



## Filing Receipt

**Received - 2023-03-29 02:14:51 PM**  
**Control Number - 54584**  
**ItemNumber - 18**

**PROJECT NO. 54584**

**RELIABILITY STANDARD FOR  
THE ERCOT MARKET**

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**PUBLIC UTILITY COMMISSION  
OF TEXAS**

**JOINT COMMENTS OF TEXAS SOLAR POWER ASSOCIATION AND SOLAR  
ENERGY INDUSTRIES ASSOCIATION ON STAFF QUESTIONS**

COMES NOW the Texas Solar Power Association (TSPA) and the Solar Energy Industries Association (SEIA) (collectively, Solar Associations) and file these joint comments in response to Commission Staff's Request for Comment filed on March 7, 2023, in the above-referenced Project. TSPA and SEIA are not affiliates but have combined our comments for this filing to assist the Commission.

**I. INTRODUCTION**

The TSPA is a statewide industry trade association that promotes the development of solar electric generation. Our member companies invest in the development of solar photovoltaic products and projects in Texas, serving customers in both wholesale and retail markets, with products ranging from utility-scale generation, community solar, and customer-sited solar and storage solutions.

SEIA is a national trade association of the solar energy industry. Through advocacy and education, SEIA and its members are building a strong solar industry to power America. As a voice of the industry, SEIA works to make solar a mainstream and significant energy source by expanding markets, removing market barriers, strengthening the industry, and educating the public on the benefits of solar energy. SEIA represents solar companies across a variety of solar energy technologies, including photovoltaic (PV), solar water heating, and concentrating solar power (CSP). Additionally, SEIA

represents diverse solar companies providing utility-scale generation, community solar, and customer-sited solar and storage solutions.

The Solar Associations appreciate the complexity of the task before the Commission and its Staff to develop one or more new reliability standards for ERCOT. The need to replace outdated reliability metrics with new measures to reflect the changing grid is not unique to ERCOT, and is a topic that market experts have been thinking about how to solve. We recommend the Commission and its Staff review and incorporate principles from a 2021 report by Energy Systems Integration Group (ESIG), *Redefining Resource Adequacy for Modern Power System*.<sup>1</sup> It appears that ERCOT has already taken some steps in the right direction by considering magnitude, frequency, and duration as variables that all must be included in its analysis, which is included as an initial principle in the ESIG report, but there are several other principles that should be included that we will discuss in greater detail below.

The modern grid has rapidly evolved from traditional capacity planning based on peak hours provided by thermal generating units to a more diverse resource mix. Reliability planning today must incorporate the changing resource mix from renewable resources, energy-limited resources, and load flexibility. SEIA and TSPA emphasize that regulators should consider all supply side and demand-side resources in both determining capacity needs and in developing potential solutions to reliability problems.

In addition, the reliability study should clearly identify the costs associated with various reliability targets. The Commission will necessarily have to make a policy

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<sup>1</sup> Energy Systems Integration Group. 2021. *Redefining Resource Adequacy for Modern Power Systems. A Report of the Redefining Resource Adequacy Task Force*. Reston, VA. <https://www.esig.energy/reports-briefs>.

decision regarding the costs and value under various reliability targets. While the survey on value of lost load can help inform decisions, cost transparency is essential for the Commission to balance the interests of the public and other stakeholders in achieving a reasonable amount of reliability for an affordable and reasonable cost.

## **II. RESPONSE TO STAFF QUESTIONS**

- (1) 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?**

Solar Associations encourage the Commission to evaluate multiple metrics and avoid overreliance on a single metric. Each of the metrics staff mentions in its question can be useful in highlighting certain aspects of a system's reliability risk. For example, a system with a high EUE faces a risk of outages that are large in magnitude. However, use of a single metric can mask other aspects of reliability risk. For example, if a system with a high EUE and also a very low LOLE (i.e., outages are very infrequent), then the system could still be considered acceptably reliable. The Commission must understand all aspects of the ERCOT system's risk in order to evaluate whether incremental improvements to reliability are worth the additional cost.

Solar Associations have reviewed the concept document that ERCOT Staff presented at a recent stakeholder workshop,<sup>2</sup> and it appears that ERCOT Staff is headed in the right direction: considering multiple variables. Specifically, ERCOT Staff has stated that their proposed study will include magnitude, duration, and frequency of outages. We also support the use of EUE as an additional variable to understanding any reliability needs. The Commission could also consider looking at the same metric in multiple ways by, for example, calculating a seasonal version and/or looking at outlier events rather than averaging over them.

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

Deliverability refers to the idea that a resource needs firm transmission service in order to contribute to resource adequacy in some circumstances. While the concept of deliverability is useful for resource planning, it is important to avoid implementation of deliverability concepts that harm the market. While transmission is an important variable in the overall reliability of the ERCOT grid and must be considered as part of any reliability analysis, the Commission and ERCOT should make careful assumptions about which resources are considered deliverable or not for the purpose of this analysis. The Commission should not assume that all resources have firm transmission service. That would greatly overestimate the system's reliability. As the Solar Associations have argued elsewhere, ERCOT frequently curtails generation due to a lack of new economic transmission projects. For this reason, the Commission should consider transmission as

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<sup>2</sup> Rickerson, Woody, and Pete Warnken, "Workshop on ERCOT's Proposed Reliability Standard Study Framework," (Mar. 15, 2023). Download at [https://www.ercot.com/files/docs/2023/03/09/Workshop\\_ReliabilityStandardStudy\\_3-15-2023.pptx](https://www.ercot.com/files/docs/2023/03/09/Workshop_ReliabilityStandardStudy_3-15-2023.pptx)

a potential solution to reliability challenges that does not require additional generation or capacity.

