



June 6, 2019

BY ELECTRONIC FILING

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Re: ISO New England Inc., Docket No. ER19-1428-000;
ISO New England Response to Commission Request for Additional Information
Regarding the Inventoried Energy Program**

Dear Secretary Bose:

ISO New England Inc. (“ISO”) hereby responds to the May 8, 2019 letter from the Federal Energy Regulatory Commission (“Commission”) in the above-captioned proceeding.¹ The Commission’s letter states that the ISO’s March 25, 2019 filing of the inventoried energy program² “is deficient and that additional information is required in order to process the filing.”³ Following a brief preface, the ISO provides responses to each of the Commission’s questions below.

With reference to the Commission’s questions regarding the level of analysis supporting the need for, and likely efficacy of, the interim inventoried energy program,⁴ the ISO wishes to emphasize the context in which it presented the inventoried energy program to the Commission. Specifically, in its initial filing, the ISO readily acknowledged that it has not performed detailed analyses with respect to the inventoried energy program (other than the analysis performed by

¹ See *ISO New England Inc.*, Deficiency Letter, FERC Docket No. ER19-1428-000 (issued May 8, 2019) (“Deficiency Letter”).

² See *ISO New England Inc.*, Inventoried Energy Program, FERC Docket No. ER19-1428-000 (filed March 25, 2019) (“March 25 Filing”).

³ Deficiency Letter at 2.

⁴ See, e.g., Deficiency Letter, questions 1, 2, 9, 11, and 12.

Analysis Group in determining the program's forward rate). But the ISO also explained why such analysis is not warranted or necessary in this case:

the inventoried energy program (like the winter reliability programs before it) is not a perfect, fully market-based solution to the region's energy security issues. Rather, it is a directionally-correct, interim step that seeks to strike an appropriate balance between competing design objectives and that is aimed at helping to address those energy security issues while the ISO and stakeholders work to develop and implement a more robust, long-term, market-based solution. That the inventoried energy program is not fully consistent with all market design principles, and that it does not satisfy the discrepant preferences of all affected market participants, does not render it unjust and unreasonable.⁵

The ISO further explained that "to ensure that the program was filed and understood by stakeholders before retirement de-list bids were due to the ISO (on March 15, 2019) for the Forward Capacity Auction to be conducted in February 2020, and given the interim nature of the program, it was appropriate to forgo the complex and time-consuming development of a robust methodology to estimate the program's expected reliability benefits."⁶ Such an exercise could take from several months to a full year to accomplish and requires identifying numerous assumptions and associated sensitivities.

The ISO has explained why and how the inventoried energy program is expected to improve incentives for resources to maintain inventoried energy during periods of system stress. But it is an interim program (like the previous winter reliability programs), and the ISO believes the significant time and resources that would be consumed by further analysis of an interim solution are far better spent working on the long-term, market-based solution that the ISO will file later this year. Indeed, the ISO and stakeholders in New England are hard at work on that long-term solution, and further analysis or refinement of the interim inventoried energy program should not distract from those efforts.

⁵ Motion for Leave to Answer and Answer of ISO New England Inc., FERC Docket No. ER19-1428-000 (filed April 30, 2019) ("April 30 Answer"), at 2.

⁶ *Id.* at 5. The ISO also stated that the program "seeks to improve the region's winter energy security not only through the deterrence of retirements, but also by creating stronger incentives for existing resources that are not at risk of retirement to take actions that increase the likelihood they have inventoried energy during periods of system stress. As a result, the program may meet its objective of improving the region's winter energy security even if it does not materially impact resource retirement decisions." *Id.* at 4 (citing March 25 Filing at 5, 8-9 and Testimony of Christopher Geissler on Behalf of ISO New England Inc., provided with March 25 Filing, at 7, 11-13).

Going forward, the ISO has been clear about its intention to rely on the markets and competition to ensure the region's longer-term energy security. In deference to the market-based energy security solution that is under development, the ISO has communicated to stakeholders that the Mystic resources (whose retirement set this series of proceedings in motion) will not be retained beyond May 31, 2024 (and have the right to retire one year in advance of that date). The ISO also indicated that it will use competitive processes to solicit transmission solutions to meet the local reliability needs that result from the eventual retirement of the Mystic resources.⁷

With this context established, the ISO provides its responses to the Commission's specific questions below.

