days during the relevant 3-month winter period from 1978 through 2018/19.

Figure 3: Histogram of Historical Inventoried Energy Days Assuming a 17° F Threshold[20]



Q WHAT IS THE RANGE OF GROSS REVENUES THAT GENERATION RESOURCES SELLING INTO THE SPOT PROGRAM COULD EARN?

A Unlike the Forward Program, the Spot Program does not have penalties for failure to deliver and therefore does not carry the risk of potentially negative revenues. On the other hand, there is no forward payment. Based on historical data, a generator selling into the Spot Program could earn from zero on the low end-up to potentially $1.34 / kW-month over a 12-month period on the high-end,[21] this high-end amount is very unlikely to occur based on historical experience (1 in 41 years) and is offset by the equivalent probability of zero Inventoried Energy Days. Even if the very best-case scenario did happen, however, it would not recover the price declines of $1.50 / kW-month

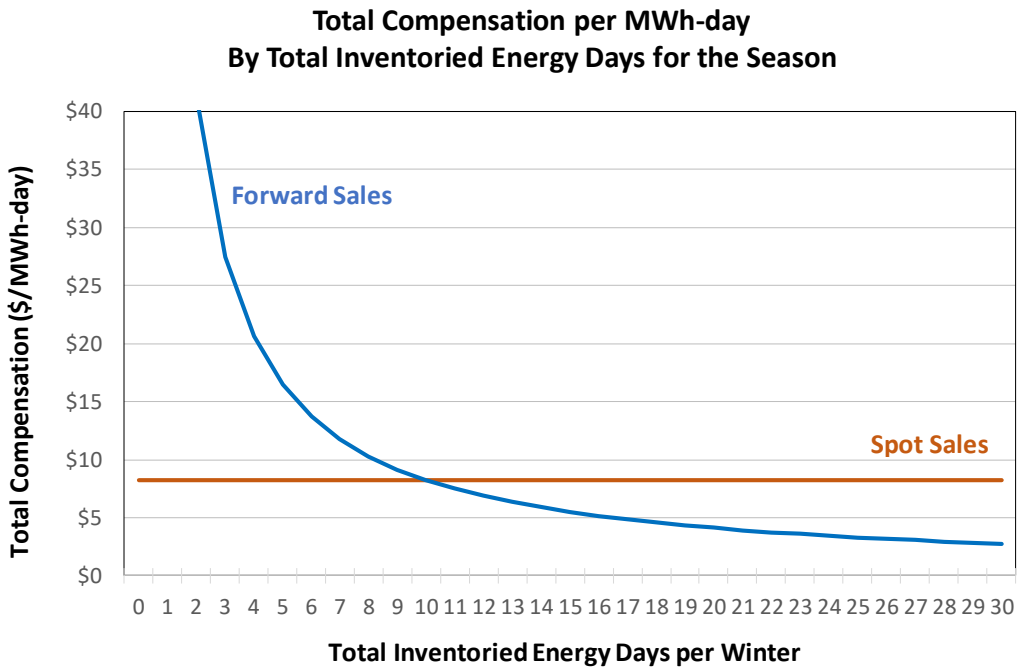
[20] NOAA, Daily Climate Data for Windsor Lock, CT, 1978-2019, https://www.ncdc.noaa.gov/cdo-web/search
[21] $8.25 / MWh-day * 72 hours * 27 days / (1000 kW/MW) / (12 months/year) = $1.34 / kW-month.

experienced in capacity market prices between FCA11 and FCA 13.[22] Again, the program fails to address the financial challenges generators face today (i.e., reduced revenue streams from other markets) that are behind many of the reasons for delisting.

Q DOES THE FORWARD PROGRAM OFFER REVENUE CERTAINTY?

A Although there is revenue certainty tied to the forward payment, there is no net revenue certainty because of the wide range of potential Inventoried Energy Days. In addition, the average price paid per MWh-day of inventoried energy declines over time (**Figure 4**).

Figure 4: Forward versus Spot Compensation ($/MWh-day)



Once a winter season has more than 10 Inventoried Energy Days, the potential cost of replacing inventoried energy at the spot price exceeds the value of the average price for

[22] FCA11 cleared capacity at $5.297 / kW-month for June 2020 – May 2021, whereas FCA13 cleared forward capacity at $3.80 / kW-month for June 2022 – May 2023, ISO-NE website, https://www.iso-ne.com/static-assets/documents/2018/05/fca-flow-diagram.pdf

the inventoried energy paid under forward sales. These penalties could result in negative net revenues for a generation resource participating in the Forward Program.

