PUCT PROJECT NO. 52373

REVIEW OF WHOLESALE ELECTRIC MARKET DESIGN	**§**	**PUBLIC UTILITY COMMISSION OF TEXAS**

E3 AND BETH GARZA COMMENTS ON THE OCTOBER 26, 2021 QUESTIONS FOR COMMENT

Energy and Environmental Economics, Inc. ("E3") and Ms. Beth Garza appreciate the opportunity to provide feedback on the market design questions issued in this project on October 26, 2021. Included as Attachment A to these comments is an Executive Summary of these responses.

E3 is an energy economics consulting firm with expertise in electricity planning, market design, distributed energy resources, retail rate design, and asset valuation. Ms. Garza is the former independent market monitor of ERCOT. E3 and Ms. Garza were retained by NRG Energy Inc. and Exelon Corporation to provide unbiased, independent analysis of ERCOT market design and recommendations for practical reforms that can improve reliability while retaining the core aspects of ERCOT's existing competitive electricity market. The culmination of this work was the submission of the *Load-Serving Entity Reliability Obligation* whitepaper to the PUCT on September 30, 2021. This submission provides responses to questions directly related to the Load-Serving Entity Reliability Obligation (i.e. "LSE Obligation").

We appreciate the opportunity to submit this information and look forward to collaboratively working with the Commission and other public stakeholders to further provide any additional support that might be helpful.

I. RESPONSE TO QUESTIONS

Load Serving Entity (LSE) Obligation

6. *How can an LSE Obligation be designed to protect against the abuse of market power in the wholesale and retail markets?*

The potential for the abuse of market power has been a significant concern in electricity markets, including ERCOT, since their inception over 20 years ago. This potential exists because of the combination of two factors: (1) Supply can be very inelastic in the short run; and (2) customers' value of power is very high. This combination means that hourly energy prices can be very high

and transfers from consumers to producers can be very large if suppliers are allowed to abuse market power. The ERCOT market has several features to address these concerns, primarily through the reliance on transparency and market liquidity, where the power of competitive forces is brought to bear to limit, or at least expose when a market participant may be abusing market power. The current design is further supported by clear rules prohibiting withholding.

A new product, the LSE Obligation, is now being considered for inclusion in the ERCOT market, giving rise to questions about how market power considerations should be addressed. It must first be understood that, unlike in short-term markets, electricity supply is not inelastic in the long-run time frame targeted by the LSE Obligation. Market entry is not only feasible, it happens frequently in organized markets. Inducing market entry to avert anticipated supply shortfalls is, indeed, the entire point of the LSE Obligation. LSEs will always have the incentive and ability to contract for new resources, if the cost of procuring from existing resources is too steep. In fact, an efficient market would see the price of supply rise as the market tightens until it reaches the net cost of new entry. As such, the cost of new entry is a natural and efficient ceiling on an LSE's willingness-to-pay for a reliability certificate and, in turn, a natural limit on any economic harm caused by supplier abuse of market power. Additionally, a known financial penalty imposed by ERCOT on deficient LSEs serves as a further backstop on economic harm from market power abuse.

Nevertheless, there is still some potential for economic harm from withholding of existing capacity in order to sell reliability certificates at inflated prices short of the cost of new generation. Market power mitigation should therefore be addressed as part of the design of the LSE Obligation. A clear first step should ensure that rules are in place to limit the potential for parties to exercise market power and unduly profit by withholding. Current rules effectively prohibit withholding production capability.[1] Reliability certificates associated with the LSE Obligation, required to provide customers with "safe, reliable, and reasonably priced electricity"[2], should be subject to the

[1] "Market power abuses include predatory pricing, withholding of production, precluding entry, and collusion." 16 Tex. Admin. Code (TAC) § 25.504(b)(3).

[2] 16 TAC § 25.503(a)(3).

same prohibition on withholding. Current substantive rules should be expanded to ensure this is the case.

