

PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco CA 94102-3298



Pacific Gas & Electric Company
ELC (Corp ID 39)
Status of Advice Letter 6637E
As of August 12, 2022

Subject: Justification for PG&E's V2X Pilot 2 (Commercial Fleets Pilot)

Division Assigned: Energy

Date Filed: 07-01-2022

Date to Calendar: 07-08-2022

Authorizing Documents: E-5192

Disposition:	Accepted
Effective Date:	08-11-2022

Resolution Required: No

Resolution Number: None

Commission Meeting Date: None

CPUC Contact Information:

edtariffunit@cpuc.ca.gov

AL Certificate Contact Information:

Stuart Rubio
(415) 973-4587
PGETariffs@pge.com

PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco CA 94102-3298



To: Energy Company Filing Advice Letter

From: Energy Division PAL Coordinator

Subject: Your Advice Letter Filing

The Energy Division of the California Public Utilities Commission has processed your recent Advice Letter (AL) filing and is returning an AL status certificate for your records.

The AL status certificate indicates:

- Advice Letter Number
- Name of Filer
- CPUC Corporate ID number of Filer
- Subject of Filing
- Date Filed
- Disposition of Filing (Accepted, Rejected, Withdrawn, etc.)
- Effective Date of Filing
- Other Miscellaneous Information (e.g., Resolution, if applicable, etc.)

The Energy Division has made no changes to your copy of the Advice Letter Filing; please review your Advice Letter Filing with the information contained in the AL status certificate, and update your Advice Letter and tariff records accordingly.

All inquiries to the California Public Utilities Commission on the status of your Advice Letter Filing will be answered by Energy Division staff based on the information contained in the Energy Division's PAL database from which the AL status certificate is generated. If you have any questions on this matter please contact the:

Energy Division's Tariff Unit by e-mail to
edtariffunit@cpuc.ca.gov

July 1, 2022

Advice 6637-E

(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

Subject: Justification for PG&E's V2X Pilot 2 (Commercial Fleets Pilot)

Purpose

To provide additional information related to Pacific Gas and Electric Company's (PG&E) Vehicle-to-Everything (V2X) Commercial Pilot (Pilot 2), as directed by Resolution (Res.) E-5192.

Background

On July 15, 2021, PG&E filed Advice Letter (AL) 6259-E, proposing four V2X pilot programs, including the V2X Commercial Pilot (Pilot 2). The V2X Commercial Pilot targets the adoption of bidirectional medium- and heavy-duty vehicle (MHDV) fleets through customer incentives.

On May 5, 2022, the California Public Utilities Commission (Commission) issued Res. E-5192, approving Pilot 2 with modifications and requesting additional information to supplement the details and justification for the pilot program. Specifically, Ordering Paragraph (OP) 4 directs PG&E to file a Tier 2 AL to:

1. Justify or reduce the proposed customer enrollment budget and possibly increase the customer incentives budget;
2. Justify up-front equipment purchase incentive levels;
3. Address incentive stacking;
4. Explain the process for vendor qualification and how PG&E will support deployment of open standards that support interoperability and customer choice.

In compliance with OP 4, this advice letter addresses each of these items.

PG&E's Response to Ordering Paragraph 4 of Resolution E-5192**I. Reduction of the Proposed Customer Enrollment Budget and Increase of the Customer Incentives Budget of Pilot 2**

Resolution E-5192 states "...PG&E proposed a \$500,000 budget for the commercial fleets pilot enrollment process out of a total budget of \$2,700,000. PG&E provided information in comments on types of customer enrollment tasks but did not explain why the enrollment process for a limited number of fleets with a total of 200 EVs would require this amount of funding. PG&E must justify or reduce the proposed budget for this activity. PG&E may justify in its Tier 2 compliance AL the reallocation of excess enrollment budget to the incentive budget."¹

PG&E recognizes that the enrollment process budget per participant is higher for Pilot 2 than for the V2X Residential Pilot (Pilot 1) approved in Res. E-5192. Pilot 1's enrollment process budget on a per participant basis is \$750 per participant, while Pilot 2's enrollment process budget on a per participant basis is \$2,500. Pilot 2's enrollment process budget is higher because there are more complexities with enrolling commercial customers than residential customers, and Pilot 1 (being larger) will offer more economies of scale.