Q ISN'T THIS TYPICAL OF THE TWO-SETTLEMENT STRUCTURE IMPLEMENTED BY ISO-NE IN OTHER MARKETS?

A No. The key difference is the variability around the number of required delivery days. The Forward Program fixes compensation at 10 Inventoried Energy Days for the 3-month winter period, but requires the seller to provide the offered inventoried energy for however many Inventoried Energy Days actually occur. As Mr. Geissler explains, "More specifically, the ISO would expect resources to take actions to maintain or replenish their inventory in anticipation of upcoming Inventoried Energy Days" (Testimony of Christopher Geissler, p. 70, lines 8-9). Such actions to replenish inventory come with a cost – whether an opportunity cost associated with maintaining the inventory to forego profitable sales or actual fuel cost to replenish the inventory. Although the opportunity cost may be less relevant to coal or nuclear plants that generally would have much more than thirty days of inventory on-site, such considerations are likely to be critical to generation resources fueled by oil, natural gas (pipeline or LNG supply), electrical storage, and pumped hydro, which could use their inventory on a daily basis and have to replenish regularly to meet their forward obligation.

Q HOW DOES THIS IEP DESIGN DECISION IMPACT INVENTORIED RESOURCES LIKELY TO BE ON THE MARGIN?

A For generation resources that tend to be on the margin regarding whether or not to invest in inventoried energy, selling forward would have diminishing returns on a per MWh-day

basis as total compensation is fixed and the resource could be required to deliver its Presold MWh on a greater number of days than covered by the compensation.

Q HOW DO DECLINING AVERAGE PRICES IN THE FORWARD MARKET IMPACT PARTICIPATION DECISIONS?

A This declining compensation for forward sales on a MWh-day basis as the total number of Inventoried Energy Days increases can make the forward sales contract less valuable and riskier, especially for deliveries of large volumes of heavy # 6 oil which are much more difficult to replenish regularly than lighter #2 fuel oil that can be shipped more frequently by rail or truck. Declining average compensation for each MWh-day of inventory and uncertainty around the number of delivery days increases costs and risks, even if the amount of MWh required to be delivered during each Inventoried Energy Day is fixed.

Q ISN'T THIS HOW A TYPICAL FORWARD CONTRACT WORKS?

A No. A typical forward contract fixes price, quantity, number of deliveries, and timing of those deliveries. In this case:

- **Price** is fixed at $8.25 / MWh-day for 10 Inventoried Energy Days. However, as illustrated in **Figure 4**, the average price that actually is received by the seller depends on the number of Inventoried Energy Days that actually occur. This is different from a typical forward contract where the price is established for each unit that is delivered. In this case, ISO-NE intends to pay a total of $82.49/MWh based on a fixed price times 10 days, regardless of how many Inventoried Delivery Days occur during the 3-month winter season.

- **Quantity** is fixed at whatever the generating resource qualifies and offers in MWh of inventoried energy, subject to pro-rata adjustments tied to programmatic caps. Payment is fixed at 10 days of delivery. The obligation, however, extends to providing the contracted quantity for however many Inventoried Energy Days occur in the season. This is different than a typical forward that would fix the total quantity and number of deliveries as part of the contract.[23]
- **Timing of Delivery** is established for the period of December through February but depends on the timing of the Inventoried Energy Days. Again, this is different than a typical forward contract where the delivery date is set or capped at a fixed number of delivery days.
- **Settlement** is similar to a forward in that failure to deliver can be remedied by a financial payment reflecting the difference between the contract price and the market price of the asset. However, the use of an administratively-set fixed "spot" price makes this structure different than a typical forward contract that would be either delivered or settled against a defined price index in the marketplace reflecting an available option for the supplier to make the buyer whole. Under the IEP, settlement against the spot price is guaranteed to be at a loss once 10 Inventoried Energy Days is reached.

Q WHY ARE THE DISTINCTIONS BETWEEN THE FORWARD CONTRACT IN THE IEP VERSUS A TYPICAL FORWARD IMPORTANT?

[23] There are fuel requirements contracts which require the delivery of however much is required by the buyer (e.g., retail energy obligations). The typical forward contract, however, is for a fixed amount of quantity and deliveries.

