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

| Order Instituting Rulemaking to Continue the Development of Rates and Infrastructure for Vehicle Electrification. | R.18-12-006<br>(Issued December 19, 2018) |
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# OPENING COMMENTS OF PACIFIC GAS AND ELECTRIC COMPANY (U 39 E) ON DRAFT TRANSPORTATION ELECTRIFICATION FRAMEWORK SECTIONS 2, 3.1, 3.2, 3.3, 4 AND 5

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# OPENING COMMENTS OF PACIFIC GAS AND ELECTRIC COMPANY (U 39 E) ON DRAFT TRANSPORTATION ELECTRIFICATION FRAMEWORK SECTIONS 2, 3.1, 3.2, 3.3, 4 AND 5

## I. INTRODUCTION

Pursuant to the February 3, 2020, *Administrative Law Judge's Ruling Adding Staff Proposal for a Draft Transportation Electrification Framework to the Record and Inviting Comments, as amended by the February 14, 2020, ALJ email ruling* (ALJ Rulings), Pacific Gas and Electric Company (PG&E) respectfully submits its opening comments on the draft Transportation Electrification Framework (TEF) Overview, Transportation Electrification Plan (TEP) development, IOU roles, and near-term investment priorities (Sections 2, 3.1, 3.2, 3.3, 4 and 5).

PG&E appreciates the effort put into the draft TEF and supports long term planning for utility activities in the TE market. However, as described in further detail below, the draft TEF fails to meet the short- and mid-term needs of TE markets and thus will not help sustain and accelerate the deployment of EVs needed to achieve California's clean energy and environmental goals. To be successful in sustaining and accelerating EV deployment, the draft TEF should be revised to:

1. Establish a streamlined, expedited Commission approval process to allow approval of the substantial, near term investments needed over the next 12 to 36 months to support the state's climate, air quality, and TE goals, including potential extension and expansion of existing utility TE programs based on lessons learned from the programs;

2. Provide broad support for the TE market participants necessary for the IOUs and those market participants dependent on IOU TE infrastructure to fulfill SB 350's mandate to "encourage … widespread transportation electrification;"[1] and
3. Encourage, enable and authorize the IOUs to effectively support the TE market by focusing on TE infrastructure and utility EV customer programs and assistance that fall within the IOUs' core capabilities and intended TE support services under SB 350.

To address these issues, and as discussed further in the following sections, PG&E respectfully recommends the draft TEF's implementation strategies be modified to:

1. Provide the broad support needed to achieve the state's TE goals and the flexibility required to respond to the rapidly evolving TE market, including, *inter alia*:
   - Modify the Commission's pre-TEP program guidance to provide a streamlined process to allow any IOU to continue and expand existing Commission-approved TE programs and new TE programs that comply with the TE principles and policies adopted in any of the Commission's prior TE decisions; and
   - Remove the proposed TE restrictions that would limit future IOU TE support activities to a predefined, prescriptive list of market strategies and assessments (CEC Infrastructure Deployment Strategy, CARB Mobile Source Strategy, and a market maturity assessment) determined by State agencies. Instead, the TEF should allow for any IOU TE support programs reasonably expected to "accelerate widespread transportation electrification" as directed in SB 350 as long as the Commission determines that the costs and rates for the programs are reasonable. This could also include a broad range of IOU and TE market participant-supported proposals to support the entirety of the TE market (e.g., on-

[1] SB 350 adopted Section 701.1 (a)(1) of the Public Utilities Code, which dictates that "a principal goal of electric and natural gas utilities' resource planning and investment shall be … to encourage … widespread transportation electrification."

bill financing, EV infrastructure tariffs, supplemental allowances for EV charging make-ready infrastructure, innovative TE market segment-specific pilots and initiatives).

2. Streamline the proposed Commission's longer-term IOU TE investment planning process by allowing:
   - The simultaneous submission of TEPs and full-scale additional or extended TE programs to avoid unnecessarily delaying sustained and stable IOU support for TE;
   - Full-scale program proposals to be filed at the Commission at any time and expeditiously reviewed and approved, rather than only every two years; and
   - Forecasts required to support TEPs should be narrowed to a realistic time period relevant to TE market participants' planning horizons, such as five-years or less, to increase relevancy of results and streamline TEP development.
3. Focus the scope of IOU activities required within the TEF to utility core competencies that improve access to charging infrastructure, reduce the total cost of ownership of EVs, and increase consumer awareness of EVs and their benefits, using realistic and relevant TE market research and criteria supported by key TE market participants, including EV vehicle sellers and re-sellers and EV charging equipment suppliers, as well as continued research on EV and IOU customer preferences and needs.

