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### PROJECT NO. 54584

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

### OFFICE OF PUBLIC UTILITY COUNSEL'S INITIAL COMMENTS TO COMMISSION STAFF'S QUESTIONS FOR STAKEHOLDER COMMENTS

The Office of Public Utility Counsel ("OPUC") respectfully submits these initial comments to the Staff of the Public Utility Commission's ("Staff") request for stakeholder comments on the Reliability Standard for the Electric Reliability Council of Texas ("ERCOT") Market. Commission Staff's Memo and Questions for Stakeholder Feedback requests public comment by March 29, 2023, therefore OPUC's initial comments are timely filed.

### **RESPONSE TO REQUEST FOR COMMENT**

### A. INTRODUCTION

On May 10, 2022, the Commission contracted E3 for consulting services related to analysis, development, and implementation of market design and market structure changes in the ERCOT wholesale market.<sup>1</sup> E3 developed and analyzed six specific market design options and compared the impacts of each against a status quo "energy-only" market design.<sup>2</sup> Those six market design options are:

- Load Serving Entity Reliability Obligation ("LSERO");
- Forward Reliability Market ("FRM");
- Performance Credit Mechanism ("PCM");
- Backstop Reliability Service ("BRS");
- Dispatchable Energy Credits ("DEC"); and
- DEC/BRS Hybrid.<sup>3</sup>

<sup>&</sup>lt;sup>1</sup> Review of Market Reform Assessment Produced by Energy and Environmental Economics, Inc. (E3), *Memorandum Re: November 10, 2022 Open Meeting, Item No. 5-Project No. 52373-Review of Wholesale Market Design* at 1 (Nov. 10, 2022). ("Memo").

<sup>&</sup>lt;sup>2</sup> Memo at Attachment B, E3's Assessment of Market Reform Options to Enhance Reliability of the ERCOT System at 1 (Nov. 10, 2022). ("E3 Report").

 $<sup>^3</sup>$  Id.

The Commission adopted the PCM with specific attributes and recommended "the creation of a new reliability service to ensure enough dispatchable generation is available during periods of low renewable output."<sup>4</sup> However, the Commission directed Staff and ERCOT to "delay implementation of the PCM until such time as the 88th Legislature has had an opportunity to render judgment on the merits of the PCM and/or establish an alternate solution."<sup>5</sup>

On February 15, 2023, Commissioner McAdams filed a memo in Project No. 52373 which outlined the efforts the Commission has taken over the last two years to establish a reliability standard within ERCOT.<sup>6</sup> In his memo, Commissioner McAdams proposed that the Commission "direct ERCOT to engage a consultant for the purpose of initiating a report that would analyze the value of lost load (VOLL)," the results of which would help "inform the Commission and the ERCOT Board of Directors on what . . . range of VOLLs may be considered."<sup>7</sup> Commissioner McAdams also proposed that the Commission direct ERCOT to "undertake analysis and identify scenarios for reliability metrics," and noted "the outcomes from these scenarios could be the subject of technical workshops and stakeholder engagement administered by Commission Staff and ERCOT."<sup>8</sup> Finally, Commissioner McAdams proposed that the Commission direct ERCOT to "look at the questions of deliverability and regionality in the context of these reliability studies," and underscored that "[t]o better understand the reliability needs in ERCOT [the Commission] must recognize the threats and opportunities presented by how effectively generation is getting to where it is needed."<sup>9</sup>

In response to Commissioner McAdams memo, ERCOT filed a March 6, 2023, Memorandum which outlined proposals to:

engage a consultant to conduct an updated analysis of VOLL including a comprehensive customer survey, based on an original study conducted by London Economics International in 2013 to estimate VOLL in relation to potential outages caused by insufficient operating reserves in ERCOT;

establish a framework for defining the reliability standard, set parameters used within the framework for each scenario, and

<sup>&</sup>lt;sup>4</sup> Wholesale Electric Market Design Implementation, Project No. 53298, Order (Jan. 19, 2023).