The most effective mechanisms for limiting market power abuse do so by leveraging market transparency and liquidity. The creation of reliability certificates, similar to renewable energy credits (RECs), will introduce a fungible instrument that can be easily traded, tracked and submitted by LSEs as evidence of complying with their LSE Obligation. There are multiple ways to facilitate bilateral trade of reliability certificates. For example, a listing of owners (names and quantities) of reliability certificates could be published periodically. As Chairman Lake suggested in his October 20 memo, a public bulletin board could be created by ERCOT, where offers to sell and bids to buy are posted and bilaterally cleared, to improve transparency and facilitate transactions. Large net sellers of reliability certificates might be required to post offers to buy and sell, with limits on the size of the buy-sell spread. ERCOT should track bilateral transactions and post aggregated volume and price data. Australia has implemented a similar construct to the LSE Obligation and includes a "market liquidity obligation" similar to what is described above.[3]

A voluntary auction would be an alternative or supplementary option to facilitate transparency of reliability certificates, allowing parties to buy or sell. An auction could be held at the onset of the Showing period. MISO, for example, requires LSEs to secure in advance adequate generation resources operable at peak times to participate in its market, but allows LSEs to buy at least some of their obligations out of a residual auction.[4] Rules and requirements around an auction could be imposed to directly address market power concerns. Auctions also simplify monitoring because buying and selling happens in a single place at a single point in time.

Auction liquidity could be forcibly increased by requiring certain (large) generators to offer a portion (up to 100%) of their reliability certificates into the auction. To provide protections from buyer-side market power, certain (large) LSEs could also be required to procure all of their

[3] https://www.aer.gov.au/retail-markets/retailer-reliability-obligation/market-liquidity-obligation

[4] MISO has recently taken steps that would require all but the smallest LSEs to purchase at least a minimum amount of reliability in advance of this auction, but would allow LSEs to fulfill their residual position in the auction.

affiliated generators' reliability certificates from the same auction, with limits placed on their offers to sell affiliated resources at a certain spread relative to their bids to buy.[5]

An even stronger protection that is adaptable to a mostly bilateral market would be to impose predetermined offer price limits on some or all generators. These limits should reflect the costs (including lost opportunity and risks) of providing that reliability. Using the Voluntary Mitigation Plan structure already in effect for the energy offers of larger ERCOT generators is one way these limits could be imposed.[6]

a. Will an LSE Obligation negatively impact customer choice for consumers in the competitive retail electric market in ERCOT? Can protective measures be put in place to avoid a negative impact on customer choice? If so, please specify what measures.

No, an LSE Obligation will not negatively impact customer choice in the competitive retail market. To the contrary, the LSE Obligation is a necessary element to forestall the biggest threat to retail choice in Texas, which is an unreliable system that creates political pressure for re-regulation. An LSE Obligation provides that reliability and enables the robust preservation of customer choice. Additionally, as a purely physical requirement, the LSE Obligation does not regulate LSE hedging activities; it is designed to provide LSEs with maximum flexibility to hedge energy prices based on their own risk tolerance. Please see preamble to Question 6 for more information on what protective measures could be put in place.

b. How can market power be effectively monitored in a market where owners of power generation also own REPs that serve a large portion of ERCOT's retail customers?

The exercise of market power is most typically of concern when a party abuses their market power to increase the price, and therefore their profits, of whatever good or service being sold. The incentive of REPs to withhold is tied to their net position in the market. To the extent the quantity of reliability certificates generated by affiliated resources do not exceed a REP's Obligation, that REP will be a net purchaser of reliability certificates and therefore not in a position to profit by withholding (abusing their market power). For unaffiliated generators or REPs with a net long

[5] It is worth noting that limitations such as these would risk transforming the bilateral market envisioned in our proposal into a centralized capacity auction more typical of the eastern U.S. RTOs.

[6] A Voluntary Mitigation Plan is an agreement between electric generators with large market share (e.g. 5%-20%) and ERCOT that detail the specific actions and offers that the generator will take under different circumstances. A generator that acts in accordance with this plan is deemed to not be economically or physically withholding.

generation position, there are multiple mechanisms that could be implemented to mitigate the opportunity for market power abuse as described in the preamble to Question 6.

c. *What is the impact on self-supplying large industrial consumers who will have to comply with the LSE Obligation and will it impact their decision to site in Texas?*

Industrial customers that can curtail or self-supply all of their load at any time would be entirely exempt from the LSE Obligation. If there is some limit on their ability to self-supply or curtail, such that all or a portion of their load might be served from the system during tight conditions, their generation and demand response resources would go through ERCOT's accreditation process and be credited against their Obligation. As such, self-supplying customers will continue to receive full benefit from the capabilities their self-supply and demand response resources provide.

d. *What is the impact of an LSE Obligation on load-serving entities that do not offer retail choice, such as municipally owned utilities or electric cooperatives?*

