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Additional submitted attachment is included below.



Public Advocates Office California Public Utilities Commission

505 Van Ness Avenue
San Francisco, California 94102
Tel: 415-703-1584

<http://www.publicadvocates.cpuc.ca.gov/>

THE PUBLIC ADVOCATES OFFICE COMMENTS ON THE VEHICLE-GRID INTEGRATION ROADMAP UPDATE PROPOSED APPROACH, FRAMEWORK, AND TOPICS

September 21, 2018

The Public Advocates Office at the California Public Utilities Commission (CPUC), formerly the Office of Ratepayer Advocates,¹ appreciates the opportunity to comment on the Vehicle-Grid Integration (VGI) Roadmap Update outline and looks forward to further involvement in its development. Overall, the Public Advocates Office supports the goals and issues outlined in the VGI Roadmap Matrix of Goals spreadsheet (Matrix).² The Public Advocates Office suggests including the following topics in addition to or as part of those outlined in the Matrix: (1) an analysis of VGI costs; (2) utility and aggregator communications systems; (3) data gathering through currently implemented programs; (4) leveraging work from other agencies, such as the Integration Capacity Analysis (ICA) in the Distributed Resource Plans (DRP) proceeding at the CPUC;³ and (5) ensuring all relevant industries, including automakers and utilities, are involved in the VGI Roadmap process going forward. These recommendations are discussed below.

In addition to evaluating the benefits and value of VGI, as outlined in the Matrix, the Public Advocates Office recommends evaluating the costs of VGI development, particularly in terms of utility and aggregator communications systems. California's major investor-owned utilities (IOUs) have already applied for funding, or are considering applying for funding, in their respective General Rate Case (GRC) proceedings at the CPUC for upgrades to their communications systems and other grid modernization infrastructure.⁴ Thus, it is essential to consider the IOUs' costs and other development assumptions for their communications systems.

¹ The Office of Ratepayer Advocates was renamed the Public Advocates Office of the Public Utilities Commission pursuant to Senate Bill No. 854, which was signed by the Governor on June 27, 2018 (Chapter 51, Statutes of 2018).

² California Vehicle-Grid Integration Roadmap Matrix of Goals and Issues Barriers
<http://www.energy.ca.gov/transportation/vehicle-grid-integration/documents/index.html>

³ California Public Utilities Commission Rulemaking 14-08-013

⁴ SCE requested an extensive suite of grid and communication upgrades in its Test Year (TY) 2018 GRC, A.16-09-001. See SCE's Grid Modernization request, Exhibit SCE-2, Volume 10 and Information Technology (IT) request, Exhibit SCE-4, Volume 2, Section V.B. A proposed decision in this case is pending. SDG&E's TY 2019 GRC, A.17-10-007/008 also requested funding for upgrades, as summarized in a table in its rebuttal testimony, Exhibit SDG&E-253, p. TR-3. This request is currently in the briefing stage of the proceeding. PG&E received an extension of time to file its TY 2020 GRC application. PG&E held a workshop on June 25, 2018 to discuss its intended Grid Modernization Plan relative to DER, but this high-level presentation did not include specific costs and is subject to change. PG&E's TY 2017 GRC, A.15-09-001, requested upgrades on specific circuits based on forecast DER growth (Exhibit PG&E-4, Chapter 13, Section B.3.c.), and new communication investments including

Additionally, the Matrix should include evaluation of interoperability of the communications system between the vehicle, charger, and utility (in terms of sending signals between the devices, similar to the issues discussed in the VGI Communication Protocol Working Group). It is also critical to assess whether communications systems are comprehensive. This means determining whether the communications system as a whole is able to send or process data needed for VGI and determining whether any additional technological or infrastructure costs to enable this functionality are included in the VGI analysis.

As mentioned in the Matrix, there are many pilots and programs that have been or will soon be implemented involving electric vehicle infrastructure with various levels of VGI. To the extent that VGI methods and strategies need to be tested, the Public Advocates Office recommends gathering this data through the ongoing and currently implemented programs rather than initiating new pilots. A central, public database for this information would help streamline VGI analysis conducted as a part of this roadmap, as well as other statewide studies on the impacts and opportunities of electric vehicle charging.

Another tool that could potentially aid the work of the VGI Roadmap group is the IOUs' grid-wide ICA maps, currently in the final stages of development in the DRP proceeding at the CPUC.⁵ The ICA maps should provide information on how much distributed energy resource hosting capacity may be available on the distribution network down to the line section or node level with no significant upgrades. This could provide insight into the distribution grid for analysis, both on VGI impacts as well as optimal leveraging of VGI.

Lastly, because VGI involves and impacts so many industries, the Public Advocates Office emphasizes that having all relevant stakeholders involved in the VGI Roadmap moving forward is invaluable. It is essential to involve automakers, utilities, electric vehicle supply equipment providers, aggregators, consumer advocates, the California Independent System Operator, state agencies, and other relevant stakeholders in this process. The Public Advocates Office looks forward to participating in future discussions on these issues and the proposed VGI Roadmap workshop.

a Field Area Network (FAN) for communication throughout its distribution system (Exhibit P&GE-7, Chapter 9, Section B.3.a.1.)

⁵ California Public Utilities Commission Rulemaking 14-08-013