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

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| Order Instituting Rulemaking to Continue the Development of Rates and Infrastructure for Vehicle Electrification. | Rulemaking 18-12-006 (Filed December 13, 2018) |

# COMMENTS OF ENVIRONMENTAL DEFENSE FUND ON TRANSPORTATION ELECTRIFICATION FRAMEWORK STAFF PROPOSAL

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Dated: March 6, 2020

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## I. INTRODUCTION

Environmental Defense Fund (EDF) thanks the California Public Utilities Commission (CPUC or Commission) for the opportunity to provide comments on the proposed Transportation Electrification Framework (TEF) and resulting Transportation Electrification Plan (TEPs). Per the e-mail ruling issued by ALJ Doherty on February 14th granting an extension of time for opening comments on select issues,[1] these comments are timely filed.

In general, EDF applauds Staff for recognizing the importance of widescale transformation of transportation. The breadth and detail to which Staff has ascribed to this proposal is commensurate with the critical nature of ensuring that existing barriers are addressed and programs are well poised to ensure adequate in the electric vehicle (EV) market – and obviously reflects the culmination of many months of hard work. However, EDF cannot fully endorse the Staff Proposal as drafted. As currently structured, EDF believes that the TEF needs significant improvement to achieve state EV targets, as well as climate goals, in a clean, cost-effective, and equitable way. EDF does not think the Staff Proposal will result in the level of investment needed in the near term. Rather, the procedural process outlined in the Staff Proposal

[1] E-mail Ruling Setting Updated Schedule for Party Comment on the Draft Transportation Electrification Framework (Feb. 14, 2020).

will cause significant timing delays at the exact time when EDF contends we should be accelerating our efforts.

To that end, EDF answers select questions and provides responses on topics relevant to the first set of comments: the TEF as a whole, strategic transportation electrification plans, application process and procedures, transportation electrification plan timing and updates, investor-owned utility roles, and near-term investment priorities.

EDF stands ready to work proactively with the Commission and the Staff to arrive at a new version of the Framework that will result in just and reasonable rates and achieve the state's important policy objectives.

## II. COMMENTS ON SECTION 2

### A. *Section 2 – Transportation Electrification Framework*

1. *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).

EDF believes the list as it currently stands is complete. However, within the broadly defined topics that the Commission lays out, there are subtopics that EDF believes are crucial for inclusion. Those subtopics are discussed further in responses to more specific questions, below. Of note, EDF firmly believes that the TEF as currently structured is poised to *frustrate* the goal of accelerating adoption. As discussed in a parallel motion, of which EDF is a signatory, there are a number of flaws in the current version of the TEF that will make it more difficult to achieve state EV targets by the mandated date:

1) Given the timeline, it is unlikely that there would be any meaningful installation of new charging stations until 2025 at the earliest. Because significant amounts of charging stations will need to be installed to ensure that there is sufficient range confidence, thus increasing market sales, this presents an unacceptable delay. In addition, having a

potentially long gap between utility programs will create uncertainty in the market, further depressing sales.

2) The procedure proposed for implementing the TEF and associated utility TEPs is overly onerous. Necessitating Applications, advice letters, and procedurally burdensome updates to TEPs will increase the participatory burden of stakeholders that are already stretched too thin.

3) Finally, the set of "no regrets" approaches is too narrowly defined and too small in scope to enable meaningful progress. Though EDF understands the intent behind trying to pre-approve certain types of projects in order to continue to make progress while the TEF and TEPs are approved, it is not clear that the set of narrowly defined projects will meet that objective. For example, piloting "technologies and programs that use EVs as backup power resources to enhance resiliency in communities that may face power shut-offs due to weather, wildfire risk or other emergencies"[2] might be useful, but it is hard to say at this juncture that EVs will meaningful help meet that objective. As recognized by the Commission, light duty vehicle batteries are, for the most part, not big enough to provide significant grid services; and, given that the medium and heavy-duty market is still getting off the ground, these sectors may suffer from similar limitations in usefulness at present. EDF suggests changes and alternatives to these projects in appropriate sections below.

[2] California Public Utilities Commission, *Transportation Electrification Framework: Energy Division Staff Proposal,* R. 18-12-006 at 44 (Feb. 03, 2020).

2. *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.

