DOCKETED	
Docket Number:	20-IEPR-02
Project Title:	Transportation
TN #:	233929
Document Title:	CALIFORNIA ELECTRIC TRANSPORTATION COALITION Comments - Comments on CPUC & CEC joint workshops on June 22 & 24, 2020 on Vehicle Grid Integration and Charging Infrastructure Funding
Description:	N/A
Filer:	System
Organization:	CALIFORNIA ELECTRIC TRANSPORTATION COALITION
Submitter Role:	Public
Submission Date:	7/17/2020 4:52:34 PM
Docketed Date:	7/20/2020

Comment Received From: CALIFORNIA ELECTRIC TRANSPORTATION COALITION
Submitted On: 7/17/2020
Docket Number: 20-IEPR-02

Comments on CPUC & CEC joint workshops on June 22 & 24, 2020 on Vehicle Grid Integration and Charging Infrastructure Funding

Additional submitted attachment is included below.

CalETC
California Electric Transportation Coalition

July 17, 2020

California Energy Commission (CEC)
Re: Docket No. 20-IEPR-02
Sacramento, California 95814-5512

Submitted to on-line CEC portal and e-mailed to the California Public Utilities Commission (CPUC)

Re: Comments on the CPUC and CEC joint workshops on June 22 and 24, 2020 on Vehicle Grid Integration and Charging Infrastructure Funding

The California Electric Transportation Coalition (CalETC) and the co-signatories listed below appreciate the opportunity to provide feedback on the Joint CPUC and CEC workshops on Vehicle Grid Integration (VGI) and Charging Infrastructure Funding held on June 22 and 24, 2020. We appreciate the time and effort it took to organize these workshops and the new information that was provided.

CalETC supports and advocates for the transition to a zero-emission transportation future to spur economic growth, fuel diversity and energy independence, contribute to clean air, and combat climate change. CalETC is a non-profit association committed to the successful introduction and large-scale deployment of all forms of electric transportation. Our Board of Directors includes representatives from: Los Angeles Department of Water and Power, Pacific Gas and Electric, Sacramento Municipal Utility District, San Diego Gas and Electric, Southern California Edison, the Southern California Public Power Authority, and the Northern California Power Agency. In addition to electric utilities, our membership also includes major automakers, manufacturers of zero-emission trucks and buses, electric vehicle charging providers, and other industry leaders supporting transportation electrification.

Lower cost charging solutions are essential to growing the market for electric vehicles (EVs) and meeting the state's EV and charging infrastructure goals. CalETC recommends policy makers pursue charging and VGI solutions that lower costs, and structure incentive programs, like CALeVIP, to promote accessible and affordable electricity fuel for all Californians. Our comments are organized into three sections to address these needs.

1. Lower-cost charging solutions are needed to make electricity fuel accessible and affordable for all EV drivers, particularly for those in disadvantaged and low-income communities.

CalETC recommends the agencies consider how their policies and investments can be implemented to keep EV charging costs low, especially in disadvantaged and low-income communities. Non-networked lower-kW

charging infrastructure[1] can be attractive low-cost options for those without access to at-home charging currently, living in multi-unit dwellings, charging at long-dwell-time locations, and/or for entities preferring lower-cost self-managed charging options[2]. Non-networked lower-kW charging infrastructure can be designed to be grid-friendly and achieve low-cost VGI through adherence to time-variant rates (including time-of-use rates). CalETC believes there are also attractive networked L2 and DCFC options, e.g. customers may want the benefit of fuel cost savings through networked charging[3] options or the grid benefits associated with networked charging infrastructure. We recommend policy makers consider customer preferences, weighing costs, convenience, affordability, and accessibility, while also considering grid impacts for VGI solutions across the multiple charging infrastructure options.[4]

Existing time-variant rate programs have demonstrated that, particularly for long dwell-time locations (e.g. workplace and residential, including MUD, charging), customers respond to price signals and shift load to less-costly grid-beneficial times, with and without networked charging infrastructure. Similarly, customers respond to price signals and purchase lower-cost and/or lower-kW products. CalETC recommends policy makers consider the value proposition of all types of charging, non-networked lower-kW and networked charging infrastructure, without making the assumption that all charging needs to be networked and requiring networking to receive public incentive dollars, as is currently the case.

