



Control Number: 52373



Item Number: 336

**PROJECT NO. 52373**

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**REVIEW OF WHOLESALE ELECTRIC  
MARKET DESIGN**

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**PUBLIC UTILITY COMMISSION**

**OF TEXAS**

**APPROVAL OF BLUEPRINT FOR  
WHOLESALE ELECTRIC MARKET DESIGN AND  
DIRECTIVES TO ERCOT**

The Commission approves the attached blueprint for the design of the wholesale electric market filed in this project on December 6, 2021. The blueprint is a compilation of directives and concepts designed to reform the Electric Reliability Council of Texas's (ERCOT) wholesale electricity market presented in two phases.

Phase I of the blueprint provides enhancements to current wholesale market mechanisms to enhance ancillary services and improve price signals and operational reliability. Because phase I directives and concepts relate to current ERCOT market features, the Commission directs ERCOT to undertake the actions identified below:

1. The Commission directs ERCOT to modify the operating reserve demand curve as described in phase I of the blueprint no later than January 1, 2022.
2. The Commission orders ERCOT to implement all other items identified in phase I of the blueprint under ERCOT's control as soon as practicable.
3. The Commission directs ERCOT to evaluate phase I of the blueprint and file a report in this project by January 10, 2022 with the following information:
  - a. A project plan for implementing all phase I items that identifies which projects ERCOT plans to start first and how the implementation would overlap, including opportunities for synergies of implementation and constraints created by dual implementation.
  - b. A description of changes to ERCOT's information technology systems needed for implementation of each action item, where applicable.

- c. An estimate of the amount of time each action item will take to implement, including time estimates of significant milestones within each action item, where applicable.
  - d. A description of human-resource needs to implement the phase I action items, including information on how the progress of current ERCOT projects and activities may be impacted by implementation of phase I action items.
  - e. A description of any impediments to implementation of the phase I action items with recommendations on how to remove or mitigate those impediments.
4. The Commission directs ERCOT to prepare any nodal protocol revision request necessary to facilitate phase I of the blueprint.
5. The Commission directs ERCOT to implement the framework in Commissioner McAdam's memorandum filed in this project on December 14, 2021.

Phase II of the blueprint incorporates long-term market design reforms to promote the supply of dispatchable generation and develop a backstop reliability service. The Commission will continue to develop and refine phase II of the blueprint, but here memorializes the Commission's commitment to the phase II redesign principles. Because phase II directives and concepts require additional decisions before implementation, the Commission directs ERCOT to undertake the action identified below:

6. The Commission directs ERCOT to work with Commission Staff to identify and articulate the specifications, decision points, and other metrics needed to develop the products described in phase II of the blueprint and provide those items to the Commission by February 15, 2021. However, ERCOT must first develop the items related to the backstop reliability service and deliver that to the Commission as soon as practicable.

# *Public Utility Commission of Texas*

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## **Memorandum**

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

Interested Parties

**FROM:** Ben Haguewood, Market Analysis

**DATE:** December 6, 2021

**RE:** Project No. 52373, *Review of Wholesale Electric Market Design*

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At the December 2, 2021 work session, the Commission agreed, in principle, to pursue and continue the implementation of the following Phase I market design changes and have committed to the development of the following Phase II market design elements: a load-side reliability mechanism and a backstop reliability service. The Commission has identified and agreed that both of those concepts will be based on the principles outlined below.

**Commission staff requests written comment on the following Phase II market design concepts and principles by noon on December 10, 2021.** The Phase I market design changes are included for reference only, and written comment is not requested on these changes. Comments should include a clearly marked Executive Summary up to one page, labeled with the commenter's name, attached as the final page of the submission. Please limit responses to 5 pages, excluding the Executive Summary.

Signed at Austin, Texas the 13<sup>th</sup> day of January 2022.