Question 1

ISO-NE states that an objective of the Inventoried Energy Program is to “compensate resources that provide winter energy security, and thereby improve the region's reliability during stressed winter conditions.” Did ISO-NE conduct an analysis that demonstrates a potential energy security issue associated with the winters of 2023-2024 and 2024-2025 in support of the proposed Tariff revisions? If so, please provide a copy of this analysis. If not, please state why ISO-NE believes such analysis was not necessary. To the extent this analysis identified potential negative energy security impacts specific to that timeframe to address, prior to implementation of the long-term solution, please explain how these concerns are not adequately addressed by the existing Tariff.

Answer to Question 1

The ISO did not conduct any new energy security analyses in conjunction with the development of the inventoried energy program. However, the ISO has provided quantitative analysis in other regulatory proceedings and public forums that supports its concern of potential energy security issues associated with the winters of 2023-2024 and 2024-2025. This analysis included the Operational Fuel Security Analysis (“OFSA”), which was published by the ISO in January 2018 and which showed significant risks to the region associated with fuel security.⁸ The Commission

⁷ See Memorandum from Vamsi Chadalavada to the NEPOOL Participants Committee titled Re-entry of retired resources and Order 1000 (dated April 30, 2019), available at https://www.iso-ne.com/static-assets/documents/2019/05/20190430_re-entryretiredresources_order1000_memo.pdf.

⁸ Available at https://www.iso-ne.com/static-assets/documents/2018/01/20180117_operational_fuel-security_analysis.pdf. The ISO also used the OFSA model to evaluate operational risks associated with the retirement of Mystic 8 and 9 during the 2022-2023 and 2023-2024 winter periods (the “Mystic Retirement Studies”). See, e.g., Petition of ISO New England Inc. for Waiver of Tariff Provisions, FERC Docket No. ER18-1509-000 at 9-15 and Exhibit ISO-1 thereto (Testimony of Peter T. Brandien) at 30-47.

relied, at least in part, on the OFSA in directing the ISO to develop both a short-term cost-of-service approach and a longer-term, market-based approach to addressing fuel security concerns.⁹ Importantly, in that order, the Commission stated “[w]e find ISO-NE’s methodology and assumptions in the OFSA and Mystic Retirement Studies reasonable and accept ISO-NE’s conclusions that the retirement of Mystic 8 and 9, under current ISO-NE Tariff provisions, could cause ISO-NE to violate mandatory reliability standards as soon as 2022.”¹⁰ Ultimately, the Commission accepted the ISO’s proposed rule changes that would allow for the retention of resources for fuel security for the winters of 2022-2023, 2023-2024, and 2024-2025.¹¹

Question 2

In addition, has ISO-NE performed other quantitative analyses or assessments that provide evidence to support the proposal? Please provide any and all analysis performed.

Answer to Question 2

All quantitative analyses or assessments supporting the inventoried energy program were included with the ISO’s March 25 Filing. This analysis includes the determination of the forward and spot settlement rates such that the program would allow a gas-only resource that sells inventoried energy forward to expect to fully recover the costs associated with signing a winter peaking contract for vaporized liquefied natural gas (LNG). As a result, the program is expected to increase the quantity of such contracts, thereby improving the region’s winter energy security. Furthermore, these rates are expected to be sufficient to also incent resources that store oil to take actions to increase the likelihood that they maintain inventoried energy throughout the winter period.

As explained in the April 30 Answer,

because the inventoried energy program is interim in nature and needed to be developed quickly, the ISO prioritized simplicity and expedience in its development. While the inventoried energy program should directly influence inventory decisions during the delivery period, in order to forestall retirements (or

⁹ See Order Denying Waiver Request, Instituting Section 206 Proceeding, and Extending Deadlines, 164 FERC ¶ 61,003 (issued July 2, 2018) (“July 2, 2018 Order”).

¹⁰ *Id.* at P 49.

¹¹ See Order Accepting Compliance Filing and Requiring Informational Filings, 165 FERC ¶ 61,202 at PP 89, 96 (issued December 3, 2018), *reh’g pending*.

out-of-market retentions) of resources that would be economic but for the absence of the program's compensation, it was important that the program be understood by participants in a timeframe that could influence irreversible retirement decisions that are made several years before the relevant delivery period.¹²

Hence, it was appropriate to forgo the complex and time-consuming development of a robust methodology to estimate the program's expected reliability benefits. For these reasons, the ISO and stakeholders should remain focused on developing a long-term, market-based approach to energy security, consistent with the Commission's July 2, 2018 Order.