2. **Policy makers can encourage innovation and charging concepts that can lower cost, allow for the consideration of disruptive technology options, and enable customer choice. CalETC recommends regulations or grant requirements applicable to VGI and/or charging infrastructure to encourage the streamlined buildout of accessible and affordable electricity for all while remaining technology neutral.**

CalETC agrees with the Lead Commissioner's concern that charging infrastructure and VGI done right will help with EV adoption and that charging infrastructure and VGI done wrong will hurt EV adoption. Furthermore, we agree with the Commissioner's call for a better understanding of charging costs and support the need to better understand the value proposition of various VGI options to customers. The EVgo White Paper and presentation on June 24, represents a thorough assessment of the cost stack for DCFC and VGI efforts.[5] Better understanding costs associated with various options and sites can help to lower deployment and delivery costs, ensure electricity fuel is cost competitive with petroleum-based fuels, exert greater downward pressure on utility rates, and allow state incentives to fund more charging infrastructure per public dollar invested.

---

[1] Non-networked lower-kW charging infrastructure includes Level 1 charging infrastructure that is permanently affixed, not merely a 120V wall plug, lower-kW Level 2 and lower-kW DCFC charging infrastructure

[2] The VGIWG defined self-managed charging as indirect or passive managed charging. It includes shifting kWh through a vehicle app in response to time-variant rates, or reducing kW by purchasing lower-kW charging stations, kiosks or building energy management system to control a bank of charging stations or stations that manage charging in two to four connectors.

[3] The VGIWG defined networked charging infrastructure as direct or active managed charging networks, automakers, or cloud aggregators contracted by parties such as load serving entities.

[4] 2017 EPRI study available here: https://www.epri.com/#/pages/product/3002011098/, which considered electricity costs and all fees for away-from-home charging in each state and put them into a common metric so that pricing can be more easily compared.

[5] https://www.evgo.com/wp-content/uploads/2020/05/2020.05.18_EVgo-Whitepaper_DCFC-cost-and-policy.pdf

Vehicle Grid Integration

CalETC recommends policy makers support both non-networked lower-kW and networked VGI charging solutions. The CEC staff presentation at the June 22 workshop illustrates the challenge of trying to steer market development by listing over 25 trends that were not foreseen in the 2014 California VGI Roadmap. [6] In addition, since 2014, widespread deployment of time-variant rate options has provided a powerful tool for encouraging grid-beneficial electricity usage, including EV charging. New time-variant rates that encourage daytime charging are being deployed by some utilities to help integrate daytime photovoltaic energy. These rates can be accessed through vehicle or facility charge timers that may not require networked chargers or networked charging services.

Cloud aggregators used for smart thermostats and smart inverters have demonstrated effective grid management with technologies that are applicable to EVs. Customer cost-reducing opportunities exist or are emerging, such as networked VGI alternatives, using either EVSE or EVs. Cloud aggregators are currently providing two-way communication pathways and protocols from the EV to the grid and other distributed energy resources (DERs). OEM telematics, ISO 15118, OCPP, IEEE 2030.5, Open ADR 2.0b can use cloud aggregators and EV-centric or EVSE-centric pathways. Cloud aggregators can handle many competing open and proprietary communication protocols from automakers, charging providers, load-serving entities and/or third parties using lower-cost existing communication methods (e.g. OEM telematics or WiFi).

Charging Infrastructure Funding

Lower-cost charging opportunities can help meet the state's EV and charging infrastructure deployment goals, keeping charging affordable and accessible, and increasing the number of sites equipped to charge EVs per public dollar invested. CALeVIP requirements limiting CALeVIP investment to networked Level 2 and DCFC increase CALeVIP program costs, decrease the number of chargers installed per public dollar spent, and may result in inequitable access to electricity fuel.