<sup>&</sup>lt;sup>5</sup> Id.

<sup>&</sup>lt;sup>6</sup> Review of Wholesale Market Design, Project No. 52373, Commissioner Memorandum (Feb. 15, 2023).

<sup>&</sup>lt;sup>7</sup> *Id.* at 2.

<sup>&</sup>lt;sup>8</sup> Id.

<sup>&</sup>lt;sup>9</sup> *Id.* at 3.

compare the market impact of each scenario, based on duration, frequency, and magnitude of loss of load events; and

ensure that dispatchable resources are simultaneously able to deliver their full output to serve demand when needed. Minimum deliverability criteria ensures that resources located within ERCOT and whose output is primarily within ERCOT's control are simultaneously deliverable to serve demand when needed.<sup>10</sup>

Finally, Staff's Market Analysis Division filed a March 7, 2023, Memorandum in Project Nos. 52373, 53298, and 54584<sup>11</sup> that provides a brief history of projects pertaining to the reliability standard in ERCOT, including Project No. 40000,<sup>12</sup> for resource adequacy related topics, and Project No. 42302,<sup>13</sup> for issues related to the reliability standard in ERCOT. The Staff memo also presents questions on a reliability standard for stakeholder comments.<sup>14</sup>

### B. OPUC'S RESPONSE TO STAFF'S QUESTIONS FOR STAKEHOLDER COMMENTS

Referencing Commission Staff Memo dated March 7, 2023, Staff seeks comments in response to the following questions:

(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?

<sup>&</sup>lt;sup>10</sup> *Review of Wholesale Market Design*, Project No. 52373, Letter in Response to Commissioner McAdams Memo (Mar. 6, 2023).

<sup>&</sup>lt;sup>11</sup> Review of Wholesale Market Design, Project No. 52373, 03.09.2023 OM - Memo and Questions for Stakeholder Feedback (Mar. 7, 2023). (OM Memo). See also Wholesale Electric Market Design Implementation, Project No. 53298 (Mar. 7, 2023) and Reliability Standard for the ERCOT Market, Project No. 54584 (Mar. 7, 2023).

<sup>&</sup>lt;sup>12</sup> Proceeding to Ensure Resource Adequacy in Texas, Project No. 40000 (Dec. 15, 2011).

<sup>&</sup>lt;sup>13</sup> Review of the Reliability Standard in the ERCOT Region, Project No. 42302 (Mar. 12, 2014).

<sup>&</sup>lt;sup>14</sup> OM Memo at 3-4.

- 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?

OPUC prefaces its thoughts with an opinion as to what a reliability metric is designed to accomplish. If the market desires a benign reliability metric that simply serves as a measure of market performance for possible future legislation, regulation or even just market knowledge, there is no need to engage in what may be a particularly complex and timely development of a new reliability metric. OPUC, however, believes the market would benefit best from development of a proactive reliability metric that could serve as a catalyst for triggering actionable events to combat violations of the reliability metric. If the market desires a reliability metric that may trigger future actionable events, in other words, a metric that causes generation to be built, OPUC favors a robust approach to developing and measuring a reliability metric.

As a side note, OPUC does not necessarily see a conflict with having an actionable reliability metric and current market design change proposals being discussed in tandem to encourage a more reliable grid. OPUC views the inclusion of potential market design changes, such as the Commission's proposed PCM, as the first line market-based response to encouraging supply availability. If this approach is working properly, it should be reflected in the reliability metrics and a properly functioning market. If, however, the reliability metric is breached it is a signal that there is a problem with the market-based response and additional measures would need to be taken to ensure reliability. These measures could be as simple as making low-cost financing available for specifically identified new generation development, similar to what has been proposed recently in the legislature.<sup>15</sup>

All three identified metric measures (Magnitude, Frequency, and Duration<sup>16</sup>) are important when considering reliability standards. Considering only Loss of Load Expectation (LOLE) and adopting the commonly used 1 event in 10 years metric would lead to the untenable conclusion

<sup>&</sup>lt;sup>15</sup> See Tex. S.B. 6, 88th Leg., R.S. (2023), Tex. S.B. 7, 88th Leg., R.S. (2023), Tex. S.B. 1378, 88th Leg., R.S. (2023).