Question 3

ISO-NE states that the Inventoried Energy Program's forward rate was based on the fair market value of a natural gas contract between a natural gas-only generator and a storage terminal that holds liquefied natural gas (LNG). ISO-NE asserts that this rate represents the "break even" payment associated with signing such a natural gas contract. What is ISO-NE's basis for concluding that the proposed forward rate will incent natural gas-fired generators to sign contracts for LNG inventories?

Answer to Question 3

As the ISO and its consultant, Dr. Todd Schatzki, explained in the March 25 Filing, the inventoried energy program's forward rate was calculated so that, if the modeling assumptions hold, a representative gas-only resource that signs a winter peaking contract for vaporized LNG and that sells inventoried energy forward via the program will fully recover the contract costs, in expectation.¹³ By "breaking even" such a resource is made no worse off by signing such a contract and participating in the program. Furthermore, this calculation assumes that the representative resource converts natural gas to electric energy at a heat rate of 7.8 MMBtu/MWh, which falls within the range of normal for New England's gas fleet.¹⁴ For gas-only resources that can convert natural gas to electric energy more efficiently than this representative unit (and that therefore have a lower heat rate), the "break even" forward rate would be lower. As a result, such

¹² April 30 Answer at 5.

¹³ See Testimony of Christopher Geissler on Behalf of ISO New England Inc., provided with March 25 Filing ("Geissler Testimony"), at 22-23; Testimony of Todd Schatzki on Behalf of ISO New England Inc., provided with March 25 Filing ("Schatzki Testimony"), at 3.

¹⁴ See Attachment B to Schatzki Testimony (memorandum titled "Calculation of Rate for Interim Compensation Program") at 4.

resources would generally earn positive expected net revenues from participating in the program, and would therefore choose to sign such contracts and participate in the program.

Question 4

What is the duration of the forward LNG contract that ISO-NE used to support its calculation of the forward rate? Are forward LNG contracts similar to the hypothetical contract that ISO-NE used to calculate the forward rate commercially available to generators for the Capacity Commitment Periods covered by the Inventoried Energy Program? Is ISO-NE aware of any generators in its footprint that have signed a forward LNG contract that is similar to ISO-NE's hypothetical contract?

Answer to Question 4

The forward settlement rate was calculated based on the expected net revenues that a gas resource may receive if it were to sign a 10-day winter peaking contract for vaporized LNG for the December through February program period. This contract includes a reservation price of \$11.67 per MMBtu associated with the maximum quantity of gas that can be bought via the contract, and a commodity ("strike") price of \$10.00 that is paid for each MMBtu of gas that is bought.¹⁵ The assumed contract structure differs from a "take-or-pay" contract structure, where the participant is required to buy all of the contracted gas or pay a charge for any unused gas, as it allows the participant to exercise the contract on fewer than 10 days, if desired.

While such contractual arrangements are typically not made public or shared with the ISO, Dr. Schatzki indicated that these contract terms to estimate the forward settlement rate are consistent with those he has observed, and those in the public domain.¹⁶

Question 5

Under the Inventoried Energy Program, ISO-NE maintains that an eligible natural gas contract "may be with one of the LNG facilities that serves the region, or it could instead be with a counterparty that does not source the gas at an LNG facility." Because the forward rate is based on a break-even analysis of the former contract type, does ISO-NE anticipate that the proposed rate would incent natural gas generators to sign contracts for firm transportation on natural gas pipelines that are not sourced from LNG?

¹⁵ See Attachment B to Schatzki Testimony (memorandum titled "Calculation of Rate for Interim Compensation Program") at 2-4.

¹⁶ See Schatzki Testimony at 5. See also footnote 25, *infra*.

Answer to Question 5

The ISO and its consultant did not conduct specific analysis evaluating the costs associated with signing a contract for firm transportation on natural gas pipelines that are not sourced from LNG. However, the ISO's expectation is that, for most gas-only resources that seek to sign a gas contract in order to sell inventoried energy, the most economic contract is a peaking contract sourced from LNG. That said, each Market Participant will make its own decision regarding whether to participate in the inventoried energy program, and if so, what sort of arrangements to make to maintain inventoried energy as needed. These decisions will be based on myriad resource-specific criteria and commercial considerations.