The complexities of enrolling commercial customers in a vehicle-grid integration pilot include the following:

1. Tendency to have multiple electric vehicles or chargers per electrical meter or per site.
2. Tendency of commercial customers to have more complex rates (i.e., those with demand charges).
3. Tendency of commercial customers to have more complex metering or submetering requirements within a single site.
4. Tendency for different parties to be involved in operating the electric vehicle, the charger, and the site, thus making account holder identification more challenging.

In contrast, residential customers tend to only have one vehicle and one charger per meter or site, simpler rates and metering, and the homeowner or renter and vehicle and charger owner/operator tend to be the same entity. More funding is needed to enroll and manage commercial customers than residential customers because of the increased time to be needed to process commercial customer enrollment and incentive applications compared to residential customers.

¹ Resolution E-5192, p. 25.

PG&E did a deeper investigation of existing and past PG&E programs. In its review, PG&E found that under CPUC guidance, typical administration costs (including such activities as enrollment, application processing, customer acquisition and marketing, etc.) of running a pilot and/or program should be roughly 10% of a pilot or program's overall budget.² Therefore, PG&E proposes to reduce Pilot 2's enrollment process budget from \$500,000 to \$300,000 and shift the difference of \$200,000 to the Pilot 2 incentives budget (specifically to the upfront incentives), increasing the Pilot 2 upfront incentives budget from \$600,000 (originally proposed in AL 6259-E) to \$800,000. This would increase the upfront incentives available for each Pilot 2 participant. With the newly proposed \$300,000 enrollment process budget for Pilot 2, the cost of enrollment on a per participant basis is now \$1,500 (decreased from \$2,500 per participant). This equates to roughly 10% of the overall Pilot 2 budget (i.e., \$300,000 of \$2.7 million).³

Additionally, PG&E proposes in this advice letter to allow light-duty (LD) fleets to participate in Pilot 2 (per allowance in Resolution E-5192⁴) at a cap of no more than 50% of the total Pilot 2 incentives. This means that LD fleet participants in Pilot 2 cannot capture more than half of the total Pilot 2 incentives, allowing medium and heavy-duty fleets to capture at least 50% of the total incentives, as well. The reason for this is that light-duty vehicles and light-duty vehicle manufacturers will already benefit from the Pilot 1 incentives where light-duty vehicles at residential sites are the focus. While PG&E recognizes the need to study the use case of LD fleets at commercial sites, PG&E wants to ensure that medium- and heavy-duty electric vehicles at commercial sites can capture enough incentives to be studied in sufficient quantity in Pilot 2. Note: all vendors are still subject to the total 40% vendor cap which applies on a per pilot basis.

Furthermore, as light-duty fleets will now be allowed participation in Pilot 2, PG&E proposes to change the upfront incentive structure for Pilot 2 participants to be based on the power level of the DC bidirectional charger that a participant selects to install for their fleet.⁵ With a total Pilot 2 upfront incentive budget of \$800,000 (up from the \$600,000 originally proposed in AL 6259-E), there is more funding and flexibility available to allocate incentives based on the higher costs of higher capacity DC bidirectional chargers.

² As a comparison, for PG&E's recently approved Low Carbon Fuel Standard (LCFS) Resilient Charging Pilot, the budget for enrollment and application processing (the same tasks accounted for in PG&E's V2X Commercial Pilot enrollment process budget) is \$512,000 in total. This equates to roughly 11% of the overall pilot budget.

³ Note: the enrollment process budget excludes costs for customer acquisition and marketing.

⁴ Resolution E-5192, p. 24.

⁵ Justification for the costs of the upfront incentive for each power-level of DC charger is provided in the following section (Section II: Justification for Upfront Equipment Purchase Incentive Levels of Pilot 2).

PG&E proposes changing the upfront incentives available to participants in Pilot 2 as follows:

- **Up to \$2,500** (or **\$3,000** for participants in Assembly Bill (AB) 841 Prioritized Communities) for participants that purchase & install a 3-phase DC bidirectional charger less than 50 kW; and
- **Up to \$4,500** (or **\$5,000** for participants in AB 841 Prioritized Communities) for participants that purchase & install a 3-phase DC bidirectional charger greater than or equal to 50 kW.