In the interest of streamlining the TEF process, EDF believes that Commission Staff guidance - and an associated workshop in which stakeholders can provide feedback before the update is finalized - will be sufficient going forward. Staff always holds the discretion to direct the utilities to file a new Application if the situation warrants it, and EDF believes that Staff can use that discretion thoughtfully.

## III. COMMENTS ON SECTION 3

A. *Section 3.1 – TEP Goals and Process*

1. *Section 3.1, Question 1:* Should the same requirements be adopted for the TEPs of large and small IOUs? If not, please provide proposed differences in detail.

Yes, the basic requirements should be the same for both large and small investor-owned utilities (IOUs), as it will be important to ensure that all IOU proposals under CPUC jurisdiction are held to similar standards that ensure an effective program and that IOUs are held to account for delivering on key metrics. However, it is appropriate for the Commission to recognize that the scale of programs proposed by large and small IOUs may necessarily need to be different - as they have different resources and capabilities to carry out programs of similar size. In other words, the categories within which the targets and metrics are placed should be the same, but the scale of those targets and metrics should be reflective of the relative size of the IOUs. Similarly, reporting requirements that might hinder programs designed by IOUs should be carefully considered in order to ensure that they are not so onerous as to unnecessarily delay what could otherwise be forward progress on critical transportation infrastructure and other projects.

2. *Section 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?

EDF does not have specific guidance about what is needed to inform how existing planning processes and regulatory development efforts at other State agencies. However, we offer two observations. First, the Commission has recognized that coordination amongst IOUs on how to build on lessons learned and ensure that communal resources are leveraged to the fullest extent possible is necessary and appropriate. Second, rather than just requiring the IOUs to do little more than monitor regulatory processes from other agencies (the Commission states that "updates should be informed by the IOUs' participation in the CARB [California Air Resources Board] and CEC [California Energy Commission] regulatory efforts,"[3] the IOUs should be core participants of both the CARB and CEC regulatory processes to ensure that these current and upcoming parallel processes are mutually informing.

3. *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?

EDF reiterates that there is a need for programs that offer consistency and present an opportunity to facilitate significant progress as soon as possible. Progress toward achieving targets for EV deployment - and associated charging stations necessary for tackling the barrier of range anxiety - are not on track to be met. This means that the TEF should be restructured in order to streamline what is currently an extremely burdensome process and all efforts should be made to ensure that the TEF as approved and finalized by the Commission is set up to provide the needed acceleration in the market. Presupposing that the TEF framework will not be useful

[3] *Id.* at 27.

for TEP development further degrades confidence that utility programs will successfully be a part of achievement of critical goals.

To that end, the Commission should consider that there may be alternative frameworks that accomplish the necessary and laudable goals laid out by the TEF. EDF therefore reiterates the call detailed in the Joint Motion to suspend the procedural schedule laid out in the joint motion to see if a differently structured, streamlined framework would be better suited to quickly approaching targets and mandates.

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

The following would provide important guideposts by which the IOUs could develop budgets:

1) Existing IOU programs - approved utility Applications, which provide a baseline for program size moving forward, are an excellent first step towards indicating the budget that is necessary to carry out future proposals. Of course, this assumes that necessary modifications based on lessons learned are made in order to remedy any discrepancies that prevent a finding that a program will be cost-effective.
2) CEC's assumptions for infrastructure needs - CEC programs that model infrastructure needs for currently stated zero-emission vehicle (ZEV) targets will be necessary to determine how the size of the program(s) that will be required to fulfill this need; using cost averages for different charging station types, the IOUs should be able to determine the price level of installing infrastructure, in addition to other associated fundamental components, such as administrative costs and marketing, education, and outreach (ME&O) necessary to carry a program to fruition.

3) Market potential studies - this type of analysis will showcase the market potential for EVs, in particular for the medium and heavy-duty sector. Rather than assume that targets are met without stretching further, the utilities should maximize vehicle electrification by installing charging stations that will fit that market potential and evaluate their budget accordingly. Of course, the utilities should have a share of the market that is commensurate with ensuring that competition is preserved, a balance that will hinge on the nascent nature of a vehicle category. For more evolving market segments, such as medium and heavy-duty vehicles, the role of utilities in shaping the market can be more.

4) CARB proceedings - Market development and necessary charging station installation that will facilitate that market development will necessarily be influenced by CARB proceedings such as the Advanced Clean Truck Regulation that set targets for vehicle deployment. The Advanced Clean Truck Regulation,[4] along with efforts like the Rule for On-Road Heavy-Duty Diesel-Fueled Public and Utility Fleets[5] will provide a necessary regulatory "thumb on the scale" to drive the market forward. Utilities need to be prepared to jump into the fray and help build out the needed infrastructure to support anticipated growth as a result of these efforts.

