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PROJECT NO. 52373

**REVIEW OF WHOLESALE
ELECTRIC MARKET DESIGN**

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**PUBLIC UTILITY COMMISSION
OF TEXAS**

**JOINT COMMENTS OF
SOLAR ENERGY INDUSTRIES ASSOCIATION
AND TEXAS SOLAR POWER ASSOCIATION**

COMES NOW the Solar Energy Industries Association (“SEIA”) and Texas Solar Power Association (“TSPA”) and file these joint comments in response to the Commission’s Questions for Comment filed in this proceeding on October 26, 2021. TSPA and SEIA are not affiliates, but we (“the Solar Associations”) have combined our comments for this filing to assist the Commission.

INTRODUCTION

SEIA is the 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 the 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 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.

COMMENTS

With the adoption of weatherization standards for generation resources and transmission facilities,¹ the Commission has completed its first major reform of the ERCOT market to ensure reliable grid operations. ERCOT has several more proposals that are in progress and nearing completion, including changes to the Operating Reserve Demand Curve (ORDC), reducing the high system-wide offer cap (HCAP); enabling the expansion of Emergency Reserve Service (ERS) and its deployment earlier to better allow ERCOT to avoid declaring an Energy Emergency Alert (EEA); accelerating the development of new transmission facilities, and accelerating firm resource transmission interconnection. In addition, ERCOT has implemented changes to its procurement of ancillary services to operate the grid in a more conservative manner; is considering changes to its ancillary services to increase the participation of energy storage resources and load resources; is implementing the next phase of Fast Frequency Response Service (FFRS); and is working on the potential acceleration of implementing the ERCOT Contingency Reserve Service (ECRS). The Solar Associations support the progress the Commission has made to date and supports its continued focus on ensuring a more reliable grid for all Texans.²

In addition to supporting these near term actions, the Solar Associations also support the Commission's continued consideration of additional improvements that by virtue of their complexity will need additional analysis to determine the potential impact on grid reliability, costs to consumers, and impacts to the robust ERCOT competitive market, and we are actively studying

¹ *Rulemaking to Establish Electric Weatherization Standards*, Project No. 51840 (Oct. 26, 2021).

² On October 18, 2021, a group of ERCOT stakeholders, including SEIA, filed with the Commission a set of Texas Reliability and Market Design Improvements which included all of these actions as well as additional "no Regrets" measures that the Commission and ERCOT could implement quickly and deliver improved reliability to the grid quickly. Additional measures included improving ERCOT load and supply forecasting; removing barriers and limits to demand response, load management, distributed generation, storage, and aggregators' participation in ancillary service delivery; and increases to distribution utility energy efficiency and demand response program funding and requirements.

these proposals as well. However, as discussed below, there remains inadequate detail of each of these proposals to actually ascertain their impacts. As a result, the Solar Associations respectfully recommend that the Commission take a measured approach to ensure that it, market participants, and the public can understand and verify the impacts of these proposals to reliability on the grid, the costs that customers will pay since they ultimately will bear the burden of additional costs imposed on the market, and the impacts on all levels of the competitive market.

For example, the proposed Load Serving Entity (LSE) Obligation has been offered as a framework for sending new market signals for desired reliability attributes. However, as with any significant market change, there is a large amount of uncertainty about what the new program would look like in practice – how resources would participate, how reliability improvements are expected to manifest, and what the impacts might be to other aspects of the current market. We therefore recommend extensive continued study. The Solar Associations potentially could support a concept of tradeable credits that provide additional payments to generators with desired reliability attributes, but the details of such an approach are critical to clearly articulate. The Solar Associations would have concern about a program that results in a lower value for a MWh of solar generation in the existing market. While new revenue streams could help encourage new investment in line with the desired attributes, new incentives for dispatchable generation should not result in devaluing existing or planned investments, and we recommend maintaining as much of the ERCOT energy-only market as possible so that it remains the primary and substantial source of incentives and revenues.

In contrast, a broad new firming requirement for generators based on nameplate capacity that comes with no associated new expected revenue would result in limited or no new investment,

disrupt existing investment plans in the ERCOT region, and impose significant costs on consumers for no increased reliability in the market.