## II. PG&E'S SPECIFIC RECOMMENDATIONS

### A. The TEF Should Provide Greater Flexibility to IOUs to Broadly Support the Evolving Market and Meet Immediate TE Needs

The broad electrification of the transportation sector necessary to meet the State's ambitious climate and air quality goals as applied to TE in SB 350 in the next decade will require substantial investment and infrastructure deployment to sufficiently support the market.[2] While

[2] California Senate Bill 350, Stats. 2015-2016, Ch. 547 (Cal. 2015); see also, Former Governor Edmund

the TE market has grown over the last two decades, as a whole it is still nascent and evolving rapidly. The needs for the market are not homogenous across California's IOU service territories. The challenge to provide support to a rapidly evolving market at the speed and scale necessary to achieve and sustain the State's goals makes a flexible IOU investment framework critical to allow for stable, continuous and innovative investments in multiple, different market segments.[3] The TEF should provide this flexibility over both near- and long-term time horizons.

Under the draft TEF, deployment of new or expanded IOU programs to support TE would be delayed until an estimated 2024/2025 timeframe at the earliest. While IOUs would be able to provide some continued support to the market in the near-term through pre-TEP existing Commission-approved programs, the scope of additional investment and IOU support is narrowed to pre-defined segments and the budget would be limited. The recommended focus areas put forth in the draft TEF for incremental pre-TEP program applications over the next three years have merit and warrant consideration. However, there are clearly other market barriers that the IOUs can help address in the near term.

PG&E is concerned about the potential gap and delay in large-scale IOU programmatic support to the broad market between the end of current programs to when full-scale additional programs would be approved. Such limitations are inconsistent and incompatible with the State's TE goals of 5 million EVs by 2030 and SB 350's legislative mandate for widespread transportation acceleration between now and then.

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G. Brown Jr.'s Executive Order B-16-2012 set the goal of placing 1.5 million zero-emission vehicles on California's roads by 2025. Former Governor Edmund G. Brown's Executive Order B-48-18 set the goal of 250,000 electric vehicle charging stations, including 10,000 DCFC charging stations, by 2025. Former Governor Edmund G. Brown Jr.'s Executive Order B-48-18 set the goal of 5 million zero-emission vehicles on California's roads by 2030.

[3] Sustaining the growth of EVs in California is not an easy task and by no means assured, as recent data and commentary indicates. See, *e.g.*, "Mixed Results in 2019 for Sales of California's Zero Emission Vehicles," San Diego Union-Tribune, February 25, 2020 at https://www.sandiegouniontribune.com/business/energy-green/story/2020-02-25/mixed-results-in-2019-for-sales-of-californias-zero-emission-vehicles; "State Losing Its War on Carbon," Dan Walters, Calmatters, March 1, 2020, at https://calmatters.org/commentary/greenhouse-gas-mass-transit-zero-emission-vehicles/ .

Similarly, PG&E is concerned that limiting longer term IOU TE investment opportunities to the results of strategies developed by state agencies and a yet to be determined market maturity assessment, rather than to TE market participants and customers, will hinder the ability of IOUs to propose appropriate TE investment strategies that respond to constantly evolving market, technology and policy developments. The strategies and assessment should be viewed as tools that can aid in long-term IOU TE strategic plans while acknowledging that forward looking forecasts will never be 100% accurate and can only reflect what was known at the time the analysis was undertaken. The barriers to TE now may not be the barriers to TE in the future, and so the TE forecasts should not be used to adopt prescriptive restrictions on IOU TE infrastructure and support proposals.

PG&E is also concerned that if the TEF directs IOU investment to certain pre-selected TE market segments at the expense of others or the wider market in general, the TEF will be inconsistent with the SB350 mandate and not provide important long-term, sustainable, and predictable assurance to the multitude of additional TE market participants and customers needed to foster the success of broader and deeper TE (e.g., Original Equipment Manufacturers (OEMs), EV Supply Equipment (EVSE) providers, financiers, EV customers).

**Recommendations:**

As a potential solution to ensure continued support to the broad TE market in the near term, PG&E recommends revising the:

- Pre-TEP program proposal criteria (Section 5) to allow for streamlined, expedited Commission approval via advice letter of proposals to extend any existing IOU program already approved by the CPUC, subject to reasonable cost caps and implementation of lessons learned from the existing programs.
- Pre-TEP program approval process to leverage the Pilot Project Advice Letter Template Staff proposed in Appendix D with some slight modifications to replace any specific TEP references with justifications from the current market or existing programs or studies.

As a potential solution to provide greater flexibility to respond to changing TE markets, technology and policy in the longer term, PG&E also recommends the following:

- Amend the TEP development process (Section 4) to allow the IOUs to use a wider array of resources (e.g., third party market reports, vehicle adoption forecasts, etc.) to aid in TEP and future program development.
- Broaden the focus of the TEPs to include TE enablement solution proposals that would provide wider market support (e.g., on bill financing, EV infrastructure tariffs, supplemental allowances for EV charging make-ready infrastructure).