It is possible that some resources that use natural gas will choose to maintain inventoried energy via a contract for firm transport of natural gas that is not sourced from LNG, and regardless of likelihood, it would not be desirable or appropriate to exclude such contracts. Because such contracts increase the region's inventoried energy, and provide a reliability benefit that is consistent with other contractual arrangements for natural gas, they are credited under the program. This is consistent with the program's objective of providing similar compensation for similar service.¹⁷

Question 6

ISO-NE states that participants in the Inventoried Energy Program "may include an opportunity cost in their energy market offers." Please provide an estimate of the change in total system costs resulting from the inclusion of opportunity costs from the Inventoried Energy Program in energy market offers. In addition, please provide any and all analysis performed regarding the effects of the Inventoried Energy Program on energy and ancillary services market prices, quantities, and revenues.

Answer to Question 6

The ISO did not conduct analysis to determine the expected impact on total system costs that may result from the inclusion of opportunity costs from the inventoried energy program in energy market offers. As the ISO explained in its answer, the estimation of this impact would have required the development of a production cost model, detailed assumptions about demand

¹⁷ See March 25 Filing at 5-7.

and available supply in the winters of 2023/24 and 2024/25, and expectations of how the program will impact resource inventoried energy decisions, availability, and bidding behavior.¹⁸ The development of such a model would have been a significant undertaking for an interim program that is slated to last for two winters, and was not possible in the timeframe necessary to have the program finalized and understood by stakeholders before retirement decisions were made for the upcoming Forward Capacity Auction (scheduled for February 2020). Furthermore, such analysis may be of limited value because many factors, such as the duration of future winter months' cold weather spells, affect the program's impact on energy market opportunity costs and are difficult to predict years in advance.

The ISO did provide stakeholders with values that corresponded to the program's potential impact on energy market prices and total energy market costs.¹⁹ However, as indicated in the April 30 Answer, these values were intended to be illustrative.²⁰ Rather than representing the ISO's estimates of the program's impact, they were intended to demonstrate how, using a set of simple and transparent assumptions that could be understood by stakeholders, the program's possible impact (under those assumptions) can be explained.

Question 7

Under the Inventoried Energy Program, the opportunity cost of burning fuel below a 72 hour inventory is effectively set at the fixed rate of \$8.25/MWh. Did ISO-NE perform an analysis to determine how much additional fuel would have been available during previous cold weather events if this program were in place? If so, please provide the analysis. If an opportunity cost is included in energy market offers, what is the approximate effect this adder will have on economic dispatch and commitment during a prolonged period of cold weather?

Answer to Question 7

The ISO did not conduct any specific analysis that sought to estimate how much additional fuel would have been available during previous cold weather events if the program were in place. As with other forms of quantitative analysis, such analysis would require the development of a model that includes assumptions about how resources modify their behavior under the program and change their bid prices to account for the new opportunity costs associated with converting

¹⁸ See April 30 Answer at 29.

¹⁹ See Interim Compensation Treatment presentation to NEPOOL Markets Committee dated January 8, 2019, at February 20, 2019, at slides 51-56, available at https://www.iso-ne.com/static-assets/documents/2019/01/a2_iso_presentation_interim_compensation_treatment.pptx.

²⁰ See April 30 Answer at 29.

energy to fuel. Further complicating such an analysis, these previous cold weather events occurred under a range of market rules, including various iterations of the winter reliability program that compensated resources for certain types of inventoried energy. It would be extremely difficult to adjust the historical observed behavior to account for the effects of those different market rules in order to predict the impact of the inventoried energy program on past winter periods relative to current rules (for which no winter reliability program is in place). As discussed in previous answers, to build such a model would have required significant time and effort from the ISO and its stakeholders, which the ISO does not believe is warranted for an interim program and that could be better spent working on the long-term market-based approach.

