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**REVIEW OF WHOLESALE ELECTRIC
MARKET DESIGN**

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**PUBLIC UTILITY COMMISSION
OF TEXAS**

**COMMENTS OF
ADVANCED ENERGY MANAGEMENT ALLIANCE**

The Advanced Energy Management Alliance (AEMA) files these Comments in response to the Commission's Questions for Comment filed on September 2, 2021.¹ These comments represent the views of the organization as a whole rather than those of any individual member.

Introduction

Loads participating in demand response (DR) can contribute to higher reserve margins and levels of reliability, improve market efficiency, and result in lower energy costs to customers than relying entirely on generating resources to meet total demand. Demand response (DR) is also a relatively short lead-time resource, compared to conventional generation. DR benefits other electric customers, by reducing demand, helping bring supply and demand for electricity into equilibrium, thereby avoiding or reducing the likelihood of involuntary interruptions of customers' service. In addition, DR can address market power issues by providing additional competition to generation resources. The existing DR programs are handicapped by cost and price caps and program rules that limit the level of DR that is available to provide these benefits.

Comments

- 1. Describe existing and potential mechanisms for residential demand response in the ERCOT market.**
 - a. Are consumers being compensated (in cash, credit, rebates, etc.) for their demand response efforts in any existing programs today, and if not, what kind of program would establish the most reliable and responsive residential demand response?**
 - b. Do existing market mechanisms (e.g., financial cost of procuring real time energy in periods of scarcity) provide adequate incentives for residential load serving entities to establish demand response programs? If not, what changes should the Commission consider?**

Residential consumers are rarely compensated at a level commensurate with the value they provide to the grid by participating in demand response programs, mainly because aggregators are not appropriately

¹ AEMA is a trade association under Section 501(c)(6) of the Federal tax code, whose members include national distributed energy resource companies and advanced energy management service and technology providers, including demand response providers, and some of the nation's largest demand response and distributed energy resources and consumers.

compensated for delivering these resources and thus cannot provide commensurate incentives to their customers. First, there are cost caps established by 16 T.A.C. § 25.507 for Emergency Response Service (ERS) and the load-management (LM) program operated by transmission-distribution utilities (TDUs) under 16 T.A.C. § 25.181 that do not mirror prices during a market shortage.² Second, DR providers that are not load-serving entities (LSEs) do not have a mechanism to readily capture the energy value of the DR they deploy through their customers' loads. A retail electric provider (REP) or a non-opt-in entity (NOIE) can capture the energy value of a load reduction because the load reduction is reflected in a lower obligation to ERCOT for energy consumed in the real-time market. There is, however, no mechanism in ERS, the TDU LM program, or the ancillary services (AS) market for a non-LSE DR provider to capture these energy benefits.

A DR provider, or aggregator, operating under ERS or the TDU LM program is paid by ERCOT or the TDU to provide load reductions when called upon. These payments are well below the system-wide energy cap in the wholesale market. For example, the ERS auction nets aggregators of weather-sensitive loads about \$13.58/kW for this summer. This means that the cost of a two-hour dispatch at the bid cap exceeds the total value of an aggregation of the same amount of capacity as paid to ERS participants *for the entire season*. While TDU LM programs are incrementally more lucrative, at about \$32/kW, those prices have decreased steadily over the last five years and they still fall well below the avoided cost of \$80/kW established by the PUCT³. Neither of these shortfalls can be made up with energy market revenue because a DR provider does not receive an energy payment under these programs.

Some LSEs, both REPs and municipal utilities (MOUs), offer DR programs for their residential customers. The programs developed by CPS Energy and Austin Energy compensate customers fairly and utilize direct load control resources, such as smart thermostats, effectively. For instance, Austin Energy is currently offering customers an \$85 incentive to join their Power Partners demand response program plus a \$25 rebate.

Technical requirements can also be an impediment to providing DR in the energy markets. Residential resources can theoretically participate as an Aggregate Load Resource (ALR) in the real-time energy or AS markets through a REP or MOU, but not through a third-party aggregator, which has no mechanism to monetize all the value of the program. Telemetry requirements are also a barrier to ALR participation (*e.g.*, 2-second telemetry, which is impractical for aggregated small loads as the cost of meters for small BTM resources greatly outweighs any benefits).