The need to include non-networked lower-kW charging infrastructure in CALeVIP must be balanced with the need to ensure funding is expended expeditiously and effectively. To build out charging infrastructure more expeditiously, reforms will be needed to CALeVIP, which "sells out" within hours and often results in investments taking years to reach fruition. CalETC recommends the CEC look to best practices from other incentive programs and reform CALeVIP such that chargers are deployed quickly and at scale to meet customers' needs and reach state goals.[7]

Non-networked lower-kW charging infrastructure and lower-cost networking options can meet the charging needs and provide desired services for some Californians, particularly disadvantaged and low-income communities, as charging costs can be kept to a minimum while still providing desired services. CalETC recommends CALeVIP be inclusive of non-networked lower-kW charging infrastructure in applications where there is a potential for keeping costs low and meeting the need for accessible and affordable charging

[6] Slide 12

[7] In its presentation on June 24, EVgo shared best practices from BAAQMD and LADWP as it relates to minimum utilization thresholds, 24/7 access, and utility design work. See docket 20-IEPR-02, Presentation - America's Largest Public Fast Charging Network (Sara Rafalson), June 23, 2020. EVgo and Electrify America also suggested that given evolutions in technology, including power sharing, the CEC should consider requiring CHAdeMO at every station, but not necessarily every charger.

infrastructure, particularly in disadvantaged and low-income communities. As non-networked lower-kW charging infrastructure options are less costly than networked options, and can provide sufficient capability in some circumstances, we recommend including these options rather than excluding them entirely as is currently the case. Inclusion of these options will still allow substantial investment in networked and higher-kW charging options, which are essential in some circumstances, as non-networked lower-kW charging infrastructure options require less public investment per site.

CalETC recommends against using funds to pay for networking fees in some cases. Using public funds for these fees for a limited time may be detrimental to the customer experience in situations where the end of the subsidy results in customer cost increases for charging. CalETC suggests it may be preferable to avoid temporarily subsidizing fees unless it can be demonstrated that the value proposition to the customer is immediate or will equal or exceed the cost to the customer once public subsidies end.

The presentation by Nuvve at the June 24 workshop called for minimum requirements in CALeVIP grant applications and regulations, beyond those required for all public funding dollars, prevailing wage, ADA, etc. CalETC agrees, additional restrictions on public dollars, requirements that can increase costs and complicate CALeVIP should be avoided at this early stage of the market when the state is lagging significantly on meeting its infrastructure goals.

3. Public funding can support research to inform policy makers and help ensure accessible and affordable charging solutions.

The recent study on "Reducing EV Charging Infrastructure Costs" by the Rocky Mountain Institute (RMI)[8] and the June 30, 2020 Final Report of the VGIWG[9] confirm the urgent need to better understand all the costs of charging, including those associated with the various VGI options. RMI identifies a need to understand how best to improve affordability and support more cost-effective scaled charging infrastructure deployment.

The RMI report examined various component costs of charging, but RMI found it difficult to gather the data and compare costs across various vendors and installations. RMI called for an urgent, sustained effort over many years, modelled after a US DOE effort on reducing solar costs, to focus on of charging costs in the U.S. and how to reduce them (especially soft costs which may be as much as 64% of total costs).[10] Three examples of the RMI report's concerns:

- *"Even small incremental costs, like a $20 per month networking fee for a nonresidential charger, can eliminate the cost advantage of owning an EV over a conventional petroleum-powered vehicle when those costs are passed along to drivers."*
- *"We strongly suspect that soft costs are a big part of the reasons why charger installation costs in the United States are three to five times the cost of charger itself, a much higher ratio than that seen in Europe (even after allowing for some charging hardware in Europe having higher costs)."*
- Yearly combined costs for data and networking contracts for each EVSE are $284 to $490 per year.[11]

[8] Available at https://rmi.org/insight/reducing-ev-charging-infrastructure-costs/
[9] Available at https://gridworks.org/materials-produced-by-the-vgi-working-group/
[10] RMI report at 45.
[11] RMI report at 45, 8 and 20.