Furthermore, this question states that “the opportunity cost of burning fuel below a 72 hour inventory is effectively set at a fixed rate of \$8.25/MWh.” This statement is not entirely accurate. As discussed in the March 25 Filing, the opportunity cost for a resource that has less than 72 hours of inventoried energy is generally equal to the product of the spot rate of \$8.25 and the number of Inventoried Energy Days that it expects before it is able to replenish its fuel.²¹ This approach appropriately considers that, if such a resource converts inventoried energy to electric energy at present, it forgoes program revenues of \$8.25 per MWh for the measurement associated with each Inventoried Energy Day that occurs before replenishment. As a result, if a resource with less than 72 hours of inventoried energy expects one Inventoried Energy Day before replenishment, it would therefore have an opportunity cost of \$8.25 per MWh, as indicated in the above question. However, if the Market Participant expects two Inventoried Energy Days before replenishment, its opportunity cost is equal to \$16.50 per MWh.

Question 8

Please explain how net revenues received under the Inventoried Energy Program are reflected in the mitigation of bids for the Forward Capacity Market (FCM) for all resources that appear to have positive net revenue opportunities attributable to participation in the program, including mitigation achieved through a change to the dynamic de-list bid threshold, if applicable. Please indicate the Tariff section that specifies how these net revenues are treated for the purposes of FCM mitigation. If net revenues are not reflected, please specify the rationale as to why such revenues should not be reflected.

Answer to Question 8

²¹ See Geissler Testimony at 70-78.

In both its initial comments and its answer in this proceeding, the Internal Market Monitor explained in detail its rationale for considering any expected revenues from the inventoried energy program when mitigating bids for the FCM.²² The Internal Market Monitor also set forth the Tariff basis for this treatment, as follows:

The Tariff thus requires, in various formulations, that all de-list bids of resources in the Forward Capacity Market be adjusted (*i.e.*, mitigated) to reflect their going forward costs net of expected revenue streams:

- For Static De-List Bids and Export Bids, Tariff Section III.13.1.2.3.2.1 requires the IMM to review the bid to be consistent with the Existing Capacity Resource's *net* going forward costs, as determined pursuant to Tariff Section III.13.1.2.3.2.1.2.A, which requires netting all "annual infra-marginal rents, in dollars" from going forward costs.
- For Permanent De-List Bids and Retirement De-List Bids, Tariff Section III.13.1.2.3.2.1.1.2 requires the IMM to calculate a de-list bid based on the sum of the net present value of the resource's "expected cash flows" plus the resource's Capacity Performance Payments and opportunity costs.
- For New Resource Offer Floor Price bids, Tariff Section III.A.21.2 requires the IMM to calculate an Offer Floor Price by entering all relevant resource costs and "non-capacity revenue data" as well as certain financial assumptions into a capital budgeting model and to calculate the break-even contribution required from the FCM (*i.e.*, the "missing money") to yield a discounted cash flow with a net present value of zero for the new resource.

Just to clarify, the expected revenues from the interim program must be treated as "inframarginal rent," "expected cash flows," or "non-capacity revenue" under the Tariff, depending on the type of resource and de-list bid, as highlighted above. As stated in the IMM's prior comments: "Against this background, under the Tariff's existing mitigation rules the net revenues from the interim program should be treated like revenue from any ancillary service in the calculation of an existing resource's net Going Forward Costs."²³

²² See Comments of the Internal Market Monitor of ISO New England Inc. on the Inventoried Energy Program, FERC Docket No. ER19-1428-000 (filed April 8, 2019), at 5-9; Motion for Leave to Answer and Answer of the Internal Market Monitor of ISO New England Inc., FERC Docket No. ER19-1428-000 (filed April 30, 2019) ("IMM April 30 Answer"), at 2-4.

²³ IMM April 30 Answer at 2-3 (emphasis in original, citations omitted).

In sum, as the Internal Market Monitor has indicated, the revenues from the interim program will be reflected in the Forward Capacity Market's de-list bid mitigation. With regard to the Commission's question about the dynamic de-list bid threshold, the inventoried energy program does not include a proposed change to the determination of the dynamic de-list bid threshold, although it could impact the competitive bid price of some resources. Such a change is beyond the scope of the inventoried energy program and would require significant analysis and a lengthy stakeholder process that would reduce the region's ability to develop a long-term market-based approach to energy security while also preventing the program from being finalized and understood by stakeholders before the retirement deadline for FCA 14. Rather, the current dynamic de-list bid threshold value of \$4.30/kW-month, as applicable for FCA 13, is slated to remain at this value through FCA 15. It will then be recalculated along with a number of auction parameters such as Net CONE for the Capacity Commitment Period that begins on June 1, 2025. Importantly, these updated values will go into effect for FCA 16, after the inventoried energy program is slated to expire. It would therefore not be appropriate to consider expected program revenues when establishing this updated value for FCA 16, as the program is not scheduled to be in effect for that commitment period.