### B. A Simplified and Streamlined Process for TEPs and Full-Scale Programs is Needed

Reaching California's TE goals requires a suite of investments from utilities, state agencies, OEMs, charging providers, and customers. Agile development and approval of utility TEPs and associated full-scale IOU EV programs will be necessary to provide the various other entities participating in the wider TE ecosystem the signals needed to close the EV infrastructure gaps that hinder TE enabling investment. A simplified TEP development process is needed to recognize the IOUs' inability to perfectly predict market and customer behavior for TE needs looking years into the future. A streamlined TEP and full-scale program approval process is important to allow the IOUs to nimbly adapt to evolving market needs.

As described in the draft TEF, the IOUs would be required to submit 10-year TEPs that incorporate, at a minimum, all the items listed in Appendix C - the TEP Completeness Checklist. While this exercise will provide some valuable directional guidance on TE load, impacts to the grid and strategies for programs and other TE related activities, it is important to note that IOUs cannot accurately forecast where, when and how much a customer's new EV load will be on the grid beyond the current one-to-three year distribution infrastructure planning horizon. IOUs also need the expertise and insights from all TE market participants, particularly EV manufacturers and EV charging equipment suppliers and owners, to forecast the geo-spatial levels of EV sales and deployment that determine actual EV loads on the grid. Requiring IOUs to provide a

detailed ten year forecast of load and costs based on forecast EV deployment may only provide a false sense of precision that will likely not prove useful in nascent or maturing EV markets. Additionally, developing the long-term and detailed forecasts required as part of TEP development could prove more resource intensive than the benefits provided may justify.

Another concern about the proposed process in the draft TEF is that the IOUs must wait until after their TEPs are approved before filing new program applications. This timeline would potentially delay the next round of meaningful large-scale infrastructure deployment until 2024/2025 at the earliest[4]. It is difficult to imagine the state's aggressive GHG reduction and TE proliferation goals coming to fruition with a delay in infrastructure roll-out. PG&E is also concerned about the limitation on new program applications to every other year. This may inhibit the IOUs from acting to support market needs that emerge in the two years between program application filing dates.

**Recommendations:**

- Amend the TEP guidance and the checklist found in Appendix C to direct IOUs to only develop detailed forecasts of EV adoption, TE infrastructure deployment needs, and incremental TE load by customer class and site type (items 1 and 2) for the next five years. Similar to the requirement for program budgets and details in the TEP, forecasts for years 5 – 10 should be less specific in nature.
- Allow the IOUs to include any proposed TE pilot-scale programs or full TE programs in their TEP filings to avoid delay in program deployment.
- Develop a template for full TE program proposals through a stakeholder workshop process and by leveraging the pilot program proposal template.

[4] Page 26 of the Draft TEF states "As an example of how the schedule could move forward, if the CPUC adopts the TEF by the end of 2020, and the IOUs' initial TEPs are proposed in 2021 and adopted by the end of 2022, full program applications could then be filed in Q1 2023." To arrive at its infrastructure deployment estimation of 2024/2025, PG&E assumes it may take at least one year for programs to be approved under the process laid out in the TEF and could take longer.

- Allow for full-scale programs to be submitted at any time, or at least annually to encourage program adaptations to changes in the market.

### C. Utilities Should Leverage Core Capabilities to Enable TE

Utilities across California play an important role in assisting the acceleration of TE. However, that role is one of many in the broad TE market ecosystem that incorporates numerous EV market participants such as customers, site-hosts, EV vehicle and OEMs, EV charging equipment suppliers, EV purchasers, lenders, investors, and non-EV sellers, etc. Additional elements of this ecosystem that can influence the actual deployment of EVs, include the price of competing fuels, interest rates, and the cost of capital. It is beyond the control of any electric utility, single market player, or even the CPUC, to provide a "comprehensive" TE plan that governs the development and promotion of EV deployment and end-use markets. It is important for utilities to provide appropriate broad and targeted support for the TE market within the context of their core capabilities and the roles they play in the wider TE ecosystem. These capabilities include: infrastructure, developing appropriate rates for electric fueling, customer education, and programs. EV market needs outside of core utility capabilities, whether "enabling" or "stimulating" the market, are not within the control or responsibility of the electric utilities, and any effort otherwise is likely to hold back and deter EV market development and innovation, rather than promote it.

PG&E is concerned that elements of the draft TEF overstate the power of utilities to "stimulate" the TE market and move the needle in areas outside utility core capabilities. Specifically, PG&E is concerned about the potential IOU role in Table 3 that states: "Utilities stimulate demand through programs that demonstrate consistent, ongoing procurement of TE infrastructure."[5] PG&E supports the TE market and customers but cannot drive demand for it. Staff also recommends the IOUs play a supporting role in development and standardization of

[5] Table 3 is found on pages 39-41 of the draft TEF.

TE-related building codes[6], coordination of various market actors to advance vehicle-to-grid integration[7] and the development of wider TE-related technical standards.[8] These cross-cutting TE issues require coordination across the many market players involved, and level-setting on the appropriate role for utilities in advancing TE will allow various actors to focus on where and how they can better advance TE.

