Filing Receipt

Received - 2023-03-29 02:29:51 PM
Control Number - 54584
ItemNumber - 20

PROJECT NO. 54584

RELIABILITY STANDARD FOR THE	**§**	**PUBLIC UTILITY COMMISSION**
	§	
ERCOT MARKET	**§**	**OF TEXAS**
	§	

I. INTRODUCTION

Shell Energy North America (US), L.P. ("Shell Energy") appreciates the opportunity to provide comments in response to questions provided by the Staff ("Staff") of the Public Utility Commission of Texas ("Commission") regarding a Reliability Standard for ERCOT Market. Shell Energy has a widespread stake in the electricity market, spanning retail interests, thermal generation ownership, energy scheduling, renewable and emerging technology development, providing risk management services and end use energy consumption. Given the wide array of interests, Shell Energy advocates for and supports transparent, competitive, technology-neutral market-based solutions to achieve desired reliability objectives at the lowest cost.

Shell Energy greatly appreciates the Commission and Staff's hard work on these critically important matters and is grateful for the opportunity to provide input. Shell Energy looks forward to further discussion and opportunities to provide its perspective on these significant issues as we move forward.

II. PROBLEM STATEMENT

The Texas energy market has been a huge driver of economic success for over twenty years. Reliability of the Texas electric grid is of utmost importance to all Texans and Texas businesses. Texans and Shell Energy, as an end-use electric consumer for critical facilities, deserve reliable and affordable power. Uri was a tragic event and Shell Energy agrees with the Commission's approach of taking all measures needed to mitigate re-occurrence. The Commission's implementation of rules related to weatherization, critical load management, gas-

electric coordination and other Phase 1 market redesign efforts have already corrected the failures that led to the event and have provided the tools to "keep the lights on" during future extreme weather events in the State. However, the ERCOT grid is still facing issues related to operational concerns and the need for incenting the flexible dispatchable resources needed to meet the evolving grid's needs. Hence, Shell Energy as part of the Coalition[1], recommended development of a Dispatchable Reliability Reserve (DRRS) Ancillary Service product to address both the normal day-to-day operational need to maintain flexible dispatchable reserves in real-time, as well as the long term need to create incentives for new resource investment best suited to meet the needs of our evolving grid. **DRRS ensures reliability by addressing those needs in the most efficient and cost-effective way.**

The requirement in Senate Bill 3 from the 87th Texas Legislative Session ("SB3")[2] is to "establish requirements to meet the reliability *needs* of the power region" and not to establish a mandated capacity procurement *reliability standard*. 'Requirements to meet the reliability needs of the power region' could be established through requirements to procure Ancillary Services including services like firm fuel service. A *mandated minimum reserve margin reliability standard* is not appropriate for ERCOT, but a *targeted minimum reserve margin reliability standard* is appropriate, because ERCOT electricity market is not a capacity market. All Independent System Operators (ISOs) including ERCOT have various operational and planning protective reliability standards to meet NERC requirements like operational Balancing Authority ACE Limits (BAAL), critical infrastructure protections (CIP), Planning and operational transmission operating limits etc. ERCOT and Alberta (AESO) do not have mandated reserve margin resource adequacy reliability standard that require procurement of capacity because markets administered by those ISOs are energy-only markets. For resource adequacy, whether the system has a target or mandatory reliability standard depends upon the market design: a capacity market or an energy-only market.

---

[1] *Review of Wholesale Electric Market Design*, Project No. 52373, The Coalition for Dispatchable Reliability Reserve Service's Comments in Support of a Dispatchable Reliability Reserve Service Market Design Alternative (Dec. 14, 2022) ("DRRS Coalition Comments").

[2] Tex. S.B. 3, 87th Leg., R.S. (2021) § 18, as codified as PURA § 39.159(b)

A reliability standard that is based on a mandatory procurement of capacity (MW) is contrary to an energy-only market design. Energy and Ancillary Service markets could be modified to meet a *target Reliability standard* to ensure resource adequacy. Market design changes like Operating Reserve Demand Curve (ORDC) adjustments, creating new Ancillary Service products, addressing price suppression from out of market actions etc. could be implemented to increase revenue streams in the market to ensure the Market Equilibrium Reserve Margin (MERM) reaches the required level. The changes could be adjusted to ensure system maintains dispatchable capacity that can provide; total Ancillary Service, and/or target frequency of load shed (Loss of Load Expectation - LOLE), and/or duration of load shed (Loss of Load Hour - LOLH), and/or the depth of load shed (Normalized Expected Unserved Energy - NEUE). **The main difference between a target reserve margin-based energy-only market and a mandated reserve margin-based capacity market is who takes the risk of investment: investors bear the risk in an energy-only market while the risk, and therefore the cost, is borne mostly by consumers in a capacity market.** To prevent going in the direction of re-regulations and preserve the vibrant Texas Energy-only wholesale and retail market, **if a reserve margin-based reliability standard is developed then it should be a target and not a mandated reliability standard**.

III. RELIABILITY BENEFIT VS COST TRADE OFF

Shell gives utmost importance to reliability because even a few hours of power outage could shut down operations for days due safety and equipment operations protocol causing delays and missed deadlines which have knock on downstream effects. This can run to millions of dollars in losses and safety issues which is not desirable. It is well agreed that reliability comes at a cost. However, it must be recognized that certain levels of reliability can come at too high a cost. Texans may not be able to afford a level of ERCOT security against a likelihood of vanishing probability if that would mean they can't afford to heat their home or keep their lights on a regular basis or reevaluate their business decisions. If cost were not a consideration, then we could keep improving the expected reliability of ERCOT ad infinitum. But unfortunately, that is not the case. At some point of incremental improvement, the cost will become too high for the value of the marginal improvement. Hence, the design of any target reserve margin reliability standard for ERCOT must **be designed to balance tradeoffs between cost and the reliability benefit**.