In summary, PG&E believes with both the \$200,000 reduction of the Pilot 2 enrollment process budget and further justification for the additional costs of enrolling commercial customers over residential customers, that the remaining \$300,000 (now proposed) for the enrollment budget is a more accurate estimate for the enrollment and incentive processing costs for Pilot 2 than previously proposed in PG&E's AL 6259-E.

ii. Justification for Upfront Equipment Purchase Incentive Levels of Pilot 2

According to Resolution E-5192, PG&E "...did not justify the up-front incentive levels for commercial EV fleets. PG&E proposes to set these incentive levels for all commercial EV fleet vehicles at the same levels as for passenger vehicles. However, SCE's Transportation Electrification (TE) program indicates that MD/HD charging ports averaged 33-50 kW of capacity in 2020 compared to 6.6 kW for light duty vehicles. PG&E has not explained the incremental cost of V2X capable MD/HD EVSE and the level of up-front incentive necessary to promote adoption."⁶ In the following paragraphs below, PG&E justifies the up-front (and performance-based) incentive levels for Pilot 2.

From PG&E's internal research of the market, PG&E found that the average cost of an alternating current (AC) Level 2 charger (the typical charger that residential customers purchase & install at their homes when purchasing an electric vehicle) is approximately \$650 (excluding installation).⁷ The typical cost of a 1-phase (residential) direct current (DC) bidirectional charger is between \$4,000-\$6,000 (excluding installation). Therefore, the incremental cost for adding bidirectional charging functionality for residential chargers is approximately \$3,350-\$5,350. The total amount of Pilot 1 incentives that customers can earn (including upfront & performance-based) is \$4,675-\$5,175.

⁶ Resolution E-5192, pp. 24.

⁷ ChargePoint has two residential AC Level 2 chargers (called ChargePoint Home Flex) listed on their [website](#) at a cost of \$699.00 (excluding installation). Enel X has several residential AC Level 2 chargers (called JuiceBox) listed on their [website](#) with costs between \$579.00-\$739.00 (excluding installation). ClipperCreek has many residential AC Level 2 chargers listed on their [website](#) with costs ranging from \$329.00-\$1,066.00 (excluding installation).

Accordingly, PG&E's Pilot 1 incentives on average cover the full incremental cost of residential bidirectional charging functionality of DC chargers (excluding installation).⁸

From PG&E's internal research of the market, PG&E found that the average cost of an AC Level 2 charger with a single connector and typical for light-duty commercial fleet customers is approximately \$3,000 (excluding installation).⁹ Through conversations with industry partners, PG&E found that the typical cost of a 3-phase (commercial), "low power" DC bidirectional charger at a power level between 15-30 kW is between \$5,000-\$15,000 (excluding installation). Therefore, the incremental cost for adding bidirectional charging functionality for "low-power" (< 50 kW) commercial DC chargers is approximately \$2,000-\$12,000.

For "high-power" DC chargers, which are typically purchased & installed by medium- and heavy-duty fleets, PG&E found, through conversations with industry, that the typical DC *unidirectional* charger (50 kW) is in the range of ~\$7,000-\$9,000 less than the typical DC bidirectional charger (60 kW) of approximately the same power rating. Therefore, the bidirectional charging functionality for commercial customers with a DC charger greater than or equal to 50 kW adds an approximate \$7,000-\$9,000 to the cost of the DC charger.

As proposed in PG&E's original AL 6259-E, PG&E intended to only cover the incremental cost of the bidirectional charging functionality of a DC charger. However, due to the difference in costs between "low power" DC bidirectional chargers and "high power" DC bidirectional chargers, and the inclusion of light-duty fleets in Pilot 2, PG&E proposes to change the upfront incentives for Pilot 2 participants to be based on the power level of the DC bidirectional charger purchased & installed. This will provide incentives that better reflect the mix of chargers and vehicle types that will potentially participate in Pilot 2. PG&E proposes the following updated upfront incentive structure (allowed by the budget changes proposed in Section I above):

- **Up to \$2,500 (to \$3,000** for participants in AB 841 Prioritized Communities) for participants that purchase & install a DC bidirectional charger less than 50 kW; and
- **Up to \$4,500 (to \$5,000** for participants in AB 841 Prioritized Communities) for participants that purchase & install a DC bidirectional charger greater than or equal to 50 kW.

⁸ Note: PG&E's internal research involved reaching out to future residential DC bidirectional charging manufacturers to survey them on their planned product sale price. However, at the time of interview, none of the companies surveyed had product available for purchase in the California market. Therefore, these estimates are high-level and the "best available" knowledge at the time of program design.