A These distinctions are important because selling forward under the terms of the ISO-NE contract places a significant amount of risk on the generation resource. The generation resource may have a fixed lump sum revenue (reduced by penalties tied to failure to deliver) but does NOT have a fixed cost related to delivering on its obligation. In particular, the "forward" contract places the following risks on a generator that is not normally part of a typical forward contract:

- **Price Risk:** A generation resource selling into the Forward Program effectively faces price risk tied to the declining average revenue per MWh-day that it is contracted to deliver. Average price reductions under the Forward Program occur exactly when anticipated costs increase. For example, a winter such as Winter 2014/15 when there were 22 Inventoried Energy Days (recall **Figure 3**) would compensate participants in the Forward Program with an implied average price of only $4.05 / MWh delivered versus the penalty at the spot price of $8.25 / MWh.
- **Quantity Risk:** The "forward contract" defines the quantity for purposes of compensation equal to 10 days times the contracted amount of inventoried energy in MWh but does not fix the total number of days on which the generation resource is contractually required to meet this obligation.
- **Market Risk:** Even though the "spot" price is administratively set, the actual cost of procuring inventory is tied to market conditions. If the cost of procuring inventory is lower than the spot price of $8.25/MWh for the designated day, the generator will procure inventory. If the procurement cost is higher than $8.25/MWh for the designated day, the generator would simply settle with ISO-NE. However, the

average compensation per MWh declines over time, making it possible that a generator actually could have to pay ISO-NE for failure to deliver at a price that is higher than the average price received, resulting in net losses.

- **Weather Risk:** Given the relationship between delivery obligations and Inventoried Energy Days, generation resources incur weather risk. The pattern of Inventoried Energy Days also is important for resources that have limited inventory storage because a cold snap across multiple days can draw down on the inventory while imposing price and quantity risk on the generator tied to replenishment in order to perform against its obligation. For example, extended cold also stresses the truck transport system as truckers time out for safety reasons delivering home heating oil. As a result, a generation resource that sold forward could get squeezed by lower average program prices for the inventoried energy tied to an extended period of cold weather and higher market prices to replenish the inventory as demand remains high, other storage options are depleted, and fuel costs spike. These higher costs would not be covered by the Forward Program and would not be covered by the energy market if the plant is not dispatched.

Q IF THE "FORWARD SALES" ARE NOT LIKE A FORWARD CONTRACT, WHAT DOES THE CONTRACTUAL STRUCTURE REPRESENT?

A The product sold in the Forward Program is more similar to the sale of a call from the generation resource to ISO-NE for the Presold MWh of inventoried energy. In fact, Analysis Group refers to the "forward call option contract" and to the Inventoried Energy

Days as "calls."[24] Analysis Group also notes that the financial risks are not easily hedged given its complexity.[25] The generation resource delivers the asset to ISO-NE or provides a financial settlement tied to the administratively-set "spot" price whenever an Inventoried Energy Day occurs. The fixed forward payment is similar to a premium payment on a call option of $82.49/MWh for every MWh sold.

Q ARE COSTS GUARANTEED TO BE COVERED UNDER EITHER THE FORWARD OR SPOT SALES PROGRAM?

A No. There is no guarantee that costs will be covered under either forward sales or spot sales. Therefore, the program may not result in increased inventoried energy if prices are insufficient to cover the costs. The IEP fails to include a proposal to raise forward and spot sales prices in the event market conditions render the fixed costs calculated by the Analysis Group incorrect.

Q ARE TOTAL INCREMENTAL REVENUES RECEIVED BY GENERATORS GUARANTEED BY THE PROGRAM?

A No. Even if a generation resource delivers its forward obligation or consistently can provide inventoried energy through spot sales, program revenues could be offset by revenue reductions in ISO-NE's Forward Capacity Market (FCM.)

Q HOW ARE CAPACITY MARKET REVENUES LIKELY TO BE LOWER?

[24] Schatzki, Todd and Llop, Chris, "Calculation of Rate for Interim Compensation Program," January 30, 2019 (Revised), pp. 2 and 8.
[25] Ibid., p. 5, footnote 6.

A The IMM intends to reduce allowable delist bids by the expected revenues associated with the program.[26] By doing so, the IMM claims, generation resources that otherwise could retire will be allowed to submit a lower bid into the FCM so that they clear. The implication of lower FCM bids, however, is a lower market clearing price. So long as the marginal unit offering capacity is participating in the IEP, capacity market prices are likely to be lower.

Q IS IT LIKELY THAT THE CAPACITY CLEARING UNIT WOULD OFFER A LOWER BID?

