

To: NEPOOL Markets Committee

From: Market Development

Date: March 4, 2020

Subject: Clarification of Day-Ahead Ancillary Service Award Obligations

In its January 21, 2020 memorandum to the Markets Committee, Potomac Economics, the ISO's External Market Monitor, recommended that the ISO "clarify the obligations of [day-ahead] reserve sellers as a matter of good market design."¹ This memorandum addresses this recommendation.

Throughout the Energy Security Improvements (ESI) stakeholder discussions, the ISO has stressed that a seller of day-ahead ancillary services has a "no excuses" settlement obligation. That settlement obligation uses a (standard) two-settlement design for a call option on real-time energy. In simple terms, if the price of real-time energy is high, a seller that does not provide real-time energy must pay a settlement charge based on the real-time energy price. By design, that settlement charge reflects the system's replacement cost for the real-time energy the seller did not provide.

Several stakeholders have inquired as to whether additional obligations are imposed upon a seller that receives a day-ahead ancillary service award. This question is sometimes framed in terms of whether the obligations under the ESI design are "physical" or "financial." In more precise terms, the salient questions are whether, under the ISO's proposed design, a seller with a day-ahead ancillary service award is obligated to arrange fuel (at any available price) for its resource, and whether it is subject to potential referral to the Federal Energy Regulatory Commission if the resource has no fuel to operate in real-time.

This memorandum answers these questions. In brief, if a seller that has no market power receives a day-ahead ancillary service award, and subsequently does not provide energy during the corresponding real-time award hour, the seller will be subject *only* to the market's settlements as specified in the proposed Market Rules—*viz.*, it will be charged based on the price of real-time energy (if that price exceeds the

¹ Potomac Economics, memorandum to ISO New England and NEPOOL Markets Committee, January 21, 2020, p. 12 (at https://www.iso-ne.com/static-assets/documents/2020/01/a3_b_emm_memo_day_ahead_market_power_mitigation.pdf). The ISO's Internal Market Monitor commented similarly in its August 30, 2019 memorandum to the Markets Committee (at https://www.iso-ne.com/static-assets/documents/2019/08/a2_d_imm_memo_re_comments_on_ison_e_si_proposal.pdf).

applicable hour's strike price).² As we explain below, in a well-designed market, that is the economically-appropriate remedy when the seller of an energy call option does not provide real-time energy—regardless of the cause.

Any *additional* obligation, such as an obligation to acquire fuel at any available price or an obligation to demonstrate the physical unavailability to procure fuel, would result in excessive fuel procurement expenditures, impede generators' willingness to participate in the market, and ultimately result in unnecessarily high consumer costs.

As a separate point of clarification, we emphasize that this memorandum is not intended to speak to market power. More specifically, nothing herein should be construed as a position on the appropriate remedy for (or deterrent to) physical withholding by a supplier with market power. As the ISO has indicated in previous Markets Committee discussions, the assessment of market power and mitigation rules for day-ahead ancillary services will be the subject of future committee review following the April 15, 2020 filing.³

Clarifying “physical” and “financial” terminology: The day-ahead ancillary services design is a physical-delivery market, with significant financial consequences

In order to understand the obligations of a market seller under the ESI design, it is useful to clarify terminology. The proposed day-ahead ancillary services market is a physical-delivery market. A market participant offering to sell day-ahead ancillary services must offer the physical capability of an identified resource when it submits its energy option offer. Moreover, with co-optimized day-ahead energy and ancillary services, the clearing of ancillary service awards is expressly based on the ramping capability and other physical parameters of that resource. In this regard, the day-ahead ancillary services market is intended to enable resources to physically deliver real-time energy commensurate with their awards (*i.e.*, in amounts and with lead-times corresponding to each resource's capabilities and its day-ahead energy schedule).

Like physical-delivery markets generally, the day-ahead ancillary services market has financial consequences for non-performance. The consequence of non-performance, given a day-ahead ancillary service award, is a net settlement charge based upon the price of real-time energy (where “based on” means, specifically, that the charge applies if the price of real-time energy exceeds the call option's strike price). Under the proposed ESI Market Rules, this market settlement charge is the *sole* consequence if a seller of a day-ahead ancillary service does not provide energy with its associated physical resource in real-time.

From a terminological standpoint, referring to day-ahead ancillary services as a physical-delivery market does not imply that day-ahead ancillary service sellers have an obligation to acquire fuel for their

² Proposed ESI Market Rule revisions, § III.3.2.1(q)(2) *et seq.*

³ Note that a supplier that physically withholds its capability (*ipso facto*) does *not* acquire an ancillary service award; in contrast, this memorandum is focused on the obligations of a supplier that *does* acquire a day-ahead ancillary service award. Consequently, physical withholding involves different (opposite) circumstances than when a supplier acquires an ancillary service award, as discussed herein.

resource at any price (sometimes referred to as a “specific performance” obligation). A well-designed market for the physical delivery of a tangible service should be clear about the consequences for non-performance, but by no means do such consequences need to entail a specific performance obligation. Rather, the choice of consequences for non-performance in a physical-delivery market is—as the External Market Monitor put it—“a matter of good market design.”⁴

Layering extraneous performance obligations over a well-designed market is inefficient and causes consumers to incur unnecessary costs

In a well-designed market, sellers are not induced to incur costs that are greater than the benefits those expenditures bring to the system. If a day-ahead ancillary service seller is obligated to procure fuel at any available price, for instance, then the seller may incur costs that exceed the system’s cost to obtain energy from an alternative resource. In aggregate, such an obligation would result in inefficiently high costs to sellers, causing higher ancillary service offer prices, reduced market participation, or both. Either would produce inefficient outcomes and unnecessarily high consumer costs.