We should **consider the marginal improvement in reliability by ensuring that the reliability target that is adopted is probability-based**, giving more weight to events of higher probability and less weight to events less likely to happen. The target reliability metric should be statistical in nature. It should also be recognized that the **reliability standard should not be applied to the actual system reliability, but rather to probabilistic simulations of reliability which will in turn set market parameters**.

Shell Energy agrees with ERCOT that the three important factors in characterizing an outage are the frequency, the duration, and the magnitude of the outage. However, this does not mean that there need to be separate metrics for each of those aspects. A better approach would be to develop a single metric that considers all three factors, and also considers whether two or three of the factors are likely to happen at the same time. Expected Unserved Energy (EUE) meets all criteria. It measures frequency, duration, and severity of an outage. It also measures the correlation of those characteristics. If the expected frequency doubles and the expected severity doubles, for example, the EUE quadruples. It is also inherently statistical and could be adopted in the study methodology that ERCOT has proposed.

Shell Energy, however, is concerned about the 'maximum duration' and 'maximum magnitude' metric as proposed by ERCOT in its March 15th Reliability Standards Workshop. While duration and severity of outages are clearly important, it is critical to remember that these standards will be applied to probabilistic simulations of the system. The 'maximum duration' and 'maximum magnitude' metric was proposed by ERCOT in the workshop as a single number and not a probability weighted number. I.e., a system (generation mix) with a duration threshold that is violated in 99% of the simulation runs will be shown to have the same level of reliability as another system (with much firmer generation mix) for which the simulation runs have only 1 run that violated the duration threshold. This also implies that a single extremely low probability scenario added to a 50,000-run simulation could cause unintended/undesirable outcome of study results showing failure of any chosen level of reliability metric for even extremely reliable systems. For ex: a 0.000001 probability 4-hour load shed event due to 75% gen outage added in the simulation in which all other runs have no load shed great than or equal to 4-

hours could give the impression that the system could be expected to have 4-hour load shed event frequently unless 75% more generation is added.

Value based risk analysis is property conducted using probability weighted numbers, not using just a single number. All reliability metrics from the 45 different regions/countries that are listed in ERCOT's filing[3] are based on probability weighted values.

The cost of each reliability event could be estimated as the extent of energy consumption impacted (unserved energy) by a reliability event multiplied by the Value of Lost Load (VOLL). Hence, EUE gives an indication of the value of improved reliability. Normalizing it over yearly load ensures consistency of the metric year over year and consistency across regions if the standard needed to be applied regionally. If a reserve margin-based resource adequacy reliability standard needs to be developed then **a target reliability standard based on the Normalized Expected Unserved Energy (NEUE) is most reasonable as it considers frequency, duration, magnitude, probability, and cost of the event.** A target NEUE less than or equal to 0.002% as used in Australia is a reasonable metric.

IV. CONCLUSION

Shell Energy appreciates the opportunity to provide comments on this important issue. SB3 does not require establishment of a mandated capacity procurement reliability standard. To preserve Texas' vibrant Energy-only wholesale and retail market, if a reserve margin-based reliability standard is developed, then it should be a ***target reliability standard*** and not a mandated reliability standard. The design of any of these target reserve margin reliability standards for ERCOT must find a way to balance tradeoffs between cost and reliability benefits. If a reserve margin-based resource adequacy reliability standard needs to be developed then a target reliability standard based on the Normalized Expected Unserved Energy (NEUE) is most reasonable as it considers frequency, duration, magnitude, probability, and cost of the event.

[3] 52373_402_1282399.PDF (texas.gov)

SHELL ENERGY'S EXECUTIVE SUMMARY

- Dispatchable Reliability Reserve (DRRS) Ancillary Service ensures reliability in the most efficient and cost-effective way by addressing the issues that ERCOT is currently facing related to operational concerns and need for incentivizing flexible dispatchable resources to meet the grid's evolving needs.
- SB3 requires the commission to "establish requirements to meet the ***reliability needs*** of the power region" and not necessarily to establish a mandated capacity procurement reliability standard. ERCOT, like Alberta has NERC related reliability standards for Ancillary Services but no mandated Reserve Margin Reliability standard. A reliability standard that is based on a mandatory procurement of capacity (MW) is contrary to an energy-only market design.
- The difference between a target reserve margin-based energy-only market and a mandated reserve margin-based capacity market is which party is taking the risk of investment: investors bear the risk in an energy-only market while the risk and therefore the cost is borne mostly by consumers in a capacity market. Hence, to preserve Texas' vibrant Energy-only wholesale and retail market, if a reserve margin-based reliability standard is developed, then it should be a *target reliability standard* and not mandated reliability standard. Energy and Ancillary Service markets could be modified to meet a target reliability standard to ensure resource adequacy.
- The design of any target reserve margin reliability standard for ERCOT must find a way to balance tradeoffs between cost and reliability benefits.
- The target reliability metric should be statistical in nature. The marginal improvement in reliability should be considered by ensuring that the adopted reliability standard is probability-based. The reliability standard should not be applied to the actual system reliability, but rather to probabilistic simulations of reliability which will in turn set market parameters
- Value based risk analysis is property conducted using probability weighted numbers, not using just a single number. All the reliability metrics from the 45 different regions/countries that are listed in ERCOT's filing are based on probability weighted values.
- If a reserve margin-based resources adequacy reliability standard needs to be developed then a target reliability standard based on the Normalized Expected Unserved Energy (NEUE) is most reasonable as it considers frequency, duration, magnitude, probability, and cost of the event. A target NEUE less than or equal to 0.002% as in Australia is a reasonable metric.