Question 9

What impact or interactions, if any, will the Inventoried Energy Program have on Pay-for-Performance and Competitive Auctions with Sponsored Resources (CASPR), and vice versa? For example, will additional revenues from the Inventoried Energy Program (i) deter less reliable resources from retiring despite potentially incurring penalties under Pay-for-Performance and/or (ii) result in these resources commanding a larger payment from new resources in the substitution auction under CASPR?

Answer to Question 9

The inventoried energy program would be in place alongside both Pay-for-Performance and CASPR.

The incentives provided by the inventoried energy program should complement those provided by Pay-for-Performance, and to the extent that the inventoried energy program deters retirements, it will not impact Pay-for-Performance's incentive structure. Pay-for-Performance was put in place to enhance resources' incentives to take actions to improve their ability to provide energy and reserves during scarcity conditions, when the region is deficient of energy and/or reserves. At a very high level, resources that perform well during scarcity conditions will be compensated for their contributions to system reliability during these stressed times, and

resources that perform poorly will incur financial charges to reflect their limited contributions. As a result, a resource that expects its performance to be poor during scarcity conditions may increase its de-list price, making it more likely to retire. Conversely, a resource that expects to perform well during scarcity conditions will tend to decrease its de-list price, making it less likely to retire.

The inventoried energy program does not change or undermine this incentive structure as, during winter scarcity conditions, resources are compensated under Pay-for-Performance for the energy and reserves they provide, not the inventoried energy that they may hold. The inventoried energy program, on the other hand, introduces a new potential revenue source for resources that maintain inventoried energy during cold weather conditions that may improve winter energy security, but do not necessarily correspond with scarcity conditions. More specifically, if the inventoried energy program succeeds in deterring the retirement of resources that maintain inventoried energy during stressed winter conditions, this outcome is likely to enhance winter energy security relative to the status quo (including Pay-for-Performance). The impact of deterring such resources from retiring on system reliability, as measured in terms of the quantity and severity of scarcity conditions, is difficult to ascertain as it depends on a number of unknown factors including whether the resource that chooses not to retire under the program impacts the retirement or entry decision of other resources. For example, if the resource's decision to continue operation does not impact the retirement or entry decisions of others, then the inventoried energy program is likely to increase the region's total capacity and may therefore improve reliability year-round. Similarly, if the continued operation of the resource leads to the retirement of another resource that provides comparable or worse performance during scarcity conditions, then the program's reliability impact is again likely to be positive. However, if the continued operation of the resource leads to the retirement of another resource that provides greater reliability contributions during scarcity conditions, then the program may increase the region's inventoried energy during the cold winter conditions while weakening reliability, as measured in terms of the quantity and severity of scarcity conditions experienced in the region.

Similarly, because the inventoried energy program may provide net revenues to resources that maintain inventoried energy during cold winter conditions, it may impact participation in the substitution auction that was introduced under CASPR. The impacts on retirements and system reliability are generally similar to those outlined above with respect to the program's interaction with Pay-for-Performance. That is, where the inventoried energy program reduces a resource's likelihood of retirement through the substitution auction, this resource is likely to maintain inventoried energy during cold winter conditions, thereby improving the region's winter energy security. The broader reliability impact of deterring a resource's retirement is dependent on other factors including how this action impacts the entry and exit decisions of other resources.

Question 10

ISO-NE states that the Inventoried Energy Program requires that contracts for natural gas “must allow for firm delivery of the gas and must include no limitations on when natural gas can be called during a day in proposed Tariff section III.K.1(a)(iii).” How would the proposed Tariff language impact generators relying on LNG contracts that would require pipeline transportation from the regasification terminal to the electric generation facility? Are there commercial offerings for firm delivery of natural gas available to generators in ISO-NE that would meet the requirements of the proposed Tariff? If yes, please provide details on these offerings.