**Recommendations:**

- Reframe the role of IOUs as market enablers and supporters rather than market stimulators to ensure appropriate attention is given to core utility capabilities without potential distractions that could have adverse impacts on the goal of accelerated TE.
- Revise the draft TEF to clarify that utilities should be supporting partners instead of leaders in the following areas: development and standardization of TE-related building codes, coordination of various market actors to advance vehicle-to-grid integration, and the development of wider TE-related technical standards.

## III. COMMENTS ON SECTIONS 2, 3.1, 3.2, 3.3,[9] 4 AND 5.

### SECTION 2. TRANSPORTATION ELECTRIFICATION FRAMEWORK OVERVIEW

**Section 2, PG&E General Comment:** As a threshold issue for TE market support planning that PG&E and the IOUs are already addressing in their GRCs and Distribution Resource Plans (DRPs), PG&E notes that large-scale capacity upgrades will likely be necessary

[6] The barrier row entitled "Existing Infrastructure 'Lock-in'" describes Early Deployment IOU TE role as "Utilities support voluntary or mandatory EV infrastructure requirements…for EVSE installations in new construction." The Full Deployment IOU TE role is described as "Utilities support mandatory building code revisions as needed…for EVSE installations in new construction"

[7] The barrier row entitled "Industry Structure" describes the Early Deployment IOU TE role as "Utilities work to coordinate different types of market actors such as automakers and EVSPs to provide services such as VGI"

[8] The barrier row entitled "Uncertain or Unfavorable Standards" describes the Early Deployment IOU role as "Utilities can identify technical or other standards needed to support VGI or other technology development;" and the Full Deployment IOU role as "Refine technical standards and gap-filling as needed"

[9] PG&E does not have specific comments on Sections 3.2 and 3.3, but reserves the right to address these sections in reply comments and/or upcoming workshops.

as TE proliferates across the state. TE loads of a large enough size and located in constrained areas, such as EV fast charging plazas along interstate and high-volume intrastate corridors, will likely trigger upgrades to the primary distribution system and substation serving the constrained area. Such upgrades may require a magnitude of work necessitating considerable budget and timeline. While this issue is most appropriately discussed in the context of a General Rate Case (GRC), elements of the planning needed to develop TEPs will also be used to forecast TE capacity related costs that may subsequently make up a portion of future GRC requests. For example, PG&E believes additional planning scenarios undertaken by the CEC and others will be needed to provide better guidance for longer-term GRC investments required to support anticipated load from future TE development.

**Section 2, Question 1: Identify any additional topics that should be addressed in the Transportation Electrification Framework (TEF), and why the TEF is the appropriate venue to address these topic(s).**

**PG&E Comment:** PG&E has no comment at this time and reserves the right to address this issue in reply comments and/or upcoming workshops.

**Section 2, Question 2: Recommend whether a full California Public Utilities Commission vote is necessary to approve each TEF update, or whether Energy Division staff guidance is appropriate for each five-year update going forward.**

**PG&E Comment:** In an effort to streamline and simplify future TE investment, a key point echoed throughout these comments, PG&E recommends that staff guidance alone is appropriate for each five-year TEF update moving forward, without the need for lengthy formal Commission proceedings. If an IOU or interested party disagrees with the staff guidance, an opportunity for the full Commission to resolve the disagreement should be provided.

**SECTION 3.1. TRANSPORTATION ELECTRIFICATION PLANS' GOALS AND PROCESS.**

**Section 3.1, Question 1: Should the same requirements be adopted for the Transportation Electrification Plans (TEPs) of large and small investor-owned utilities (IOU)? If not, please provide proposed differences in detail.**

**PG&E Comment:** PG&E has no comment on Question 1 but reserves the right to file Reply Comments regarding this question.

**Question 3.1, Question 2**: What additional guidance is needed to inform how existing planning processes for IOUs and regulatory development efforts at other State agencies should be leveraged to develop TEPs?

**PG&E Comment:** The draft TEF recommends leveraging existing IOU planning processes and coordination with regulatory development efforts at other state agencies to develop TEPs. PG&E agrees that both can aid in TEP formation yet cautions that these efforts alone will not be sufficient. Coordination and collaboration among all participants in the EV "ecosystem" are needed to determine needed IOU support for accelerated and sustained TE, including not only the IOUs themselves but also the commercial entities that manufacture, market, sell and install TE equipment, facilities and vehicles, as well as the TE customers who procure those facilities, equipment and vehicles.

**Existing IOU Planning Processes**

Existing IOU planning processes such as the distribution capacity plans approved in General Rate Cases and Distribution Resource Plans (DRPs) as well as integrated resource planning through the Integrated Resources Plan (IRP) address the needs for utility infrastructure to advance and sustain TE. However, the unique need to accelerate deployment of EVs in California means that additional measures and coordination are necessary to help IOUs accelerate investment and installation of utility TE infrastructure to support widespread and localized EV deployment across all sectors of TE markets. While existing distribution planning tools, such as the Integrated Capacity Analysis (ICA) tool can provide valuable information

about potential locations for EV fast charging loads and stations, it is likely that additional EV fast charging distribution studies will be required given the likely large size of these loads.