<sup>&</sup>lt;sup>16</sup> Development of Reliability Standard, Proposed Reliability Standard Analysis Process, Woody Rickerson, Vice President, System Planning and Weatherization, ERCOT Reliability and Markets Committee Meeting (Feb. 27, 2023).

that 2011's Groundhog Day Blizzard and 2022's Winter Storm Uri comport with acceptable reliability modeling since these events were separated by at least 10 years. Expecting an event to occur is not enough. We know that Winter Storm Uri was a catastrophic event due to the duration of the outages (LOLH) and ERCOT-wide nature of the outages (EUE) in very extreme weather conditions. Thus, OPUC views all three metrics as essential when considering development of a standard metric for the ERCOT grid. OPUC foresees an additional metric (Impact) that measures the extreme nature of the weather and accompanying environmental conditions having a meaningful and immediate impact on both businesses and residents. This measure would consider not just the size of an event, but also the impact of the event on the consumer.

OPUC supports the inclusion of all three reliability metrics that ERCOT mentioned in their presentation at the February 27, 2023, Reliability and Markets Committee Meeting and the March 15, 2023, Workshop to Address Proposed Study Metrics: Frequency, Duration and Magnitude.<sup>17</sup>



<sup>&</sup>lt;sup>17</sup> See Workshop on ERCOT's Proposed Reliability Standard Study Framework, Woody Rickerson VP Planning and Weatherization, Pete Warnken, Senior Manager, Resource Adequacy, ERCOT at slide 3 (Mar. 15, 2023).

As described in the Workshop on ERCOT's Proposed Reliability Standard Study Framework, slide 3, proposed metrics include a Magnitude standard that the maximum load that can be rotated for any event should not exceed x% of peak (current ERCOT peak demand is 80,038 MW), a Frequency standard that Load Shed events for generator inadequacy should not occur more than once in x years, and finally a Duration standard that any Load Shed event should not last for more than x hours.<sup>18</sup> As mentioned above, an additional metric of Impact could also be considered.

OPUC believes the recognition of all three identified metrics will do a better job of capturing potential issues with the existing grid as opposed to focusing on only one of these metrics, the scheme most other grids are currently utilizing. As ERCOT mentioned in the March 15, 2023, workshop, the creation of a new reliability metric utilizing three measured variables will be groundbreaking work that will require more time and effort to create (as opposed to adopting an already utilized metric), but OPUC believes the lessons learned from Winter Storm Uri show the shortcomings of many of the currently utilized metrics.

Although not specifically mentioned in the staff questions, OPUC also has concerns about the recent emphasis to re-evaluate study of the VOLL calculation. Specifically, OPUC shares some of the concerns expressed in the recent March 15, 2023, workshop that the VOLL, which will vary by each individual customer, could be extremely dynamic based on: (a) the timing of the lost load, (b) the duration of the lost load, and (c) the ultimate impacts the lost load will have on the individual customer over time. A one-hour outage during even extreme weather events is probably not severe enough to create a high value of lost load. But, if the outage duration becomes extended, the weather event remains extreme, and the end user has specific vulnerabilities (such as health issues), the VOLL will increase as the event continues.

Additionally, OPUC would have concerns as to the immediate advantage establishing an arbitrary VOLL would provide and what potential future impacts might arise if the utilization of an established VOLL were expanded into other areas. For example, if a high VOLL were established that was far in excess of our current market price cap, some parties may see this as a lost opportunity cost that would need to be captured in the market, possibly by raising the market price cap. We saw in Winter Storm Uri that a high VOLL that leads to higher market prices can

quickly become unacceptable to the public and their elected officials. The last thing the Texas competitive electric market needs is a situation where we once again find ourselves having to amortize five or six days of energy costs over thirty years in order to make them affordable.