5. *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?

No. EDF firmly believes that any budget should be carefully constructed and sufficiently detailed to show that spending on these programs will provide maximum environmental and customer benefit relative to the cost of the program. However, the Commission has all too

[4] California Air Resources Board, *Advanced Clean Trucks,* https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks.
[5] California Air Resources Board, *Fleet Rule for Public Agencies and Utilities,* https://ww3.arb.ca.gov/msprog/publicfleets/publicfleets.htm.

frequently made cost the predominant consideration over what EDF and others believe to be more important factors, such as environmental and air quality benefit and how utility action can help drive the market forward in a way that builds economies of scale and helps to reduce the upfront cost of EVs. While some of these benefits are less easily translated into monetary terms, the societal benefit that is provided should not be considered secondary. Nor, as has frequently been argued in the past, does legislation rank these factors in this way: Senate Bill 350 makes cost of electric service on par with such considerations as "reduction of health and environmental impacts from air pollution" and "reduction of greenhouse gas emissions related to electricity and natural gas production and use."[6] Further, by expanding the EV market and the subsequent electricity load, overall rates should actually go down as a result.

Finally, EDF stresses that there is no time to waste in taking decisive, wide-scale action on transforming the transportation market. California is behind on both its infrastructure and vehicle deployment goals; delaying programs or artificially shuffling projects into pilots when not warranted will not alleviate that problem.

6. *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 durations and with a budget less than $4 million.

As described above, EDF contends that small-scale pilots, particularly given the magnitude of action that is needed, are unwarranted. The need for installation of infrastructure on a much larger scale is needed in order to facilitate adequate change. EDF therefore cautions against constraining utility programs to arbitrarily sized pilots in order to allay fears that costs will be greater than benefits. If the CPUC is to have a hand in tackling the largest source of pollution in the state, it must demonstrate that it has committed to ensuring the success of viable

[6] SB 350 (de León, 2015), Section 740.8 (a) and (b).

technology - in the form of light-, medium-, and heavy-duty EVs - by moving away from calls for pilots and unnecessarily risk-averse processes. EDF finds both the duration and the budget for these "no regrets" projects unnecessarily prescriptive and urges action more in line with the enormous need and opportunity to address air quality and climate change concerns.

7. *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?

Yes, provided it will expedite the approval of proposed programs and help utilities to develop their proposals in a more streamlined fashion. Of course, such a template should be based, as feasible, on the structure of previously approved programs and have clear metrics that can allow the Commission to evaluate success and help the IOUs make course corrections if necessary. The template should be developed by Staff with stakeholder input via a workshop or a round of comments that are integrated as appropriate in a timely fashion.

B. *Section 3.2 - Application Process and Procedures, General Comments*

As stated above, the Application process and procedures should be significantly streamlined in order to expedite approval and forward progress in the critical area of vehicle electrification. Rather than litigating updates to the TEF and TEP, as well as Applications and pilot programs on a regular basis, necessitating frequent and potentially burdensome intervention on IOUs and stakeholders that are likely already stretched to capacity, a different framework is needed. As described in the joint motion filed today and signed by EDF, the Commission should consider whether an alternative framework would better accomplish the goals that serve as guiding lights for utility programs.

In addition, more guidance and tangible measures of success are needed in order to make the scorecard an effective tool. Specific suggestions on the latter point will be described in the next round of comments focusing on scorecard metrics and targets.

C. *Section 3.3 - Transportation Electrification Plan Timing and Updates, General Comments*

The current timing of TEF and TEPs present an unacceptable delay. Assuming that the process laid out by the Commission is as expedited as possible, action by the utilities is unlikely before 2025 at the earliest. As described above, this creates an unacceptable delay in progress and may cause uncertainty in a still emerging market. Further, the frequency and procedurally burdensome approach to updates makes it not only likely that future progress will be circumscribed but that utilities will be less likely - since it appears to be optional - to both provide a TEP update *and* a new Application.

## IV. COMMENTS ON SECTION 4

A. *Section 4 – Investor Owned Utility Roles to Accelerate Transportation Electrification Infrastructure Deployment*

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

EDF agrees that it is necessary to have a clear description of barriers and opportunities to break down those barriers as the Commission goes about evaluating the TEPs set by the IOUs. However, that is not what the Commission has presented: there are several gaps in the proposed table which do not adequately identify barriers preventing beneficial electrification in the transportation sector.