⁹ [CALeVIP Level 2, Average Rebate, Unit Cost, and Total Project Cost Per Connector Installed](#).

PG&E would like to clarify how the Pilot 2 upfront incentives will be paid out: Incentives will be offered based on the total number of chargers (regardless of the number of dispensers each charger has). Every charger must have at least one unique bidirectional EV that can discharge at it to qualify for the per charger incentive¹⁰. Here are a few examples of incentive calculations per this method:

- 1) If a fleet has two 100 kW multi-dispenser chargers with four bidirectional EVs, they would be eligible for two incentives at the ≥ 50 kW incentive level.
- 2) If a fleet has three 25 kW chargers with ten bidirectional EVs, they would be eligible for three incentives at the < 50 kW incentive level.
- 3) If the fleet has ten 25 kW chargers and ten 50 kW chargers with 25 bidirectional EVs, they would be eligible for ten incentives at the ≥ 50 kW incentive level and ten incentives at the < 50 kW incentive level.

In summary, the total amount of Pilot 2 incentives (including upfront & performance-based) customers can earn for those procuring a less than 50-kW “low power” DC bidirectional charger will now be \$6,125-\$6,625 and the total amount of Pilot 2 incentives (including upfront & performance-based) customers can earn for those procuring a 50-kW or greater “high-power” DC bidirectional charger will now be \$8,125-\$8,625. Accordingly, PG&E’s Pilot 2 incentives on average cover the full incremental cost of commercial bidirectional charging functionality for both “low power” and “high power” DC chargers (excluding installation).

The table below summarizes the average customer contribution for bidirectional charging functionality between Pilots 1 and 2 (with the newly proposed upfront incentive structure for Pilot 2 proposed herein). In both Pilots 1 and 2 (with the newly proposed Pilot 2 upfront incentive structure), the customer will have zero cost contribution (on average) for the bidirectional charging functionality of the DC charger.

Table 1: Incremental Costs of Bidirectional Charging Functionality of DC Chargers

Estimated Incremental Cost of Bidirectional Charging (Excluding Installation)	Max Upfront Incentive per Participant	Max Total Incentive (Incl. Upfront & Performance) per Participant	Expected Participant Contribution to Bidirectional Charging Functionality
---	---------------------------------------	---	---

¹⁰ Note: The participant must procure and install both the bidirectional charger and bidirectional EV in the Pilot to qualify for the incentive. Sole bidirectional charger or sole bidirectional EV purchase will not qualify because the participant needs both pieces of equipment in order to perform customer or grid services via discharging.

Pilot 1 – Residential	\$3,350-\$5,350	\$2,500-\$3,000	\$4,675-\$5,175	0%
Pilot 2 – Commercial (< 50 kW DC charger)	\$2,000-\$12,000	\$2,500-\$3,000	\$6,125-\$6,625	0%
Pilot 2 – Commercial (≥ 50 kW DC charger)	\$7,000-\$9,000	\$4,500-\$5,000	\$8,125-\$8,625	0%

In summary, PG&E believes that the upfront incentive levels for Pilot 2 (including the budget changes proposed herein) are appropriate given:

- 1) The change to include LD fleets in Pilot 2 may potentially increase the variety of power levels of DC bidirectional chargers that will be procured & installed in the Pilot;
- 2) PG&E found in further investigation that the incremental cost of bidirectional charging functionality for a “low-power” and “high-power” commercial DC charger is greater compared to that of residential DC chargers; and
- 3) The total incentives of each Pilot are only intended to cover the incremental cost of bidirectional charging rather than the full cost of the charger.

III. Justification of Incentive Stacking

Resolution E-5192 also directed that “PG&E must: ... explain whether the stacking of the pilot incentives with PG&E program incentives would affect the goals and policies of PG&E's existing TE infrastructure programs, and if so how.”¹¹ The resolution also provided that approval is contingent upon PG&E's ability to provide sufficient information and ensure that any stacking of incentives would not unduly impact PG&E's existing TE programs.

The following paragraphs provide justification for the necessity of stacking incentives and explanation on how stacking will not adversely affect the goals of PG&E's existing transportation electrification (TE) infrastructure programs.

When designing the Pilots, PG&E based its upfront and performance-based incentive levels on the ability of participants to capture other PG&E TE infrastructure program incentives. In reflecting on Pilot 2 in particular, the typical cost of a unidirectional 50 kW DC charger is ~\$35,000 (excluding installation).¹² The rebate offered by Pilot 2 for

¹¹ Resolution E-5192, p. 25.

