

**BEFORE THE PUBLIC UTILITIES COMMISSION OF
THE STATE OF CALIFORNIA**

Application of Pacific Gas and Electric Company
(U39M) for Approval of its Proposal for a Day-Ahead
Real Time Rate and Pilot to Evaluate Customer
Understanding and Supporting Technology.

Application 20-10-011
(Filed October 23, 2020)

REPLY BRIEF OF THE VEHICLE GRID INTEGRATION COUNCIL

July 23, 2021

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The Vehicle-Grid Integration Council (VGIC) respectfully submits this Reply Brief in Application (A.) 20-10-011. By A.20-10-011, Pacific Gas and Electric Company (PG&E) requests approval of its proposal for a Day-Ahead Hourly Real Time Pricing (DAHRTP) Rate and Pilot to evaluate customer understanding and supporting technology for access to a dynamic EV charging rate. This Reply Brief is timely filed and served pursuant to the Commission’s Rules of Practice and Procedure (Rule 13.12) and the Administrative Law Judge’s (ALJ’s) Ruling setting the due date for Reply Briefs for today, July 23, 2021.¹

1. Enel-X correctly identifies deficiencies in PG&E’s proposal with regard to credits for exports

In its Opening Brief, Enel X argues that the Commission’s decision in this case should “take into account the possibility that the Commission may authorize, sometime prior to pilot launch or over the course of the pilot, export compensation pathways for non-NEM, behind-the-meter resources.”² VGIC agrees, noting that: 1) compensation for V2G was one of the key recommendations in the VGI WG final report,³ and 2) developments have occurred since PG&E’s application that have increased the technical potential and likelihood for V2G capabilities in the

¹ Reporter’s Transcript (RT) at 389, ll. 24-25 (ALJ Sisto).

² Enel X, Opening Brief at 34.

³ *Final Report of the California Joint Agencies Vehicle-Grid Integration Working Group*. June 30, 2020. <https://gridworks.org/wp-content/uploads/2020/07/VGI-Working-Group-Final-Report-6.30.20.pdf>

near future. This includes a variety of recent product announcements, as well as advancements in the process for V2G interconnection.

Enel X goes on to argue that this compensation could be authorized through a future proceeding, such as focusing on the Energy Division's recently announced Proposed Roadmap for DER & Flexible Management. While this may be one potential pathway, VGIC believes that it is not the only pathway. In fact, given the pace of advancements in V2G capabilities, the need for an export compensation mechanism may come well before the resolution of such a future proceeding. Additionally, VGIC sees no reason why exports for non-NEM customers cannot be considered by the Commission, at least in part, in the current proceeding. The remainder of this Reply Brief elaborates on why such consideration is necessary and warranted now.

2. PG&E's application is incomplete because it hasn't fully considered the real possibility that a non-NEM customer who is also a Pilot participant may seek to export power to the grid

While PG&E's application sufficiently details how NEM customers would be compensated for exports, it is completely devoid of any information on how non-NEM customers would be compensated for similar exports. When asked about this, PG&E's witness could only state that he "can't speak to the rules on exports by non-NEM customers."⁴

Furthermore, PG&E's witness on the matter of export compensation appeared completely unfamiliar with recent developments that have removed remaining technical barriers for vehicle-to-grid ("V2G") interconnection.⁵ This includes the CPUC's Decision No. 20-09-035, which established rules for V2G interconnections to occur under the Rule 21 interconnection process. These rules have recently been implemented by PG&E through an advice letter submitted on May 28, 2021.⁶ Thus, there is theoretically no impediment for a Pilot participant to request and receive an exporting interconnection for a V2G-capable system. Finally, there are already a limited number

⁴ RT at 164, lines 17-18.

⁵ RT at 161, line 24, through 162 line 13.

⁶ Advice Letter 6209-E. May 28, 2021. https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_6209-E.pdf

of commercially available products that have V2G capabilities.⁷ Beyond these, many more commercial products have also been announced in recent months that are expected to be available while the pilot is in operation.⁸

As such, there is a very real possibility that non-NEM Pilot participants could obtain exporting interconnections to pursue V2G opportunities. However, these participants would be left wondering what compensation rate – if any – PG&E would offer them for the exported energy.