A Yes. The units that have delisted in recent auctions include oil peaker plants and gas-fired units that are supplied by LNG.[27] The IEP is designed to support these types of generation resources. If these resources do not participate in the IEP, the program is ineffective in meeting its objectives. If they do participate in the IEP, the IMM will reduce their bids by the expected revenues from the program. Therefore, most zones, excluding the import zones where the imported resources are not allowed to participate in the IEP,[28] could have prices set by a unit that is participating in the IEP.

Q WHAT ARE THE IMPLICATIONS FOR GENERATORS?

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[26] ISO NE Inc. Letter to FERC, "Comments of the Internal Market Monitor of ISO New England Inc. on the Inventoried Energy Program," Docket No. ER19-1428-000, April 8, 2019, pp. 6-9. https://www.iso-ne.com/static-assets/documents/2019/04/er19-1428_imm_inventoried_energy_comments.pdf

[27] Some examples of recently approved de-listed plants include the ANP Blackstone natural gas plant, Bridgeport Unit 4 oil peaker, Exelon's L Street Jet peaking unit and Pawtucket Power natural gas and oil peaking units. See ISO-NE auction delist results for more information, https://www.iso-ne.com/isoexpress/web/reports/auctions/-/tree/fcm-delist-bids

[28] Such imported generation resources are explicitly excluded from participating in the IEP because ISO-NE cannot direct their dispatch. ISO New England Filing to FERC, "Testimony of Todd Schatzki on Behalf of ISO New England Inc.," March 25, 2019, p. 263.
https://www.iso-ne.com/static-assets/documents/2019/03/inventoried_energy_program.pdf .
See the ISO-NE auction delist results for more information,
https://www.iso-ne.com/isoexpress/web/reports/auctions/-/tree/fcm-delist-bids

A The implication is that most, if not all, generating resources would receive lower capacity market revenues in the FCM auctions than they would have without the IEP. This reduction in revenues for capacity would offset revenues associated with the IEP and creates even greater total revenue uncertainty for existing New England generators.

Q WOULD LOWER CAPACITY MARKET PRICES ALSO IMPACT GENERATION RESOURCES THAT DO NOT PARTICIPATE IN THE IEP?

A Yes. Although a non-participant would not receive any payment for inventoried energy, generation resources are likely to receive lower revenues from the capacity market if the IMM adjusts delist bids downward by expected revenues from the IEP.

Q DO YOU AGREE WITH THE IMM THAT REDUCING THE CAPACITY MARKET BIDS WOULD ALLOW RESOURCES PARTICIPATING IN THE IEP TO BID A LOWER PRICE AND THEREFORE HAVE A HIGHER POSSIBILITY OF CLEARING AND REDUCING RETIREMENTS?

A No. The IMM's claim that the program could reduce potential retirements ignores three realities:

1) **Low capacity market prices prompt retirements:** Capacity market prices already are at some of their lowest levels and have motivated retirement threats by some of the most diverse fuel sources with the most significant fuel inventory capacity in New England (e.g., Millstone and Mystic). Allowing for even lower bids will simply reduce capacity market prices even further and potentially hasten retirements by resources unable to access new revenue streams.

2) IMM adjusted bids would offset IEP revenues: By allowing generation resources with inventoried energy the opportunity to bid a lower delist price, there is a higher likelihood that the capacity resource that sets the price in the capacity auction would include a downward adjustment, thereby offsetting IEP revenues. This would make the IEP program even less effective than it already promises to be for that bidder as well as other capacity resources.

3) **The IEP price is low:** As already mentioned, the IEP Forward Program price and expected Spot Program price only equates to $0.50 / kW-month. Presumably, the IMM would offset this reduction by any costs associated with participating in the program. Therefore, the marginal impact would be less than $0.50 / kW-month. Given the significant decreases in capacity market prices over the past few years, it is questionable whether this adjustment would make a difference for generation resources with inventoried energy on the margin. If it did, the displaced unit could be another inventoried energy resource.

These factors could outweigh any marginal benefit associated with converting resources that otherwise would not clear into infra-marginal capacity market resources. The potential benefit to one inventoried fuel resource may come at the expense of other inventoried fuel resources.

Q COULD THESE LOWER CAPACITY MARKET REVENUES BE MADE UP BY OPPORTUNITY COST BIDDING IN ISO-NE ENERGY MARKETS?

A No, In the short-run, there is an imperfect relationship between energy and capacity market prices. In addition, the IMM has a strong track record of distinguishing energy market and capacity market costs and revenues – if a cost is not directly associated with

generating an incremental MWh of production, the cost is not properly included in an energy market offer. Lastly, the marginal unit setting the energy price may not have an opportunity cost for inventoried energy, and the lost capacity market revenues are not a marginal cost of production. Therefore, the impact on lower capacity market prices would be a direct offset to inventoried energy revenues, defeating the purpose of the program to provide revenue certainty.

