Examining the performance of the ORDC and potential enhancements

Submitted to the Supply Analysis Working Group (SAWG)

By

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**Introduction:**

In response to a memo issued by Commissioner Anderson, SENA has participated in the ERCOT stakeholder forums to consider the performance of the ORDC and any potential enhancements. Variables specifically mentioned in the memo include (1) the value of X, (2) the number of standard deviations used to formulate the loss of load probability curve (LOLP), (3) correlation between operating reserves and PRC, and (4) are the current inputs used to calculate the LOLP a sufficient approximation or should the methods and approximations be re-evaluated. ERCOT stakeholders, by way of participation in SAWG, expanded this list to be more comprehensive of potential ORDC changes and enhancements.

SENA concurs with Commissioner Anderson: the ORDC has altered behavior of resources and load. The ORDC, coupled with an increase in the System-wide Offer Cap, has encouraged loads to avoid exposure to high prices. SENA suspects that this risk aversion and associated hedging ultimately encourages correct behaviors, but attenuates the scarcity events that ERCOT’s energy only marketplace depends upon for resource adequacy.

Price signals to support resource adequacy, however, seldom materialize. In addition to the market behavior changes described above, price responsive distributed generation continues to attenuate prices in real-time. Regardless of the cause, ERCOT’s energy-only marketplace has not delivered sufficient scarcity pricing to sustain resource adequacy. The ORDC was designed to deliver sufficient scarcity pricing to achieve an economical target reserve margin. Forward price curves in ERCOT do not provide sufficient economic returns to sustain new construction of dispatchable generation. If ERCOT is to maintain the long-term success of the energy-only marketplace, then modification to the ORDC is critical. SENA believes that reconsidering the inputs and operation of the ORDC may provide improved scarcity pricing events when resource shortages play out in real time.

To support this effort, SENA briefly discusses modifications to (1) the value of X, (2) increasing the value of lost load variable while maintaining the system-wide offer cap, and (3) accommodating price-responsive distributed energy in a SCED dispatch.

**Discussion:**

**Establishing the Value of X**

SENA believes that the value of X should be set to a level sufficiently high to precede ERCOT market intervention to preserve reliability. SENA believes that a value of X between 2700 and 3000MW would (1) introduce more frequent scarcity events, and (2) more accurately reflect the real-time value of a reserve. Accordingly, it is appropriate to escalate the ORDC curve as reserves are depleted to a minimum contingency level prior to ERCOT’s intervention to preserve reliability. ERCOT may take action when PRC is less than or equal to 2500MW, and declares an EEA at PRC levels less than or equal to 2300. These actions deliver emergency reserves to the system through an out-of-market action, which can deprive the market of a price signal when it is most needed. SENA believes the value of X should escalate the value of reserves prior to reliability intervention.

**Consider increasing VOLL above SWOC**

Price oscillation leading up to and following scarcity events is not easily managed by wholesale market participants. Offers at the ‘top’ of the stack in ERCOT vary greatly in both volume and price. Accordingly, price formation is not necessarily smooth as ERCOT enters or exits a scarcity event. Increasing VOLL above SWOC would accelerate the onset of scarcity, and potentially smooth price formation. SENA supports increasing VOLL above SWOC, provided that SWOC remains unchanged.

SENA strongly believes that prices should remain capped at SWOC. The existing $9,000 price cap aggressively encourages hedging from load participants. Higher levels of SWOC would further escalate the financial penalties for a real-time short position, and discourage marketers from offering the much desired load hedge. Similarly, the penalty for a resource contingency becomes increasingly crippling at and beyond $9,000 / MWHr.

**Accommodate and encourage price-responsive distributed resources to participate in a SCED dispatch**

SENA strongly believes that the existing portfolio of price-responsive distributed resources reduce prices during potential and realized scarcity events. These fossil-fueled resources are currently paid their load-zone price for net injections to the system. As load-zone prices sufficiently exceed the marginal cost of a fossil fueled reciprocating engine, distributed generation delivers to the ERCOT system. ERCOT’s SCED system recognizes the DG response to price as a reduction in load, rather than a marginal resource serving system load. Accordingly, the SCED-observed reduction in load reduces prices.

SENA asserts that this is a rationale economic outcome, where load represents their willingness to consume *from ERCOT* as a function of *ERCOT price.* However, this is distinctly different from a curtailment. Price responsive resources are compensated when they inject (in excess of their load) to the ERCOT grid. Their contribution to the grid is an act of serving load, rather than reducing it. These resources, when injecting in response to price, should be modeled as a resource and reflect their willingness to sell as an offer in SCED. To do so would improve price formation in times of scarcity, rather than reduce it.

As noted in the previous paragraph, hundreds of megawatts of distributed generation are responding rationally to the ERCOT market design, which lacks a mechanism for DG to offer energy in a fashion that preserves price formation. SENA believes that much of the needed improvement to ORDC performance is tied to this market design flaw, where DG is encouraged to generate when load zone prices exceed their marginal cost. This is challenging for DG resources and market participants: DG can actually reduce their own price if they sufficiently reduce ERCOT system load when generating.

SENA believes that if the ORDC is to compensate for this less-than-ideal market feature, then DG location and participation should be carefully cataloged and transparent to market participants, such that the true impact of price responsive DG can be modeled and built-in to the ORDC enhancements. SENA believes that equitable opportunities for DG to participate in wholesale markets by way of a SCED dispatch would be more effective.

**Conclusion:**

SENA appreciates the opportunity to opine on improving the performance of the ORDC. As illustrated above, modifications to the value of X and VOLL will undoubtedly improve the performance of the ORDC and potentially limit the need for out-of-market intervention. Other features, such as improved SCED dispatch of price-responsive distributed generation will undoubtedly improve price formation in times of scarcity. These changes are critical to the preservation of the energy-only marketplace, which has yet to deliver revenues that support sustainable development of dispatchable resources. SENA will actively support further ORDC improvements, and appreciates ERCOT stakeholder and/or PUC direction on these issues.