² See 16 T.A.C. § 25.507(b)(2); the load management program is capped by avoided capacity and energy costs, 16 T.A.C. § 25.181(d)(2), (3), and a program cost cap, 16 T.A.C. § 25.182(d)(7).

³ Memo from Theresa Harris, Avoided Cost of Capacity and Energy for the 2021 Program Year (Nov. 3, 2020), Project No. 38578 - Energy Efficiency Implementation Project under 16 TAC § 25.181(q).

AEMA recommends the following as means to address these barriers to residential DR:

- Develop a mechanism to compensate DR providers for the energy value of a deployment mandated by ERCOT or the TDU, which would permit them to participate in the AS and real-time energy markets;
 - Ensure that the energy values of such deployments are commensurate with the market value of energy in a shortage situation;
 - Increase the program cost caps for ERS and the TDU load-management programs; and
 - Work with ERCOT to develop effective but lower-cost telemetry methods for aggregations of small DR resources.
2. **What market design elements are required to ensure reliability of residential demand response programs?**
- a. **What command/control and reporting mechanisms need to be in place to ensure residential demand response is committed for the purpose of a current operating plan (COP)?**
 - b. **Typically, how many days in advance can residential demand response commit to being available?**

Current procedures are sufficient to measure a resource's DR capability. Residential DR, especially when enabled by distributed technology, such as smart thermostats, is extremely reliable. As AEMA described in its August 16 comments, DR has assisted grid response to a variety of extreme events, including hurricanes, heat waves, and solar eclipses. Load resources are also capable of being extremely responsive and flexible, responding to events in a matter of minutes, because DR actions can be triggered remotely by a REP, TDU, or aggregator without requiring direct customer action. While we are not opposed to defining additional appropriate and reasonable command/control and reporting mechanisms, we are concerned that overly prescriptive and onerous requirements will impede the growth of DR. Current procedures, such as annual test events in ERS and the TDU programs and basic statistical methods to estimate a weather sensitive baseline and load shed measurement, are sufficient to measure and confirm the available level of demand response for the purpose of a COP.

3. **How should utilities' existing programs, such as those designed pursuant to 16 TAC §25.181, be modified to provide additional reliability benefits?**
- a. **What current impediments or obstacles prevent these programs from reaching their full potential?**

We have outlined an initial set of obstacles and recommendations to overcome them in Question 1. The TDU and ERS Weather-Sensitive Load (WSL) programs are still relatively small. These programs could expand both by converting more existing Distributed Energy Resource (DER) owners to participants, and by growing the number of Behind-the-Meter (BTM) DERs purchased and installed by customers. The TDU LM programs could drive adoption of enabling technologies, such as thermostats, by stacking energy

efficiency and DR benefits. Additionally, the TDU programs operate only in the summer, which is inconsistent with ERCOT's concern for energy shortages in all seasons. In addition to the recommended actions in the response to Question 1, AEMA supports the following:

- The Commission should set reliability-related DR goals in addition to the current program goals. For example, the Commission could adopt a goal of acquiring emergency reliability-responsive DR programs of at least 10% of system peak load.
- The TDUs should consider adding a winter program for electric heating, compensating aggregators and customers for this additional resource.

4. Outside of the programs contemplated in Question 3, what business models currently exist that provide residential demand response?

a. What impediments or obstacles in the current market design or rules prevent these types of business models from increasing demand response and reliability?

AEMA believes that the regulatory framework provides inadequate opportunities for the DR resource that is needed for reliability. Apart from the NOIE utility DR programs, the business models that currently exist compensate customers at rates that fall short of the \$80/kW avoided cost established by the Commission. In the short-term, increasing the available budget for TDU programs and ERS would increase the level of DR on the grid. Increased budgets will both “uncap” the existing programs to allow for higher participation and enable aggregators to pay customers for the true value that DR provides to the grid.