In terms of the IRP, PG&E believes consistency in planning assumptions in all venues and a robust process to allow for a flow of inputs and outputs among planning processes would support and avoid inconsistencies in TE development and other areas. For example, the IRP can undertake more sensitivity analyses around TE load and compare the cost difference using an agreed upon accounting method. The results of these sensitivity analyses could then be used to develop more rigorous IOU TEPs.

**Regulatory Development Efforts at Other State Agencies**

PG&E supports continued efforts by air quality and energy planning agencies to coordinate and streamline their regulatory and permitting requirements for TE, such as through CARB's Mobile Source Strategy (MSS) updates and the CEC's Infrastructure Deployment Strategy (IDS) and related regulations and permit requirements. However, state agencies may be limited in their ability to set TE market targets or to choose or prescribe market enabling IOU or other TE infrastructure investments. Solely relying on State agency assessments and strategies would likely prevent inclusion of important and related work done by internal and external TE market participants and limit the ability of both utilities and non-utilities to respond to changing markets, technology and policy.

CARB's Mobile Source Strategy, to be updated by 2021, will help identify vehicle segments the state has prioritized for decarbonization that will provide market players with some level of policy certainty. The MSS will be important to inform long-term TE strategic planning but PG&E does not believe it should be a rigid determination of TE market segments for preferred or required investment. By limiting TE investments to areas in its MSS, CARB could unfairly and inaccurately remove the opportunity for IOUs and other TE market participants to assist other customers and TE infrastructure needs across the broader TE market.

As discussed in the introduction above, PG&E believes flexibility is essential to ensure IOUs, in coordination and collaboration with other TE market participants, can propose future

TE investments and strategies to aid all their customers wishing to electrify, including those not addressed in CARB's MSS or other state agency studies or plans.

Similarly, PG&E is concerned that the CEC's IDS may provide helpful advisory input in TEP development but yet, because this study is still in development stages, the TE market participants including the IOUs have not had an opportunity to assess if it is the right tool to identify where TE infrastructure is needed. Given the nascent technologies and rapid changes in TE market and policy landscapes, results from such a study would likely be dependent on a lengthy stakeholder feedback process during which the evolving TE market could reasonably be expected to see many changes. Such changes could render the study results less useful than when originally developed.

As the manager of its grid with infrastructure insight and planning tools already approved by the Commission in GRCs, PG&E must use its own internal analyses to form a basis for TE infrastructure deployment needs. Load forecasts and distribution capacity at any one location can change more quickly than a broad and time intensive study by the CEC could anticipate. This is also why PG&E recommends in the introduction that the load, infrastructure, and upgrade forecasts required in the TEP be provided in more detail for periods less than five years, and high-level scenarios rather than forecasts be considered for periods beyond five years.

**Section 3.1, Question 3: What additional resources could be used if the outputs of the planning efforts described in the TEF are not available or useful for TEP development?**

**PG&E Comment:** See response to question 2.

**Section 3.1, Question 4**: What resources should the IOUs draw from to develop budgets for their TEPs?

**PG&E Comment:** Budgets for future program proposals should be based on data and lessons learned from ongoing IOU TE programs as well as updated cost assumptions and forecasts from TE market participants. In earlier rounds of TE program proposals, IOUs often had to make a great number of assumptions based on the nascent stage of the market. As IOU programs move to more mature stages, the utilities in collaboration and coordination with other

TE market participants will have more data to draw from to develop budgets for individual programs and TEPs. As the TE market grows in various segments, third party EVSE providers, OEMs, and market analysts will likely be able to provide detailed cost estimates and forecasts that will inform utility TE infrastructure needs and investments.

**Section 3.1, Question 5: Should TEP budgets be established as a cap on an IOU's investments or a forecast of the programmatic costs?**

**PG&E Comment:** No. PG&E recommends that the Commission not adopt or prescribe TE budgets, but should instead rely on collaborative and coordinated proposals developed and supported by the TE market participants, including IOUs, who are in the best position to identify the infrastructure and support needed to accelerate and sustain EV deployment.

**Section 3.1, Question 6: Please identify any market, regulatory, or operational considerations that would justify defining a pilot program differently than it was previously defined in the 2016 Assigned Commissioner's Ruling, namely as one-to-two years in duration with a budget less than $4 million.**

**PG&E Comment:** PG&E has no comment at this time but reserves the right to file reply comments.

**Section 3.1, Question 7: Should an application template for TE program proposals be adopted in addition to the template for pilot projects filed by advice letter? If yes, identify the process for developing this template.**

**PG&E Comment:** As discussed earlier, PG&E favors concurrent filing of future TEPs with corresponding program proposals as a way to simplify and streamline the TEF. Developing an application as well as advice filing template for any program proposal that falls outside of the TEP filing cycle can also aid in the streamlining of program review and approval. As an initial step to develop this template, PG&E recommends that parties file comments on how the Pilot Project Advice Letter Template found in Appendix D of the draft TEF might be changed to fit the needs of full-scale TE program proposals. A workshop could follow party comments to facilitate discussion on any necessary items. Finally, PG&E recommends that Energy Division

Staff could take feedback gathered during this process and propose a suitable template to be used for TE program proposals.