All LSEs, including municipally owned utilities or electric cooperatives would be required to comply with the LSE Obligation. We understand that the current practice of most municipally owned utilities and electric cooperatives is to ensure they have sufficient reliability resources necessary to meet the requirements of their native load customers. As such, the LSE Obligation would have little impact on these entities. The LSE Obligation would allow them to sell or buy reliability certificates through the ERCOT market, just as they do for energy today.

e. *Can market power be monitored in the bilateral market if an LSE Obligation is implemented in ERCOT? Can protective measures be put in place to ensure that market power is effectively monitored in ERCOT with an LSE Obligation? If so, please specify what measures.*

Market power abuse can be monitored in a bilateral market as long as there is sufficient transparency, which can be accomplished by periodic public reporting of holdings and the price and quantities of all transactions. Additionally, the independent market monitor (IMM) will require timely and unfettered access to the details of all bilateral transactions. An additional protection can be offered with the presence of Voluntary Mitigation Plans, the same instruments that are used for large generators' energy offers.

f. *Should the LSE Obligation include a "must offer" provision? If so, how should it be structured?*

The LSE Obligation imposes an energy "must offer" obligation on resources that sell reliability certificates. The resources would be required to offer their full capability into the market during reliability events defined by ERCOT. This is necessary to ensure that these resources provide the reliability service the system is depending on. Its impact on the daily operation of the ERCOT system would be limited to the hours in which system reliability is at risk.

7. *How should an LSE Obligation be accurately and fairly determined for each LSE? What is the appropriate segment of time for each obligation? (Months? Weeks? 24 hour operating day? 12 hour segments? Hourly?)*

The LSE Obligation must be determined by ERCOT because ERCOT is the only entity with a comprehensive view of systemwide need during the most challenging operating conditions. In addition, LSEs have an inherent incentive to understate their expected needs to minimize their contribution. The LSE Obligation should be based on forecasts of LSE loads during these conditions, developed by ERCOT using the best available data (including confidential data from LSEs if necessary). The Obligation would be determined separately for the Summer and Winter operating seasons, with a focus on the hours of highest scarcity within each season. Seasonal granularity is appropriate because the highest scarcity hours can occur in any month in each season, and cannot be known in advance. Segmenting the seasons into more granular time periods (such as weeks, days, or hours) would result in significant additional complexity without any commensurate reliability benefit. For more detail on determining LSE requirements, see p. 27 of the *LSE Reliability Obligation* whitepaper.

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?*

ERCOT is directed by SB3 to "determine the quantity of ancillary or reliability services necessary to ensure appropriate reliability," regardless of which market design reforms the Commission adopts. ERCOT would determine these needs, subject to PUCT approval, using advanced loss-of-load-probability modeling techniques that are used for this purpose by all other ISOs and by vertically-integrated utilities across North America. These models are the subject of continual research and refinement as system needs change, e.g., due to the influx of variable renewable

resources, providing a wealth of literature and experience that ERCOT can draw upon for its own modeling.

Objective standards on the value of reliability-providing assets should be based on their ability to generate energy during the hours of highest scarcity which could be caused by high load, low renewable output, or both. As loads and resources evolve, the timing of hours with highest scarcity are expected to evolve as well (e.g., moving from summer afternoons to summer evenings as solar increases). For more detail on determining systemwide needs, see the *LSE Reliability Obligation* whitepaper at pp. 21-25.

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?

Any accreditation process will require the oversight of ERCOT in order to maintain integrity in the process. The accreditation process must be rigorous because system reliability will depend on its accuracy. The administrative burden falls largely on ERCOT; once ERCOT publishes the accredited values, market participants will have certainty about the number of reliability certificates each resource can sell. It will be important for ERCOT and the PUCT to involve stakeholders in a robust process to develop the accreditation methodology and vet ERCOT's calculations. Stakeholder understanding will be promoted by ERCOT's use of industry-standard modeling techniques similar to those used in other jurisdictions.

b. How can winter weather standards be integrated into the accreditation system?

Winter weather standards should be accounted for in the accredited reliability value of each resource. For example, a resource that has been winterized or secured fuels for winter and can demonstrate compliance with a certain standard would be accredited a higher reliability value than a resource that has not. As more resources come into compliance with winter weather standards or secure fuels for winter, the accreditation process will be a way to represent their effects in improving systemwide reliability as part of a larger, comprehensive process.

9. How can the LSE Obligation be designed to ensure demand response resources can participate fully and at all points in time?

Participation of demand response is critically important to reduce the need to procure reliability services and is a key feature of the LSE Obligation. LSEs benefit from demand response through a reduced LSE Obligation. More than capacity-market constructs that focus on a central buyer, an

LSE Obligation focuses on the best entities to seek out and prioritize demand response resources due to the LSEs' direct relationships with customers.