The Solar Associations appreciate the opportunity to participate in these discussions and provide the following responses to the questions the Commission posed.

1. The ORDC is currently a "blended curve" based on prior Commission action. Should the ORDC be separated into separate seasonal curves again? How would this change affect operational and financial outcomes?

To the extent that disaggregating the blended curves reduces the expected price of energy, then the Commission must be especially diligent about the forward price signals in the market from other proposed changes to the ORDC methodology. Given the lessons of the recent past – that there is the possibility for undesirable operational risk in any season – it may be best to keep the existing blend and also make adjustments to MCL and other modifications covered in prior rounds of comments.

2. What modifications could be made to existing ancillary services to better reflect seasonal variability?

ERCOT has a robust process for reviewing the ancillary services it anticipates it will procure the following year on a monthly basis. ERCOT Staff is in the process of meeting with various stakeholder working groups to discuss its monthly calculations and obtaining input to refine its plans.³ It should be noted that in its presentation, ERCOT is proposing to increase its procurement of ancillary services due to a wider range of forecast errors attributable to demand, wind, and solar generation as well as forecast errors attributable to thermal generation outages. In

³ See, e.g., 2022 ERCOT Ancillary Service Methodology Presentation to Wholesale Market Working Group (10/25/21), presentation available at http://www.ercot.com/content/wcm/key_documents_lists/221315/2022_AS_Methodology_Discussion_10252021_v0_WMVG.zip.

any event, given ERCOT's intensive review process, the Solar Associations do not recommend additional changes beyond those being considered by ERCOT to ERCOT's ancillary service procurement to better reflect seasonal variability.

On a broader scale, though, the Solar Associations recommend that ERCOT pursue a more detailed analysis regarding the potential future procurement requirements for ancillary services. Strong growth of solar generation in the ERCOT region will provide significant capacity and energy to reliably serve Texans. In addition, the broader geographic diversity of solar generation as well as the increased deployment of energy storage co-located with solar generation will fundamentally improve the ability of the fleet to serve Texans as well as change how the fleet performs relative to ERCOT's expectations. The development of stand-alone storage also will provide ERCOT the ability to quickly address grid issues to ensure greater reliability. While ERCOT has provided a limited "indicative" study regarding the changing needs of the ERCOT grid as more solar generation comes online,⁴ the significant limitations ERCOT acknowledged at the outset of that study, including not looking at the geographic diversity of new solar, the development of storage co-located with solar, and the development of standalone storage, indicate a clear need for a more robust analysis to better understand the potential changes of the grid operations that will happen with these changes. We anticipate that the results of a more in depth study will confirm much more reliable and predictable grid operations than reflected in ERCOT's initial analysis as well as the fact that the increased deployment of energy storage that is already in progress will address the grid's needs.

⁴ ERCOT, Impact of Growth in Wind and Solar on Net Load (Presentation to Wholesale Market Working Group on Oct. 25, 2021), available at http://www.ercot.com/content/wcm/key_documents_lists/221315/NetLoad_Ramping_Analysis_v2_WMWG.pptx.

There is no doubt that solar generation, like all resources, has its limits, not the least of which is the fact that the sun does not shine 24 hours a day, seven days a week. In addition, there are predictable daily ramps of solar generation output that occur when the sun rises and the sun sets on a daily basis. Thus, solar generation must be part of a diverse portfolio of resources that serve Texans every hour of every day of every year. Recognizing the changes that are occurring in the generation mix of the ERCOT grid, the Solar Associations recommend that the Commission and ERCOT focus on ensuring that the existing ancillary services work in conjunction with these changes and take advantage of the services that solar generation and other new technologies, especially energy storage resources (ESRs) can provide. In addition, as ERCOT acknowledged in its recent study regarding the impact of growing solar generation, there is a need to ensure that ERCOT procures appropriate ancillary services to address errors in the commitment of thermal generation as well as forced outages.⁵

The Solar Associations also recommend that ERCOT work with solar market participants to collaborate on ways to better manage solar ramping in the morning and evening. ERCOT also could create a new ancillary service that could function similar to Regulation Up and Regulation Down where solar resources could bid to give control to ERCOT to manage solar output in specific hours. Working collaboratively, we anticipate that solar resources can provide more tools to ERCOT to increase reliability on the grid.