**PUBLIC UTILITY COMMISSION OF TEXAS**



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PETER M. LAKE, CHAIRMAN



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WILL MCADAMS, COMMISSIONER



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LORI COBOS, COMMISSIONER



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JIMMY GLOTFELTY, COMMISSIONER

## **Phase I – Enhancements to the Current Market Design**

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### *Improving price signals and operational reliability*

**Operating Reserve Demand Curve (ORDC).** Modify ORDC to reward reliable generation assets that are able to be dispatched as the reserve margin in ERCOT decreases. The enhanced ORDC will bring generation units online and prompt consumer demand response earlier to help enhance regular market operations and avoid conservation appeals.

- **Immediately actionable:** Changes to the ORDC should be made effective January 1, 2022 to set the Minimum Contingency Level (MCL) at 3,000 megawatts (MW) and set the high system-wide offer cap (HCAP) and value of lost load (VOLL) to \$5,000 per megawatt-hour (MWh). These ORDC changes will enable market-based dispatch of reliable generation units earlier to help maintain grid reliability in the upcoming 2022 winter season and future.
- **Next steps:**
  - The system-wide offer cap and VOLL will be decoupled.
  - Establish a new VOLL based on quantitative analysis of new revenue to the market that would be directed to reliable generation assets during scarcity events.
  - Require a report from ERCOT to the Commission due November 1st of every even numbered year analyzing the efficacy, utilization, related costs and contribution of the ORDC to grid reliability in ERCOT.

**Demand Response.** Adopt changes that allow for more targeted demand response to increase utilization of load resources for grid reliability.

- **Next steps:**
  - Pursue market modifications and technical measures to improve transparency of price signals for load resources, such as changing demand response pricing from zonal to locational marginal pricing (LMP).
  - Set higher performance standards for energy efficiency programs.
  - Direct ERCOT to evaluate actions that have already been taken to accommodate customer aggregation participation—i.e., virtual power plants (VPPs)—in the ERCOT market, determine how much customer aggregations currently participate in the ERCOT market, and identify current barriers for VPP participation in the ERCOT real-time and ancillary services markets.

**Emergency Response Service (ERS) Reform.** ERS is an operational reliability tool that should be deployed earlier to allow participating large commercial and industrial consumers, distributed generation (DG) facilities, and aggregated customers to curtail their electricity consumption to reduce demand on the grid to help avoid conservation appeals and emergency conditions.

- **Immediately actionable:** Codify good cause exception ordered by the Commission in the Fall of 2021 directing ERCOT to deploy ERS at MCL.
- **Next steps:**
  - Determine whether the ERS procurement methodology should be changed to provide for the procurement of a specific MW quantity or some other measure than a fixed dollar amount.
  - Determine whether the ERS program should include seasonal apportionment.

### *Enhancing Ancillary Services*

**Fast Frequency Response Service (FFRS) (New Grid Frequency Ancillary Service Product).** ERCOT is currently developing FFRS to help stabilize grid frequency in the future.

- **Immediately actionable:** ERCOT will continue to pursue its current implementation schedule for this new reliability product.

**Loads in Non-Spinning Reserve Service.** Expansion of ERCOT's existing Non-Spinning Reserve Service (Non-Spin) to allow loads to participate in the service to provide additional versatility for addressing forecast error or ramping issues in the future.

- **Immediately actionable:** ERCOT will continue to pursue its current implementation schedule for this new reliability product.

**Firm Fuel Product.** The Commission should direct ERCOT to develop a discrete firm fuel-based reliability service pursuant to Senate Bill (SB) 3. This reliability service would provide additional grid reliability and resiliency during extreme cold weather and compensate generation resources that meet a higher resiliency standard.

- **Next steps:**
  - Determine whether this stand-alone, discrete service can be incorporated into a load-side reliability mechanism in the future.
  - Determine whether this product should be procured by ERCOT through a competitive auction, competitive request for proposal (RFP) process (similar to ERCOT's current Black Start program), or some other competitive procurement method.

**Voltage Support Compensation.** The ERCOT market will develop a product to compensate valuable voltage support services that will help maintain grid stability as more inverter-based resources enter the market.

- **Immediately actionable:** Analyze and develop a product to compensate resources for providing voltage support.

**ERCOT Contingency Reserve Service (ECRS) (New Ramping Ancillary Service Product).** ERCOT is currently developing ECRS to serve as an additional operational reliability tool to help maintain grid reliability by managing increasing variability and ramping issues associated with higher renewable generation penetration on the grid in the future.