Answer to Question 10

It is the understanding of both the ISO and its consultant, Dr. Todd Schatzki of the Analysis Group, that contracts for the delivery of vaporized LNG that meet the requirements specified in the proposed Tariff language are commercially available. As outlined in the March 25 Filing, the forward settlement rate of \$82.49 per MWh was established based on the expected costs and revenues associated with signing a ten day winter peaking gas contract where the contract buyer pays a reservation charge of \$11.67 per MMBtu for the right, but not the obligation, to buy up to this quantity of gas at a strike price of \$10.00 per MMBtu on up to ten days over the months of December, January, and February.²⁴ As Dr. Schatzki noted, “[t]he estimated forward contract terms are consistent with actual fuel contract terms I have reviewed, including those in the public domain.”²⁵

The ISO notes that some protesters argued that the forward rate is too low to incent an LNG supplier to enter into the type of contract meeting the requirements of the inventoried energy

²⁴ See Schatzki Testimony at 3-6; Attachment B to Schatzki Testimony (memorandum titled “Calculation of Rate for Interim Compensation Program”).

²⁵ Schatzki Testimony at 5. For example, Dr. Schatzki reviewed contracts submitted by suppliers in response to the Connecticut Department of Energy & Environmental Protection’s, June 2, 2016 Request for Proposals for Natural Gas Capacity, Liquefied Natural Gas (LNG) and Natural Gas Storage. These contracts offer firm natural gas supply to Connecticut utilities delivered through firm pipeline delivery provided by the supplier. That request for proposals is available at <http://www.dpuc.state.ct.us/DEEPEnergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/32723b39b1c8b69885257fc6006cf337?OpenDocument>; the responses from suppliers are available at [http://www.dpuc.state.ct.us/DEEPEnergy.nsf/\\$EnergyView?OpenForm&Start=30&Count=30&Expand=40.4&Seq=4](http://www.dpuc.state.ct.us/DEEPEnergy.nsf/$EnergyView?OpenForm&Start=30&Count=30&Expand=40.4&Seq=4).

program,²⁶ further supporting that contracts of this nature are indeed available, though dependent on price. And as the ISO explained in its April 30 Answer,

the contract must include no limitations on when the gas can be called (*understanding, of course, that due to physical and logistical limitations, no call is instantaneous*). A nomination deadline or other restrictions on scheduling of the gas in the contract could make it impossible for a participating resource to actually call the gas when needed, if that need was not anticipated at the time of the deadline. Requiring that natural gas supply contracts have no limitations on when natural gas can be called during the day ensures that, like other fuel types, this inventory can be converted to electric energy at the ISO's direction. As explained in the March 25 Filing, *contractually-provided natural gas inventory may not improve the region's winter energy security if limitations on when it could be called prevented its use on cold days where system conditions are stressed and this energy is needed most*. For these reasons, it is appropriate that the inventoried energy program excludes contracts that limit when the gas can be called, whether these limitations relate to pipeline nomination deadlines or other factors.²⁷

Additionally, while the forward settlement rate was calculated based on estimated contract terms for one specific type of winter peaking gas contract, such contracts could take several different forms, and could potentially be with any of the facilities that delivers gas to New England via vaporized LNG or otherwise. For example, generators and facilities that deliver gas to the region may also consider alternate contract terms that change the number of calls, the reservation and commodity prices, or whether the entire quantity of gas must be purchased. As part of his analysis, Dr. Schatzki evaluated how the forward settlement rate may differ across a range of contract structures.²⁸

Question 11

ISO-NE states that the revenue from the Inventoried Energy Program should decrease the likelihood that certain resources pursue retirement. Please provide your estimate of total capacity at risk for retirement for FCA 14 and FCA 15 with and without the Inventoried Energy Program.

²⁶ See, e.g., Comments of Exelon Corporation, FERC Docket No. ER19-1429-000 (filed April 15, 2019) at 4.

²⁷ April 30 Answer at 28-29 (emphasis added).

²⁸ See Attachment B to Schatzki Testimony (memorandum titled "Calculation of Rate for Interim Compensation Program") at 13 (Table 4).

In doing so, please estimate unit retirements by primary and then secondary fuel type (e.g., coal, nuclear, oil only, dual fuel natural gas/oil, natural gas only, etc). Please provide any analysis performed in support of this estimate, including relevant assumptions.