⁵ *Id.* at 26.

3. **Should ERCOT develop a discrete fuel-specific reliability product for winter? If so, please describe the attributes of such a product, including procurement and verification processes.**
- a. **How long would it take to develop such a product?**
 - b. **Could a similar fuel-based capability be captured by modifying existing ancillary services in the ERCOT market?**

ERCOT could develop a discrete reliability product for winter, but the Solar Associations respectfully submit that the product does not need to be fuel-specific. Rather, the Commission should articulate the operational attributes that it wants to procure and allow the market to use existing and new technologies to provide those operational attributes.

An existing ancillary service that could be used to procure this product is Black Start. The Commission could expand Black Start contracting by modifying the ERCOT Protocols to allow longer term contracts that procure more resources than ERCOT currently procures. This not only would ensure that there is sufficient generation to return from a black start event (with the assumption that ERCOT would not be in a black start situation unless some generation failed – some of which might be black start, as unfortunately happened during Winter Storm Uri), but also provide additional (or “excess”) Black Start resources that could be available to provide the winter reliability product as well. The procurement for Black Start also could be expanded to provide funding for onsite fuel storage, fuel system upgrades, deep winterization upgrades, onsite ESRs, and other infrastructure that would directly help with black start recovery, while also generally increasing resiliency during any winter event. Black Start is a pay as bid service, so there should not be a software impact on ERCOT to implement this as there would be for other proposals for new services.

4. Are there alternatives to a load serving entity (LSE) Obligation that could be used to impose a firming requirement on all generation resources in ERCOT?

Generation firming to support system-wide reliability best happens at the system level by having a diverse resource portfolio and a robust market with price signals and ancillary services necessary to ensure that we have adequate generation reserves at all times. Accurate price signals ensure that resources with the flexibility to meet system needs are available to ensure reliability, regardless of whether the need arises from thermal outages, transmission line failures, or variation in output from wind or solar resources. Moreover, individual generators already are held financially accountable for their output by their contractual counterparties – including both investors and off-takers. Imposing an additional firming requirement on each generation resource based on nameplate capacity would be arbitrary, economically inefficient, and, at best, only indirectly related to real-time operational needs. Moreover, a firming requirement based on nameplate capacity value would ignore natural variations that all generators experience. For example, a thermal generator's capacity value is impacted by the ambient temperature as well as the temperature and availability of cooling water; hydroelectric generation is affected by the real-time availability of water; solar generation is affected by the impact of the tilt of the earth's axis at any point of the year. This is not an exhaustive list, but indicative of many variables that affect capacity – variables that are accounted for in today's energy-only market but could be overlooked by other market constructs.

If the Commission has an interest in another avenue of accountability for generator output, that accountability should be based on specific commitments that the generator makes regarding expected performance in a given period rather than a simple reference to nameplate capacity. To the extent the Commission determines to move forward with this approach, the Solar Associations want to work with the Commission to identify what such a mechanism might look like.

- 8. Can the reliability needs of the system be effectively determined with an LSE Obligation? How should objective standards around the value of the reliability-providing assets be set on an on-going basis?**
- a. Are there methods of accreditation that can be implemented less administrative burden or need for oversight, while still allowing for all resources to be properly accredited?**

In order to ensure the most robust performance of all generation resources, the Commission should focus first on the real time energy market and ensure that the price signals are strong and effective. These price signals can accomplish without regulatory intervention much of the results the Commission might seek to achieve through imposition of additional obligations because they reward market participants who bring excess generation capabilities and punish those who fail to perform to their contracted amount. The Commission's focus on changes to the ORDC is a key step in this process.

