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Electrify America Comments - October 6 Advisory Committee Meeting for the Clean Transportation Program

Additional submitted attachment is included below.

October 25, 2022

Commissioner Patty Monahan
California Energy Commission
715 P Street
Sacramento, California 95814

RE: Comments on the October 6 Advisory Committee Meeting for the Clean Transportation Program

Dear Commissioner Monahan:

Electrify America appreciates the opportunity to comment on the Advisory Committee Meeting for the Clean Transportation Program. Electrify America operates the largest open network of DC fast chargers (DCFC) in the nation, and recently reached a milestone of 1,000 ultra-fast 150 kW and greater chargers across 242 public charging stations in California. Electrify America has also supported the installation of thousands of Level 2 chargers at workplaces and multiunit dwellings (MUD), and has deployed 60 innovative grid-independent, solar-powered Level 2 chargers across 30 rural locations in the state.

Priorities for EV Charging Programs

With the influx of funding, and the electric vehicle (EV) market poised for rapid growth, now is an important time to take stock of CEC's programs to date and evolving market conditions, and incorporate lessons learned into the Commission's programs moving forward. Addressing the five items below will allow California to accelerate and expand zero emission vehicle (ZEV) infrastructure deployment. The targeted changes below will allow the CEC broader reach to do more with its limited resources and accelerate the transition to 100 percent zero emission vehicles in the State. We look forward to the opportunity to work with you and the CEC to address these issues and continue the successful implementation of its important ZEV programs.

We encourage the CEC to consider these priorities when allocating Investment Plan funding:

1. Prioritize ultra-fast charging as the optimal future-proofed solution for public charging
2. Require investments in capabilities that enhance charger reliability
3. Require the use of non-proprietary technology so that any electric vehicle can charge at any station, consistent with the CCS Standard or the emerging MCS Standard, and compliant with ISO 15118
4. Improve the process for distributing funding for ZEV infrastructure by transitioning to post-construction rebates that are awarded upon completion of a project that meets established criteria

5. Align public investments with existing laws related to streamlined permitting by prioritizing investments in jurisdictions that comply with AB 1236 and AB 970

We offer some specific comments on the priorities below.

Prioritize ultra-fast charging

We share the objective of equitably electrifying California and ensuring all Californians can access electric cars. Investment in ultra-fast chargers, in particular, is an important equity tool. Ultra-fast charging provides a future-proofed charging solution that will best support the State's efforts to reach all drivers and achieve 100% ZEV sales. The following points are relevant as CEC considers at its funding allocations:

- Federal government program, and now California, has a 150 kW minimum for corridor charging:
    - The Federal government in February, 2022 required all chargers funded by the National EV Infrastructure Formula program to be capable of at least 150 kW charging, and it expressed strong support for 350 kW charging as a future-proofing investment strategy.[1]

- Automakers are calling for 350 kW charging investment:
    - Automakers are increasing charging speed capabilities of new model EVs, and a wide array of new vehicle models are capable of ultra-fast charging. The average charging speed of 2022 models has reached 200 kW, or up to 12 miles of range per minute[2]
    - The Alliance for Automotive Innovation – the auto industry trade group representing "the manufacturers producing nearly 99 percent of cars and light trucks sold in the U.S." – has called on States to prioritize investment in ultra-fast charging, writing that "state-funded DC fast chargers on corridors and at transit hubs must be capable of charging at a rate of 350 kW."[3]
    - Fifteen automakers representing every segment of the US auto industry – luxury and volume, startup and legacy – wrote in 2021: "we anticipate growing market demand for ultra-fast and high-powered charging along highway corridors…. For highway corridor charging in particular, ultra-fast charging speeds of approximately 350 kW

[1] U.S. Department of Transportation (2022). "National Electric Vehicle Infrastructure Formula Program Guidance." Available at:https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/nominations/90d_nevi_formula_program_guidance.pdf