Loads that are entirely curtailable would be exempt from the LSE Obligation. Loads that can provide demand response but have meaningful limitations on their availability would be assigned a reliability value through ERCOT's accreditation process. The value would be based on the extent of the limitation; for an example, a demand response resource that can only be called once per month for four hours would have less reliability value than a resource that can be called twice or more per month or for five or more hours.

It should be noted that a demand response resource need not be available *at all times* in order to receive maximum reliability value, just during all potential reliability events. ERCOT should follow best practices for determining the expected timing, duration, and frequency of system scarcity hours using advanced loss-of-load-probability modeling techniques.

10. How will an LSE Obligation incent investment in existing and new dispatchable generation?

Under the LSE Obligation, LSEs are *required* to procure reliability attributes from generators on a one-year forward basis, with the quantity of attributes determined through ERCOT's accreditation process. This stands in contrast to other reform proposals which continue to rely on the *hope* that the market will invest in dispatchable generation. The LSE Obligation provides a direct, stable financial incentive for existing generators to invest in improving their availability. If the system is deficient, this also provides a stable source of revenue for new generators that does not depend exclusively on infrequent and difficult-to-predict periods of high energy prices.

11. How will an LSE Obligation help ERCOT ensure operational reliability in the real-time market (e.g., during cold weather events or periods of time with higher than expected electricity demand and/or lower than expected generation output of all types)?

The LSE Obligation will help ensure reliability in real-time markets in three primary ways:

1. **Creating a performance assessment mechanism to ensure real-time operational reliability.** In the LSE Obligation, a "performance assessment" mechanism will ensure that resources that are obligated as part of an LSE showing perform adequately, defined by their accredited reliability value. Resources that perform below their accredited reliability value during hours of system scarcity would be financially penalized, while resources that perform higher than their accredited reliability value may receive compensation (paid for through

underperforming resource penalties). A mechanism with these characteristics is required by SB3, which directs ERCOT to "develop appropriate qualification and performance requirements… including appropriate penalties for failure to provide the services." This mechanism is more fully described in the *LSE Reliability Obligation* whitepaper at p. 28.

2. **Increasing the quantity of resources available for ERCOT to dispatch.** The LSE Obligation will ensure investment in sufficient resources to meet any specified reliability target. Even the best operational strategy is inadequate if there are insufficient resources. Investment in new and existing resources will be driven by the ability of these resources to generate reliability certificates, which in turn will be based on their ability to perform during scarcity conditions. This will ensure these resources will be able to contribute during cold weather events, during periods with higher-than-expected electricity demand, and during periods with lower-than-expected renewable generation.
3. **Improving the reliability attributes of existing and future resources.** Resources with characteristics that increase their reliability value (such as on-site fuel storage, energy storage with longer durations, compliance with winterization standards) will be accredited a higher reliability value than resources that lack these characteristics. This market signal will incentivize LSEs to invest in these characteristics as an economic option to satisfying their LSE obligation, improving their availability to meet operational needs.

12. *What mechanism will ensure those receiving revenue streams for the reliability services perform adequately?*

Please see response to Question 11.

13. *What is the estimated market and consumer cost impact if an LSE obligation is implemented in ERCOT? Describe the methodology used to reach the dollar amount.*

In order to maintain sufficient generation to ensure reliable operations, all market reforms must provide enough revenues to keep existing generators in operation and to incentivize investment in new generation when needed. Compared to other reforms, the LSE Obligation would not impose any additional costs on ERCOT and may provide net benefits by avoiding loss-of-load events. This can be seen by considering three scenarios:

1. If ERCOT has surplus generation, there will be an oversupply of reliability certificates and the cost to LSEs of procuring certificates will be very low.
2. If ERCOT has or might have insufficient generation, the LSE Obligation will provide financial incentives to maintain existing generation and invest in new generation, providing net benefits by avoiding loss-of-load events. The PUCT should set the reliability standard at the point where the marginal cost of adding resources is equal to marginal benefit in the form

of reduced loss-of-load, ensuring that any costs for existing or new generation caused by the LSE Obligation are more than offset by the reliability benefits.

3. Under equilibrium conditions, where ERCOT has the societally optimal quantity of generation, all market designs would produce equivalent generator revenues – the revenues needed to ensure sufficient quantity of existing and new generation.