**SECTION 4. INVESTOR OWNED UTILITY ROLES TO ACCELERATE TRANSPORTATION ELECTRIFICATION INFRASTRUCTURE DEPLOYMENT.**

**Section 4, Question 1: Do you agree that the investor-owned utilities' (IOU) Transportation Electrification Plans (TEPs) should evaluate opportunities to address each of the barriers identified in Table 3?**

**a. If not, what barriers should be excluded, or are missing, and why?**

**b. Do you agree with the types of IOU roles that are appropriate to address each market barrier during the market and technology development lifecycle?**

**PG&E Comment:** PG&E agrees that the IOUs should evaluate opportunities to address the barriers identified in Table 3 in their TEPs that relate to the utilities' core capabilities of utility infrastructure, rates, and customer education and programs. The IOUs can most effectively support TE by targeting the market barriers of up-front utility infrastructure capital costs, complex service planning processes, and information barriers through their TE efforts. Utilities should be supportive enabling partners in addressing other market barriers, such as market demand, industry structure and uncertain standards, but should not and cannot directly address other TE market barriers outside the utilities' core capabilities and control. Other TE market participants are responsible for and more effective in leading those efforts. In particular, addressing barriers to market demand requires many actors and market developments that are outside the utilities' control, such as vehicle deployment, charger technology, and available customer incentives. While IOUs can support the market through rates and utility infrastructure deployment, utilities cannot significantly stimulate market demand. Similarly, utilities can play an active, supporting role in cross-cutting TE issues such as VGI, building codes, and permitting tools, but the actions of the other market participants and the final outcomes are not in the utilities' control. Other market participants are better suited to lead coordination on those efforts

while allowing the utilities to focus on the barriers to timely investment and development of needed utility TE infrastructure within their core capabilities.

As detailed in Table 3, PG&E agrees that utilities should play an important role in supporting both nascent and more mature TE markets. Providing lower upfront infrastructure installation costs, make-ready infrastructure package solutions, and streamlined service planning processes are critical to encouraging customer and investment by non-utility participants in this nascent TE market. Aligning with other State funding partners is essential to lowering the total cost of TE investment for the customer. PG&E has been proactively coordinating with CARB, CEC and the Air Districts to do this for its EV Fleet customers. While effective, PG&E recommends that a consortium of third-party non-utility TE market participants lead this type of coordination for all TE incentives, to allow customers to fully leverage available resources in a manner that more directly support TE infrastructure and equipment investment and installation. It is also important to remember that any list of barriers today may look different in future years as this nascent market continues to grow. Therefore, PG&E recommends the TEF maintain flexibility in identifying barriers to TE over time and allow for IOU TE strategies to adapt accordingly.

Lastly, PG&E agrees that the level of financial investment needed from the utility over and above normal distribution capacity investment should decrease as the TE market matures and third-party support grows. Determining when a market is mature and utility investment is no longer necessary is a difficult task. PG&E offers further comments on this issue in its response to Section 4 Question 4. The utility must also make responsible investments with ratepayer dollars to ensure benefits to all customers and PG&E recommends that any level of investment made in more mature markets be for a diverse set of market segments, including DACs, tribes and other underserved communities.

**Section 4, Question 2: Will the California Energy Commission's Infrastructure Deployment Strategy analysis and Assembly Bill AB 2127 (Ting, 2018) implementation process, the California Air Resources Board's Mobile Source Strategy, and the IOUs'**

**existing planning processes provide a complete foundation for defining IOU infrastructure roles to be included in TEPs (What, When, How, How Much and Where)?**

**a. If not, what are the gaps and how should they be filled?**

**PG&E Comment:** See PG&E's response to Section 3.1 Questions 1 and 2.

**Section 4, Question 3: Market Maturity Assessment**

**a. Will the proposed metrics for determining the level of market competition provide the appropriate information to evaluate market maturity across various TE industries and business models?**

**b. What resources can be used to provide data for these market maturity metrics, and what is the best way to collect this data?**

**c. Should the Market Maturity Assessment be developed by a third-party consultant or workshopped and finalized by Energy Division staff for CPUC consideration in the final Transportation Electrification Framework?**

**PG&E Comment:** PG&E is supportive of establishing a process to align IOU TE investments with TE market participant assessments of market barriers, needs and maturity to determine the direction of that alignment. PG&E also agrees with the draft TEF that as market segments mature, IOU support over and above normal distribution capacity investment should decrease. However, because EVs are still a relatively new technology and the market overall is still very nascent, PG&E cautions against prematurely labeling any TE market segment fully mature based on a single assessment. Certain market segments may be more mature than others and require different levels of support, but IOU investment is still important to support the market broadly and meet the SB 350 mandate.