3. There is no fundamental reason why exports from non-NEM customers should be treated differently from PG&E’s proposed approach for exports from NEM customers.

In PG&E’s testimony in support of its compensation for NEM exports, it stated that “the [DAHRTP] rate rider substitutes one set of generation rates for another.”⁹ Thus, it appears that PG&E views the “generation only” subcomponent of rates as being somewhat interchangeable

⁷ Bidirectional Capable Vehicles on the Road Today: Nissan LEAF Model Year 2013 and later (requires EVSE with V2G-DC functionality) <https://cleantechnica.com/2018/11/29/nissan-using-vehicle-to-grid-technology-to-power-us-operations>, Blue Bird electric buses, Mitsubishi i-MiEV and Outlander <https://www.theverge.com/2019/3/6/18252883/mitsubishi-dando-drive-home-power-battery-electric-car-plug-in-hybrid>.

Examples of deployed bi-directional projects: Fermata Energy <https://www.fermataenergy.com/news-press/new-partnership-combines-electric-carsharing-with-vehicle-to-grid-technology-alliance-center-colorado-carshare-fermata-energy>, Nuvve Corporation and BlueBird <https://nuvve.com/blue-bird-v2g-electric-bus-with-nuvve-and-illinois-school-districts/>. See also announcement from Rhombus Energy Solutions: https://www.prweb.com/releases/rhombus_energy_solutions_announces_ul_1741sa_certification_for_its_ac_dc_high_power_conditioning_systems_for_fleet_electric_vehicles/prweb17308158.htm.

⁸ See, for example, the following automotive manufacturers: Audi <https://electrek.co/2020/07/24/audi-bi-directional-charging-electric-cars-store-solar-energy/>, Daimler <https://www.axios.com/electric-school-buses-vehicle-to-grid-power-19f7b6b1-662b-4501-a96e-dcf3fd57a886.html>, Ford <https://www.ford.com/trucks/f150/f150-lightning/2022/?intcmp=hp-bb-f150-lightning>, Lucid Motors <https://www.autoblog.com/2020/08/19/lucid-air-ev-charging-v2g-300kw-900v-electrify-america/>, Proterra <https://www.raconteur.net/infrastructure/v2g-school-buses/>, and Volkswagen <https://electrek.co/2021/04/06/vw-electric-vehicles-bi-directional-charging-next-year/>.

See also the following EV supply equipment companies: ABB <https://cleantechnica.com/2020/10/14/11-kw-bi-directional-abb-chargers-coming-to-france-uk-germany-italy-belgium/>, Dcbel <https://cleantechnica.com/2020/08/02/ossiaco-has-built-the-one-home-solar-inverter-to-rule-them-all/>, and Wallbox <https://electrek.co/2020/01/06/wallbox-quasar-tesla-nissan/>

⁹ Direct Testimony of Tysen Strieb, Page 2-15 line 30 through 2-15 line 2.

between tariff options. If this is the case, there is no reason why PG&E’s proposal for exports should not be extended to include the exports from non-NEM customers. VGIC recognizes that there is a long, complex, and contentious policy history surrounding the *total* compensation for exports for NEM customers. However, these issues should not complicate treatment of the “generation only” subcomponent, which is what PG&E has proposed for export compensation in this case. By linking the export compensation to generation as PG&E has done, there is no risk of potential cross-subsidies associated with the fixed delivery cost component of rates. Therefore, VGIC contends that it would be equally appropriate to apply this approach for any exporting Pilot participant, regardless of whether they are a NEM customer. Technically, this would be simple to implement since, as with NEM, during the exporting interval PG&E’s meter would simply record a negative value and this negative value could readily be applied to the hourly DAHRTP rate. This is fundamentally the same way that exports for Pilot participants that are NEM customers would be treated, as explained by PG&E.¹⁰

