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Comments on EV

Additional submitted attachment is included below.

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To: Noel Crisostomo, California Energy Commission
From: Commissioner Catherine Sandoval, California Public Utilities Commission
Re: Comments on Vehicle-Grid Integration Communications Standards, 16-TRAN-01

Ex Parte filing of Catherine J.K. Sandoval, Commissioner, California Public Utilities Commission, in her individual capacity as a Commissioner, in California Energy Commission Docket Number 16-TRAN-01.

Dear Mr. Crisostomo,

Congratulations on the truly groundbreaking Joint Agency Workshop held at the California Energy Commission, December 7, 2016, on Vehicle- Grid Integration Communications Standards. These comments are filed in my individual capacity as a CPUC Commissioner, and not on behalf of the Commission. California, under the leadership of Governor Jerry Brown, continues to lead the way for greenhouse gas emissions reduction through transportation electrification. The Joint Agency Workshop showcased the teamwork of California's sister agencies to navigate the path forward for our state utilities and industry partners eager to access new, cleaner, greener markets here and globally. I write to underscore the importance of communications standards as well as access to communications facilities and services to electric vehicle access and expansion.

Electric vehicles are the new frontier for the electric grid, alongside all other Distributed Energy Resources (DERs). EVs require access to both our electric system to exchange electricity and a communications network in order share data with the electric grid and grid managers. EVs will provide electric grid services only when the data describing those services are communicated, tracked, managed, and rewarded.

As electric charging locations have developed from a simple plug into the wall to charging stations capable of communicating the needs of the grid to a mobile vehicle with transactive energy potential, it's important to ensure that these signals are standardized to enable rapid proliferation. As the December 7th workshop discussed, communications standards are key for vehicle-grid integration. Adoption of communications standards will enable development of rapid electric vehicle proliferation in California.

The Federal Communications Commission's 1968 Carterfone decision provides a model for both interconnection and standardization. In that decision, the FCC decided to allow the Carterfone to interconnect to the public switched telephone network (PSTN) which carries calls. Today, the PSTN enables both voice and data communications. This decision opened the door for "any lawful device" using a standard "protective coupler" to access the communications network, resulting in the proliferation of an open market within a regulatory construct. Innovation in "lawful devices" included modems! Modems opened the original door to the Internet. This decision standardized our preliminary way to easily access the internet. Look how far we have come since then. Standardizing the communications protocol for electric vehicles to access utilities through charging infrastructure will similarly enable technology proliferation.

Please consider the following comments in furtherance of this goal:

The CPUC and CEC most recently and successfully collaborated on the development of utility communication standards in the Smart Inverter Working Group (SIWG). This herculean multi-year effort took place because no consensus then existed on standards sufficient to meet California's ambitious renewable energy and greenhouse gas emission reduction goals. These efforts resulted in the Phase II recommendations for three pathways for utilities to communicate with distributed energy resources (DERs), including Electric Vehicles, (AB 327).

Utilities will communicate with EVs through any of the three pathways described by the SIWG as adopted in D. 16-06-052, and integrated into Electric Tariff Rule 21 through advice letter filings: 1) utilities with individual DER systems, 2) utilities with Facility DER Energy Management Systems (FDEMS) which manage DER systems within a facility, plant, and/or microgrid, 3) utilities and retail energy providers (REP)/ Aggregators/ fleet operators which manage and operate DER systems at various facilities. (D. 16-06-052, Electric Tariff Rule 21). Utility signals to the EV charging connection, the point-of-coupling, will use the SEP 2, IEEE 2030, communications profile.

Since EVs are mobile, they may move from one charging facility to another. Standards that are capable of clearly defining the electrical connection point, the vehicle charging station, will help solve the unique challenges with the integration of EVs to the electric grid. Communications facilities, services, and standards are key to assessing the impact of EVs on the grid, harnessing EVs as a grid resource, and to including EVs in a transactive energy market.

As California stands on the precipice of incorporating communications pathways into the electric utilities, the next step will be to ensure that EVs, no matter where they are located, can communicate with utilities and grid managers via any of the three pathways. To investigate how utilities receive signals to date and how to better understand the current state of art for electric utilities operations today, Energy and Water Division of the CPUC have both issued data requests to learn about the communications facilities and services that today enable monitoring, energy management, control and visibility.

Communications facilities and services are essential to vehicle-to –grid integration, monitoring, and markets. No vehicle-to-grid market can emerge unless communications facilities, services, and standards enable their visibility and control. Indeed, no transactive energy market is feasible without communications facilities, services, and standard communications protocols. Standards enable adoption, proliferation, and reduce costs to participate in the market.

I encourage efforts to promote EV communications standards to open the door to innovation. The CPUC looks forward to engaging with Energy Commission to enable expedient vehicle-grid integration.

Catherine J.K. Sandoval

Commissioner

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