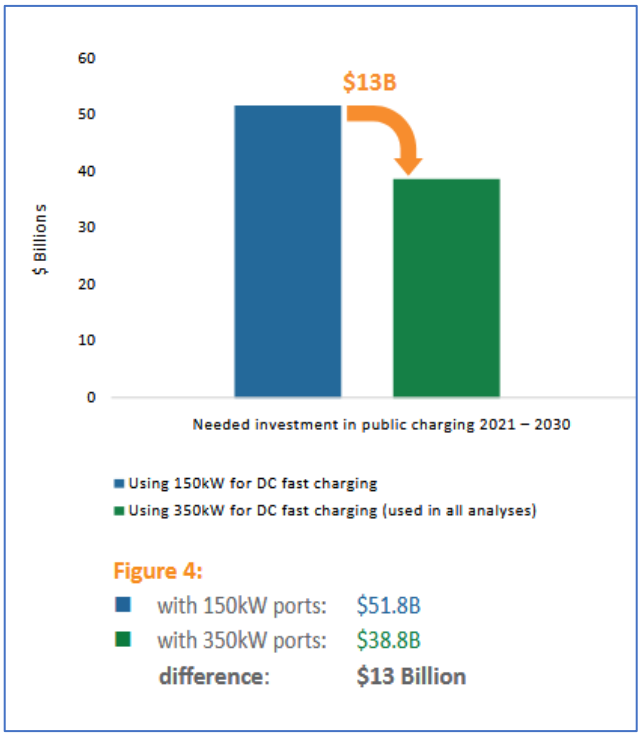
[2] In the past six model years, the average charging speed of new EV models has increased four-fold, from 50kW to 200kW, and the trend is accelerating. In the volume segment, Kia and Hyundai have introduced ultra-fast charging capable vehicles. Support for ultra-fast charging represents increased access, improved customer experience and adoption, and future-proofing California's EV charging network

[3] Alliance for Automotive Innovation (2021). "Recommended Attributes for EV Charging Stations." Available at: https://www.autosinnovate.org/about/advocacy/Recommended%20Attributes%20for%20EV%20Charging%20Stations%2009DEC2021.pdf

are necessary to enable efficient long-distance travel and avoid hours of downtime while waiting for vehicles to charge at slower speeds. These faster charging speeds will also be essential for the electrification of goods movement."[4]

- Ultra-fast charging investment is cost-effective:
  - Ultra-fast charging is the most cost-effective way to serve EV drivers who live in multi-unit dwellings and may not have access to charging at home or work.[5] Research demonstrates that those who live in MUDs and rent are lower income and more racially and ethnically diverse than the average population.
  - Ultra-fast charging allows for greater utilization of DCFC infrastructure. As Atlas' research demonstrates, ultra-fast chargers have substantially greater throughput, and can serve more customers, than slower DC charging technology.[6]
  - Atlas Public Policy finds that installing 150 kW fast chargers rather than 350 kW chargers would increase the needed national investment in public infrastructure from $39 billion to $52 billion. Ultra-fast 350 kW charging serves the needs of more EVs per dollar invested.

Figure 1: Atlas Public Policy Research Demonstrates 350 kW Charging Cost-effectiveness



- Ultra-fast Charging responds to consumer preferences.
  - Research has indicated a widespread consumer preference for ultra-fast charging. Over 30% of U.S. DOE PEV Showcase ride and drive participants reported vehicle charging speed as a top three deterrent from purchasing or leasing a BEV. Similarly, in a poll conducted by Volvo Car USA and the

[4] Joint Automakers (2021). "OEM Letter to Sec. Buttigieg." Available at: https://www.regulations.gov/comment/FHWA-2021-0022-0036

[5] Mark Singer, "Plug-In Electric Vehicle Showcases: Consumer Experience and Acceptance" (NREL, 2020), Accessed at: https://www.nrel.gov/docs/fy20osti/75707.pdf; Volvo Car USA/The Harris Poll (2019), "The State of Electric Vehicles in America." Available at: https://www.media.volvocars.com/us/en-us/media/documentfile/249123/volvo-reports-the-state-of-electric-vehicles-in-america/

[6] Atlas Public Policy (2021). "U.S. Passenger Vehicle Electrification Infrastructure Assessment. Available at: https://atlaspolicy.com/u-s-passenger-vehicle-electrification-infrastructure-assessment/

Harris Group, 36% of respondents reported using public charging stations to be time-consuming.[7]

- Ultra-fast charging infrastructure imposes no harm to the ZEV market or consumers, as ultra-fast chargers step down to the power level and charging speed requested by the EV. The only risk to the market is providing slow public charging, as these deficient capabilities are not adequate to support consumer demands.

