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**RELIABILITY STANDARD
FOR THE ERCOT MARKET**

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**PUBLIC UTILITY
COMMISSION OF TEXAS**

REPLY COMMENTS OF ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.

Electric Reliability Council of Texas, Inc. (ERCOT) respectfully submits this response to stakeholders' comments filed on March 29, 2023, concerning Public Utility Commission of Texas (Commission) Staff's questions regarding the development of a reliability standard for the ERCOT power region.

I. REPLY COMMENTS

ERCOT has reviewed all comments filed in response to Staff's questions and appreciates the robust stakeholder discussion given the importance of the reliability standard to the market. ERCOT does not take a position on specific proposals but offers these reply comments to help inform the Commission's consideration of practical limitations of ERCOT's modeling capabilities.

Utilizing Strategic Energy & Risk Valuation (SERVM) to analyze the proposed duration, frequency, and magnitude reliability criteria remains ERCOT's preferred approach for modeling the reliability standard. Certain commenters recommended Conditional Value at Risk (CVaR) for consideration as an additional metric to evaluate extreme condition or loss-of-load outlier events. CVaR measures the risk of tail events by examining the mean value of worst-case scenarios at a certain threshold percentile limit (e.g., worst 5th percentile). As noted in initial comments, ERCOT is in the process of modifying SERVM inputs to capture tail events at least as severe as the February 2021 Winter Storm Uri event. Understanding the characterization and risk of these events is a key step in the study process. ERCOT has committed to working with the Commission to determine modeling options addressing the most extreme tail events. CVaR could aid in understanding the thickness of the tail or magnitude of low probability events. ERCOT is currently evaluating CVaR for potential inclusion in the reliability study.

Several commenters recommended that the Commission incorporate deliverability in the reliability standard. ERCOT noted in its initial comments that the SERVM model does not address

transmission or take deliverability into account as part of the reliability standard analysis. Deliverability is best analyzed through power flow models, although the potential to integrate a power flow model with SERVVM results is a possibility that can be examined as a long-term strategy. Furthermore, running a power flow model as part of an assessment of resource adequacy would require speculative assumptions as to the size and location of future generation resources. ERCOT worked with Astrape on a recent supply deliverability analysis using SERVVM.¹ The study involved defining the ERCOT system as five zones with transmission transfer limits between zones. While the study addressed certain deliverability issues raised by commenters, the work is preliminary and represents proof of concept investigations at this point.

The ERCOT region continues to experience increased growth in distributed energy and load resource participation in the wholesale electric market, and many of the comments expressed interest in considering these assets as part of the reliability standard framework. Distribution-interconnected generation and load resources are incorporated into SERVVM directly to the extent that ERCOT is able to model the specific asset class. The distinction between how the model captures generation interconnected to the distribution system and demand-side assets lies in whether the specific asset is registered with ERCOT. Registered resources are treated as independent assets by the model; SERVVM treats distribution interconnected dispatchable resources the same as transmission interconnected resources. Certain registered load resources are also dynamically modeled in aggregate, such as Load Resources for Responsive Reserve Service and Emergency Response Service.² However, issues raised by commenters regarding direct incorporation of unregistered assets are beyond the scope of the model. SERVVM incorporates unregistered distributed generation as fixed aggregate hourly demand reductions embedded in ERCOT's load forecast. Therefore, it provides a fixed impact to system reliability in SERVVM. ERCOT's SERVVM model does not have the capability to model these assets in a more granular way, and ERCOT sees no reason that such granularity would be necessary. Policy decisions

¹ See Astrape Consulting, 2022 Zonal Reliability Study (Jan. 2023), available at https://www.ercot.com/files/docs/2023/01/10/ERCOT_Zonal_Reliability_Study_Report_1-9-2023.pdf.

² While price-responsive demand has been modeled dynamically in past SERVVM studies, due to the difficulty in preparing the model inputs and the timeline for completing the reliability standard analysis, ERCOT decided to treat this resource as fixed demand reductions embedded in the load forecast.

regarding resource accreditation and availability expectation calculations are outside the scope of the reliability standard framework and model.

Finally, several commenters discussed the interplay between the reliability standard and the value of lost load (VOLL). As directed by the Commission, ERCOT will engage a consultant to conduct an analysis of VOLL. The consultant is expected to produce a final report providing a quantification of the estimated VOLL for the ERCOT region in aggregate and by customer class. The report will also provide recommendations for any procedural changes that could increase the equity of or reduce the economic and/or societal impact of load shedding. The Commission has implemented a top-down, bottom-up approach for VOLL and reliability standard development in which these two related projects will run in parallel. While VOLL is critical to understanding the consumer cost component of any reliability policies adopted by the Commission, it is distinct from the physical reliability metrics modeled by ERCOT through SERVVM.

II. CONCLUSION

ERCOT appreciates the Commission's consideration of these comments and would be pleased to provide any additional information the Commission may request.

Dated: April 5, 2023

Respectfully submitted,

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