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PGE Comment Letter_Joint Agency Workshop - Accelerating EV Charging Infrastructure Deployment and Grid Integration

Good Afternoon,

Attached is Pacific Gas and Electric Company's comment letter to the October 12th Joint Agency Workshop. Should you have any questions, please do not hesitate to contact us.

Thank you,
Jennifer Privett

Additional submitted attachment is included below.



Licha Lopez
CEC Liaison
State Agency Relations

1415 L Street, Suite 280
Sacramento, CA 95814
(202)903 4533
Elizabeth.LopezGonzalez@pge.com

November 24, 2021

California Energy Commission
Commissioner Patty Monahan
Docket Number 21-TRAN-03
715 P Street
Sacramento, CA 95814

Re: Pacific Gas and Electric Company Comments on the Joint Agency Workshop on Accelerating Electric Vehicle Charging Infrastructure Deployment and Grid Integration (Docket Number 21-TRAN-03)

Dear Commissioner Monahan,

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide comments and response to the questions posed to the panelists during the joint agency workshop on October 12, 2021, on accelerating electric vehicle (EV) charging infrastructure deployment and grid integration hosted by the California Energy Commission (CEC), the California Public Utilities Commission (CPUC), and the Governor's Office of Business and Economic Development (GO-Biz).

PG&E applauds the effort by the joint agencies to accelerate the deployment of charging infrastructure and to provide a place to discuss solutions, best practices, and mutual learning from different perspectives on the topics of electric vehicle supply equipment (EVSE) permitting, rate structures for public charging, interconnection, and EV grid integration.

PG&E offers the following answers to the questions posed to the third panel on opportunities for accelerating EVSE interconnection and EV grid integration:

1- Are grid interconnections a major barrier to EVSE deployment?

Frequently, the term "grid-interconnection" has been used to refer to two separate requirements. In California regulated utility parlance, we used the term "grid-interconnection" to refer to a generator or storage device interconnection under Electric Rule 21 in which an "interconnection agreement" is required.¹ The interconnection agreement is required when the customer will be exporting energy to the grid. In these instances, support for the additional capacity must be evaluated and, if found wanting, upgraded. Several operational safeguards may also need to be put in place. These upgrades and safeguards can be a time-consuming effort and there are currently efforts underway to simplify the process (e.g., see CPUC Decisions 19-03-013, 20-09-035 and 21-06-002 from the latest Rule 21

¹ California Public Utilities Commission, Electric Rule 21, Generating Facility Interconnections (Pacific Gas and Electric), 2018.

proceeding R. 17-07-007). Note, because of the back-feed to the grid, this effort is different than those required for current EVSE deployment in which the infrastructure is used unidirectionally to charge vehicles.

The term “grid interconnection” has sometimes been used by non-utility parties to refer to the effort required to provide a new electrical service for load usage at a residential or commercial site. In these cases, excepting ones in which the energy will be exported to the grid, this does not require involvement from the utility’s interconnection team. The time required to interconnect new electrical service varies based on several factors. These include the amount of energy that is required for the new service, the available capacity at the site, and in certain cases, the amount of grid upgrades that will be required to provide the additional capacity. This is addressed mainly in California Regulated Utility Electric Rules 2, 3, 15, 16 and 29 (for EV), but may be addressed in other utility tariffs as well. Additionally, the time for new service connection can be impacted by dependencies (e.g., permitting, land rights, etc.) that tend to be outside of the utility’s control.

2- How can utilities streamline and shorten service interconnection timelines?

PG&E is ready and eager to support EV infrastructure deployment and is continuously improving the service upgrade and new service connection processes for EVSEs. It should be noted that EVSEs with bidirectional capabilities will need to go through interconnection; current EVSEs, which are unidirectional, do not need to go through interconnection. The timelines for service upgrade, new service connection or interconnection (where generation is involved) are highly dependent on each project’s design, location, and any extenuating circumstances related to permitting, inspection, or work on the customer’s side of the meter. PG&E works to deliver service interconnections within expectations set forth on the [PG&E Service Planning and Design: EV Customer Roadmap](#) available on PG&E’s website under EV Fleet Programs.²

To help the utility effectively plan for and execute service (new or upgraded service) or interconnections for EVSEs, it is critical that customers engage by submitting an application to PG&E a minimum of six months in advance of desired construction completion date of the charging station. Larger and more complex projects may require more lead time. Information from customers about their near-term and long-term transportation electrification (TE) plans significantly helps the utility to prepare for the upcoming TE load and streamlines the interconnection process when the project application materializes. At a minimum, the following information from customers regarding their TE infrastructure and load plans is needed:

- Type(s) of vehicles
- Number of vehicles by fuel type (especially battery-electric vehicles (BEVs))
- Levels of charging anticipated
- Location(s) (where vehicles park)
- Location(s) of expected initial infrastructure deployment (<2 years)

Regarding the interconnection timeline, and per the draft resolution for Rule 29, there are often significant delays on the customer side that the utility cannot control such as land rights, permitting, and