- **Immediately actionable:** ERCOT will accelerate the implementation of this new reliability product.
- **Next steps:**
  - Determine options for sizing the product.
  - Allocate cost of ECRS consistent with cost-causation principles, in a non-discriminatory manner pursuant to SB 3.

**Additional tasks:** The Commission will open rulemaking proceedings and other projects to request technical feedback and provide rate recovery of reasonable and necessary distribution voltage reduction costs and review DG interconnection procedures.

## Phase II – Market Design Proposals

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**Load-Side Reliability Mechanism.** The Commission has agreed to develop a load-side reliability mechanism that will serve the purpose of ensuring the supply of dispatchable generation is sufficient to meet system demand in ERCOT. The Commission will develop a load-side reliability mechanism that will adhere to the principles listed below. The Commission's development of a load-side reliability mechanism will take into consideration the following proposals and how they can be implemented adhering to the stated principles.

### Load-Serving Entity (LSE) Obligation

- E3's load-serving entity (LSE) Obligation Proposal
- As proposed in Chairman Lake's 10/20/21 Memorandum
- Proof of Purchase with required showing, as described by Lubbock Power and Light excluding the transmission studies

### Dispatchable Energy Credits (DECs)

- DEC as proposed in Commissioner McAdams's 11/17/21 Memorandum
- Eolian's Proposal

- **Principles:** A load-based reliability mechanism should:
  - Offer economic rewards and provide robust penalties or alternative compliance payments based on a resource's ability to meet established standards (including penalty at cost of new entry for both non-compliance of load and non-performance of generation).
  - Build on ERCOT's existing Renewable Energy Credit (REC) trading program framework or other existing framework to the extent practicable.
  - Be self-correcting (in a properly functioning market, higher energy prices will incentivize new supply and over time that additional supply will drive energy prices back down to market equilibrium).
  - Have clear performance standards (incentivize higher performance).
  - Sizing of the program must be dynamic (e.g., peak net load).
  - Provide a forward price signal to encourage investment in dispatchable generation resources.
  - Value or qualify resources based on capability.
  - Establish standards that can be regularly tested or certified upon the start of commercial operation.
  - Be proportional to the system need, with dynamic pricing and sizing to ensure reliability needs are met without over-purchasing reserves.
  - Be compatible with ERCOT's robust competitive retail electricity market that provides choice for consumers.
  - Ensure market power concerns are mitigated, especially regarding electric generation companies that also serve retail customers, so that competition and innovation will continue to thrive in the ERCOT market.

**Backstop Reliability Service.** The Commission has agreed to develop a backstop reliability service that will serve as a new dynamic and flexible reliability tool to prospectively target and



meet specific reliability needs that will not be met by ERCOT's real-time and ancillary services market. The backstop reliability service will be used to procure accredited new and existing dispatchable resources to serve as an insurance policy to help prevent emergency conditions in ERCOT.

- **Principles:** The backstop reliability service should:
  - Be sized on a dynamic, flexible basis to meet a specific reliability need (i.e., seasonal net load variability, low-probability/high-impact scenarios).
  - Include new and existing accredited dispatchable generation resources that are seasonally tested and able to meet specific minimum and maximum start-time and duration requirements.
  - Include robust non-performance penalties and clawback of payment for non-compliance.
  - Deploy generation resources in a manner that does not negatively impact real-time energy prices (i.e., the deployed generation resources will truly serve as a backstop).
  - Provide a forward price signal through an annual procurement on a seasonal basis to encourage investment in dispatchable generation resources.
  - Include cost allocation to load based on a load ratio share basis that is measured on a coincident net-peak interval basis.
  - Be developed through a framework that would allow maximum expedited implementation by ERCOT.
  - Be analyzed in conjunction with other long-term market design enhancements.

### **Hybrid Models**

The Commission may also evaluate various combinations of the above models—the Backstop Reliability Service, the DEC proposals, and the LSE Obligation proposals—to determine whether the models' features can complement each other to provide long-term enhanced grid reliability.