As noted earlier, at a high level, the Solar Associations potentially could support a concept of tradeable and fungible credits that provide additional payments to generators with desired reliability attributes, but the details of such an approach are critical to clearly articulate. The Solar Associations would have concern about a program that results in a lower value for a MWh of solar generation in the existing market. While new revenue streams could help encourage new investment in line with the desired attributes, new incentives for dispatchable generation should not result in devaluing existing or planned investments, and we recommend maintaining as much of the ERCOT energy-only market as possible so that it remains the primary and substantial source of incentives and revenues.

As proposed, the LSE Obligation recommends a single accreditation for each form of generation technology. Such a generic approach, while administratively convenient, ignores the extensive work that goes into the location and development of generation resources. This work

makes the operational value of every resource fundamentally unique. For example, all developers seek an optimal siting location for their resource. Some generation resources are sited at locations near a more reliable fuel supply, so multiple natural gas pipelines, presence of a source of lignite, high wind, and strong solar radiance may be of paramount importance. However, other developers may focus on different attributes, such as reliability of the transmission grid or proximity to load, even if that may reduce the reliability of the resource's fuel supply. The approach that each developer takes is their response to intense competitive pressures for the resource to perform in the market. Treating resources that have different operational attributes as having the same reliability accreditation ignores the efforts that are made to improve the operation of each resource.

Rather than use regulatory intervention to dictate performance expectations, if the Commission decides to implement some form of generator accreditation, the Commission should allow each generator to choose to sell the number of generation credits they believe they are able to deliver during a reliability event. Resources can take on their own risk of performance or non-performance instead of being determined through an administrative process. If correctly implemented, this would provide direct incentives for any type of generation resource to proactively secure the performance level it has sold through the addition of on-site energy storage or back-up fuels since failure to deliver energy to back up the credits in a reliability event would result in substantial financial penalties. Even in this construct, the Commission may need different rules for a "must offer" requirement for generators with market power.

The Solar Associations encourage the Commission to thoroughly consider details of implementation prior to deciding to move forward with an LSE Obligation market design. These implementation choices can result in very different outcomes for investors. A poorly designed LSE Obligation that consistently reduces generation revenue for solar facilities would reduce grid

reliability, reduce investment in solar, and could be discriminatory, which the Solar Associations would oppose. However, even an LSE Obligation that increases revenue for some generators more than others based on non-discriminatory characteristics potentially could be acceptable, especially if it is easy to buy and sell credits. These and many other matters should be decided before the Commission moves forward with the idea of an LSE Obligation.

Conclusion

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

Respectfully submitted,



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EXECUTIVE SUMMARY

- The Commission is making significant progress to ensure a reliable grid for Texans and has additional near term improvements it can implement to improve reliability. The Solar Associations recommend additional consideration of complex proposals to determine the impact on grid reliability, costs to consumers, and impact on the ERCOT competitive market.
- Disaggregating the ORDC blended curve may reduce appropriate price signals related to operational risk in any season.
- The Solar Associations do not recommend additional seasonality changes to the ancillary service procurement. With continued analysis, the Solar Associations expect data will support that new generation resources (especially energy storage resources) and ERCOT's existing (and planned) ancillary services will be well suited to manage increased growth of solar generation in the ERCOT Region.
- ERCOT could develop a discrete reliability product for winter through minor changes in its procurement methodology for Black Start Service. Rather than prescribing the fuel for such a reliability product, ERCOT should articulate the operational attributes and allow the market to provide solutions based on existing and new technologies.
- Generation firming is best achieved by having a diverse resource portfolio and accurate price signals. The Solar Associations oppose imposition of a firming requirement on each generation resource based on nameplate capacity since it would be arbitrary, economically inefficient, and, at best, only indirectly related to real-time operational needs.
- Clear price signals in the real-time energy market are the best incentive for robust performance of all generation resources and do not require regulatory intervention to achieve this objective.
- While the Solar Associations potentially could support a concept of tradable and fungible generation credits, the details of such a concept are critical to avoiding adverse impacts to customers, market participants, grid reliability, and the competitive ERCOT market and yielding any benefits to the market. The ERCOT energy only market should continue to be the primary and substantial source of incentives and revenue. If a generation accreditation program is implemented, each generator should be allowed to sell the number of generation credits it believes it would be able to deliver during a reliability event.