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PROJECT NO. 52373

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

PROJECT NO. 52268

CALENDAR YEAR 2021 – WORKSHOP AGENDA ITEMS WITHOUT AN ASSOCIATED CONTROL NUMBER	§ § § §	**PUBLIC UTILITY COMMISSION OF TEXAS**

COMMENTS OF EV.ENERGY CORP

EXECUTIVE SUMMARY:

Residential customers (and third-party aggregators) are being compensated for Demand Response (DR) services at significantly lower levels than the value that they actually provide to the Texas grid and wholesale energy market. This is especially true of residential customers with EVs, who lack any standalone program to participate in DR despite the inherent flexibility in residential EV charging. EVs are also uniquely beneficial as an extremely reliable grid because managed EV charging is completely immune to weather-sensitivity, and can be leveraged as a flexible resource year-round.

We believe the Commission should set a specific goal of developing residential DR programs that total at least 10% of system residential peak load. In addition, the Commission should explore increasing the budget for both the ERS and the TDU programs. Finally, the Commission should continue to explore advanced energy market products such as demand-side ancillary services that have requirements suitable for distributed energy resources.

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COMMENTS OF EV.ENERGY CORP

INTRODUCTION:

EV.ENERGY CORP ("ev.energy") appreciates the opportunity to provide responses to the set of questions posed by the Texas Public Utilities Commission ("PUCT" or "Commission") on September 2, 2021 in the Project No. 52373 proceeding as the Commission considers how to further incorporate residential demand response into the wholesale market. Ev.energy previously filed comments in the same docket in response to an August 2, 2021 ruling, and is encouraged that the Commission seeks to augment the record on the capabilities of demand response. We reiterate here our support for any effort to improve the market for residential demand response ("DR"), where market opportunities lag far behind the number of potential distributed resources (including over 50,000 electric vehicles ("EVs") in Texas, representing as much as 550 MW of controllable load).[1] In our comments we focus specifically on the opportunities for EVs to be leveraged as a flexible DR resource, although we also believe that our comments can be broadly applicable to all enabling technologies.

COMMENTS:

1. Describe existing and potential mechanisms for residential demand response in the ERCOT market.

[1] Estimates of electric vehicle registrations are available at https://afdc.energy.gov/data/10962.

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?**

Our experience is that in Texas, residential customers (and third-party aggregators) are being compensated at significantly lower levels than the value that they actually provide to the Texas grid and wholesale energy market. This is especially true of residential customers with EVs, who lack any standalone program to participate in DR despite the inherent flexibility in residential EV charging: data from ev.energy's platform of over 25,000 EVs shows that the average residential EV is plugged in for 15 hours at a time, but only requires 3 hours of charge. This flexibility in scheduling a charge allows aggregators like ev.energy to harness EVs to deliver a range of grid services, including reliable load shifting[2], demand response curtailment[3], and renewable generation alignment[4].

The existing mechanisms for residential DR are only able to capture a fraction of the actual value an EV can provide. For example, ERCOT's Emergency Response Service ("ERS") has a budget cap that disincentivizes aggregators from increasing participation (since the greater the participation, the lower the incentive), with the incentive level itself already well below a meaningful value (AEMA noted that "the ERS auction is netting aggregators of weather sensitive loads about $13.58 per kW this summer.")[5] We understand that TDU programs for DR also exist, but are likewise limited in budget and capacity. Furthermore, both of these programs are DR-centric programs that do not utilize other benefits and products that EVs can provide.

An even smaller proportion of LSEs offer *any* demand response program, much less programs for EVs. This is perhaps unsurprising, as REPs would need to justify developing these programs primarily as

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[2] ev.energy currently shifts up to 97% of EV loads to network off-peak hours for Madison Gas & Electric

[3] In partnership with Leapfrog Energy, ev.energy currently delivers about 1.4 kW of load curtailment per EV in response to ERCOT ERS dispatch events.

[4] Ev.energy currently aligns up to 50% of EV loads with hours of high renewable generation in California, charging residential EVs with up to 70% lower-carbon electricity vs. unmanaged charging.