¹² [CALeVIP DC Fast Chargers, Average Rebate, Unit Cost, and Total Project Cost per Charger.](#)

chargers greater than or equal to 50 kW is \$8,125-\$8,625,¹³ significantly less than the typical charger cost. The Pilot 2 incentives were designed based on the premise that PG&E's other TE program incentives could be used to cover the baseline charger costs, while the Pilot 2 incentives were meant to cover only the cost of the bidirectional charging functionality. PG&E believes that if stacking of incentives is ***not*** allowed, then many commercial participants will elect to take part in PG&E's other TE infrastructure programs (i.e., EV Fleet or EV Fast Charge) over Pilot 2 because the rebates & incentives available through those programs are larger.

In the table below, PG&E documents the level of rebates and incentives available from Pilot 2 as well as other PG&E TE infrastructure programs. This table shows that under the EV Fleet program, participants can collect between \$15,000 and \$42,000 for the upfront purchase price of a DC charger depending on the power rating of the charger. The EV Fleet program incentives contemplated only DC unidirectional chargers because the program was designed prior to any substantial market development (pre-2018 era) of DC bidirectional chargers. Therefore, budgeting only for the incremental cost of bidirectional charging functionality in the V2X Pilots makes sense, as this functionality is not currently covered by existing PG&E TE infrastructure programs, while other functionalities, such as the baseline cost for unidirectional charging alone are.

PG&E is also proposing a make-ready EV infrastructure program for L2 and DCFC chargers in both AB 841 and non-AB 841 Prioritized Communities, in Application 21-10-010, called Electric Vehicle Charge 2 (EVC 2). As part of that Application, PG&E requests the ability to integrate V2X capabilities.¹⁴ There may be opportunities for bidirectional chargers for commercial customers to qualify for additional incentives through EVC 2. These same opportunities are not available through PG&E for residential single-family home customers, and, however, the expected customer cost contribution to the non-bidirectional charging portion of the charger is less than that expected from commercial customers.¹⁵ To summarize: PG&E contemplated the current and potential incentive opportunities for customers when selecting appropriate incentive levels for each customer segment in its V2X Pilots.

¹³ \$8,125-\$8,625 is the proposed total incentive level contemplated by this advice letter (and not what has previously been approved which is less per participant).

¹⁴ Pacific Gas and Electric Company's Electric Vehicle Charge 2 Prepared Testimony, pp. 5-6.

¹⁵ There is one PG&E TE program, Empower EV, offering rebates for residential chargers, however, it is not applicable to V2X Pilot participants because the focus of that program is on Level 2 AC chargers and V2X Pilot participants must have a DC charger because the V2X Pilots are focused currently (and solely) on the DC approach to bidirectional charging, which requires a DC charger.

Table 2: Summary of Commercial Segment EV Charger Incentives Offered by PG&E

PG&E Incentive	Incentive Amount	Purpose of the Incentive
V2X Pilot 2 ¹⁶	<ul style="list-style-type: none"> Upfront: Up to \$2,500^(a) for chargers < 50 kW Upfront: Up to \$4,500^(b) for chargers ≥ 50 kW Performance: Up to \$3,625 <p>(a) Up to \$3,000 is offered to participants in AB 841 PCs</p> <p>(b) Up to \$5,000 is offered to participants in AB 841 PCs</p>	To incentivize the procurement of commercial bidirectional EV chargers
EV Fleet	<ul style="list-style-type: none"> Up to 50 kW – 50% of the cost of EV charger, up to \$15,000 50.1 kW – 149.9 kW – 50% of the cost of EV charger, up to \$25,000 150 kW and above – 50% of the cost of EV charger, up to \$42,000 	To incentivize the upfront costs of procuring EV chargers for medium- and heavy-duty vehicles at prioritized sectors which are schools, transit agencies and sites located within DACs
EV Fast Charge	<ul style="list-style-type: none"> Up to \$25,000 per charger for sites in DACs 	To incentivize the upfront costs of procuring EV fast chargers in DAC communities
EVC 2 (proposed)	<ul style="list-style-type: none"> 100% of Behind-the-Meter (BTM) make-ready infrastructure for L2 charging at Multi-Family Housing (MFH) retrofits in AB 841 PCs 90% up to \$12,000 of BTM make-ready infrastructure for L2 charging at MFH retrofits in non-AB 841 PCs and 	To increase adoption of EV chargers at MFH, workplace and public destinations by subsidizing the cost of installing EV chargers (& EV charger hardware)

¹⁶ Note: The incentive levels listed for V2X Pilot 2 are inclusive of the budget changes to the upfront incentive budget of Pilot 2 described herein.

