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PUC PROJECT NO. 52373

**REVIEW OF WHOLESALE
ELECTRIC MARKET DESIGN**

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**BEFORE THE
PUBLIC UTILITY COMMISSION
OF TEXAS**

**LOWER COLORADO RIVER AUTHORITY'S RESPONSE TO
QUESTIONS FOR COMMENT**

TO THE HONORABLE PUBLIC UTILITY COMMISSION OF TEXAS:

The Lower Colorado River Authority (LCRA) offers the following responses to the Commission's August 2, 2021 questions on wholesale market design for stakeholder comment.

I. EXECUTIVE SUMMARY

- The current wholesale market design is structured around providing low-cost power to consumers at the expense of reliability.
- To achieve a resilient grid with adequate operating reserves that will protect against extreme weather conditions, ERCOT must target traditional utility reliability standards (i.e., a 1 in 10 loss of load expectation).
- LCRA recommends that the solution to achieving a more resilient wholesale market requires the Commission to direct ERCOT to adopt new ancillary service products that will produce revenues sufficient to support investment in new dispatchable generation resources and maintain the current dispatchable generation fleet.
- Modifications to the Operating Reserve Demand Curve (ORDC) that merely shift revenues among market participants, without adding additional revenue, will be insufficient to support long-term investment for additional capacity from dispatchable generation resources.
- The Commission must carefully consider how long-term investment signals will be maintained or strengthened by any changes that are proposed in this proceeding. While economic theory may drive design decisions, it will be critical to the success of this market to account for how investors perceive market price signals and the need for regulatory certainty.
- LCRA recommends that any market design changes (including modifications to scarcity pricing mechanism and creation of any new ancillary service products) be codified in substantive rule language. Most of the implementation processes and design details can be handled at ERCOT, but Commission direction on these issues must be captured in clear, binding rule language.

II. RESPONSE TO QUESTION 1

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?

Based on LCRA's analysis, modifications to the ORDC alone are not expected to produce revenues sufficient to incentivize investment in new dispatchable generation resources. Depending on the specific adjustment, ORDC proposals that other market participants have recently described might assist in stabilizing the existing dispatchable generation fleet, although additional analysis of specific proposals will need to be performed in order to project the impacts to the forward market and resulting expectations for investment drivers. As with any market design changes, the Commission should direct ERCOT to perform studies necessary to evaluate the impacts of any ORDC modifications to the reserve margin, in order to gauge whether those changes are sufficient in achieving a robust and appropriate target level of reliability.

III. RESPONSE TO QUESTION 2

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??

LCRA believes ERCOT should continue to procure ancillary services prior to real time and that delivery should remain binding to physical assets. LCRA does not think a minimum commitment on energy in the Day-Ahead Market is necessary, as ERCOT has existing tools to ensure that adequate resources are available in real time (i.e., through Reliability Unit Commitment). The decision for the Day-Ahead Market to be a voluntary financial market was highly debated and ultimately chosen instead of implementing a capacity market and should

remain a fundamental pillar as long as ERCOT continues to be an energy-only market. Maintaining the current Day-Ahead Market design also offers an appropriate incentive for market participants with physical assets the opportunity to use their generation as a hedge for their real-time load obligation.

IV. RESPONSE TO QUESTION 3

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?

- **ERCOT must achieve a higher reliability standard.**

The current market design is structured around providing the lowest cost to consumers, which has resulted in a market design that favors saving money at the expense of reliability. In Project No. 42302, *Review of the Reliability Standard in the ERCOT Region*, ERCOT's most recent report indicated that the current ERCOT market design is expected to experience a 1 in 2 year Loss of Load Expectation (LOLE).¹ LCRA believes this reliability metric is far too low for the ERCOT market and does not protect against extreme events like Winter Storm Uri. As noted in the report, most electric systems in North America target the "1-in-10" year standard, i.e., a probability-weighted average of 0.1 loss-of-load events per year. In order to achieve a resilient grid with adequate operating reserves that will protect against extreme weather conditions, ERCOT should have a market design that supports at least a "1-in-10" standard.²

¹ Project No. 42302, *Review of the Reliability Standard in the ERCOT Region*, ERCOT'S Letter to Commissioners – The Brattle Group's Report, "Estimation of the Market Equilibrium and Economically Optimal Reserve Margins for the ERCOT Region" at 9 (Feb. 21, 2019).

² LCRA has previously commented on the need for a more resilient standard and provided significant supporting data. See, e.g., LCRA comments filed in Project No. 47199, *Project to Assess Price-Formation Rules in ERCOT's Energy-Only Market* (Dec. 1, 2017); Project No. 42302, *Review of the Reliability Standard in the ERCOT Region* (Mar. 27, 2015); Project No. 40000, *Proceeding to Ensure Resource Adequacy in Texas* (Dec. 16, 2013). Given the relative size and isolation of the ERCOT interconnection, it would also be appropriate to consider a more stringent reliability standard than 1-in-10.