4. Encouraging V2G exports can benefit grid reliability

Broad-based adoption of V2G capabilities through a credit-for-export scheme could essentially double the contributions of EVs and EV Service Providers (“EVSPs”) towards meeting net load relative to simple managed charging (V1G) approaches. Thus, export credits serve as an essential building block for unlocking a potentially valuable grid resource from EVs that can help avoid rotating outages during heat storms. From a long-term resource planning perspective, if California meets its EV deployment forecasts, then there will be the equivalent of thousands of MWs of batteries sitting in garages over the next few years that could be leveraged at relatively low cost to help meet summer net peak load. This could in turn displace the costs of other more expensive generation resources -- especially in location constrained areas. However, this will only happen if there is a clear incentive for exports to be compensated such that the V2G capability is embedded in the EV/EVSP equipment manufactured over the coming years and the business models developed by EV/EVSP companies.

¹⁰ RT at 163, line 3, through 164, line 9.

5. Other venues for addressing V2G exports may not proceed in a timely enough manner to provide fair compensation for near-term V2G opportunities

As mentioned above, Enel X's Opening Brief discussed other potential venues for authorizing export compensation.

VGIC is cognizant that there are V2X pilot programs that have been recently developed by PG&E as part of the DRIVE OIR proceeding.¹¹ However, these are inherently limited efforts that may not necessarily overlap with the customers targeted in this case and may not necessarily address export compensation mechanisms. VGIC is also well aware of the possibility that a UNIDE framework proceeding could ultimately become a way to address V2G export compensation. However, this framework is likely to be developed over the course of several years before a meaningful compensation scheme is in place. Meanwhile, there are V2G capable vehicles that are driving today, and more V2G capable models will be available imminently. Thus, the Commission should consider all avenues to provide near term resolution on export compensation issues, even if they are ultimately superseded.

If no resolution is provided in this proceeding, the Commission will simply be perpetuating the "chicken and egg" problem that has delayed deployment of valuable V2G resources. That is: EV/EVSE customers are unlikely to pursue V2G interconnection without a clear value proposition, and meanwhile, the Commission will not seek to timely resolve V2G compensation issues due to a lack of customers seeking V2G interconnection. Thus, lack of fair compensation for V2G can become a self-fulfilling prophecy.

Meanwhile, the Commission has not provided a clear signal regarding where V2G compensation issues should be resolved. In the DRIVE OIR proceeding, D.20-12-029 included supportive language on the general concept of credit-for-exports stating that "exploration of such a scheme should be pursued."¹² However, no tangible steps were identified regarding how such a scheme should be pursued, by when, and in which proceeding. This Decision also referenced the current Net Energy Metering ("NEM 3.0") proceeding (R.20-08-020) as a potential venue to explore

¹¹ Advice Letter 6259-E: *Request for Approval of PG&E's VGI Pilots in Compliance with Decision 20-12-029*. https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_6259-E.pdf

¹² Decision 20-12-029 at 32.

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M355/K794/355794454.PDF>

compensation for EV exports, however as VGIC and other Joint Commenters had previously noted, the Scoping Ruling issued in the NEM proceeding did not include consideration of exports from EVs. Since there is currently no venue for exploring broad-based compensation for V2G exports, it can only be addressed in piecemeal fashion through proceedings such as this one.¹³

6. VGIC recommends that the Commission require PG&E to offer the same export credit to any participant as it is offering to NEM customers.

Consistent with the reasoning established above, VGIC recommends that the Commission offer the same export credit to non-NEM pilot participants as it does to NEM customers.

In the alternative, if the Commission decides the record in this case is not developed enough to support this outcome, then VGIC recommends that the Commission require PG&E to file a supplemental application in 6 months that specifically addresses export credits for non-NEM V2G Pilot participants.

7. Conclusion

VGIC appreciates the opportunity to submit this reply brief. We look forward to further collaboration with the Commission and stakeholders on this initiative.

Respectfully submitted,



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July 23, 2021

¹³ Note pending advice letters from PG&E and SCE indicate that Rule 21 Exporting DERs (Subgroup A.3) with a Permission to Operate will be eligible for compensation for exports under the new Emergency Load Reduction Program. However, the methodologies to measure incremental load reduction for the purposes of settlement are still in development.