	<p>workplaces/public destinations in AB 841 PCs</p> <ul style="list-style-type: none"> • 100% up to \$4,000 of BTM make-ready infrastructure for L2 charging at MFH new construction in AB 841 PCs and non-AB 841 PCs • 80% up to \$10,000 of BTM make-ready infrastructure for L2 charging at workplaces/public destinations in non-AB 841 PCs • 90% up to \$67,000 for BTM make-ready infrastructure for DCFC at public destinations in AB 841 PCs • 100% of the cost of the L2 charger(s) at Multi-Family Housing retrofits in AB 841 PCs <p>As stated in Testimony, “PG&E will file a Tier 1 AL to notify the Commission of any program modifications to incorporate V2X capabilities in EVC 2 during the program.”¹⁷</p>	
--	--	--

PG&E does not believe that stacking incentives in the V2X Pilots will unduly impact its other TE infrastructure programs. The objectives of PG&E’s TE infrastructure programs are to increase the uptake of EV infrastructure in specified communities or sectors, with an emphasis on prioritizing customers in DACs or AB 841 Prioritized Communities. For example, in the EV Fleet program, charger rebates (money to offset the capital cost of the charger) are only given to schools, transit agencies, and sites that are located in DACs, while infrastructure incentives (money to offset customer costs for BTM infrastructure work) are given to anyone meeting all other program criteria. Likewise, in PG&E’s proposal for EVC 2, more funding is given to customers in AB 841 Prioritized Communities over customers in non-AB 841 Prioritized Communities. Therefore, there is a greater prioritization and emphasis on helping customers in environmental and social justice (ESJ) communities. In coordination, PG&E’s V2X Pilots also provide more funding to those participants in ESJ communities via the higher rate of upfront incentives for

¹⁷ Pacific Gas and Electric Company’s Electric Vehicle Charge 2 Prepared Testimony, pp. 5-6.

Pilots 1 and 2 for customers in AB 841 PCs. Therefore, PG&E believes the objectives of the V2X Pilots and PG&E's other TE infrastructure programs are complementary and not competing.

The one area where incentive stacking *could* negatively impact a program is within the program evaluations. However, this only becomes an issue if both or multiple programs offer performance-based incentives because it is challenging to decipher which incentive caused which behavior. However, this will not be an issue for PG&E if V2X Pilot participants are allowed to stack incentives from EV Fleet and EV Fast Charge, for example, because those programs provide capital and/or installation rebates & incentives, and do not focus on the customer's behavior in response to vehicle-grid integration use cases and events. As a result, the behavior of customers during the V2X Pilots is likely to be the sole effect of only the incentives offered in the V2X Pilots (and not other incentives, such as EV Fleet or EV Fast Charge). Likewise, since the evaluation objectives of EV Fleet and EV Fast Charge are to evaluate how the capital and installation incentives increase uptake of EV infrastructure and not to evaluate ongoing utilization, there is likely no significant *negative* impact for allowing stacking of incentives on the program evaluations of EV Fleet and EV Fast Charge.

PG&E can mitigate any evaluation impacts by requiring participants to disclose all incentives received. Fortunately, PG&E is the administrator for the EV Fleet and EV Fast Charge programs and, thus, can easily access program data to determine which V2X Pilot participants are also receiving incentives in our other PG&E TE infrastructure programs.

Lastly, PG&E will require participants to provide a cost estimate on the total cost of their bidirectional charging project as part of the enrollment process for the V2X Pilots. PG&E will also "...verify that the up-front incentives collectively do not exceed the cost of what the participant paid"¹⁸ by requesting customer cost verification as part of the application process; the customer will need to report on the total costs of their bidirectional charging project as well as other incentives or rebates received from other programs. All *eligible* project costs to be captured in the cost verification process will be listed on PG&E's enrollment website for the Pilots. In the cost verification process, if the net costs of the project (including eligible project costs and other rebates or incentives) exceed the upfront incentive that the customer is eligible for in Pilots 1 and 2, then a lower upfront incentive will be paid (up to but not to exceed the total net costs of the project – after other prior rebates and incentives are accounted for).

