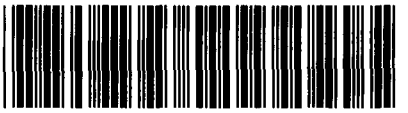

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PUC PROJECT NO. 49125

REVIEW OF ISSUES RELATING TO ELECTRIC VEHICLES	§ §	**PUBLIC UTILITY COMMISSION OF TEXAS**

INITIAL COMMENTS OF TEXAS-NEW MEXICO POWER COMPANY

Texas-New Mexico Power Company ("TNMP") submits these comments on this project to review issues relating to electric vehicles.

Initial Statement and General Comments

TNMP appreciates the opportunity to comment on the rulemaking project to review issues relating to electric vehicles. TNMP readily provides the following comments to the questions proposed by Commission Staff and looks forward to participation in the scheduled workshop on this project.

General Data

1. **The Commission requests that parties provide current data sources and projections for the expected deployment of electric vehicles in Texas over the next ten years. If available, the data sources should attribute the projections by vehicle class (i.e. personal, commercial short-haul including fleets and buses, and commercial long-haul electric vehicles.)**

   RESPONSE: Please see the Emerging Technology scenario presented in ERCOT's 2018 Long-term System Assessment for the ERCOT Region, December 2018.[1]

2. **Please provide any current data sources and information on the expected amount of new load attributable to electric vehicles over the next ten years. If available, the data**

[1] http://www.ercot.com/news/presentations/2018

sources should attribute this load by vehicle class (i.e. personal, commercial short-haul including fleets and buses, and commercial long-haul electric vehicles.)

RESPONSE: Please see the Emerging Technology scenario presented in ERCOT's 2018 Long-term System Assessment for the ERCOT Region, December 2018.[2]

3. **Please identify any anticipated loud "hot spots" in the state for electric vehicle charging. Please specify whether these hot spots are expected to result from personal, commercial short-haul, or commercial long-haul electric vehicle deployment and charging.**

RESPONSE: TNMP has not yet identified any specific "hot spots" in its service territory.

4. **Describe the observed or anticipated load profiles and impacts of various types of electric vehicle charging stations (e.g., residential Level 1, Level 2, and Level 3 DC Fast charging) and the class of vehicle charging (i.e. personal, commercial short-haul including fleets and buses, and commercial long-haul electric vehicles).**

RESPONSE: TNMP has not been able to identify load profile impacts that it can attribute solely to electric vehicle growth in its service territory. However, it can anticipate some system characteristics based on the type of charger installed. Level 1 charging is a simple 120V plug/ cable, and the charger is internal to the electric vehicle. The typical power draw for a Level 1 charger is under 2 kW, and is comparable to a small single phase appliance load or blow dryer. Due to the long charging time (up to 20 hours), the total charge kWh is spread over a long time period. Since the load is so small, there are really no power quality concerns for this particular charging level.

Likewise, Level 2 chargers are also not actually external chargers. Such chargers act as a simple AC switch that feeds line voltage to the electric vehicle, which has its own internal charger. Level 2 charger is the highest power charger available for residential and light

[2] *Id.*

commercial use delivering between 6kW and 19kW of power. This rate allows for vehicle charging in around four hours. Widespread deployment of Level 2 chargers in residential areas, has the potential for adding significant extra load to the distribution system. Power quality and voltage regulation on the distribution system, can be challenged. This is especially true when Level 2 charging is not spread over an extended time period. TNMP expects that installation of multiple residential Level 2 charging station on a single existing distribution transformer, will require an upgrade of the existing distribution transformer.

Finally, Level 3 charging installations can consume between 20kW and 120kW. The load profile for such electric charging stations resemble a typical convenience store load. TNMP will require site specific studies for each proposed electric charging.

5. **What, if any, emerging vehicle charging technologies are anticipated to be commercially available in the next ten years that could impact electricity markets in Texas?**

RESPONSE: TNMP does not have sufficient data to conclude the commercial availability of any new electric vehicle charging technology. The Company is aware that "vehicle-to-grid" solutions are emerging.

Grid Impacts

6. **The Commission requests that parties provide a detailed explanation on the following items:**

   a. **The anticipated impacts of electric vehicle charging, including residential and commercial charging stations on the distribution system in the next ten years;**

   b. **The anticipated impact of electric vehicle charging stations on the transmission system in the next ten years; and**

   c. **The anticipated impact of electric vehicle charging stations on long-**

term system planning at the regional transmission organization level, given a widespread adoption scenario.

RESPONSE: TNMP does not anticipate significant impacts to either its distribution or transmission systems. As described above, residential and light commercial charging using either Level 1 or Level 2 charging is expected to resemble normal load growth. Level 1 charging can take 20 hours to complete compared to Level 2 chargers which may complete a charge within 4 hours. The quicker charging Level 2 chargers will pose power quality and voltage regulation challenges as the number of Level 2 solutions increase. Thus, Level 2 charging is more likely to require system upgrades to manage increased demand in particular locations. At a minimum, TNMP anticipates that installation of multiple residential/small commercial Level 2 charging stations on a single existing distribution transformer will require an upgrade of the existing distribution transformer.

Finally, Level 3 charging station consumer significantly more power. Each Level 3 station places a load equivalent to a standard convenience store on the system. The increased load requirements for Level 3 stations necessitates site specific studies for each proposed electric charging stations.

7. **What is the overall anticipated impact of electric vehicle charging in the next ten years in terms of energy and peak demand? What changes, if any, should be made to energy and peak demand forecasts to incorporate this impact?**

RESPONSE: TNMP anticipates that electric vehicle charging will resemble normal load growth. TNMP Planning and Load Forecasting includes normal load growth in its planning

8. **What are the capabilities of electric vehicle related technologies, such as vehicle-to-grid, to participate in wholesale electricity markets?**

RESPONSE: TNMP has not had any direct experience with "vehicle-to-grid" technologies in its service territory. This particular concept envisions electric vehicles being plugged into the grid to sell demand response services by either returning electricity to the grid or by throttling their charging rate.

9. **Please explain any preferred or best practice facilities siting and design standards for commercial electric vehicle charging stations and why such standards are recommended**

RESPONSE: Siting of an end-use customer's charging station is customer driven with the location often governed by a desire to balance vehicle access while preserving other uses of the customer's property. For instance, placement of the charging station on the edge of a parking lot so that parking is maximized while still providing the vehicle-charging amenity. From a utility's standpoint, siting selected by the end-use customer is typically acceptable so long as it will not interfere with the utility's safe access to its facilities.

Conclusion

TNMP appreciates the opportunity to respond the questions proposed in this Project.

Respectfully submitted,

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