The VGIWG "*also faced limitations in getting private-sector cost information and could only assess costs on a relative basis, precluding cost-benefit analysis or assessment of net value."*[12]

CalETC recommends public funds be allocated for an EV customer charging cost analysis to help understand and reduce the up-front and on-going costs and customer value proposition of charging and VGI. Understanding value proposition to EV customers is essential as many options may cost more but provide a service, convenience and/or access customers want or need.

- CalETC suggests EPIC, ratepayer, US DOE, and/or utility LCFS funds can be allocated for an on-going, multi-year cost and value proposition assessment, inclusive of lessons learned from past and on-going projects, quantifying the net value of VGI and other DERs including:
    - Better understand the EV markets and charging infrastructure needs in disadvantaged, low-income, rural, and tribal communities;
    - Effectiveness and uptake of self-managed charging when time-variant rates are available;
    - Effectiveness of new time-variant rates that encourage daytime off-peak charging to pair with solar energy availability;
    - Value to the grid of reducing kW relative to shifting kWh[13];
    - Impact of new daytime time-variant rates on charging of EVs at home, away-from-home, using Level 2 and DCFC, and for fleets (including ride hailing fleets); and
    - Consideration of costs and customer value proposition for light-, medium-, and heavy-duty EVs, non-road EVs, and second use EV batteries.
- We recommend the cost analysis examine the soft costs added at the local and state government levels.
- We recommend the cost analysis examine the soft costs that have been added to date or are being considered by local and state agencies, including regulations by the Division of Measurement Standards, CARB's EVSE payment and access regulation, ADA requirements, permitting fees and proposed grant eligibility requirements or CEC's load management rulemaking.
- We recommend the cost analysis evaluate utility- and customer-side infrastructure costs for light-, medium-, heavy-duty and non-road EVs and for varying kW charging capabilities. CalETC's recent charging infrastructure needs and costs assessment to reach 5 million light-duty EVs by 2030 examined 243 scenarios and found costs could vary from $5.5 billion to $25.4 billion (combined customer- and utility-side costs).[14]

In addition to cost analysis, we support accelerating VGI with *"$50M in EPIC, ratepayer, US DOE, and/or utility LCFS funds, in many competitively bid large-scale demonstrations of promising VGI use cases to*

[12] See page 6 of the VGIWG Final Report which also notes "And the Working Group faced limitations in fully assessing barriers to VGI, including customer interest and acceptance, as well as the costs of eliciting participation in VGI programs, such as marketing and dealership education"

[13] For examples, see SMUD's study "Value to the Grid From Managed Charging Based on California's High Renewables Study" and Bill Boyce's June 2019 presentation to Gridworks, "SMUD EV Grid Impacts and Value." Sacramento Municipal Utility District studies have found that lowering kW is much more financially valuable relative to shifting kWh.

[14] CalETC report available at https://caletc.com/just-released-infrastructure-needs-assessment-for-5m-light-duty-vehicles-in-california-by-2030/

validate consumer acceptance of incentives, security, affordability, reliability, cost, and communication pathways."[15]

Thank you for your consideration of our comments.

Adopt A Charger
Kitty Adams, Executive Director

California Electric Transportation Coalition
Eileen Wenger Tutt, Executive Director

Electric Auto Association
April Bolduc, President

Ford Motor Company
Jacob Mathews
Manager, EV Standards and Regulations

Kitu Systems
Vincent Weyl, Vice President

Natural Resources Defense Council
Miles Muller, Attorney

Nissan North America, Inc.
Lance Atkins, Principal Senior Engineer

Orange Charger
Nicholas Johnson, Chief Executive Officer

Plug In America
Joel Levin, Executive Director

Toyota
Max Parness, Program Manager

[15] See VGIWG Final report table 8 (strongest agreement) policy 7.09 (from CalETC) and the longer description in Annex 6.