14. How long will the LSE Obligation plan take to implement?

Implementing the LSE Obligation will likely require a minimum of one year and a maximum of two years to fully develop the program and all necessary capabilities. The following components must be addressed in fully implementing the LSE Obligation. The first two components are undertakings required by SB3 and should be completed regardless of the adoption of the LSE Obligation. The final three components, which are inherent to the LSE Obligation, can be conducted in a parallel process to the first two components.

- **Determine ERCOT reliability standard**
- **Calculate resource accreditation values**[7]
- **Develop methodology to determine individual LSE obligations**
- **Determine forward showing requirement structure**
- **Determine performance assessment structure**

Finally, market participants must have time to act on any new rules or market designs that result from the implementation of the LSE Reliability Requirement. To the extent that new reliability resources are needed to avoid compliance penalties, these resources will take time to develop. However, it is important to note that to the extent that additional resources are needed to meet a specified reliability standard, all market design reforms must allow for time for these resources to be developed.

15. If the Commission adopts an LSE Obligation, what assurances are necessary to ensure transparency and promote stability within retail and wholesale electric markets?

[7] A robust resource accreditation process that uses industry best practices (such as the effective load carrying capability metric - ELCC) would be a significant improvement over the current heuristics employed in the existing CDR/SARA process that quantifies renewable resource contribution toward the ERCOT planning reserve margin. ERCOT has already began to explore the ELCC metric in public studies. https://www.astrape.com/?ddownload=9248

The LSE Obligation will promote stability in the retail and wholesale markets by ensuring sufficient resources to avoid loss-of-load events and reducing the severity and frequency of extreme price excursions. That said, there are a number of steps the Commission could take to ensure transparency and promote stability in the retail and wholesale market after the adoption of an LSE Obligation. These might include:

- **Make transactions transparent:** This could either be done by publishing a bulletin board of all transactions of reliability certificates or it could be done by publishing an anonymized annual report that summarizes the average transaction price (with min and max range) to protect the confidentiality of individual market participants.
- **Implement strong market monitor controls:** Protecting against generator withholding through strong market monitor controls is the most important way to promote stability and ensure that ERCOT can achieve reliability at the lowest possible cost. See responses to questions 6 for more info on these topics.
- **Provide offramps:** The compliance penalty associated with an LSE deficiency in reliability resources represents the maximum impact that the LSE Obligation could have on any LSE. Limiting the compliance penalty or reducing it in extreme circumstances could provide LSE protections in the event that the market is exhibiting characteristics of instability.

16. *Are there relevant "lessons learned" from the implementation of an LSE Obligation in the SPP, CAL-ISO, MISO, and Australian markets that could be applied in ERCOT?*

Reliability standards and LSE obligations in other markets have evolved over time as system needs have changed. ERCOT would be well-served by utilizing the lessons learned in these other markets. Examples of key lessons and learnings include the following:

- **Development of appropriate resource accreditation values:** As the penetration of renewable and storage resources increases, there is a growing recognition of the need to accurately and robustly quantify the contribution that these resources can make to reliability. Both the CAISO and MISO markets have implemented the effective load carrying capability (ELCC) metric to quantify the reliability contribution of wind and solar and SPP will have implemented the ELCC metric by 2023.
- **Performance penalties:** Other markets have significant experience with establishing and levying performance penalties, and the penalty regimes have evolved over time.
- **Market power mitigation measures:** Other markets have years of experience developing and implementing measures to mitigate the potential abuse of market power.
- **Forward procurement for reliability:** Markets have developed a wide array of forward procurement protocols including different forward requirement timeframes and different quantities that must be procured at different forward timeframes.

- **Trigger Mechanism:** To limit disruption to the energy markets during periods of resource sufficiency, the Australian Energy Regulator has the authority to "trigger" a retailer reliability obligation (RRO).

It should be noted that while there are many examples and lessons to learn from other markets, there are also many significant differences between Texas and other markets. There have been several suggestions that the LSE Obligation would impose a "California-like" reliability structure in Texas. However, the LSE Obligation is different from the resource adequacy structure in California for several reasons. Unlike Texas, California doesn't have an active retail market, and many of the costs of procuring capacity are borne by "Central Procurement Entities" such as the investor-owned utilities and allocated to other market participants using regulatory mechanisms. While California's resource adequacy program requires California market participants to contract with existing capacity, new procurement is ordered by the Public Utilities Commission through its Integrated Resource Planning (IRP) proceeding subject to cost allocation by the Commission.