First, the table is focused purely on public charging and light duty vehicles. However, barriers for workplace and private fleets, of which the medium and heavy-duty sector is largely comprised of, is largely ignored. Utilities can play a role in helping manufacturers comply with CARB's Advanced Clean Truck Regulation, setting incremental zero emission truck sales targets from 2024 to 2030, by helping to provide the infrastructure necessary to make EVs a viable

solution for fleets. Given the impact on air quality and climate change that medium and heavy-duty vehicles have, a focus solely on light-duty vehicles is misplaced.

As well, a significant barrier for these vehicle classes is available and affordable charging infrastructure. Given that a large percentage of fleets would rely on privately-owned charging infrastructure at company depots, in particular for commercial vehicles, the focus on public charging identified in Table 3 does not align with the needs of and barriers observed by medium and heavy-duty fleet owners to electrify.

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

Below, EDF outlines further barriers that should be included in Table 3.

1) Infrastructure Barriers:

- Evaluating barriers and streamlining processes for installing and interconnecting electric vehicle service equipment (EVSE). This should be done by consumer type (residential, fleet, and commercial) and building type (depot, multi-unit dwelling (MUD), and detached home).
- Workforce availability for installations and repair of equipment as well as engagement with qualified companies to ensure there is sufficient staff to meet the upcoming installation needs within an IOU's service territory.
- IOUs should provide a one stop shop for EV and fleet owners to receive information about charging options, including financing, rebates, rates, and coupled solutions (e.g., on-site solar and battery storage). These should be divided by both consumer and building type.
- To promote and advise private investment in charging infrastructure, IOUs should produce and maintain hosting capacity maps as is defined in the Integrated Capacity Analysis (ICA) Working Groups long-term refinements final

report.[7]These maps should be made available to potential developers to provide guidance for identifying low cost generation sites which would not require a buildout of grid infrastructure.

2) Industry sector:

- The largest barrier for vehicle-grid integration (VGI) is a clear and meaningful market signal from utility for actors to provide this service. Beyond time-of-use (TOU) rates, IOUs currently offer limited financial incentives for aggregated VGI services to play a meaningful role in grid management. While EDF recognizes that IOUs are offering Demand Response (DR) programs,[8] these programs historically target large commercial customers. More specifically, entry conditions such as volume (e.g., the requirement that DR capacity is >100KW for certain DR programs[9]) can limit small distributed energy resources (DERs) such as EVs from procuring sufficient capacity to participate. If IOUs wish to include more behind the meter, non-wires solutions in their resiliency programs and grid management more broadly, programs should be developed to match and encourage this type of resource. While barriers such lack of interoperable communication standards currently prevent greater uptake of smart charging and networked charging stations that make reaction to price signals and participation in VGI programs more difficult, available smart chargers do exist, stakeholders will have incentive to overcome these barriers if utilities provide a viable business

[7] California Public Utilities Commission, *Integration Capacity Analysis Working Group – Final ICA WG Long Term Refinements Report,* R. 14-08-013 (Jan. 8, 2018), https://drpwg.org/wp-content/uploads/2018/01/ICA-WG-LTR-Report-Final.pdf.
[8] California Public Utilities Commission, *DR Programs,* https://www.cpuc.ca.gov/General.aspx?id=5925.
[9] Southern California Edison, *Scheduled Load Reduction Program (SLRP),* https://www.sce.com/sites/default/files/inline-files/NR569V20810_SLRP_0.pdf.

case for them to take advantage of these rates and programs. Utilities should therefore be engaging with stakeholders to identify the types of market signals that will drive advancement in VGI.