Finally, OPUC believes a critical item that has not been discussed to date is the expected response to a reliability standard violation. If violations of minimum reliability standard, whatever they may be, do not generate initiation of corrective measures, the reliability metric is of little value to end users or the broader market.

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

Deliverability is the ability of a resource to deliver its full output when called on to do so.<sup>19</sup> This is not strictly a generation issue but rather, a locational issue. Supply that cannot reach load has no value. Deliverability is critical to ensure that resources are available when and where needed. OPUC believes the inclusion of deliverability into the reliability standard is essential if the reliability standard is going to be used to impact future operations or policy.

One way to potentially achieve this goal would be to introduce an emphasis on dynamic measurement of the reliability standard, which could be seasonal, monthly, or, at the extreme, even on a daily basis. Additionally, OPUC contends ERCOT should focus on utilization of actual market data to the fullest extent possible when incorporating actual deliverability. Use of generic availability metrics should be avoided. Actual current or historical data, such as (a) planned outages, (b) availability history by resource, and (c) other similar parameters, will be of paramount importance in determining whether a particular resource is available when minimum reliability conditions are anticipated.

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

- Should the reliability standard include a locational requirement?

<sup>&</sup>lt;sup>19</sup> Id.

- 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?

All of these items should be included, and most can be captured, by developing a dynamic reliability standard. A static standard treats all hours and all seasons the same – the first hour of an outage is the same as the last hour, and an outage in the spring is the same as an outage in midwinter. A dynamic standard recognizes that these differences matter and can more quickly bring needed resources to bear.

First, the locational requirement could be important if siting specific generation in specific regions provides the best and most efficient solution to an emerging problem. This could be very helpful in providing future incentives to generation development if needed. Locational considerations are also important when considering the contribution of renewable resources that are dependent on local wind or solar conditions.

Secondly, seasonal weather variation extremes can create conditions of grid stress, and these potential seasonal problems need to be identified prior to their occurrence. A seasonal or other periodic review component, such as a monthly analysis, would help greatly in this effort. Seasonal considerations include the need for cold weather protections, fuel supply hardening, outage scheduling, and other events that affect resource availability.

Finally, capturing extreme events is probably the most critical aspect to consider in developing a reliability standard for ERCOT. It is the extreme events that generate public outcry and impact both residents and businesses the most. For this reason, OPUC reiterates its earlier comment that event impact could be an additional criterion to consider in development of an ERCOT reliability standard, although we think further discussion would be needed to determine how to best develop this metric.

Distributed energy and load resources should be included in the list of available supplies to combat system demands, but, as with other supply resources, they need to be tempered by both firmness of the product and historic performance.

# (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?

A dynamic reliability standard would be relevant all the time, but seasonal reviews and corrections would keep the standard measurement relevant. At the very least, OPUC would like to see seasonal calculations of the reliability standard (four times a year minimum) and an annual review of the processes and data used to calculate the reliability standard so that corrective measures can be taken prior to an extreme event triggering such actions. While ERCOT could perform all of these calculations and reviews, OPUC would like to see stakeholder involvement in periodic (annual) review of the processes and data. Such reviews would help refine the processes developed by ERCOT. ERCOT's periodic Capacity, Demand and Resources (CDR) Reports and Seasonal Assessment of Resource Adequacy (SARA) Reports provide important strategic data regarding the relationship between supply and demand in ERCOT.<sup>20</sup> But these reports only provide a "snapshot in time" view of the market.

# (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.

OPUC is not aware of studies that address the development of a reliability standard at the level contemplated by the Commission. While there are many studies of the various current approaches being used to determine reliability, the approach under current consideration will be, as mentioned in the recent workshop, groundbreaking to the industry. It is also noteworthy, as ERCOT explained at the workshop, that NERC is working on establishing an Energy Reliability Standard, which we understand is planned for announcement in 2024. Monitoring these efforts will be important to determine if we can adopt any potential lessons learned into the development

<sup>&</sup>lt;sup>20</sup> See https://www.ercot.com/files/docs/2022/12/16/7-1-REVISED-System-Planning-and-Weatherization-Update---12-16-22.pdf.

of the ERCOT reliability metric. That said, OPUC would point to the studies already noted by ERCOT in its previous filings for the work done in other regions.

