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PROJECT NO. 54584

RELIABILITY STANDARD FOR THE§PUBLIC UTILITY COMMISSIONERCOT MARKET§OF TEXAS

CPS ENERGY'S RESPONSE TO STAFF QUESTIONS FOR COMMENT

Established in 1860, CPS Energy is the nation's largest municipally-owned utility ("MOU") providing combined electric and natural gas services. CPS Energy provides safe, reliable, and competitively priced energy services to over 907,000 electric and 374,000 natural gas customers throughout its service territory, which includes San Antonio, 32 suburban cities, unincorporated areas of Bexar County, and portions of seven adjoining counties. CPS Energy actively participates in the ERCOT wholesale market representing over 6,000 MW of generation capacity and over 5,000 MW of peak energy demand. This, combined with the fact that we are a non-profit MOU affords us a unique perspective on market design.

On March 7, 2023, Commission Staff posted several questions for comment in this proceeding, seeking initial comments by March 29, 2023. These comments are timely filed. In addition to these comments, CPS Energy supports the comments filed by the Texas Public Power Association ("TPPA").

I. General Comments

CPS Energy appreciates the work that the Commission and its staff have done in this project, as well as ERCOT's willingness to engage in a dialogue with market participants regarding the policy and market issues raised in this proceeding. CPS Energy also supports efforts to better define the goals of regulators to increase the development of dispatchable generation in the state, and we recommend a thoughtful and balanced approach that builds on legislative efforts currently evolving in committee hearings at the Texas Legislature. While it is too early to tell the extent to which proposed legislation may change the underlying design of the ERCOT wholesale market, we know change is imminent.

There are bills currently pending in legislative committees that offer drastically different views of the ERCOT market. On one hand, some bills would implement firming requirements

consistent with the ERCOT energy-only market,¹ but on the other hand, require the construction of dispatchable generation resources by generation owners² or by transmission and distribution utilities (TDUs),³ subject to regulated rates—an approach that signals a retreat from the energyonly market design. Similarly, other bills would artificially limit the entry of utility-scale renewable energy resources by barring them above a certain market threshold⁴ contrary to a competitive wholesale market, while simultaneously facilitating the integration of small, behindthe-meter distributed energy resources ("DERs") and aggregated distributed energy resources ("ADER")⁵ into the ERCOT wholesale market.

Despite this uncertainty, the development of a reliability standard is a key step that will allow changes to the market to be measured in a meaningful way. CPS Energy is engaged in stakeholder efforts at ERCOT to develop a reliability standard analysis framework that measures the metrics of magnitude, frequency, and duration. CPS Energy looks forward to continued work with ERCOT and the Commission to develop a reliability standard that will become the foundation for driving market outcomes to achieve desired levels of resource adequacy in the ERCOT region.

II. Response to Staff Questions for Comment

- (1) The Commission has previously considered various reliability metrics, such as Loss of Load Expectation (LOLE), Loss of Load Hours (LOLH), and Expected Unserved Energy (EUE).
 - Which reliability metrics, including those not previously studied, should the Commission consider in establishing a reliability standard for the ERCOT power region?
 - Which reliability metric, or combination of reliability metrics, should the Commission adopt for the reliability standard in ERCOT?
 - What are the advantages of your chosen reliability metrics, and what are the disadvantages of alternative approaches?

CPS Energy believes the metrics to measure magnitude, frequency, and duration are appropriate because they evaluate system performance in multiple dimensions and help to gauge

¹ Tex. S.B. 7, 88th Leg., R.S. (2023).

² Tex. S.B. 6, 88th Leg., R.S. (2023).

³ Tex. S.B. 2012, 88th Leg., R.S. (2023).

⁴ Tex. H.B. 2288, 88th Leg., R.S. (2023).

⁵ Tex. S.B. 1212, 88th Leg., R.S. (2023).

the severity of problems that may occur among different scenarios. The dynamics of the grid and its various reliability risks will be better understood and considered as we increase the granularity of system reliability measures. The insights gleaned from these metrics will allow ERCOT and the Commission to transparently identify challenges and propose solutions to maintain grid reliability.

