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SAVION, LLC POSITION

Savion, LLC

)
) **Public Utility Commission**
) **of Texas**
) **Project No. 52373**
) **REVIEW OF WHOLESALE**
) **MARKET DESIGN**
)

POSTION TITLE

I. BACKGROUND

The Commission requests written comment on the following questions by August 16, 2021. Responses will guide Staff in preparing an agenda for the Commission' s work session on Market Design. Comments should be limited to a maximum of ten pages, and should include an executive summary.

II. SAVION RESPONSE

Question 1: What specific changes, if any, should be made to the Operating Reserve Demand Curve (ORDC) to drive investment in existing and new dispatchable generation? Please consider ORDC applying only to generators who commit in the day-ahead market (DAM). Should that amount of ORDC - based dispatchability be adjusted to specific seasonal reliability needs?

Response: All generation thermal or renewable commits into the DAM. What would keep a resource from committing is lack of availability such as from being on outage, fuel interruptions, transmission maintenance etc. Since the unit would most likely not be available,

there is normally no access to elevated ORDC revenues. The ORDC works best when it is offered to those generators that are able to perform better during an extreme event, such as when a wind farm or solar farm out-performs predetermined capacity assumptions or DAM schedule. Offering the ORDC assures that all available generation produces to its maximum when the load most needs energy irrespective of the source.

Question 2: Should ERCOT require all generation resources to offer a minimum commitment in the day-ahead market as a precondition for participating in the energy market?

- a. If so, how should that minimum commitment be determined?
- b. How should that commitment be enforced?

Response: Generators whether thermal or renewable make their resources available into the DAM at the level expected to deliver the next day. A thermal unit on outage would necessarily submit zero megawatts into the DAM. Requiring resources to misrepresent would not assist the DAM goal of accurately pricing energy for expected load.

- a. In order to profit-maximize, a generator should predict as closely as possible its energy to be delivered. Offer too much energy and the DAM market price drops relative to the RTM; offer too little and the RTM price drops relative to the DAM. In both cases, the generator risks lower revenue during energy settlement.
- b. The best enforcement is to allow the market to work without interference.

Question 3: What new ancillary service products or reliability services or changes to existing ancillary service products or reliability services should be developed or made to ensure reliability under a variety of extreme conditions? Please articulate specific standards of reliability along with any suggested AS products. How should the costs of these new ancillary services be allocated.

Response: ERCOT's existing AS products serve to meet operational needs during normal operations. They support frequency control and voltage support and keep the system stable. They are not meant to provide reliability (defined here as the ability to provide energy to load) or resiliency (defined as the ability to provide emergency support during prolonged system stress). To meet reliability needs ERCOT has utilized the ORDC as a means to incent additional generation that will be available but may not necessarily be committed for enough hours to be adequately compensated in the energy and AS market.

Other markets have a form of ORDC but still find that reliability needs additional incentive such as in PJM with its Reliability Pricing Model auctions. In this market load serving entities need to procure enough generation to meet a planning reliability amount of generation. Generators are allowed to bid into the market but only at the level of reliability assumed a unit can deliver. Generators are evaluated as the effective load carrying capability ELCC of the technology and that is the amount offered into the RPM. For example, a 100 MW wind farm with an ELCC of 13% would only be allowed to offer 13MW into the market. Therefore load serving entities would be ultimately responsible to secure a reliable amount of generation to serve its obligations.

Question 4: Is available residential demand response adequately captured by existing retail electric provider (REP) programs? Do opportunities exist for enhanced residential load response?

Response: No response.

Question 5: How can ERCOT's emergency response service program be modified to provide additional reliability benefits? What changes would need to be made to Commission rules and ERCOT market rules and systems to implement these program changes?

Response: No Response.

Question 6: How can the current market design be altered (e.g., by implementing new products) to provide tools to improve the ability to manage inertia, voltage support, or frequency?

Response: ERCOT AS products are currently effective in meeting the need for voltage and frequency support.

System inertia is not used as an ancillary service measure in any market. Measurement of the service would also need to be rigorously defined.

National Grid released a study of the effects of system inertia during load shifting and found that increasing levels of system inertia tend to cause a longer response time for the system to restabilize at its new steady-state¹. While this may help keep frequency stable during routine load switching or generator operations.

The effects of rotational inertia during massive sudden load shedding events need to be considered not as a stabilizing force but as a means of propagating larger system failure. On August 14, 2003 FirstEnergy's sudden load shedding in Akron Ohio cascaded Eastward causing a blackout over most of nine states and Ontario. The sudden loss of load caused inertia imbalance at spinning synchronous generators as far away as Dodge City, Kansas. Generators online in that city experienced an overspeed event as the rotating inertia of the generator had no load to keep its speed in balance.

III. NEXT STEPS IN PROCESS

¹ <https://www.nationalgrid.com/sites/default/files/documents/16890-Meeting%208%20-%20Inertia%20presentation.pdf>

Staff requests written comment on the discussion draft and responses to the questions for comment by 3 p.m. CT on August 16, 2021.