- **The current ERCOT market design does not incentivize dispatchable generation investment.**

Forward prices provide an outlook of expected future revenues in ERCOT. Since ERCOT is an energy-only market, forward market price signals need to be sufficient enough to support long-term investment decisions. Additionally, forward market curves are inverted, signaling lower year-over-year prices over time due to additional renewable generation penetration. These structural features ultimately disincentivize construction of dispatchable thermal plants, which require a 20-plus year horizon to recover their investment. Based on LCRA's analysis, at current forward prices, a new 100 MW peaker plant with capital costs ranging from \$800-\$1000 per kW would lose, on average, approximately \$4 million per year over its lifetime—not even taking into consideration the impact that future renewable resource additions will have. As renewable resources proliferate in ERCOT, overall wholesale market prices decrease and will require additional financial incentives to maintain the necessary price signals for peaker plant investment. Finally, the persistence of regulatory uncertainty increases illiquidity in the forward market.

To resolve these issues and move ERCOT closer to a 1-in-10 reliability standard, LCRA recommends two new ancillary service products to improve grid resiliency. Adopting these recommendations will provide the clear short-term and long-term market incentives required to spur investment in dispatchable generation resources and assist in resolving the regulatory uncertainty that has negatively impacted the liquidity of the forward markets for energy and ancillary services. Additionally, it will provide revenues needed to support existing generation in a downward facing power market.

New Firm Fuel Ancillary Service

Existing ancillary services do not recognize the value that some generation resources offer to the market—namely, the ability to ensure reliable fuel supply during extreme weather emergencies. A new ancillary service product is needed that would have ERCOT procure

additional reserves from resources with firm fuel capability. The Commission was granted specific authority under Senate Bill 3 to design and direct ERCOT to timely implement procurement of additional ancillary services, and should do so expeditiously. While this step alone will not incentivize new generation build, it is critical to begin to recognize the value that these types of resources already offer to the market in order to delay the retirement of the most reliable dispatchable thermal resources in the near term, as well as improve the resiliency of the system in the longer term.

New Dispatchable Reliability Service

As has been broadly recognized by this Commission and other state leaders, the existing wholesale market structure does not compensate dispatchable generation for providing a free “back up” to intermittent renewable resources when the intermittent resources do not perform. To resolve this gap, LCRA recommends that the Commission develop a new Dispatchable Reliability Service for qualifying resources to provide additional backup power to protect against varying intermittent generation as well as extreme weather conditions. Key parameters of this new product would include:

- Awarding the product to dispatchable resources with the capability to provide the associated energy for at least 24 hours
- Instituting a \$10/MWh minimum ancillary service clearing price and a \$250-\$300/MWh energy offer price floor
- Procuring sufficient backup power to reach a 1 in 10 reliability standard

LCRA’s analysis indicates that a price floor of at least \$10/MWh is required to ensure the ancillary service produces enough value to incentivize new dispatchable resource investment. However, the procurement of additional ancillary service reserves will inevitably have a negative impact on real-time market prices. It is imperative that any new product or service should do no harm to existing market conditions, as that will put the current dispatchable fleet at risk of

retirement. Accordingly, LCRA recommends that this dispatchable reliability service product operate as a backup service and only be deployed during scarcity conditions—thus, ERCOT would need to set a minimum offer floor. Preliminary analysis supports that a minimum offer floor of \$250-\$300/MWh is required to mitigate the impact to current price formation.

The Commission may also decide that the cost of a market-based backup service should be directly assigned, consistent with cost-causation principles, to non-dispatchable resources that cause the need for this firming product. Even if this proposed dispatchable reliability service is funded on a traditional load ratio share basis, it will still be significantly less costly than a non-market, rate-based reliability alternative. This new product can be modified as a replacement for Non-Spinning Reserve Service, or it could be introduced as an additional product.

V. RESPONSE TO QUESTION 6

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?

With respect to voltage support, it is noteworthy that every other electric market compensates generators for providing this service, but ERCOT does not. LCRA recommends that the Commission direct ERCOT to reevaluate this policy decision as part of a comprehensive review of the ancillary services needed to ensure sufficient reliability in ERCOT.

VI. REMAINING QUESTIONS

LCRA reserves the right to develop positions and respond to proposals on the remaining questions in the future.

VII. SUMMARY AND CONCLUSION

LCRA looks forward to discussing these proposals with the Commission and other stakeholders in further detail.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Emily R. Jolly". The signature is written in a cursive style with a large, looping initial "E".

Emily R. Jolly