As the Commission considers new methodologies to measure system performance, CPS Energy recommends that ERCOT conduct a transparent evaluation of the sensitivities of each of these measures. We also recommend additional analysis to show how effective each measure is in conveying the reliability risk during varying seasonal and operational scenarios. High risk scenarios can be expected to manifest in many ways. The varying nature of grid reliability risks require that the reliability standard and associated thresholds for action are based on a well understood methodology, especially if performance to the standard is used as the basis for market changes.

For example, in a scenario where failure to meet the reliability standard would trigger a pricing increase in a demand curve or additional procurement of ancillary services, it would be prudent to determine a framework where the magnitude of the market changes would align with the magnitude of the violation of the various metrics that make up the standard. A scenario where the system is expected to experience a low frequency, short duration, low magnitude event is very different compared to a scenario that results in an event characterized by high frequency, long duration, and high magnitude. Even though these are two extremes, this example illustrates an instance with one scenario narrowly failing every metric, and another other scenario catastrophically failing all metrics. Both scenarios failed the reliability standard in this instance, and there should be varying levels of response to match the level of failure. Another scenario comparison to consider is a short duration, low magnitude event, such as a loss of 20,000 MW over one hour compared to a long duration, low magnitude event with a loss of 1,000 MW over 20 hours. From an absolute perspective there is an equivalent loss of electric power in both scenarios, but the implications from a customer experience perspective are likely very different and should be recognized as the reliability standard is developed.

(2) What is the most effective way that the Commission can include deliverability in the reliability standard?

Deliverability is a concern typically experienced as a result of a system constraint. In ERCOT, two common deliverability issues worth noting are constraints on the transmission system and fuel supply system. CPS Energy does not believe that there is a need to focus on deliverability as it relates to the reliability standard, as we expect it will overly complicate the process, at this time.

Deliverability issues due to fuel system constraints are not wholly under the jurisdiction of the Commission, but they are worth measuring to allow for a better and more transparent understanding of the impact of fuel availability to generation resources providing power over the ERCOT grid. It is likely that ERCOT will account for fuel deliverability in its generator outage modeling, which allows its model to run in an effective manner; however, we feel that identifying significant points of common-mode failure outside of the market is worthy of identifying and can provide regulators and legislators with valuable insights on forces outside of the market that warrant further review.

Transmission system constraints are known issues that will be partially remedied by the implementation of Real-Time Co-Optimization of energy and ancillary services. In a system with transmission constraints, allowing energy and ancillary services to move around the system would ensure that ancillary service capacity is provided by the generators in the most effective and efficient manner. Real-Time Co-Optimization allows for this efficient optimization of capacity and would greatly improve the deliverability of capacity on the system. Transmission constraints can be classified as either thermal constraints or generic transmission constraints ("GTCs"). Thermal constraints are the limitations on a transmission line due to conductor heating and expansion. GTCs are represented by thermal approximations for use in the ERCOT energy management systems; however, they reflect a nuanced set of engineering phenomena associated with grid stability, voltage, and other issues that would impact reliability but are not able to be effectively modeled in the ERCOT energy management systems.

Both GTCs and thermal constraints can be resolved with transmission system facility additions or reconfigurations. Such changes are generally identified during the transmission planning process. Recent changes which allow for congestion cost savings to be used as a basis for project justification should make it easier to justify transmission projects that eliminate GTCs and thermal constraints. The creation of a free-flowing and fully optimized ERCOT grid will produce the best allocation of resources and yields the most efficient costs to consumers. Measuring the impact of transmission constraints on the reliability standard will allow for additional insight into transmission projects and their value to the ERCOT grid. CPS Energy expects the impact of transmission deliverability to be relatively minor in the resource adequacy evaluation, but it bears exploring.

(3) Additional considerations in establishing the reliability standard in the ERCOT power region.

- Should the reliability standard include a locational requirement?
- Should the reliability standard include a seasonal component?
- How can extreme events be captured in a reliability standard?
- How can the value of distributed energy and load resources be captured in a reliability standard?