In summary, PG&E believes incentive stacking: (1) is necessary to achieve customer enrollment targets of the V2X Pilots; (2) will not negatively impact existing PG&E TE infrastructure programs because the objectives of those programs and PG&E's V2X Pilots are complementary.

¹⁸ Resolution E-5192, p. 25.

IV. Vendor Qualification Process and Explanation of How PG&E Will Support Deployment of Open Standards that Support Interoperability and Customer Choice

a. Vendor Qualification Process – EVSE Vendors

To qualify for Pilot 2, all EVSEs will need to meet requirements like those required by PG&E's EV Charge Network (EVCN) program¹⁹ with some additional requirements specific to bidirectional charging. These requirements will include those that describe legal and standards compliance, technical requirements, safety features, network connectivity and data collection and will be posted on the V2X Pilots website prior to launch expected by late Q3 2022. A subset of these requirements will apply to Pilot 1 and will be posted at the same time.

b. Vendor Qualification Process – Electric Vehicle OEMs

All vehicles participating in Pilots 1 and 2 must be able to provide at least one of the two types of bidirectional use cases (i.e., either vehicle-to-home/vehicle-to-building backup power or vehicle-to-grid grid-connected operations). Vehicles that can only perform one or the other of the two types of use cases (either vehicle-to-home/vehicle-to-building or vehicle-to-grid) are still eligible to enroll in either Pilot 1 or Pilot 2, but they won't receive incentives during the use case type that they can't perform. For example, vehicles will need to be capable of backup power during the Phase 1 backup power use case and capable of discharging energy while grid-connected during the Phase 2 vehicle-to-grid use cases in order to be eligible to receive incentives in either type of use case. Note: vehicles that can't perform vehicle-to-home/vehicle-to-building backup power use cases, while eligible for Pilots 1 and 2 if they can at a minimum perform vehicle-to-grid grid-connected operations, will *not* be eligible to enroll in Pilot 3 because Pilot 3 is focused solely on backup power use cases. Additionally, vehicles must be able to discharge using the "DC approach" employing either Combined Charging System (CCS) or CHAdeMO standards.²⁰ A maximum of 40% of the total number of vehicles enrolled in each pilot may be supplied by a single vehicle manufacturer, applied on a per pilot basis.

c. Explanation of How PG&E Will Support Deployment of Open Standards that Support Interoperability and Customer Choice

PG&E encourages the use of open standards to support interoperability of equipment, as doing so will support successful scaling of V2X solutions. Given that these standards are nascent, early entrants into the market have found it necessary to add additional communication layers, some proprietary, to make solutions that work given existing

¹⁹ More about this program at [EV Charge Program \(pge.com\)](https://www.pge.com/evcharge).

²⁰ Pending approval of a Rule 21 interconnection pathway to allow the AC bidirectional charging approach to be utilized, the option would then be available to discharge using the J1772 standard.

constraints. For this reason, PG&E is making allowance for such proprietary solutions to exist during the duration of the V2X Pilots.

Despite the allowance for proprietary solutions, vendors will be encouraged to use EVSE hardware that includes a PLC modem and meets the other requirements necessary to support open standards such as ISO 15118-20 and DIN 70121 (in order to future-proof installed charger hardware) and to have a roadmap towards interoperability. Proprietary solutions that restrict a charger to a specific brand and/or vehicle will be able to participate *fully* in the V2X Pilots, however, such solutions are *not* likely to meet potential future program requirements in fully-scaled, utility bidirectional charging programs.

EVSE products currently in development and in the Underwriters Laboratories (UL) testing process suggest that there will be several products available by the beginning of Phase 2 of the Pilots that will be able to work on an interoperable basis with multiple EVs. In the event that only a single bidirectional EVSE vendor has a product that is interoperable with more than one bidirectional EV and there are no other EVSE options available on the market, PG&E will consider making an exception to the 40% cap on participation for that EVSE vendor. Along the same lines, if it is true that only a single bidirectional EV vendor has a vehicle that is interoperable with more than one bidirectional EVSE and there are no other bidirectional EV options available on the market, PG&E will consider making an exception to the 40% cap on participation for that EV vendor. This determination will be made prior to the start of Phase 2 of the Pilots (anticipated to commence in late summer of 2023) but would not take effect until the start of Phase 2 of the Pilots. Per guidance from Energy Division staff, PG&E will seek Energy Division staff concurrence to amend the 40% vendor cap prior to formally implementing the change.