### CONCLUSION

OPUC appreciates the opportunity to provide these initial comments and looks forward to working with Commission Staff and other stakeholders on this project.

Date: March 29, 2023

Respectfully submitted,

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### OFFICE OF PUBLIC UTILITY COUNSEL'S INITIAL COMMENTS TO COMMISSION STAFF'S QUESTIONS FOR STAKEHOLDER COMMENTS

### **EXECUTIVE SUMMARY**

- 1. The market would benefit best from the development of a proactive reliability metric that could serve as a catalyst for triggering actionable events to combat violations of the reliability metric.
  - a. OPUC favors a robust approach to developing and measuring a reliability metric.
    - i. Inclusion of potential market design changes, such as the PCM, is the first line market-based response to encouraging supply availability.
      - 1. If this approach is working properly, it should be reflected in the reliability metrics and a properly functioning market.
      - 2. If, however, the reliability metric is breached, it is a signal that there is a problem with the market-based response and additional measures would need to be taken to ensure reliability.
  - b. All three identified metric measures (Magnitude, Frequency, and Duration ) are important when considering reliability standards.
    - i. OPUC supports consideration as to an additional metric (Impact) that measures the extreme nature of the weather and accompanying environmental conditions having meaningful and immediate impact on both businesses and residents.
  - c. Creation of a new reliability metric utilizing three measured variables will be groundbreaking work that will require more time and effort to create.
  - d. OPUC shares some of the concerns expressed in ERCOT's March 15, 2023, workshop that the VOLL, which will vary by each individual customer, could be extremely dynamic based on: (a) the timing of the lost load, (b) the duration of the lost load, and (c) the ultimate impacts the lost load will have on the individual customer over time.
  - e. A critical item that has not been discussed to date is the expected response to a reliability standard violation.
- 2. Inclusion of deliverability into the reliability standard is essential.
  - a. One way to potentially achieve this goal would be to introduce an emphasis on dynamic measurement of the reliability standard, which could be seasonal, monthly, or, at the extreme, even on a daily basis.
  - b. ERCOT should focus on utilization of actual market data to the fullest extent possible when incorporating actual deliverability.
    - i. Actual current or historical data, such as (a) planned outages, (b) availability history by resource, and (c) other similar parameters, will be of paramount importance.
    - ii. Use of generic availability metrics should be avoided.

- 3. Development of a dynamic reliability standard includes both a locational requirement and seasonal component and should enable capturing the value of distributed energy and load resources as well as extreme events.
  - a. The locational requirement could be important if siting specific generation in specific regions provides the best and most efficient solution to an emerging problem.
  - b. Seasonal weather variation extremes can create conditions of grid stress, and these potential seasonal problems need to be identified prior to their occurrence.
  - c. Distributed energy and load resources should be included in the list of available supplies to combat system demands, but, as with other supply resources, they need to be tempered by both firmness of the product and historic performance.
  - d. Capturing extreme events is probably the most critical aspect to consider in developing a reliability standard for ERCOT.
- 4. OPUC advocates for seasonal calculations of the reliability standard (four times a year minimum) and an annual review of the processes and data used to calculate the reliability standard so that corrective measures can be taken prior to an extreme event triggering such actions.
  - a. OPUC would like to see stakeholder involvement in periodic (annual) review of the processes and data.
    - i. Though they only provide "snapshot in time" view of the market, ERCOT's periodic Capacity, Demand and Resources (CDR) Reports and Seasonal Assessment of Resource Adequacy (SARA) Reports provide important strategic data regarding the relationship between supply and demand in ERCOT.
- 5. OPUC is not aware of studies that address the development of a reliability standard at the level contemplated by the Commission.
  - a. Of note, NERC is working on establishing an Energy Reliability Standard, with planned announcement in 2024.