3) Information barriers:
    - As stated above, a central location for program participants to obtain information regarding options for charging station infrastructure and installation should be included in all IOU TEPs, as well as a way for utilities to provide ongoing support.
    - IOUs should further evaluate how to develop effective and targeted marketing, education, & outreach (ME&O) programs – in particular with an eye to providing information to commercial fleet owners – to advance electrification. This must also include adherence to predetermined metrics of success.
    - Within these ME&O programs, IOUs should provide examples of rate impacts on the total cost ownership for different fleet types. This will be particularly important for the medium- and heavy-duty sector to address their unique charging needs.
4) Uncertain or Unfavorable Standards:
    - Sub-metering or utilities accepting a third party, non-utility grade, meter as a form of measuring EV charging load will be vital to lowering cost and advancing VGI and other on the ground load flexibility. To ensure VGI performance is reliable and measurable, IOUs should define softened telematics and data standards which third party metering would have to comply with. Small DERs such as EVs are often held to the same telemetry requirements as large loads or generators. For measuring response to an hourly tariff a telemetry time of 4-6 seconds should not

be required. Metering for this type of service with a telemetry resolution of 15 minutes, as was done by an Xcel Energy submetering pilot in Minnesota,[10] is more than sufficient to accurately bill an EV on a dynamic rate.

- To ensure rapid seamless integration of VGI across California, IOUs should coordinate a common metering data format. This is critical, as it became clear in the California Wide EV sub-metering pilot[11] that IOUs have differing data formats for their billing systems requiring custom software engineering by the electric vehicle service providers (EVSPs) for each service territory - adding cost and time to what should have been a much simpler process. A standard data format, such as Green Button,[12] should be agreed by the joint IOUs.
- Finally, cloud-based services to aggregate, evaluate, and integrate EV load flexibility should be included in TEPs. The ability to assess, coordinate, and incorporate large numbers of DERs such as EVs into their planning will be key to reaching scale. IOUs should investigate emerging cloud-based technologies such as Levelise[13] or EPRI's Open Vehicle Grid Integration Platform (OVGIP)[14].

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?

[10] Xcel Energy, *Compliance Filing – Residential Electric Vehicle Charging Tariff,* Docket No. E002/M-15-111 and E002/M-17-817 at 20, https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId=%7bA0BF0F6B-0000-C016-839D-F8267E380A28%7d&documentTitle=20195-153306-01.
[11] Michael Sullivan, et al. *California Statewide PEV Submetering Pilot – Phase 2 Report* (Nexant for the California Public Utilities Commission), Apr. 26, 2019, https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442461657.
[12] Green Button Data, http://www.greenbuttondata.org/.
[13] Levelise, https://www.levelise.com/.
[14] Electric Power Research Institute, *Open Vehicle-Grid Integration Platform: General Overview,* https://www.epri.com/#/pages/product/000000003002008705/?lang=en-US.

See answer above for Section 4, Question 1(a), which describes the IOU roles necessary to address additional identified barriers.

2. *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)?

EDF has no response to this question at this time, but reserves the right to respond in reply comments.

3. *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?

The metrics provided will be sufficient to determine the potential market competition. However, IOUs - through a third-party consultant - should be required to report on the ground market competitiveness for infrastructure ownership. That is, data about charging station assets that are owned by IOUs and private entities should be evaluated, as well as whether the current breakdown should be reevaluated in the interest of growing the market. It is important to recognize that areas which are primarily served by utility owned public charging infrastructure should not prevent utilities from intervention if they are in areas of low utilization.

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

The data which will be provided as a result of California Energy Commission's Infrastructure Deployment Strategy analysis and Assembly Bill (AB) 2127 (Ting, 2018) implementation process, CARB's Mobile Source Strategy, and the IOUs' existing planning processes will provide sufficient data for determining market maturity. This sufficiency assumes

that the IOU planning process actively engages with key stakeholders such as fleet owners, the North American Council for Freight Efficiency (NACFE), original equipment manufacturers (OEMs), and city municipalities to align planning with stakeholder transition plans.

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?

Because IOUs will be required to provide market maturity assessments specific to their territories needs within their TEPs, either a third-party consultant or Commission Staff can align IOU-determined market maturity assessments with those determined by CEC and CARB for the final TEF. However, to prevent unfair competition, IOUs should hire an independent third-party consultant to determine the state of market competition and how that might impact infrastructure ownership schemes.

## V. COMMENTS ON SECTION 5

A. *Section 5 – Near-Term Investor Owned Utility Transportation Electrification Investment Priorities*

1. *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?

No. See EDF's response to Question 1 in Section 2.

2. *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."

See EDF's response to Question 1 in Section 2.

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

No. See EDF's answer to Question 5 and 6 in Section 3.

B. *Section 5.2 – Electric Vehicles and System Resiliency*

1. *Section 5.2, Question 1:* Should the IOUs 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?