Protests

Anyone wishing to protest this submittal may do so by letter sent electronically via E-mail, no later than July 21, 2022, which is 20 days after the date of this submittal. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
E-mail: EDTariffUnit@cpuc.ca.gov

The protest shall also be electronically sent to PG&E via E-mail at the address shown below on the same date it is electronically delivered to the Commission:

Sidney Bob Dietz II
Director, Regulatory Relations
c/o Megan Lawson
E-mail: PGETariffs@pge.com



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Pacific Gas and Electric Company (U 39 E)

Utility type:

- ELC GAS WATER
 PLC HEAT

Contact Person: Stuart Rubio

Phone #: (415) 973-4587

E-mail: PGETariffs@pge.com

E-mail Disposition Notice to: SHR8@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
 PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 6637-E

Tier Designation: 2

Subject of AL: Justification for PG&E's V2X Pilot 2 (Commercial Fleets Pilot)

Keywords (choose from CPUC listing): Compliance

AL Type: Monthly Quarterly Annual One-Time Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: Resolution E-5192

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL: N/A

Confidential treatment requested? Yes No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? Yes No

Requested effective date: 7/31/22

No. of tariff sheets: 0

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and correspondence regarding this AL are to be sent via email and are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

California Public Utilities Commission
Energy Division Tariff Unit Email:
EDTariffUnit@cpuc.ca.gov

Contact Name: Sidnev Bob Dietz II. c/o Megan Lawson
Title: Director, Regulatory Relations
Utility/Entity Name: Pacific Gas and Electric Company

Telephone (xxx) xxx-xxxx: (415)973-2093
Facsimile (xxx) xxx-xxxx:
Email: PGETariffs@pge.com

Contact Name:
Title:
Utility/Entity Name:

Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

CPUC
Energy Division Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102

Clear Form

**PG&E Gas and Electric
Advice Submittal List
General Order 96-B, Section IV**

AT&T
Albion Power Company

Alta Power Group, LLC
Anderson & Poole

Atlas ReFuel
BART

Barkovich & Yap, Inc.
Braun Blasing Smith Wynne, P.C.
California Cotton Ginners & Growers Assn
California Energy Commission

California Hub for Energy Efficiency
Financing

California Alternative Energy and
Advanced Transportation Financing
Authority
California Public Utilities Commission
Calpine

Cameron-Daniel, P.C.
Casner, Steve
Center for Biological Diversity

Chevron Pipeline and Power
City of Palo Alto

City of San Jose
Clean Power Research
Coast Economic Consulting
Commercial Energy
Crossborder Energy
Crown Road Energy, LLC
Davis Wright Tremaine LLP
Day Carter Murphy

Dept of General Services
Don Pickett & Associates, Inc.
Douglass & Liddell

East Bay Community Energy Ellison
Schneider & Harris LLP
Engineers and Scientists of California

GenOn Energy, Inc.
Goodin, MacBride, Squeri, Schlotz &
Ritchie
Green Power Institute
Hanna & Morton
ICF
International Power Technology

Intertie

Intestate Gas Services, Inc.
Kelly Group
Ken Bohn Consulting
Keyes & Fox LLP
Leviton Manufacturing Co., Inc.

Los Angeles County Integrated
Waste Management Task Force
MRW & Associates
Manatt Phelps Phillips
Marin Energy Authority
McClintock IP
McKenzie & Associates

Modesto Irrigation District
NLine Energy, Inc.
NRG Solar

OnGrid Solar
Pacific Gas and Electric Company
Peninsula Clean Energy

Pioneer Community Energy

Public Advocates Office

Redwood Coast Energy Authority
Regulatory & Cogeneration Service, Inc.
SCD Energy Solutions
San Diego Gas & Electric Company

SPURR
San Francisco Water Power and Sewer
Sempra Utilities

Sierra Telephone Company, Inc.
Southern California Edison Company
Southern California Gas Company
Spark Energy
Sun Light & Power
Sunshine Design
Stoel Rives LLP

Tecogen, Inc.
TerraVerde Renewable Partners
Tiger Natural Gas, Inc.

TransCanada
Utility Cost Management
Utility Power Solutions
Water and Energy Consulting Wellhead
Electric Company
Western Manufactured Housing
Communities Association (WMA)
Yep Energy