- (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?**

The Solar Associations offer the Commission two additional ideas for consideration. First, as Winter Storm Uri demonstrated, weather-related correlated outages or other common mode failures are a major threat to the ERCOT system and should not be excluded from reliability analysis. To that end, the Commission should not assume that “firm, dispatchable” resources are available all of the time; there is no such thing as perfect capacity. The reliability assessment should consider the correlated outages of all generating capacity due to weather or common mode failures in addition to forced outages due to mechanical failures. Resource adequacy constructs should recognize the wide variety of technologies available to meet customer and electricity system reliability and resilience needs.

Second, the Commission should be transparent about the incremental reliability benefits and costs of planning for different metrics. It’s too simplistic to conclude that the existing system is either reliable or not. In fact, based on historical measures such “one day in ten years,” ERCOT is already exceeding those standards for reliability with an

LOLE of 0.03.<sup>3</sup> What is critically missing is the inclusion of the financial impacts on the customers who pay electric bills in Texas.

There is an inherent trade-off between reliability and cost and, as ESIG suggests, this relationship may be nonlinear. Some low cost investments may greatly improve reliability whereas other expensive investments may have a minimal impact. Regulators, stakeholders, and customers need additional transparency regarding the costs associated with various solutions to reliability so they can make informed decisions regarding the value of reliability improvements. Customers for whom reliability is of paramount importance may choose to invest in on-site solar and batteries to reduce the probability of an outage.

For this reason, it is essential that the Commission have an understanding of the Texas economy as it relates to different sectors values of lost load – a survey would be an excellent first step, but additional work would still need to be done. We recommend that the Commission work with the Comptroller's office and the Dallas Federal Reserve on the best way to model the Texas economy in order to determine a curve for the value of lost load of different segments. These entities have great information about the economy, and ERCOT has information about MWh consumption. Together, value of lost load, in dollars per megawatt hour, could be studied. Duration of outages is also an essential component to this value – a grocery store can withstand a 5 minute outage, but a longer outage could cause them to have both lost sales and frozen products defrost

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<sup>3</sup> Energy + Environmental Economics, *Assessment of Market Reform Options to Enhance Reliability of the ERCOT System*, Prepared for the Public Utility Commission of Texas, (Nov. 2022) at 126.

and need to be discarded. This complex topic shouldn't be rushed – it is important to try to get it right initially and then iterate over time.

Finally, resource adequacy is just one aspect of system reliability. To consumers, an outage is an outage whether it be due to capacity shortfalls or problems in transmission or distribution systems. Cost transparency will help the Commission determine the most economic manner in securing system reliability and on allocating dollars between resource adequacy and increasing investments in transmission and distribution.

**(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?**

Initially, the Commission should update the calculation fairly frequently to make sure it is iterating to get it right -especially for things like trade-offs between the cost of entry and the cost of new transmission, or the value of lost load curve.

**(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.**

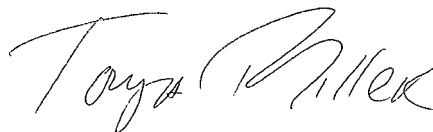
Energy Systems Integration Group. 2021. *Redefining Resource Adequacy for Modern Power Systems. A Report of the Redefining Resource Adequacy Task Force*. Reston, VA. <https://www.esig.energy/reports-briefs>.

### **III. CONCLUSION**

TSPA and SEIA appreciate the opportunity to provide these Comments and look forward to working with the Commission and other interested parties on these issues.

Respectfully submitted,





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**EXECUTIVE SUMMARY**

- ERCOT should consider magnitude, frequency, and duration as variables in the analysis.
- The Commission should evaluate multiple metrics, and avoid overreliance on a single metric.
- The Commission could also consider looking at the same metric in multiple ways by, for example, calculating a seasonal version and/or looking at outlier events rather than averaging over them.
- ERCOT should also include weather-related correlated outages or other common mode failures in the reliability analysis in addition to forced outages due to mechanical failures.
- The Commission should avoid implementation of deliverability concepts that harm the market and decline to adopt interconnection policies from other RTOs that are expensive, uncertain, and arduous.
- ERCOT frequently curtails generation due to a lack of new economic transmission projects. For this reason, the Commission should consider transmission as a potential solution to reliability challenges that does not require additional generation or capacity.
- The reliability study should clearly identify the costs associated with various reliability metrics so the Commission and the public can make informed decisions regarding the value of reliability improvements.
- Resource adequacy is only one part of system reliability. Cost transparency will also help the Commission determine how to allocate dollars between resource adequacy and increasing investments in transmission and distribution.
- The Commission should work with the Comptroller's office and the Dallas Federal Reserve on the best way to model the Texas economy to determine a curve for the value of lost load of different segments.
- The reliability analysis should incorporate renewable resources, energy-limited resources, and load flexibility in both determining capacity needs and in developing potential solutions to reliability problems.
- The Commission should update the calculation fairly frequently analyzing the trade-offs between the cost of entry and the cost of new transmission, or the value of lost load curve.