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January 8, 2021

Re: Joint Agency Comments on the CEC Staff Workshop on Funding Allocations for Future Electric Vehicle Infrastructure Projects - Docket No. 20-TRAN-04

These comments are submitted by a coalition of public agencies, including Peninsula Clean Energy Authority (hereinafter Peninsula Clean Energy), East Bay Community Energy, Redwood Coast Energy Authority, Silicon Valley Clean Energy, and Sonoma Clean Power Authority (“Joint Agencies”). The Joint Agencies appreciate the opportunity to provide feedback to the CEC on Docket No. 20-TRAN-04, which will determine how this important funding is allocated for future electric vehicle (EV) infrastructure projects.

The state is taking significant steps to electrify transportation in support of Governor Newsom’s recent [Executive Order](#), calling for 100% of new vehicle sales to be zero-emission within 15 years. Advancing transportation electrification (“TE”) holds significant benefits including a projected increase in Gross State Product by approximately \$80B - \$140B, growth in real income between \$310B - \$360B, and the creation of 394,000 new jobs statewide by 2030.¹

As load serving entities and public agencies operating community choice aggregation (“CCA”) programs, the Joint Agencies are striving to decarbonize California’s electricity portfolio faster than state mandates. The Joint Agencies are also investing in accelerating deployment of TE infrastructure in the communities they serve and have significant TE programming efforts underway including targeted vehicle and infrastructure incentives for low- to moderate- income community members²³, large-scale infrastructure deployment

¹ Next 10: [CLEAN TRANSPORTATION - An Economic Assessment of More Inclusive Vehicle Electrification in California](#)

² <https://www.peninsulacleanenergy.com/driveforwardelectric/>

³ <https://www.mcecleanenergy.org/ev-drivers/>

initiatives⁴⁵, technical assistance to multifamily property owners to support building electrification⁶, among other efforts.

Based on our experience in accelerating TE within our communities, the Joint Agencies offer the following suggestions for CEC consideration:

1. Include both Level 1 and power-managed Level 2 charging⁷ (providing a minimum of 1.4 kW at full utilization) incentives for EV Supply Equipment (“EVSE”) installations at Affordable and market rate multifamily housing properties,
2. Explicitly encourage the utilization of advanced load management systems as a strategy to provide additional EVSE in built environments constrained by electrical capacity, and provide educational opportunities to promote the utilization of these tools,
3. Provide funding that enables EV drivers on Transportation Network Company (“TNC”) platforms to charge at or near airports and near common dropoff/hotspot locations,
4. Provide funding for L2 and Direct Current Fast Charge (“DCFC”) infrastructure in rural communities, which are particularly underserved by existing TE infrastructure funding programs.
5. Provide funding for Vehicle to Building (“V2B”) projects with light and heavy-duty public fleets.

I. Multi-Unit Dwellings

To date, single-family homeowners are far more likely to own EVs than multifamily housing residents because they typically have access to private garages with either existing Level 1 outlets or Level 2 charging solutions. However, residents of multifamily housing properties typically either lack space to install EVSE and/or have electrical capacity constraints that make adding additional service from a distribution utility prohibitively expensive. This challenge particularly impacts low-and moderate-income residents who are often residents of Affordable and market rate multifamily properties. In turn, the Joint Agencies strongly support the CEC to incentivize Level 1 and power-managed Level 2 EV charging at multifamily housing properties to be among the highest priorities for funding.

Driver Need: Both Level 1 and power-managed Level 2 charging with a minimum of 1.4 kW provide a pathway for multifamily housing managers/owners to meet the daily charging needs of their residents, providing a minimum of 40-50+ miles of range per overnight charge at dramatically lower cost than typical Level 2 charging (40A, 7.2 kW). This well covers the typical driver need of approximately 24 miles per day according to the 2018 California Public Road Data. For the minority of drivers charging on a lower power solution who need more than can be provided, the growing battery capacities will typically provide for days of service which could be supplemented by occasional fast charging to top-off. In

⁴ <https://www.peninsulacleanenergy.com/ev-ready/>

⁵ <https://www.mcecleanenergy.org/ev-charging>

⁶ <https://allelectricdesign.org/>

⁷ “Power-managed Level 2 charging” refers to Level 2 charging with Advanced Load Management Systems (ALMS) in these comments.

fact, a [report](#) by the California Air Resources Board shows that *over half* of all EV drivers are already successfully using Level 1 charging (either a standard outlet or Level 1 EVSE) to charge their vehicle.