PG&E also cautions against viewing any market assessment as capable of precisely defining when a segment is "mature" in black or white terms. These assessments have value in showing the directionality of a market and maturity levels compared to other market segments but should not be the sole factor determining future investment. In addition to the metrics Staff

proposed, an assessment of the sufficiency of private market investment in certain TE market segments should carefully evaluate if existing supply chains are adequate to support EV deployment at the speed and scale necessary to reach the State's 2030 goals. It must also evaluate if third-party suppliers can deploy infrastructure at a low enough cost in the near-term to encourage enough customer adoption to meet the State's 2030 goals. PG&E recommends that a third-party qualified consultant lead any type of market maturity assessment that will be incorporated into the IOU TEPs and that a wide array of non-utility, non-state agency data sources are used in addition to the key data sources listed by Staff. The EV market is nascent and rapidly evolving and the State's ambitious goals will require public and private support in all market segments. The market maturity assessment should be used as an important indicator of potential market segments for specific focus in addition to a base level of IOU support across all market segments.

**SECTION 5. NEAR-TERM INVESTOR OWNED UTILITY TRANSPORTATION ELECTRIFICATION PRIORITIES.**

**Section 5, PG&E General Comment:** The draft TEF provides a structure for assessing and aligning long-term investments in TE but unfortunately lacks the urgency necessary to support immediate TE needs. The current timeline in the draft TEF likely would not see implementation of pre-TEP programs until 2023 and full-scale TEP programs until 2024/2025 at the earliest. Given the state's aggressive goals and third-party forecasts of EV technology availability and cost declines, this timeline may inhibit the availability of utility TE investment to support acceleration of TE.

**Section 5, Question 1: Should the investor-owned utilities' pre-Transportation Electrification Plan (TEP) program proposals be limited to these identified priority areas? Why or why not?**

**PG&E Comment:** While PG&E believes that the Staff-identified priority areas have merit, particularly when thinking of how to best serve customers that may be affected by wildfires, these should not be the only or even priority eligible options. Given the nascent state

of TE and frequent changes in market, technology and policy landscapes, utilities should be given the flexibility to propose programs that fall into other areas. As discussed in detail in the introductory comments, this could include proposals to extend or expand existing Commission approved TE programs through streamlined Commission review, including advice letters. Consistent with the guidance in the TEF, any pre-TEP program proposal should contain necessary evidence of market need and justification for IOU investment to obtain CPUC approval.

**Section 5, Question 2: If not, identify any other program priorities that should be considered appropriate for pre-TEP programs and provide detailed information about why the investment would be "no regrets."**

**PG&E Comment:** Consistent with the response to question 1 above, PG&E believes a better approach is to allow utilities to propose pre-TEP programs that may fall outside of the four identified areas so long as these proposals have sufficient justification and evidence to warrant consideration.

**Section 5, Question 3: Is $20 million per IOU an appropriate budgetary cap for pre-TEP programs? Why or why not?**

**PG&E Comment:** No**.** PG&E does not consider $20M per IOU a sufficient amount to meaningfully enable the TE market for two reasons. First, any pre-TEP programs would be the only new programs until IOUs develop, submit, and receive approval of their TEPs and then develop, submit and receive approval of programs that align with their approved TEP. This means the $20M per IOU would be the only funding for new TE programs until 2024 or 2025, when full IOU programs would likely begin installing TE infrastructure. Second, the suggested budget likely won't go very far in providing much infrastructure buildout. For example, installing Level 2 charging infrastructure in PG&E's EVCN program has cost roughly $15,000-$20,000 per installed port. If the total proposed budget were to be aimed at developing more L2 infrastructure only 1,000-1,300 ports could be installed.

**Section 5.1, PG&E General Comment:** PG&E appreciates the discussion on resiliency of the transportation sector in the draft TEF and agrees this can be a near term focus issue in the other Commission proceedings in which resiliency issues are being addressed, such as the wildfire mitigation plans, the PSPS proceedings, and General Rate Cases. There is no need to duplicate those efforts in this proceeding or the TEFs.

**Section 5.1, Question 1: Should the investor-owned utilities (IOU) prioritize projects that will test and validate resiliency strategies that utilize electric vehicles (EV) as grid resources and ensure EV drivers have adequate access to charging options during power outages?**

**PG&E Comment:** Not in this proceeding. PG&E is fully committed to assisting all customers impacted by power outages, including EV customers, and is supportive of testing various resiliency strategies, including ones that utilize electric vehicles as grid resources, in the various other Commission proceedings addressing specific resiliency issues.