For the long-term, AEMA encourages the Commission to develop energy market products such as a day-ahead non-spin AS that load control technology can easily and effectively deliver and for which non-LSE aggregators can be adequately compensated. This AS could incorporate services that residential DR can provide: ramping, load following, load shifting, and local grid support. Such a product would require that the Commission address the barriers that presently prevent residential DR from participating in the existing ancillary services market, such as stringent real-time telemetry and the lack of a mechanism to compensate non-LSEs for the value of energy reductions.

5. What changes should be made to non-residential load-side products, programs, or what programs should be developed to support reliability in the future?

Two near-term changes would be to expand both ERS and TDU LM budgets and modify the compensation mechanism to recognize the full value of deploying DR. This would immediately harness additional DR capacity to support grid reliability and halt artificial suppressing of enrollment.

The ERS is under-funded due to the \$50 million program cap. AEMA would recommend that this program provide energy payments and that the cap be increased to \$200 million. Raising the ERS cap while adding an energy payment to the existing base payment would align the ERS with the energy market. This structure is effective in PJM's Emergency Load Response Program, which provides a base payment (\$18,250/MW-yr most recently) plus an energy payment equivalent to the greater of the local marginal

price or the strike price, which is capped at \$1,849/MWh. This change to ERS could enable it to reach its full potential, which AEMA estimates would be at least 15% of peak load, or ~10 GW.⁴

The TDU LM program would similarly benefit from a budget increase. In addition to expanding the TDU LM budgets, the Commission should add a winter option for the TDU LM program. February's winter storm showed that DR response is needed in the winter as well as the summer as grid dynamics change, and spring and fall present challenges as well.

As the Commission looks at expanded grid services, including new AS for reliability, DR should always be included as a resource capable of providing those services. New products created to enhance reliability should not be structured with barriers that prevent resources like DR and storage from participating. In addition, Load Resources (LR) should be permitted in non-spin AS products. Today, there is a much higher level of LR offered into the Responsive Reserve market (about 4000 MW) than actually selected (about 1500 MW). Thus, there is significant DR capacity that can provide reliability enhancement that is not being utilized. Finally, on the economic front, Texas should examine how non-LSEs can aggregate load performance and bid into ERCOT's real-time energy market to allow more seamless market participation.

AEMA would also recommend hastening the adoption of the ERCOT Contingency Reserve Service, which will allow demand response to participate in spinning reserve without an expensive under-frequency relay. This product has been delayed from 2022 to 2024.

Conclusion

AEMA appreciates 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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⁴ This is based on recent data that other wholesale demand response programs provide between 7-11% of peak demand; ERCOT's could be significantly higher given its large C&I load and higher energy prices. See FERC, *2020 Assessment of Demand Response*, at 20 (Dec. 2020). https://cms.ferc.gov/sites/default/files/2020-12/2020%20Assessment%20of%20Demand%20Response%20and%20Advanced%20Metering_December%202020.pdf.

Executive Summary

Providers of DR services face major obstacles from inadequate funding for the programs in which residential DR is an option. This issue arises from cost caps for ERS and the TDU load-management program, and actual prices in the LM program well below the caps established by Commission rules for energy and capacity and well below the ERCOT system-wide offer cap. In addition, DR providers that are not LSEs do not have a mechanism to capture the energy value of the DR they deploy through their customers' loads. AEMA believes that the incentive for REPs to offer residential DR is not sufficient to provide the amount of DR needed in the wholesale market, and that non-LSE aggregators have a major role to play in providing this service. Telemetry requirements are also an impediment for small, aggregated loads to participate as Aggregate Load Resources (ALRs) in the real-time energy or AS markets. AEMA recommends the following measures to address these barriers to DR:

- Develop a mechanism to compensate DR providers for the energy value of a load deployment mandated by ERCOT or the TDU.
- Ensure that the energy values of such deployments are commensurate with the market value of energy in a shortage situation.
- Increase the program cost caps for ERS and the TDU load-management programs.
- Set reliability-related DR goals for the TDU load-management program, in addition to the current program goals. For example, adopt a goal of acquiring emergency reliability-responsive DR programs of at least 10% of system peak load.
- Work with ERCOT to develop effective but lower-cost telemetry methods for aggregations of small DR resources.
- Modify the TDU load-management program to include winter operations.