



Memorandum

TO: ISO New England and NEPOOL Markets Committee

FROM: David B. Patton and Pallas LeeVanSchaick

DATE: March 20, 2020

RE: NESCOE Proposal to Raise the Strike Price of Energy Call Options

This memo provides Potomac Economics' comments as the External Market Monitor for ISO New England regarding the proposal by NESCOE to raise the strike price by \$10 per MWh of the day-ahead call options that are embedded in the new day-ahead ancillary service products proposed by ISO New England.

A. Background on the ESI Proposal

ISO New England has proposed to implement day-ahead ancillary services markets as a comprehensive solution to the market deficiencies that originally led to the Energy Security Initiative. We generally support the ISO's proposal to define technology-neutral products that will allow all types of energy-secure resources to be compensated for providing reserves within a competitive market framework. We have long recommended the ISO implement day-ahead ancillary services markets to provide a mechanism for the ISO to procure sufficient resources to maintain reserve adequacy rather than through out-of-market supplemental commitments, which tend to depress prices and undermine incentives for generators to be available and operate reliably.

Most other RTO regions with day-ahead ancillary services markets (NYISO, MISO, CAISO, and SPP) have defined each product as a day-ahead forward contract that settles at the real-time clearing price for the same reserve product. ISO New England has proposed a new type of day-ahead contract that would settle as a call option for energy with a strike price equal to the expected value of the real-time LMP. The option style contract has some desirable features, including that it would:

- Provide stronger incentives for generators to be available when needed for reliability; and
- Allocate reserves to resources that would be most economic to provide energy if needed in real-time.

On the other hand, use of the option style contract would require loads to take day-ahead positions in energy that substantially exceed their expected real-time energy needs, since loads would be required to purchase “at the money” call options for an amount of operating reserves that is extremely likely to exceed the amount that would be converted to energy in real-time.¹ Ultimately, it is difficult to predict the extent to which the option style contract will allow the ISO to maintain reliability more efficiently than it would using the conventional forward contract for ancillary services.

B. Discussion of the Proposed Strike Price Change by NESCOE

NESCOE has proposed to raise the strike price to \$10 per MWh above the expected value of the real-time LMP in order to reduce the anticipated costs to consumers. The Analysis Group was retained by the ISO to evaluate the costs and outcomes of the proposed ESI products under different conditions and utilizing different parameters.

The Analysis Group report says that while this design change would have relatively small consumer cost impacts in its severe winter weather cases (see “Winter Frequent” and “Winter Extended” cases), it would reduce the proposal’s incremental cost to consumers in the day-ahead and real-time markets by 14 to 37 percent in its mild winter and its non-winter cases.² The actual net impact on consumer costs from the ESI proposal (regardless of whether the strike price increase is adopted) is likely smaller than shown in the Analysis Group report because increases in day-ahead and real-time market revenues to generators tend to lower capacity procurement costs by reducing the revenue that generators must recoup in the capacity market to remain in service or enter the market. However, it would not be desirable to create a market that leads generators to incur additional costs to be available beyond what is needed by the ISO to maintain reliability.

The ISO has not adopted the NESCOE proposal, concerned that it would reduce the incentive for day-ahead option sellers to procure fuel. This incentive would be diminished by the reduced cost of close-out by up to \$10 per MWh. This amount would be a very small portion of the overall close-out costs during tight market conditions, so the increase in strike price is unlikely to have a significant impact on incentives to obtain fuel during periods when it would be most important for maintaining reliability. Recent simulations found that suppliers would have reduced incentives to hold fuel oil based on estimated net revenue reductions of 1 to 7 percent for generators in its severe winter weather cases. The estimated net revenue reductions are

¹ For example, if the ISO procures 3.5 GW of reserves in a particular hour at a strike price of \$40 per MWh and the real-time LMP is \$45 per MWh, all 3.5 GW of reserves will settle as a function of the real-time LMP. If 400 MW of generation that was originally scheduled for reserves in the day-ahead market ends up producing energy in real-time, the load customers will effectively have a long position in that hour of 3.1 GW (= 3.5 GW of day-ahead options minus 400 MW utilized as energy in real-time).

² *Energy Security Improvements Impact Assessment*, by Analysis Group, draft dated March 18, 2020. See Tables 48-53. Percentages herein are derived by comparing “Change in Total Consumer Payments” column for the “Central Case” and “Strike Plus \$10” rows.

proportionally larger during mild winter conditions but still modest in absolute terms.³ Additionally, the simulations did not quantify the foregone profits associated with not procuring fuel. As the strike price is raised, the reduction in close-out costs of not procuring fuel would be offset by an increase in foregone profits of not procuring fuel (in the \$10 range). Therefore, including the costs of these foregone profits would partially offset any reduction in incentives to hold fuel and further mitigate the concerns associated with raising the strike price.

We do not think that this analysis raises significant concerns that the bias would materially impair generator incentives because:

- The overall net revenue impacts are very small, and they only account for a significant share of the impacts during moderate market conditions when reserve providers are less likely to materially impact reliability if unavailable.
- Although the net revenue from covering may be reduced, it does not necessarily mean that the supplier will not provide reserves reliably. For example, a high cost oil-fired peaking unit may have a decreased incentive to cover (i.e., generate energy), but that does not mean that it is not providing reserves that the ISO can depend on to maintain reliability.

Therefore, we support NESCOE's proposal to raise the strike price by \$10 per MWh from the expected real-time price level. While it is impossible to estimate the optimal amount by which the strike price should be increased, there is ample information to suggest that:

- This change would not undermine the market and reliability benefits of satisfying reserve adequacy needs within the market, but
- Would reduce the likelihood that the day-ahead ancillary services market would lead to excessive costs to consumers to during mild and moderate operating conditions.

Additionally, it will be important to assess the efficiency of the strike price level on an on-going basis.

³ *Energy Security Improvements (ESI): Impact Analysis Updates, Additional analysis evaluating the incentive to hold fuel oil under alternate designs*, presented by Chris Geissler to the NEPOOL Markets Committee on March 24, 2020.