Installed Costs & Scale: The installed cost for Level 1 charging can run as low as under \$2,000 per port and power-managed Level 2 charging under \$4,000 per port within a given service capacity (with power-managed Level 2 providing higher service levels generally). The actual cost benefits grow substantially when factoring costs of increasing service capacity as increasing distribution grid service capacity can raise costs by tens of thousands of dollars. Level 1 and power managed Level 2 can provide as many as five (5) ports within a given 40-amp circuit whereas that same capacity might only support one conventional unmanaged Level 2 port. Costs for unmanaged Level 2 ports can run as high as \$18,000 per port as reported by PG&E on their EV Charge Network program⁸. Scaled deployment of EV charging, tens or hundreds of ports, at multi-unit dwellings is only plausible with flexible, lower-cost Level 1 and power managed Level 2 approaches. As a consequence, the overall costs to build out the CEC's projected 250,000 ports by 2025 can be expected to be dramatically lower with the inclusion of Level 1 and power-managed Level 2.

Flexibility for Sites: The Joint Agencies encourage the CEC to allow these property owners/managers to opt for the technology option that makes the most sense for their development based on the specific site needs, which may include installation circumstances, cost constraints, and/or desired service level for residents. The Joint Agencies also encourage the CEC to allow for both Level 1 and power-managed Level 2 in program design as this flexibility will allow multifamily property owners to choose the technology that makes the most sense for their particular property type when adding EV charging options. California's housing mix is diverse, so flexibility in the types of charging that will be supported by CEC programs should be paramount so that charging can be deployed at all willing multifamily properties.

Power-Managed Level 2: Power-managed Level 2 charging is a key strategy in expanding the total possible deployment of traditional Level 2 EVSE by utilizing energy controls. There are multiple configurations of ALMS systems with somewhat different use cases which substantially increase the number of ports for a given circuit or panel, beyond the conventional single- and dual-port EVSEs. The Joint Agencies encourage the CEC to explicitly incorporate the utilization of these technologies in program design and provide additional education opportunities on ALMS across use cases such as multifamily housing (and appropriate for many other long-dwell use cases such as workplace charging), including design principles, technical specifications, guidance for contractors and electrical inspectors, case studies, etc. to further promote statewide utilization at scale.

⁸ PG&E EV Charge Network Quarterly Report (July 1, 2019 – September 30, 2019), p. 13, available at https://www.pge.com/pge_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/program-participants/PGE-EVCN-Quarterly-Report-Q3-2019.pdf (reflecting PG&E's average cost per port of \$17,973 through Q3 2019 in the EVCN program)

EV Load Shaping: The Joint Agencies also encourage vehicle grid integration (“VGI”) deployment, such as EV load shaping that encourages off-peak charging at EV charging stations that are deployed at multifamily properties. As previously noted, a 10-hour overnight charge more than meets the daily range needs of an average EV driver. Charging that begins at 9 PM, after the evening peak ends, through 7 AM the following morning, provides this 10-hour window. The ability to control charging can be provided through the vehicle (through charge scheduling) or potentially through the EVSE. The use of smart outlets⁹ for Level 1 charging provides an opportunity for future load management controls, as well as networked Level 2 stations that are already available.

Assigned Parking: The Joint Agencies encourage the CEC to explicitly allow funding to be used for assigned parking at multifamily housing, in addition to parking that is shared. Restricting funds to shared parking, as is the current pillar requirement for the California Electric Vehicle Incentive Project, dramatically reduces access to charging that the incentive program can facilitate. Parking spaces at multifamily properties are often deeded or assigned, by some estimates as much as 80% or more according to some industry consultants, and tenants are unable to switch parking spaces. Limiting funding to shared parking only limits the scale of investment that could be possible to a type of parking that does not exist at most multifamily properties. Furthermore, the ADA requirements that are necessary when creating a new shared parking space within an existing MUD are often a nonstarter with multifamily property owners. Allowing for funding to be utilized for EVSE installations at assigned parking, combined with Level 1 or power-managed Level 2, allows for multifamily properties to more easily explore deployment scenarios where every tenant can get access to EV charging, which is critically needed to accelerate EV adoption. Prior communication with CEC staff have suggested a reticence to provide incentives which result in individual benefit, however the state already provides vehicle incentives which provide individual (and societal) benefits (such as the Clean Vehicle Rebate Program). For rental apartments in particular, EV charging benefits of assigned parking are in actuality shared over time by different tenants who may reside in a given rental unit over time. Most importantly, for statewide EVSE deployment to be successful, funding must support all market segments to ensure all consumers have an opportunity to realize the benefits of driving an EV, including accessibility to convenient and cost effective daily charging.