Unlike California, the proposed LSE Obligation puts the onus squarely on retail electricity sellers to procure enough resources to meet their customers' share of the systemwide need, and allows them the freedom to decide for themselves how to meet their obligation. However, there are some ways in which California is similar to Texas: neither jurisdiction has a forward-looking reliability standard, and both have suffered rotating blackouts in the past two years.

II. CONCLUSION

E3 and Ms. Garza appreciate the opportunity to provide these responses and look forward to providing any additional support that might be helpful.

Respectfully submitted,

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ATTACHMENT A: E3/GARZA EXECUTIVE SUMMARY – PROJECT 52373, NOV. 1, 2021

Energy and Environmental Economics, Inc. ("E3") and Ms. Beth Garza appreciate the opportunity to provide feedback on the market design questions issued in this project on October 26, 2021. E3 and Ms. Garza were retained by NRG Energy Inc. and Exelon Corporation to provide unbiased, independent analysis of ERCOT market design and provide recommendations for practical reforms that can improve reliability while retaining the core aspects of ERCOT's existing competitive electricity market. The culmination of this work was the submission of the *Load-Serving Entity Reliability Obligation* whitepaper to the PUCT on September 30, 2021. This submission provides responses to questions directly related to the Load-Serving Entity Reliability Obligation (i.e. "LSE Obligation"). A summary of the key messages contained in the full responses are as follows:

Market Power

There are several constructive approaches to the mitigation of market-power abuses the Commission might consider. These include transparently reporting all bilateral transactions that occur, requiring that all large generators make offers on a bulletin board or through a residual auction, and the submission of Voluntary Mitigation Plans. In short, an LSE Obligation can be designed to protect against the abuse of market power, just as measures have been put in place to mitigate abuse of market power for other markets and products. Unlike energy, a just-in-time product, generators will be more naturally limited in their ability to abuse market power under a forward LSE Obligation because LSEs will always have the incentive and ability to contract for new resources, including demand response, if the cost of procuring reliability from existing resources is too steep.

Customer Choice

An LSE Obligation will positively impact customer choice in the competitive retail market by forestalling the biggest threat to retail choice in Texas, which is an unreliable system that creates political pressure for re-regulation. Additionally, as a purely physical requirement, the LSE Obligation is minimally intrusive on LSE hedging activities; it is designed to provide LSEs with maximum flexibility to hedge energy prices based on their own risk tolerance.

Reliability Assessment

Methods to assess the reliability of electricity systems, including the contribution of emerging technology classes such as renewables, storage, and demand response, is a well-established field of study that is utilized in every restructured North American electricity market. These industry-standard practices provide a wealth of literature and experience that ERCOT can draw upon for its own reliability assessment and resource accreditation exercises in the LSE Obligation.

Demand Response and Industrial Self-Supply

Participation of demand response is critically important to reduce the need to procure reliability services and is a key feature of the LSE Obligation. Customers that can curtail or self-supply all of their load at any time would be entirely exempt from the LSE Obligation. Customer resources with meaningful limitations would go through ERCOT's accreditation process and be credited against the LSE Obligation. LSEs benefit from demand response through a reduced LSE Obligation and are the best entities to seek out and prioritize demand response resources due to their relationships with customers.

Impact on Municipal and Cooperative Utilities

Municipal and cooperative utilities that already procure sufficient resources to meet the reliability requirements of their system would be minimally impacted by the LSE Obligation.

Investment in New and Existing Resources

Under an LSE Obligation, LSEs are *required* to procure reliability attributes from generators on a one-year forward basis, with the quantity of attributes determined through ERCOT's accreditation process. This stands in contrast to other reform proposals which continue to rely on the *hope* that the market will invest in dispatchable generation. The LSE Obligation provides a direct, stable financial incentive for existing generators to invest in improving their availability. If the system is deficient, this also provides a stable source of revenue for new generators that does not depend exclusively on infrequent and difficult-to-predict periods of high energy prices.

Real-Time Operational Reliability

An LSE Obligation is consistent with improvements to real-time operational reliability by 1) Increasing the quantity of resources available for ERCOT to dispatch 2) Improving the reliability attributes of existing and future resources and 3) Creating a performance assessment mechanism to ensure real-time operational reliability.

Costs and Benefits

In order to maintain sufficient generation to ensure reliable operations, all market reforms must provide enough revenues to keep existing generators in operation and to incentivize investment in new generation when needed. Thus, all reforms that achieve similar reliability would have similar costs. The LSE Obligation may provide benefits by avoiding loss-of-load events.