**Section 5.1, Question 2: Which local agencies and community organizations should the IOUs work with to identify resiliency challenges as more vehicles are electrified across their service territories?**

**PG&E Comment:** See responses to prior question.

**Section 5.3, Question 1: Given the lack of California Public Utilities Commission regulation of end-use public charging pricing, how can we ensure equity in the cost of fueling between customers with access to home charging and customers without?**

a. **Are there solutions that do not compromise the cost causation principle of ratemaking?**
b. **Are there solutions that do not involve infrastructure investment?**

**PG&E Comment:** While PG&E cannot ensure equity in the cost of fueling between customers with access to home charging and customers without, it can help address the barrier through its core capability of rate design. For single family residential customers PG&E has had EV specific rates for many years that provide affordable charging at home during off-peak hours.

Recently, PG&E received approval for its Commercial EV rate to provide similar cost savings to commercial customers charging at locations including workplaces, multi-unit dwellings and publicly accessible charging stations. By making the overall rate more affordable, this could also encourage more commercial entities to install charging infrastructure, increasing accessibility for customers without access to home charging. The time-of-use (TOU) differentials in PG&E's Commercial EV rates are intended to provide price signals that encourage cost savings for charging at off peak times. It is hoped that third party providers will adjust any pricing mechanism to reflect TOU differentials and therefore offer customers the ability to save by charging at off-peak times.

PG&E wishes to highlight that although it may be more likely that customers charging at public sites pay more, there are entities today that allow for EV drivers to charge their vehicles for free for various reasons.[10] Given the nascent stage of the EV charging market, it is too early to know what type of business models will proliferate and therefore how inequitable or not charging outside of one's own residence might be.

The draft TEF suggests that charging vouchers could be used as a non-infrastructure solution to overcome any perceived gap between those who can and cannot charge a vehicle at their residence. PG&E cautions against using ratepayer funds to subsidize the cost of charging a vehicle at public places. Such a voucher would represent a cost shift from ratepayers to third party charging providers who have the discretion to charge as high or low a price as they deem necessary.[11]

[10] See for example Volta's website, which states: "Some stations charge per electron. We don't. We partner with visionary brands to create an iconic charging network that inspires people to drive electric. And, it's free." Website accessed on February 19, 2020: https://voltacharging.com/

[11] PG&E notes that under the Public Utilities Code, private entities that sell electricity at retail for charging light-duty electric vehicles are exempt from Commission rate and service regulation, but other private charging entities that sell electricity at retail for use by other electric vehicles are public utilities subject to direct pricing and service regulation by the Commission.

**Section 5.4, Question 1: What gaps, if any, within existing investor-owned utility programs targeting medium- and heavy-duty vehicle electrification would be appropriate barriers to address within pre-Transportation Electrification Plan program applications?**

**PG&E Comment:** PG&E recently launched its EV Fleet program focused on electrifying the Medium and Heavy-Duty sector. It is premature to identify gaps in these programs while PG&E is gaining important knowledge about this segment and continues to provide updates through the Program Advisory Council meetings.

**Section 5.4, Question 2: Should the CPUC direct one IOU to coordinate state-wide medium- and heavy-duty issues or direct the IOUs to propose an IOU coordinator?**

**PG&E Comment:** PG&E has no comment on Question 2 but reserves the right to file Reply Comments regarding this question.

**Section 5.5, PG&E General Comment:** PG&E agrees that installing EV make ready, and potentially charging, infrastructure at the time a building is first constructed would likely represent cost savings compared to retrofitting.[12] Consistent with comments regarding IOU roles above, the CEC and local jurisdictions are likely best positioned to help overcome this barrier as these entities set building and reach codes, respectively.

**Section 5.5, Question 1: What, if any, coordination with existing energy efficiency new construction programs for the residential and commercial sectors would make a TE infrastructure program for new construction more effective?**

**PG&E Comment:** PG&E has no comment on Question 1 but reserves the right to file Reply Comments regarding this question.

**Section 5.5, Question 2: Given the fact that the CPUC has not yet approved an IOU TE program that focuses on new construction specifically, what program design elements would be reasonable to require up-front to maximize ratepayer benefit?**

[12] See CalETC study on this issue here: https://caletc.com/wp-content/uploads/2019/10/CALGreen-2019-Supplement-Cost-Analysis-Final-1.pdf.

**PG&E Comment:** PG&E has no comment on Question 2 but reserves the right to file Reply Comments regarding this question.

**Section 5.5, Question 3: Can fixed dollar per port incentives, with some case-by-case adders, be set at a level that motivates EVSE installation while also encouraging builder cost sharing? If so, what data should be used to set these levels? If not, should IOU programs cap rebates at a fixed percentage of costs to builders? Could IOUs verify builder self-reported cost estimates, and if so how?**

**PG&E Comment:** PG&E has no comment on Question 3 but reserves the right to file Reply Comments regarding this question.

**Section 5.5, Question 4: How could new construction programs prioritize ESJ communities including affordable housing developments?**

**PG&E Comment:** PG&E has no comment on Question 4 but reserves the right to file Reply Comments regarding this question.

## IV. CONCLUSION

PG&E appreciates the opportunity to provide initial responses on selected questions and topics in the Energy Division's Staff Proposal for a Transportation Electrification Framework.

Respectfully submitted,

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