Locational Requirement

The consideration of a locational requirement is directly tied to the previously discussed effects of transmission constraints. The only reason to consider a locational requirement is the existence of pervasive, impactful transmission constraints that limit the ability of generation to flow freely across the region. Including a locational requirement in the standard may overly complicate implementation. If the Commission is interested in including this dimension to the reliability standard framework, CPS Energy recommends allowing more time for additional dialogue and modeling to better understand the impacts and parameters of how this additional dimension would work. Adding a locational component suggests that an ERCOT-wide reliability standard could vary based on the location being studied. This concept could lead to a metric measuring the reliability of a load zone instead of the system overall. We believe ERCOT's current transmission planning process, enhanced by a congestion costs-savings-criteria, will adequately identify transmission improvements and effectively manage zonal reliability. If the Commission feels a locational component is significant, CPS Energy recommends it be deferred to a second phase of this proceeding to allow for further development of the concept and vetting amongst ERCOT and stakeholders.

Seasonal Requirement

Assuming the reliability standard would be used as a key input into Phase 2 market mechanisms, CPS Energy believes that a seasonal component would be worthy of study. We support the evaluation of reliability risks over every hour of the year based on the judgement that

there is value in identifying the distribution of reliability outcomes for many widely varying scenarios and not simply assuming that certain scenarios have no value because they do not represent peak conditions. The historical view of reserve margin in Texas has been focused on a peak summer scenario, but as the reliability standard is developed for an evolving grid, using a seasonal component could result in a wholesale market that is responsive to the dynamics of the grid and the variable weather patterns experienced throughout the state. CPS Energy recommends additional study to understand the differences in the reliability risk expectations for each season. These studies may reveal if there is enough variability in risk between peak customer demand seasons and peak generator maintenance seasons (summer/winter v. spring/fall) to warrant including a seasonal component to the reliability standard. We urge caution when contemplating a seasonal requirement for the standard, as we do not support varying levels of reliability based on season. CPS Energy believes a reliability risk, but we would not support any seasonal discount on the level of reliability we expect from the standard.

Accounting for Extremes

CPS Energy believes that great care should be taken in accounting for extremes as an objective for the reliability standard to consider. We are concerned that if the standard is designed to consider and address every plausible event, to include tail events, that the resulting market incentives required to maintain reliability might be overly burdensome and may not reflect a rational outcome. CPS Energy fully supports considering a wide range of scenarios in the study and evaluation process to better understand the impact of varying types of extremes on the reliability of the transmission grid. Including extremes in study parameters and inputs will allow for an informed analysis of the risks, costs, and levels of investment needed to address extreme considerations. Accounting for extremes can also lead us to challenge the mechanics and use of the reliability standard and may signal the need to develop a multi-stage or dynamic standard. A multi-stage standard could be one that sets a reliability parameter for 95% of the expected events, and for the remaining 5% of extreme events allow a less stringent reliability parameter. By way of illustration, consider a standard where the Loss of Load Hours input into the standard is limited to 3 hours per year for 95% of the expected outcomes and 20 hours per year for the remaining 5%

capacity needs to meet all possible outcomes by allowing the Commission to determine the reliability expectations under both normal and extreme events.

Distributed Energy and Load Resources

CPS Energy expects that as technology improves, DERs and load resources will play an increasing role in resource adequacy. Historically, these two resource types have allowed market participants to reduce their energy demand and lower their power supply costs. As technology improves, we think the use and capacity of these resources will become more predictable and should be considered in the reliability evolution of the ERCOT wholesale market.

We support the development of rules and policies to include DERs and Load Resources in the reliability standard both as a demand side input, but also as a supply side input, based on their contributions to reliability. One key aspect to evaluation is how to consider these resources when they can provide benefits as an energy supplier as well as an energy consumer. It is very likely that a policy determination will need to be made on how to best consider these resources in the modeling assumptions of the metrics and the metrics themselves. Care must be exerted to ensure that DERs are not double counted as both a reducer of demand and a producer of energy. It should also be recognized that as distributed technology grows in the market, we may find that they may be more reliable from an outage rate perspective than transmission connected generators. The reliability impact of a loss of a 10 MW DER acting as a generator is much less than a 400 MW generator, and this should be reflected in the modeling of these resources as ERCOT develops its assumptions for the reliability standard, so the distributed generator forced outage rate is not averaged out as these generators are aggregated.