It is essential, in particular during extreme environmental situations, that IOUs ensure there is available, accessible, and adequate charging during power outages. To ensure that investment is equitable, IOUs should focus on projects and solutions which can be accessed by all EV customers, even when barriers prevent installation of private charging infrastructure - for example, those individuals living in MUDs. Therefore, EV charging resiliency programs should prioritize publicly accessible centers (e.g., community centers, gas stations, and malls). Further, alternate deployable solutions that can provide certainty in charging (including mobile charging (e.g., SparkCharge[15] and Free Wire Technologies' Mobi Gen[16]) and vehicle-to-building (V2B) solutions for critical facilities should be investigated.

EDF supports validating and offering services which would enable EVs to operate as a grid resource for both normal and critical grid operations. With increasingly extreme environmental conditions, it is clear that resiliency and reliable power supply should be a concern for IOUs. Senate Bill 901[17] requires utilities servicing more than 100,000 customers to program a wildfire mitigation plan to prevent, combat, and respond to fires within their service territories. It is important that the CPUC require IOUs to consider new solutions such as VGI within their resilience plans in order to best leverage the grid resource potential of EVs. IOUs should therefore continue piloting and offering programs which develop clear market signals for stakeholders to engage and evaluate the business potential for VGI. VGI is one of many non-wires, behind the meter solutions which could play a part in providing resiliency to the grid and

[15] SparkCharge, https://sparkcharge.io/.
[16] FreeWire, *MobiGen,* https://freewiretech.com/products/mobi-gen/.
[17] SB 901 (Dodd, 2018).

utilities should consider how to integrate behind-the-meter solutions which best suit their resiliency needs. Outside the TEPs, IOUs should also be preparing resiliency plans which cover an array of solutions not limited to VGI. These resiliency plans should define clear metrics for measuring resiliency progress which can be tied to desired policy outcomes and increased system functionality. For example, IOUs can look to other jurisdictions, such as Hawaii's grid planning efforts,[18] for ways to incorporate decentralized solutions into their resiliency planning.

a. If yes, how should the IOUs design their pilot(s)? What sector(s) should the pilots target? What use cases should the IOUs prioritize in their pilots?

As was stated in Question 1 in section 5.2 above, pilots for VGI which are utilized for resiliency should be included in IOU resiliency plans; utilities should be investigating the capacity of an array of behind the meter, non-wires solutions to play these roles. However, the ability of advanced VGI services such as vehicle-to-grid (V2G) or V2B to provide normal grid operation services (e.g. frequency balancing, voltage control, and peak load capacity), should be included in IOU TEPs.

2. *Section 5.2, Question 2:* Which local agencies and community organizations should the IOUs work with to identify challenges as more vehicles are electrified across their service territories?

Assuming that this question is referring to the idea of ensuring resilience, EDF believes it is appropriate to work with the following types of organizations:

- Municipalities
- Community-Based Organizations
- Local environmental groups
- Community based critical load sites (e.g. shelters, schools)

[18] Hawaiian Electric Company, Inc., *2016 Power Supply Improvement Plan (PSIP) Update*, https://cca.hawaii.gov/dca/hecos-psip-update-december-2016/.

C. *Section 5.3 – Customers Without Access to Home Charging*

1. *Section 5.3, Question 1:* Given the lack of CPUC 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?

It will be important to begin to tackle the persistent barriers to installation of charging stations in MUDs, as a start - notably, the split incentive that prevents agreement from all relevant parties that installation of charging stations is appropriate and targeted, effective ME&O. As a start, a University of California Los Angeles Luskin Center study[19] on addressing barriers in this segment should be considered, including measures such as reducing the cost of EVSE installation with incentives - a key barrier for MUDs, given that low-income and disadvantaged communities are more likely to reside in apartment buildings - as well as implementing construction codes that make installation easier (such as making interconnection times less onerous), expanding public charging opportunities, and conducting outreach. Rather than focus solely on public charging, ensuring that there is more potential for EV ownership in apartment buildings should also be a core priority.