As the ISO has explained, under the proposed ESI design, a more cost-effective outcome is achieved by aligning the seller’s private incentives to incur fuel-related costs with the expected replacement cost of (electric) energy in real-time.⁵ This alignment is achieved with a simple mechanism: If a seller of a service is unable to perform (for any reason), the market will rely on the least-costly alternative resource available in real-time to replace the energy from the non-performing resource, and charge the non-performing resource’s owner for the additional cost of that replacement energy.

It is important to note that covering one’s real-time replacement cost is the appropriate obligation of a non-performing seller not only during normal market conditions, but also during stressed system conditions when reliability is at heightened risk. During a real-time shortage of operating reserves (or, in extreme situations, of energy), the real-time energy price that a non-performing seller is charged incorporates the system’s real-time reserve shortage price(s).⁶ In this way, the “replacement cost” that a non-performing day-ahead ancillary service seller is charged will not only reflect the actual cost of energy from the marginal resource, it will additionally include the (maximum) price that the system is willing to incur to reduce (and to avoid) the real-time shortage – whenever that shortage is made worse by the seller’s non-performance.

Because the replacement cost charged to a non-performing seller will incorporate the “scarcity” cost of a shortage of reserves (or of energy) whenever it occurs, the seller’s incentive to procure fuel is aligned with the cost the system ascribes to the shortage. That point is crucial to how the ESI design provides

⁴ *Op cit.*

⁵ See *Energy Security Improvements*, ISO New England Discussion Paper, April 2019 – Version 1 (at https://www.iso-ne.com/static-assets/documents/2019/04/a00_iso_discussion_paper_energy_security_improvements.pdf). Section 4.4, starting at page 66, provides examples that explain in greater detail how the ESI design aligns the costs of arranging fuel supplies with its expected benefit to the system, producing cost-effective outcomes.

⁶ This occurs to the extent an incremental MWh of energy from the seller would reduce the real-time reserve shortage. The system’s reserve shortage prices are known as Reserve Constraint Penalty Factor (RCPF) values in the ISO Tariff.

sellers with the appropriate fuel procurement incentives: Real-time reserve shortage pricing is the Commission-approved mechanism for ensuring that the market properly signals the value of a shortage—or, stated more precisely, the value of the benefit obtained by *avoiding* the shortage. Charging a non-performing seller for the replacement cost, including this scarcity cost, when the seller’s non-performance contributes to a reserve (or energy) shortage broadcasts to the seller the (maximum) cost it should incur—no more and no less—to arrange fuel in order to provide energy.

In simple terms, this mechanism—and the energy call option’s market settlement rules under ESI—aligns the seller’s incentives to perform with the value that the region places on avoiding a shortage, as reflected in the system’s real-time reserve shortage pricing mechanism. This alignment produces cost-effective incentives for a day-ahead ancillary service seller to perform generally, and to procure fuel specifically.

It should be apparent, however, that for this design to achieve these objectives in an economically-sound manner, it must not layer onto the market an additional obligation that forces sellers to base their fuel procurement decisions on factors *other than* the replacement cost of real-time energy (inclusive of its scarcity cost, when that occurs). Doing so not only increases sellers’ fuel procurement expenditures excessively, the extra-market obligations also increases sellers’ regulatory uncertainty over a potential referral to the Commission. A seller can reasonably be expected to reflect these costs and risks in its option offer price for day-ahead ancillary services, thereby increasing the overall costs that consumers ultimately pay. Further, should the regulatory risk prove significant, it may undermine some sellers’ willingness to participate in the day-ahead ancillary services market altogether. In this case, fuel-related obligations beyond the proper market settlements would produce an adverse “double-whammy”: inefficiently high offer prices (reflecting excessive fuel procurement expenditures), and reduced market participation by competing suppliers (due to regulatory uncertainty). Taken together, these foreseeable consequences would undermine the cost-effectiveness of the ESI design and unnecessarily raise costs to consumers.

In summary, to impose performance obligations that induce a seller to devote financial resources *beyond* the amount that it would spend facing only economically-correct market consequences for non-performance—*i.e.*, facing only market settlements based on real-time replacement cost—would be both to consumers’ detriment, and inconsistent with the ISO’s obligation to create and sustain economically efficient markets.⁷

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We hope this memorandum serves to clarify the ISO’s interpretation of the proposed ESI Market Rules with respect to the obligations of market participants with day-ahead ancillary service awards. We look forward to discussing these observations with stakeholders at the upcoming Markets Committee meeting.

⁷ ISO Tariff, § I.1.3(b).