Q WHAT IS THE NET IMPACT ON REVENUE CERTAINTY?

A Between revenue uncertainty associated with risks inherent in the program discussed in the prior section, uncertain impacts of opportunity cost bidding in energy markets, anticipated capacity market revenue reductions due to IMM adjustments, and cost recovery risks tied to the program design, revenue uncertainty is a substantial risk across nearly all generation fuel types.

Q WHY IS THIS PROBLEMATIC?

A The experience with the Millstone Nuclear Power Plant ("Millstone") indicates that this increased revenue uncertainty is antithetical to reducing plant retirements. Millstone threatened retirement unless it received revenue certainty through a power purchase agreement, whether in the form of zero emissions credits or outright energy sales. The Connecticut legislature enabled the regulator to require the Connecticut local distribution companies to enter into a contract with Millstone if the plant could show that it would retire without the additional revenues. Although not all details are known, Millstone received a multi-year power purchase agreement with guaranteed payments meant to provide revenue certainty so that the plant would not retire. Multi-year arrangements that

create revenue certainty, not increased volatility and uncertainty, is key to motivating capital investments to reduce retirements.

VI. THE IEP IS UNLIKELY TO INCENTIVIZE NEEDED INVESTMENT

Q DO YOU HAVE ANY OTHER COMMENTS ON THE DESIGN OF THE IEP?

A Yes. IEP offers the possibility of incremental revenues to baseload units of the type already receiving incremental revenues under long-term contracts. Yet those resources are exactly the ones that provide fuel security regardless of the incentives. The IEP does not pay enough to prevent their retirement and cannot motivate incremental fuel security as their inventories already are fixed.

The true value of a fuel security program should be in incentivizing new sources of inventoried fuel, which requires up-front investment. To this end, the design falls short. The forward call option contains significant risks with limited payout that prevent certain types of generators from investing in incremental inventory to sell forward. For example, the fixed payment in the Forward Program only covers the average number of Inventoried Energy Days, but the program is meant to provide an insurance policy for the most extreme winters when the weather is much colder than average. By design, the premium calculated by using the purported costs of a marginal unit times the average number of days would not provide fuel security for an extreme winter with a higher number of Inventoried Energy Days.

Q WHY DO YOU THINK THAT THE PROPOSED IEP PRICES ARE NOT HIGH ENOUGH TO INCENTIVIZE INCREMENTAL LEVELS OF INVENTORIED ENERGY IN THE FORWARD PROGRAM?

A Although the IEP could induce slightly higher inventoried energy levels for certain types of resources on the margin in certain cases, I generally would expect that program revenues would be offset by the risks and potential penalties, offsetting the incentives for generators with inventoried energy on the margin to sell forward. Incremental inventory from resources that require regular replenishment is more likely to be opportunistic in spot sales as opposed to procured in advance.[29]

Q Can you summarize these incentives and likely outcomes by fuel type?

A **Figure 5** summarizes the potential impact of the program by fuel type.

Large inventoried energy resources such as nuclear, coal and large reservoir pondage are not likely to be impacted as they already have inventoried energy well in excess of 72 hours; the program would simply represent incremental payments with risks tied to potential operations.

With respect to storage – either battery or pumped storage – the program could incentivize additional inventory given the potential for incremental payment, but this would be offset by decreased price differentials in peak/off-peak hours tied to the program to the extent that it tempers price spikes. For example, LNG contracts and gas storage inventories mitigated New England natural gas price spikes this past winter 2018/19 despite extremely cold weather and a total of seven Inventoried Energy Days.

[29] In addition, the average number of Inventoried Energy Days between 1978 to the present is closer to 11 days versus the programmatic assumption of 10. Expectations of higher compensation by around 11 percent would cause generators to lean towards the Spot Program.