[5] See August 16, 2021 "Comments of Advanced Energy Management Alliance" in Project No. 52373, at p. 8.

a way to hedge against high-price periods while managing residential customer churn in and out of their service. MOUs, that do not face customer churn challenges, have to their credit developed more robust demand response products.[6] However, we are skeptical that REPs will be incentivized to develop a program like this given the current business models and customer churn complications.

To address the lack of existing market mechanisms to generate widespread demand response programs, we believe the Commission should focus its attention on incentives that will incorporate technologies capable of automating participation into the energy market. Technologies with automated capabilities (such as smart EV charging) have two benefits over other forms of demand response. First, these technologies are reliable and responsive because the customer does not have to take *any* action in order for the technologies to respond to market signals. Second, many of these technologies already provide energy efficiency ("EE") benefits, and so tying these technologies to both energy efficiency and demand response will create the greatest value-stack for the customer. To that end, we suggest that the Commission continue to explore advanced energy market products such as demand-side ancillary services that have requirements suitable for distributed energy resources ("DERs"). These energy market products could be aggregated and bid by either REPs or third-parties, and by participating customers would be empowered to derive both EE and DR value from their automating technologies.

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?

Residential demand response that is fully automated, such as managed EV charging, can serve as an extremely reliable grid resource. This reliability is a function of how ev.energy has developed its managed charging program to be a set-it-and-forget-it, but rewarding, approach for residential end-customers. A customer participates with ev.energy in its managed charging program by first connecting

[6] See, for example, CPS Energy's FlexEVs program.

their EV to the service through a suite of Application Programming Interface ("APIs") that connect to both the vehicle itself (via vehicle telematic systems) and/or the car charger (aka the networked Electric Vehicle Supply Equipment ("EVSEs")). Once connected, ev.energy can provide demand response services by receiving dispatch signals from grid operators, utilities, or retailers and using its vehicle telematics and EVSE APIs to curtail charging on all connected devices to deliver demand reductions and load-shifting during specified windows. Beyond demand response, ev.energy can also actively manage the customer's charging and schedule it for off-peak hours on their time-of-use rate, as well as re-dispatch EV charging for periods of high renewable generation. These actions, and the rewards for these actions, are catalogued through an award-winning mobile app. Importantly, the app also gives the customer full control over their charging, including allowing temporary customer overrides or opt-outs (notably, these opt-outs only occur for, on average, 5% of all event participants).

Unlike other load types participating in DR markets, EVs have the benefit of being completely immune to weather-sensitivity because the load draw (and therefore the load drop potential) will be exactly the same year-round, regardless of the weather conditions. Therefore, demand response enabled by EVs can readily respond to a day-ahead notification.

Ev.energy does caution that command/control requirements have historically been developed with large generators in mind, and the associated operational requirements should reflect the small load of each EV. Requirements such as telemetry and metering intervals to the minute or lower should not be applicable to these aggregations, because the cost of incorporating such controls far outweighs the benefit.

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?**

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?**

The answer to Question 3 and Question 4 is largely the same - program incentives need to be tied to the specific product the Commission seeks to incentivize, and these incentives need to be substantially higher than the status quo.

The existing TDU programs designed under 16 TAC §25.181 are, to our understanding, primarily energy efficiency programs. While we have noted above that many enabling technologies provide both EE and DR benefits, that does not mean that these technologies should be compensated *solely* for their EE benefits (as is effectively the case now). As we suggested in our August 16 comments, the Commission would benefit by setting a demand response-specific goal of developing residential DR programs (including EV-specific managed charging programs) that total at least 10% of system residential peak load. This goal could be extended to TDUs, who will also see benefits from increased load flexibility on the grid by incorporating more managed charging.

In addition, the Commission should explore increasing the budget for both the ERS and the TDU programs. Increased budgets will allow these programs to adjust the incentives and pay fair market value for the provided energy. In addition, increased budget also raises the overall market potential of these programs and can accommodate the significant growth in customer and aggregator participation that is needed to fully unlock the potential of demand response.

CONCLUSION:

Ev.energy thanks the Commission and all other parties for thoughtful consideration of its comments. We look forward to continuing to engage with stakeholders on how to grow the market for residential demand response. Please contact me with any questions.

Dated: September 9, 2021

Sincerely,

Joseph Vellone

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