(4) How frequently should the Commission update the calculation of the requirement necessary to meet the reliability standard?

- What criteria should help determine the frequency of the update?

CPS Energy supports a hybrid of dynamic and periodically refreshed reliability standard, designed to evolve with the changing reliability needs of the ERCOT market. We support a review requirement that includes a frequency trigger as well as an input deviation trigger. A three-to-five-year review baseline cycle would allow the market with enough time to generate appropriate investment and pricing signals and for investors to respond. In addition to a set timeline for review,

CPS Energy also believes that a metric-based methodology should be adopted which would trigger a review of the effectiveness of the reliability standard. The market can be a dynamic and changing environment. Allowing for a review when key aspects of the market have changed enough to sway grid reliability is a worthy endeavor. A reality-based trigger will also result in more frequent, but less disruptive changes to the standard which should lead to more stable market outcomes and less risk to investors.

(5) If you have any industry or academic papers on the topic and best practices that you believe the Commission should review while establishing the reliability standard for the ERCOT power region, please provide them.

At this time, CPS Energy does not have any recommended references to offer.

III. Conclusion

CPS Energy supports the efforts to establish a reliability standard in ERCOT. We support developing a standard that is measured using granular and meaningful metrics, which have a measured improvement in the reliability of ERCOT. The Commission's current direction on Phase 2 market redesign is highly dependent on the reliability standard. It is expected to be used as an input to the creation of the sloped demand curve which is a key pricing mechanism for the PCM. The sloped demand curve will ultimately determine the magnitude of PCM clearing prices thereby creating an incentive to invest in new generation capacity and maintain existing capacity. Given the importance of the pricing aspect alone, great care should be taken to ensure a thoughtful and transparent development process take place. The greatest accomplishments of the ERCOT market have been achieved at a full table of regulators and stakeholders which includes the public. Facilitating a reliability standard based on a thoughtful stakeholder process, led by the Commission, is a worthy endeavor that we look forward to.

Dated: March 29, 2023

Respectfully,

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EXECUTIVE SUMMARY OF CPS ENERGY'S RESPONSE TO STAFF QUESTIONS FOR COMMENT

In summary, CPS Energy believes that frequency, magnitude, and duration are the appropriate measures to consider in this proceeding. We support ERCOT conducting a transparent evaluation of the sensitivities of each measure in relation to the others. ERCOT should analyze the effectiveness of each measure in assigning reliability risk during varying seasonal and operational scenarios.

To better measure the impacts of infrastructure on the reliability standard, we support the examination of constraints on transmission and fuel supply. Real-Time Co-Optimization will work to reduce operational market constraints, while transmission planning policies, such as looking at congestion costs as a gauge for determining transmission investment, will permit for a free-flowing grid. This should have a minimal impact on the reliability standard; however, it merits further studying. While fuel supply constraints are not fully under the Commission's jurisdiction, they should be evaluated to measure their impacts on reliability.

Other considerations worthy of further study as part of a second phase implementation of the reliability standard, include evaluation of locational requirements, seasonal requirements, DER integration, and extreme events. These issues could have a slight delay on implementation of a reliability standard but would result in the adoption of a more meaningful reliability standard.

As the reliability standard is developed, CPS Energy supports evaluation of every hour of every day to better understand the full distribution of reliability risks. We support exploring a multi-stage standard development process that would maintain a defined level of reliability and reasonably consider a wide distribution of reliability risks without imposing excessive and costly reliability requirements.

Finally, CPS Energy supports a more dynamic review of the reliability standard, with a three-to-five-year review schedule coupled with an input deviation trigger to allow for the standard to keep up with the grid as it evolves. Creating such a hybrid review methodology, will lead to

potentially smaller and more predictable changes in the standard to help manage expectations by customers, market participants, and regulators in the reliability of the wholesale market.