Figure 5: Incentives to Maintain Incremental Inventoried Energy

Inventoried Fuel Resource	Incentive	Likely Outcome
Nuclear (limited by days until next refueling cycle)	Minimal	Already maintains inventoried energy and schedules refueling outages during shoulder months well in advance
Coal (on-site supply)	Minimal	Already maintains inventoried energy and represents only a single remaining power plant in ISO-NE that is subject to other policy objectives tied to the environment
Oil (in-service tanks)	Minimal	Already represents a significant amount of fuel diversification in the marketplace that operates when oil prices are lower than natural gas prices. Could be incentivized, but the risks may offset revenues
Biomass (on-site supply)	Minimal	Already maintains inventoried energy and is incentivized to have fuel on-site for other purposes tied to cogeneration.
Electric Storage (existing charge)	Offsetting	Currently incentivized by either long-term contracts or price arbitrage opportunities. The program could both increase and mitigate the price arbitrage opportunities, with offsetting effects in incremental incentives.
Pumped hydro	Offsetting	Represents two generation facilities in New England (Northfield Mountain and Bear Swamp). Same offsetting impacts as storage price arbitrage opportunities outside of contractual arrangements.
Hydro with pond storage < 12 hours	Possible	Could incentivize incremental pond storage, but likely to be inframarginal so that hydro opportunity costs would not set the price.
Gas-fired generators with LNG supply contract (subject to cap)	Possible	Depends on cost to procure firm supply versus expected compensation and risk premium.
Gas-fired generators with firm pipeline supply/ delivery contracts and price < 250% energy spot price	Possible	Depends on cost to procure firm supply versus expected compensation and risk premium.

Q WHAT ABOUT THE POTENTIALLY INCREMENTAL INVENTORIED ENERGY?.

A The impact on oil and natural gas-fired units will depend on how the proposed prices compare to market opportunities, the type of products available, and the physical location of the resource which would impact the ability to procure firm delivery. Although there could be some incremental investment going into the winter for oil and natural gas generators, I would expect the relatively low premium price compared to the risks to offset the incentive to make the investments required to sell forward.

Q YOU PREVIOUSLY MENTIONED THAT THE FORWARD PROGRAM IS LIKE A CALL OPTION. DO YOU THINK THE PREMIUM PRICE PAID FOR THE OPTION IS HIGH ENOUGH TO COMPENSATE FOR THE RISK OF PLANTS ON THE MARGIN?

A No.

Q WHY NOT?

A The premium for the forward call option that ISO-NE is offering to pay to generation resources with inventoried energy understates the potential cost to generators.

- **Hypothetical Product:** The value of the Forward Program payment is based on a hypothetical product. As such, Analysis Group had to make a number of simplifying assumptions to calculate the premium for such a product.
- **Assumes 10 Calls:** One of the simplifying assumptions is the number of calls included in the LNG option. Analysis Group assumes only 10 calls, presumably based on the assumed average number of Inventoried Energy Days.
- **Generation Resources Have to Delivery More than 10 times:** Under the Forward Program, if a 3-month winter season has more than 10 Inventoried

Energy Days, the generation resource still has the obligation to deliver or pay the Spot Price as a penalty.

- **Additional Value tied to Risk:** Volatility around the number of Inventoried Energy Days creates an extrinsic value that is not included in the price.

Q HOW IS THE RISK OF THE "FORWARD CALL OPTION" IN THE FORWARD PROGRAM HIGHER THAN THAT OF A REGULAR CALL OPTION?

A A call option usually establishes the quantity of the asset that can be called upon and limits the number of times the option can be exercised. In the IEP, however, there is no limit on the number of times the option can be called. Whereas the generation resource is compensated by the premium for 10 calls, regardless of whether or not the call is exercised, the obligation to sell the inventoried energy is not capped to only 10 days. ISO-NE effectively has the ability to call upon the inventoried energy whenever an Inventoried Energy Day occurs, whether there are 10 days or 27 days or more during the 3-month winter season. Thus, the generation resource can be penalized for extreme winter conditions, high replacement fuel costs, and potential delivery risks.

Q WOULD OPPORTUNITY COST BIDS IN ENERGY MARKETS MAKE UP FOR THE DECLINING AVERAGE FORWARD PRICE?

A No, not necessarily. First, there is no guarantee that energy prices would increase by any measurable amount to offset reductions elsewhere. The opportunity cost is most likely to be added at the end of a long cold snap when inventories are being depleted or are difficult to replenish. It also is very dependent upon weather, where the anticipated Inventoried Energy Days could coincide with lack of inventoried energy. Second, the market price-setting unit during extreme winter conditions could be a gas unit with non-

firm delivery, imports, or a coal plant with no opportunity cost of inventoried fuel, in which case there would be no opportunity cost adder associated with the IEP built into energy prices. As a result, there may be no incremental revenues generated by energy prices when resources need to replenish their fuel stocks. This lack of an opportunity cost does not mean that inventory is not needed, it just means that an energy resource that does not have an opportunity cost for inventoried energy is setting the price while inframarginal units are using up their inventories.