II. TNC Friendly Airport Fast Charging

The Joint Agencies support efforts to electrify vehicles operating on TNC platforms, which will significantly reduce greenhouse gas emissions from the ride-hailing sector. Fast charging, especially that is high-capacity (100+ kW), will enable this transition. A recent UC Davis report¹⁰ found that while EVs operating on TNC platforms represent a small percentage of overall registered EVs, they account for 35% of DCFC charging events at non-Tesla fast charging stations. This clearly demonstrates the critical need for fast charging in this use case. This outcome is not surprising given that TNC vehicles are a high-mileage application.

⁹ Peninsula Clean Energy has installed 13 Plugzio (<https://www.plugzio.com/>) units as part of a smart outlet Level 1 pilot at multifamily housing

¹⁰ <https://escholarship.org/content/qt15s1h1kn/qt15s1h1kn.pdf?t=pyn867>

The Joint Agencies and others, including Air Districts, have begun providing incentives to encourage the electrification of drivers operating on TNC platforms. Peninsula Clean Energy has recently begun a pilot project with Lyft that provides incentives to drivers who choose to rent an EV for use in ride-hailing and the TNCs are eligible for the Bay Area Air Quality Management District's High Mileage Fleet Program.

While airport property lots and garages are certainly good options for DCFC infrastructure, the Joint Agencies encourage the CEC to provide program design flexibility in deploying large-scale, geofenced DCFC plazas to meet the needs of TNC drivers. A key consideration is whether an airport can host this infrastructure, as there may be unique constraints that limit deployment. Expanding eligible sites to those that are also off airport property, but connected to or coordinated with airports like cell-phone lots and/or sites near pickup/drop-off hotspots like those in downtown areas (e.g., hotels, conference centers, etc.), may be critical in enabling successful and well utilized DCFC infrastructure for TNC drivers. Without this flexibility, DCFC deployment to support the needs of TNC drivers could be delayed.

III. Advanced Technologies

The Joint Agencies support the CEC's efforts to bolster innovative and advanced EV technologies. Specifically, the utilization of V2B carries benefits to public agencies as they electrify their light, medium and heavy-duty fleets. For example, government-owned EVs can be utilized as emergency power, if the building is equipped, providing power to meet critical loads at critical facilities during planned Public Safety Power Shutoff events, blackouts and other disasters that result in an unexpected grid outage. As public agencies, transit agencies, and school bus operators transition to battery electric buses, these vehicles can serve as emergency backup power for critical facilities easily deployed anywhere they are needed.

Peninsula Clean Energy's recently approved Municipal Fleets Program includes this type of V2B demonstration with a local agency and is in the early stages of planning this project. Lessons learned can be shared with the CEC and included in future grant opportunities for this use case.

IV. Rural Charging

The Joint Agencies encourage the CEC to direct more attention and investments to addressing the gap in charging infrastructure in rural communities. These communities have historically been underserved by existing transportation electrification infrastructure funding programs, presenting a major barrier to electrification. Rural drivers are more likely to experience a higher frequency of long-distance interregional trips and traverse terrain that greatly varies in elevation, necessitating the need for charging infrastructure, in particular, DCFC. To underscore the frequency of long-distance interregional trips, Humboldt County's daily average VMT is 60 miles (Humboldt County 2020 Travel Demand Model). Rural routes also require additional funds to address grid connection barriers, and

to offset higher operational and maintenance costs to deliver services across a diffused landscape. For Humboldt County, the population density is 35 people per square mile, and although most people live around Humboldt Bay, the remaining households are spread along major transportation corridors and rural roads with limited utility distribution tie-in points.

The lack of rural charging also creates significant gaps in service that deter the use of EVs to those regions. Lack of EV charging away from home is the second largest barrier to EV adoption.¹¹ The private sector is more reluctant to make investments in high cost, low utilization charging infrastructure, increasing the necessity of State funds to electrify interregional corridors. However, people traveling from outside of those regions still need a place to charge to confidently travel. The State needs to fill in the market gaps to boost confidence that EVs can go anywhere that an ICE vehicle can.

The CEC has taken a step in this direction by working with public agencies on CALeVIP projects in rural counties and in one current project, provides additional incentives for charging infrastructure installed in unincorporated communities. However, installation of public charging infrastructure is complicated by the lack of broadband internet or cell service, potentially expensive grid upgrades, and lower utilization rates compared to urban areas. The Joint Agencies encourage the CEC to focus on the unique needs and barriers of rural communities and ensure that rural communities have access to public charging infrastructure.

The Joint Agencies look forward to continued collaboration with the CEC to advance the state's TE goals and appreciates your review of these comments. Please feel free to reach out if you have any follow up questions or would like to discuss.

¹¹ The Barriers to Acceptance of Plug-in Electric Vehicles ([NREL 2017](#))