Answer to Question 11

The ISO publishes data on the set of existing resources slated to retire,²⁹ the capacity quantity associated with resources that have submitted retirement de-list bids for the upcoming FCA,³⁰ the capacity quantity associated with resources that have submitted demand bids for the upcoming substitution auction,³¹ and the resources that it believes to be “at risk” of retirement which includes approximately 5,000 MW of oil and coal units.³²

While the ISO expects that the inventoried energy program may reduce the likelihood of retirements from “at risk” resources, it has not quantitatively evaluated the extent to which the program would decrease the likelihood of retirements by resource or fuel type. As discussed above, such analysis would represent a significant undertaking that is not warranted or necessary for an interim program and would reduce the region’s ability to focus on the long-term market-based approach. Furthermore, the ISO generally does not have access to the detailed cost and revenue projections informing retirement decisions that would be needed to conduct such an analysis.

²⁹ See ISO New England Status of Non-Price Retirement Requests, Retirement De-list Bids and Substitution Auction Demand Bids (sometimes called the “retirement tracker”), available at https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=2ahUKEwi21bPRsZ7iAhWsnOAKHQDeCaoQFjAAegQIBhAC&url=https%3A%2F%2Fwww.iso-ne.com%2Fstatic-assets%2Fdocuments%2F2016%2F08%2Fretirement_tracker_external.xlsx&usg=AOvVaw0mQrYjwsgynUzOX5f6k-SL.

³⁰ See Retirement and Permanent De-list Bids for FCA 14, available at <https://www.iso-ne.com/static-assets/documents/2019/03/exit-de-list-bids-for-fca2023-2024-load-zone.pdf>.

³¹ See Substitution Auction Elections for FCA 14, available at <https://www.iso-ne.com/static-assets/documents/2019/05/sa-elections-fca2023-24-capacity-zone.pdf>.

³² See State of the Grid: 2019 presentation dated February 20, 2019, at slide 16, available at https://www.iso-ne.com/static-assets/documents/2019/02/20190220_pr_state-of-the-grid_presentation_final.pdf. See also graphic showing major non-gas-fired generators that have closed or are at risk of retiring, available at <https://www.iso-ne.com/about/regional-electricity-outlook/grid-in-transition-opportunities-and-challenges/power-plant-retirements>.

Question 12

Please provide your expectation of how the Inventoried Energy Program will impact the onsite fuel storage practices and management of the resources that will most likely participate. Please group your response by primary and then secondary fuel type (e.g., coal, nuclear, oil only, dual fuel natural gas/oil, natural gas only, etc.). Please indicate total winter capacity eligible and expected to participate for each group.

Answer to Question 12

As discussed in the March 25 Filing, the ISO expects that the inventoried energy program will increase the quantity of onsite fuel storage through two different mechanisms. First, it may lead existing resources to maintain greater quantities of inventoried energy during cold winter days. Second, it may reduce the likelihood that resources that can maintain inventoried energy pursue retirement.³³

While it is difficult to predict how each resource or resource type would modify its fuel storage practices and management under the program, the ISO would generally expect the change to be most significant from resources that may not maintain significant quantities of inventoried energy under the current market rules. This could include oil-only resources and dual-fuel (natural gas/oil) resources, which may increase the quantity of oil they put in their tanks leading up to the winter or take actions to increase the frequency with which they replenish during the winter. It may also include natural gas only resources that choose to sign winter peaking gas contracts for vaporized LNG.

While it is difficult to quantitatively assess the impact of the program on resource retirements either at the plant level or by primary and secondary fuel type, the ISO would expect that this impact would be most significant for resources that maintain inventoried energy as part of their standard operating practices and would incur little or no incremental cost to participate in the program. This would suggest that the program is most likely to deter retirements from coal resources, nuclear resources, oil-only resources, dual-fuel resources, and hydro resources. Because gas-only resources are likely to incur greater costs to participate in this program, the program may be less likely to deter retirements from such resources.

³³ See Geissler Testimony at 6-7.

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June 6, 2019
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The ISO requests that the Commission accept these responses to its May 8, 2019
Deficiency Letter.

Respectfully submitted,

ISO NEW ENGLAND INC.

By: /s/ Maria Gulluni

Maria Gulluni, Esq.
Kerim P. May, Esq.
ISO New England Inc.
One Sullivan Road
Holyoke, MA 01040-2841
Tel: (413) 540-4551
E-mail: kmay@iso-ne.com