Q DOES THE SPOT PROGRAM HAVE THE SAME RISKS?

A The Spot Program has similar risks but is structured very differently – more like a put option. The Spot Program effectively forces the ISO to purchase inventoried energy at the administrative price of $8.25 / MWh whenever an Inventoried Energy Day occurs and a participating generation resource has inventoried energy in place. Unlike the forward sale, the marginal and average price per MWh under spot sales is fixed, and the generation resource is not obligated to sell inventoried energy, so spot sales alone could not cause total revenues net of penalties to be negative. Furthermore, a generator would only maintain and sell inventoried energy if it is profitable to do so. As a result, total spot revenues and profitability can either increase or stay the same with each additional Inventoried Energy Day.

VII. RECOMMENDED CHANGES TO ACHIEVE STATED OBJECTIVES

Q DO YOU HAVE ANY RECOMMENDED CHANGES TO THE PROGRAM?

A Yes. The recommended changes differ according to which objective – increased fuel inventory or reduced retirements – is to be achieved.

Q WHAT ARE YOUR RECOMMENDATIONS TO INCREASE INVENTORIED ENERGY ABOVE LEVELS THAT OTHERWISE WOULD BE MAINTAINED?

A The following recommendations would increase the likelihood that incremental inventoried energy would increase, particularly in forward sales which provides incremental assurance and is better for ISO-NE planning purposes:

1. **Establish a true forward contract:** Remove penalties if Inventoried Delivery Days exceed 10 days to make the forward call option a forward contract with limited risk exposure. This should increase participation in the forward market and establish the guaranteed revenues for resources able to participate because there is a minimum amount of guaranteed revenue without claw-backs beyond the compensated number of days.
2. **Increase the forward price to reflect a higher number of Inventoried Energy Days:** The fuel security program should create an insurance policy for extreme winter conditions, not an average event. Therefore, the forward price should be based on a higher number of Inventoried Energy Days tied to a desired probability of coverage. For example, based on the last 41 years of data, 90 percent of past winters experienced 20 days or fewer Inventoried Energy Days. The Forward Program should compensate investment in a greater number of Inventoried Energy Days to cover the extreme winter events that stress the system (e.g., the Polar Vortex of 2013/14 which had 20 Inventoried Energy Days) and not an average event of only 10 days.
3. **Establish a Forward Call Option where market participants bid their desired duration:** If a semblance of the current forward call option is to be maintained, allow

market participants to designate the number of Inventoried Energy Days that ISO-NE can purchase. Fix the revenues for that amount of days at an established spot price and apply penalties if the awarded days are not met. This shifts the weather risk onto the market which effectively pays for the insurance policy, while generators still bear delivery risks at a price that reflects a number of days that they are better positioned to control. This provides a better allocation of risk while allowing oil generators and other fuel sources with replenishment costs and physical limitations to sell their product forward at a level that can be delivered profitably. This also provides ISO-NE with better information regarding what resources are likely to be reliably available over the course of the winter.

4. **Increase the price per MWh as the number of Inventoried Energy Days increases:** Escalate prices for seasons that experience a greater number of Inventoried Energy Days. As with most commodity products, higher quantity delivered requires higher prices. In addition, the greater the number of Inventoried Energy Days, the more valuable the inventoried energy resources that can deliver are. Yet, the current IEP design either fixes prices for spot sales or has a declining average price per MWh for forward sales. The price paid and the penalties assessed for those that cannot keep their self-nominated commitments in the forward market under Recommendation 3 should increase as the committed or actual number of Inventoried Energy Days increases.

5. **Upward Price Adjustment Mechanism:** Establish a mechanism through which ISO-NE can increase spot and forward prices in the event the administratively-established prices are too low given market conditions. Oil, natural gas and LNG are

commodities that experience significant price changes in short periods of time. Any price set today, even if it is a good estimate, is bound to be wrong in the future. While the current prices can establish a floor, ISO-NE should reserve the right to adjust the price upwards as required in response to increased retirements of fuel security resources or lack of interest by generation resources with inventoried energy,

Q WHAT ARE YOUR RECOMMENDATIONS TO REDUCE THE RISK OF RETIREMENT?

A The following recommendations would decrease the risk of retirement:

6. **Increase compensation certainty.** Resources require revenue commitments or an expectation of sufficient margins in the face of volatile pricing in order to continue to make capital investments to continue operating. This was one of the goals of the IEP which, for the reasons discussed above, fell short. Although the recommendations above move towards decreasing revenue uncertainty, the basis for the prices should be examined to ensure that the products on which the pricing is based actually are offered in the marketplace. There is no evidence presented in the ISO-NE filing and associated attachments that ensures or even explains the basis for the proposed firming products that set the price for the IEP.