² [PG&E Service Planning and Design: EV Customer Roadmap](https://www.pge.com/pge_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/ev-fleet-program/PGE-EV-Fleet-Customer-Roadmap.pdf), Pacific Gas and Electric Company, 2021 (https://www.pge.com/pge_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/ev-fleet-program/PGE-EV-Fleet-Customer-Roadmap.pdf).

passing inspections, which is complicated by inconsistencies between multiple jurisdictional permitting authorities (local/state/federal).³ These delays frequently add many months to a project. It is PG&E's understanding that this may be investigated further in the Order Instituting Rulemaking to modernize the electric grid for a high-distributed-energy-resources future (R.21-06-017).⁴

Population growth and other factors bring situations in which PG&E does not have the capacity to serve a forecasted load, thus requiring either substation and/or circuit work. These infrastructure upgrades are multi-year projects, and this work will become increasingly common as the EV market grows. To date, PG&E has not had a funding mechanism for proactive capacity upgrades. Such a funding mechanism could allow PG&E to proactively prepare the grid ahead of EV market growth, and reduce the time needed to serve new loads that would have otherwise required substation and/or circuit work.

To bring online a smaller site (a handful of chargers, for instance), the average timeline from customer request to completed construction is between six and nine months. Larger sites require a scope and timeline that can be much longer: 12-24 months on average. If major capacity work is needed, then projects can take two to three years to be fully ready to serve the forecasted load. In these instances, PG&E may be able to serve a partial load and ramp up overtime, but each site is unique. Thus, the utility's ability to anticipate and address capacity bottlenecks before customers request specific service is crucial to speeding up interconnection timelines.

3- How can EV charging be integrated into the grid to minimize impacts and maximize benefits?

Several strategies are being employed to minimize impacts and maximize benefits. The first strategy is to encourage customers to enroll in and adhere to time-of-use (TOU) rates to discourage EV charging when demand is likely to be high and encourage charging when energy supply greatly exceeds demand. Encouraging the use of smart chargers that can respond to TOU, demand events, and potentially to real-time pricing provides more opportunities for optimizing EV charging. The increased use of real-time rates is also being considered to better match supply and demand.

Another strategy that PG&E has deployed is Automated Load Management (ALM), which reduces a customer's energy load requirements, and is designed to reduce the size of the electrical panel and/or avoid other behind-the-meter (BTM) infrastructure upgrades. This load reduction, which is managed with ALM technology installed by the customer, is done either statically, by capping EV charging capacity at a pre-set level for each port, or dynamically, via power sharing among chargers. In effect, ALM can be used to reduce the customer's peak load, minimizing impact to the grid and in some cases, eliminating the need for utility distribution upgrades.

4- What are top actions state agencies and utilities can take to accelerate vehicle-grid integration and ensure EV load harmoniously enters the grid?

One action state agencies and utilities could take to accelerate vehicle-grid integration is to shift incentives to change customers' behavior. Decreasing incentives for non-networked chargers, while increasing incentives for smart networked chargers will help to accelerate vehicle-grid integration.

³ California Public Utilities Commission, Draft Resolution E-5167 to establish new Electric Vehicle (EV) Infrastructure Rules and associated Memorandum Accounts, pursuant to Assembly Bill 841, October 2021.

⁴ California Public Utilities Commission, Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future (Rulemaking 21-06-017), 2021.

Beginning in 2022, we anticipate an increasing number of vehicles and EVSE will support bidirectional charging. Providing additional incentives to lower the premium cost of bidirectional chargers will significantly increase their adoption rate and should be targeted to drivers purchasing bidirectionally capable vehicles such as the Nissan Leaf, Volkswagen ID.4 (starting in 2022), and the Ford F-150 Lightning, etc.

PG&E has proposed four Vehicle to Everything (V2X) pilot projects in our Advice Letter (AL) 6259-E requesting approval for our Vehicle to Grid Integration (VGI) pilots, currently under consideration by the CPUC, and focused on advancing the pace of adoption of this equipment while also developing pathways to make them economically sustainable for ratepayers.⁵

Networked chargers will also help commercial electric vehicles take advantage of new real-time pricing tariffs such as the day-ahead hourly real-time-pricing rate proposed by PG&E for commercial electric vehicles.⁶ This will allow these vehicles to lower their cost of fuel, as well as increase their overall resiliency.

PG&E appreciates the time and effort that the joint agencies took to organize this workshop, as well as the opportunity to provide comments and to respond to some of the questions posed during the panels. Please do not hesitate to contact me if you have any questions.

Sincerely,

Licha Lopez
CEC Liaison

⁵ Pacific Gas and Electric Company, Advice Letter 6259-E to California Public Utilities Commission, July 15, 2021.

⁶ California Public Utilities Commission, Application of Pacific Gas and Electric Company (U 39 M) for Approval of its Proposal for a Day-Ahead Real Time Rate and Pilot to Evaluate Customer Understanding and Supporting Technology, Application No. 20-10-011, Filed October 23, 2020.