

Public Utility Commission of Texas

Memorandum

TO: Chairman Peter M. Lake
Commissioner Will McAdams
Commissioner Lori Cobos
Commissioner Jimmy Glotfelty
Commissioner Kathleen Jackson

FROM: Werner Roth, Market Analysis

DATE: January 5, 2023

RE: Project No. 54335- Review of Market Reform Assessment Produced by Energy and Environmental Economics, Inc. (E3)

On November 10, 2022, the Commission released a report from Energy and Environmental Economics, Inc. (E3) titled Assessment of Market Reform Options to Enhance Reliability of the ERCOT System (E3 Report).¹ The Commission requested written comments on the report and posed 12 specific questions. Commenters submitted 115 separate documents in response to the Commission's request, totaling more than 1,100 pages. Comments were received from the general public, consumer advocates, independent energy consultants, energy-related trade associations, generators, retail electric providers, municipally owned utilities, cooperatives, individual consumers, those with academic interest in the energy sector (both individuals and institutions), Potomac Economics (the Independent Market Monitor), environmental groups, public policy groups, ERCOT, and OPUC.

Commission staff reviewed each comment filed and produced this memo to facilitate discussion at the January 12, 2023 Commission work session. Staff recommendations on key policy options are based on Staff's understanding of the legislative requirements, the Market Design Blueprint approved by the Commissioners in December 2021, the E3 Report, and comments received. Staff has also included recommended next steps.

Several commenters raised issues with the models used in the E3 Report. This memo does not specifically respond to those comments. However, Staff wishes to clarify that E3 subcontracted with Astrapé Consulting to simulate model outcomes using the Strategic Energy & Risk Valuation Model (SERVM) at the Commission's request. The SERVM model used for the E3 Report is the proprietary version developed specifically for ERCOT.

This memo is divided into the following sections:

- I. Defining the problem

¹ Assessment of Market Reform Options to Enhance Reliability of the ERCOT System, Energy and Environmental Economics, Inc., November 2022 (E3 Report)

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- Examining what grid reliability problem the Commission is trying to solve to achieve the legislative requirements in Senate Bill (SB) 3
- II. Performance Credit Mechanism (PCM)
 - Outlining policy decisions that the Commission should consider if implementing the PCM design
- III. Need for a “bridge”
 - Exploring the need and different options for a “bridge”
- IV. Next steps
 - Recommending topics to be addressed prior to any implementation of the PCM design

I. DEFINING THE PROBLEM

There was a common theme throughout the comments filed in response to the E3 report: *What is the grid reliability problem that the Commission is trying to solve to achieve the legislative requirements in SB3?* The discussion broke into two primary categories:

Real-Time Market (RTM) Operational Flexibility: The existing energy only market design with the Operating Reserve Demand Curve (ORDC) retains and attracts sufficient installed capacity in the ERCOT power region. However, increased penetration by wind, solar, and battery resources necessitate more operational flexibility.

Resource Adequacy: The existing energy only market design, even with ORDC, is insufficient to retain existing dispatchable generation and incentivize new dispatchable generation due to volatility in revenue streams. In other words, ERCOT has a long-term resource adequacy problem.

RTM Operational Flexibility

Solutions focused on operational reliability and flexibility concerns pointed to the difficulty in forecasting changes in load, renewable output, and forced thermal generation outages. Each of these factors correlate very closely with weather. Without sufficient flexible dispatchable generation available in real-time, ERCOT has increasingly relied on out-of-market Reliability Unit Commitment (RUC). Proponents of operational solutions argue that this practice has resulted in inefficiently increasing market costs that are difficult to hedge by Load Serving Entities (LSEs).

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While some commenters suggested that ERCOT should increase the procurement of existing ancillary service products to help address some of these concerns, others have proposed the creation of brand-new ancillary service products.

Uncertainty Product

The IMM has proposed a new ancillary service called an “Uncertainty Product”² to address increasing uncertainty due to forecasts (load and renewable output) and thermal outages. To provide this service a resource should be able to come online within two hours (two hours lead-time) of ERCOT instruction (deployment) and stay online and produce energy up to four hours (four-hour service). This service would be procured in the Day Ahead Market (DAM). ERCOT would make a daily determination of the quantity needed and would deploy the Uncertainty Product when uncertainty results in tight real-time conditions. The maximum lead time of the current ancillary service products is only 30 minutes. Having this tool could allow ERCOT to bring longer lead-time resources online when operating conditions are departing from expected conditions.

Dispatchable Reliability Reserve Service

A coalition of stakeholders proposed a concept very similar to the Uncertainty Product called Dispatchable Reliability Reserve Service (DRRS).³ Like the Uncertainty Product, DRRS would be procured in the DAM. However, the total quantity of DRRS could be set in advance (such as year-ahead) rather than daily. To provide DRRS, a resource must be available for dispatch within two hours of deployment and must be able to provide the service for four hours. DRRS would ensure dispatchable generation is available in real-time to cover operational gaps caused by the uncertainty around renewable generation variability, load variability, and unforeseen thermal generation outages.

Commenters advocating for an operational solution, like a new ancillary service, asserted that none of the proposed load side reliability obligation constructs like PCM, Load Serving Entity Reliability Obligation (LSERO) or Forward Reliability Mechanism (FRM) would address the real time operational issues ERCOT is facing today. They believe new products like the DRRS would directly address those issues that have led to the recent increased use of RUC. Additionally, these commenters also state that this product would create targeted price signals and new revenue streams for new and existing dispatchable generation.

Resource Adequacy

² 2021 State of the Market Report for the ERCOT Electricity Markets, Potomac Economics, Page 23

³ Project 52373 Review of Wholesale Electric Market Design, AIS Item No 384

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