7. **Mitigate the impact of fuel secure resources in the capacity market.** The IMM intention to adjust capacity market delist bids downwards by the anticipated IEP revenues simply shifts reliability market revenues towards fuel security payments and away from capacity market revenues. This is particularly true for efficient natural gas-fired generation resources that may be unable to obtain firm fuel commitments but are still likely to clear the capacity market. The marginal units that contribute to

fuel security are more likely to be the market clearing units (hence the IMM claim), thereby reducing capacity market prices by the same amount as the incremental revenues of the marginal unit. The potential outcome could serve to offset any incremental revenues in support of fuel inventories.

8. **If the IMM is allowed to/required to adjust delist bids downward, redistribute the lost amount back to inventoried fuel providers, funded by an uplift charge.** As already discussed, it is important to keep inventoried energy resources whole, especially in light of the basis for the administratively-set price which calculates a cost of the marginal inventoried energy solution without accounting for costs in other markets. If the IMM does adjust delist bids downwards to reflect the IEP revenues, such lost revenues should be calculated based on the adjustment to the plant setting the FCM price and reimbursed to the participants in the IEP to keep them whole.

Q ARE THESE THE EXTENT OF YOUR RECOMMENDATIONS?

A Yes, for now. I reserve the right to modify this testimony and recommendations in light of new information that becomes availability over the course of the proceeding.

VIII. CONCLUSION

Q CAN YOU PLEASE SUMMARIZE YOUR CONCLUSION?

A Yes. The IEP does not generate prices that are effective, fair, reasonable, or transparent.

- **The IEP does not pay a high enough price to prevent retirement.** When compared to the price paid to the Mystic Power Plant to prevent the retirement of its LNG-fueled units, it is clear that the IEP is not designed to ensure sufficient revenues to prevent retirements. Mystic received more than 17 times the IEP Forward Program

rate to cover its claimed cost of service. The problem is only exacerbated by the IMM's stated intent to reduce delist bids by the expected revenues associated with the IEP, which can reduce market clearing prices in the capacity markets and therefore reduce revenues for all capacity providers, including providers of inventoried energy.

- **The IEP Forward Program and the forward call option design is seriously flawed.** The design of the forward option contract includes significant risks that are not and should not be part of a program meant to compensate delivered inventories. The extension of penalties beyond the 10-days effectively discriminates against a number of resources that face volatile market prices and delivery constraints during extended winter weather conditions while failing to compensate for those risks beyond the 10 days. In effect, this provision fails to provide reasonable compensation for the potentially significant number of Inventoried Energy Days that could occur in excess of the 10 that are compensated.
- **The IEP Spot Program is based on a faulty marginal cost assumption.** The calculation of the IEP Spot Program rate fails to reflect volatile market prices, lack of physical access to firm delivery, and other factors that would be incorporated into the cost of delivery of inventoried energy during a 3-month winter period. In particular, the same fixed price whether delivering for one Inventoried Energy Day or 27 Inventoried Energy Days fails to recognize increasing marginal costs of supply, thereby failing to provide a reasonable price for winter periods when investment for extended periods of extreme cold are likely to be more expensive for an incremental unit of fuel security.

- **There are simple adjustments that can improve the program:** There are simple design changes that can improve the likelihood that the program achieves its intended objectives. These design changes serve to reduce risk, increase certainty, and increase potential payments to generation resources that are able to deliver inventoried resources when the system needs them most.

Q DOES THIS CONCLUDE YOUR TESTIMONY?

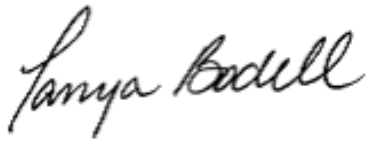
A Yes.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

ISO-New England Inc.	)	**Docket No. ER19-1428-000**

PREPARED DIRECT TESTIMONY OF TANYA L. BODELL
ON BEHALF OF NRG POWER MARKETING LLC

I, Tanya L. Bodell, states that she is the Tanya L. Bodell referred to in the document titled, "Prepared Direct Testimony of Tanya L. Bodell" that the document was prepared by her or under her direction, that she has read such testimony, and is familiar with the contents thereof, and that the facts set forth therein are true and correct to the best of her knowledge, information, and belief in this proceeding.



Tanya L. Bodell