That being said, despite the CPUC's inability to regulate public charging pricing by and large, there are a few ways in which they can better ensure equitable fueling costs. First, they could provide an incentive if public charging station owners are willing to pass through a price signal that conveys the importance of charging strategically or enable them to participate in

[19] University of California Los Angeles, Luskin Center of Public Affairs, *Overcoming Barriers to Electric Vehicle Charging in Multi-unit Dwellings: A Westside Cities Case Study,* https://innovation.luskin.ucla.edu/wp-content/uploads/2019/03/Overcoming_Barriers_to_EV_Charging_in_MUDs-A_Westside_Cities_Case_Study.pdf.

demand response programs that reward avoidance of charging at key times of grid stress. As well, rewards for provision of data to the utilities and ultimately the CPUC may be well placed. It may also make sense to revisit the idea of utility ownership of public charging stations in certain, fairly narrowly defined circumstances. While EDF respects there are competition concerns in this regard, there may be merit in this type of intervention in certain areas - such as still emerging medium and heavy-duty vehicle classes and public charging stations more likely to be used by lower-income individuals potentially more sensitive to high prices at charging stations.

a. Are there solutions that do not compromise the cost causation principle of ratemaking?

It is difficult to ensure cost causation, but there are ways of helping to ensuring that fuel costs are kept down, as described above.

b. Are there solutions that do not involve infrastructure investment?

Assuming that this question refers to EV charging stations, it is difficult to imagine situations in which infrastructure investment is not necessary, given that EVSE deployment is falling behind what is needed to support EV targets. However, the need for grid infrastructure may be possible to avoid with the inclusion of on-site storage at, for example, workplaces, depots, and MUDs, that allows less reliance on the grid at peak times, thus preventing the need for build-out to accommodate peak load. In the UK, UPS has successfully proved out this possibility - by combining battery storage and active network management, UPS was able "to increase the number of 7.5-tonne electric trucks operating from its London site from the current limit of 65 to 170 without the need for the usual expensive upgrade to the power supply

connection."[20] Smart solutions like this can be a cost-effective way to ensure increased deployment of EVs. Additionally, the Commission should consider alternative siting solutions, such as putting charging depots at substations with extra capacity (as informed by ICA analysis) in order to reduce or obviate distribution costs.

D. *Section 5.4 – Medium- and Heavy-Duty Vehicle Infrastructure*

1. *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?

EDF believes the following topics would be ripe to address within pre-TEP Applications:

1) Fleet engagement and ME&O. For these programs to be successful, utilities must engage with fleets to ensure that appropriate information is disseminated in a way that better ensures participation. This will necessarily involve direct initial and ongoing conversations with potential participants in order to provide information about rates, strategic charging to maximize benefits, available rebates and incentives, and charging station solutions. Up to this point, ME&O has been neither robust nor specific enough to be effective, and EDF encourages the CPUC to take the opportunity to strengthen ME&O, particularly in the medium and heavy-duty electric vehicle context.
2) Guidance for load management. Relatedly, options for managing load must be accurately communicated. Installation of batteries that can prevent charging during peak times and help to alleviate the problematic nature of demand charges, integration of fleet vehicles into DR programs and ensuring success on time-variant rates, and on-site storage and self-generation are all solutions that warrant exploration and are areas in

[20] The Energyst, *How battery storage and smart energy management tripled EV capacity at UPS* (May 9, 2019), https://theenergyst.com/battery-storage-energy-management-evs-ups/.

which utilities can provide information and expertise. Exploring that in the context of a program would provide extremely valuable lessons and scalability.

3) Alternative Charging Solutions. As described above, the utilities should also explore how to alleviate the grid strain that could possibly result from increased EV load. While it is inarguable that ramped up EV deployment is a necessity, rather than an option, workable options to ensure that that happens are also required. While utilities have done a fair amount on rate design with an eye to maximizing renewable energy usage and minimizing impact on the grid, on-site battery and energy production and siting of depots to avoid expensive distribution upgrades should also be explored as soon as possible.

2. *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?

No, it will be counterproductive to assign one IOU to coordinate state-wide medium and heavy-duty issues across the state. IOUs have vastly different situations and opportunities in their respective regions, and appointing one IOU to lead the charge might result in a sweeping resolution of issues, or a proposal that reflects the priorities of one area of California to the detriment of others. Of course, there should be coordination in general, such that lessons learned on a regional level are communicated and adapted into workable solutions by IOUs in their service territory. EDF notes that while we support the idea of cross-IOU coordination, it should be overseen by the CPUC on a high level. It would be inappropriate for the utilities to operate without feedback from the Commission - such information could be easily integrated into reports that should be required after a program is approved by the Commission.

## VI. CONCLUSION

EDF thanks the Commission for the opportunity to weigh in on this critically important effort to map out the future of transportation electrification in California and looks forward to continued engagement over the coming months.

Respectfully submitted,

March 6, 2020

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