Given this, Electrify America encourages the CEC to prioritize investment in cost-effective, high-powered, ultra-fast charging infrastructure by establishing a minimum of 150 kW charging as satisfactory, and by requiring that at least one charger at each station location to be capable of delivering 350 kW, for all publicly-funded DC charging stations designed to serve light duty vehicle needs.

Require investments that enhance charger reliability

As ZEVs enter the mass market and the State plans for achieving 100% ZEV sales, it is increasingly important to enhance the reliability of ZEV infrastructure. Drivers must be able to rely on the availability of charging stations, just like they would conventional gasoline stations. Electrify America has made significant investments to ensure the reliability of its network, and is proud to have recently received the Electric Vehicle Charging Infrastructure Best in Test Award for second consecutive year.[8]

We caution the CEC against setting arbitrary benchmarks for measuring the network up-time of chargers, as up-time is not a reliable proxy for customer satisfaction or charging success. In fact, when Electrify America's chargers lose connection to the Electrify America network (i.e., go off-line) due to, for example, an outage on the cellular network or an issue with the back end systems, Electrify America's chargers are designed to be able to continue delivering electricity to vehicles in free-vend mode, as a service to our customers. Electrify America also believes in reliability through redundancy. Only site-level performance reflects the customer benefit created by placing many chargers at one station site, so when a single charger has an issue, customers are still able to charge successfully.

Electrify America also suggests that reliability standards require recipients of state funds to demonstrate reliability capabilities. For example, along with providing the fastest charge speeds in the industry, Electrify America has implemented the nation's leading interoperability testing laboratory, 24-hour customer assistance, 24/7 technical and diagnostic monitoring through our Network Operations Center, and the industry's most robust technician training program. These investments allow Electrify America to support the nation's largest open charging network, and

[7] According to UCLA's most recent research, residents of all household types prefer charging stations with higher charging speeds and higher number of chargers. https://innovation.luskin.ucla.edu/wp-content/uploads/2021/03/Evaluating-Multi-Unit-Resident-Charging-Behavior-at-Direct-Charging-Behavior-at-Direct-Current-Fast-ChargersCurrent-Fast-Chargers.pdf

[8] https://media.electrifyamerica.com/en-us/releases/167

we encourage the CEC to require similar investments as a condition of receiving funding, in order to ensure improved reliability for ZEV infrastructure.

Require the use of non-proprietary charging

Electrify America greatly appreciates recent moves by the CEC and CARB toward a single connector type, which will reduce costs and improve convenience. In recent years, the non-proprietary CCS standard has emerged as the DC fast charging connector of choice among 31 different automakers in North America, and continuing to fund investment in other charging connectors increases costs and undermines standardization. We urge the CEC to move entirely to a CCS requirement in its programs.

Transition funding programs to post-construction rebates

CALeVIP is currently administered on a first-come, first-served basis, where applicants submit applications for funding at a stage in the project development process where it is unclear whether the project will be built in the near term, or ever. As a result, available funding gets quickly allocated – often within an hour of the portal opening – and long waitlists form, but projects do not necessarily get developed. For example, according to the 2022-2023 Investment Plan Update for Clean Transportation Program – Revised Staff Report, under CALeVIP, only 1,456 Level 2 and DCFC have been installed through August 2022, while 7,519 stations are "planned," with rebate funding reserved.[9]

We appreciate the steps CSE and CEC are taking to improve program process for CALeVIP. We believe the objective of maximizing private investment would be well served by transitioning CALeVIP to post-construction rebates and requiring funding applicants to demonstrate the following before receiving a funding commitment:

- Access to the station site via contract or deed
- Permits have been received
- Utility new service design has been finalized
- Fleet customer binding commitments have been secured.

Align public investments with existing laws related to streamlined permitting

CEC announced that it would favor regions with high AB 1236 compliance when allocating CALeVIP funding, and this was an effective policy encouraging local jurisdictions to streamline permitting and cut soft costs associated with station installation. In order to further cut soft costs and streamline station development, we urge that the CEC to prioritize funding for electric vehicle charging infrastructure projects that receive permits from local jurisdictions in compliance with electric vehicle permit streamlining requirements established under AB 1236 and AB 970.

[9] See Table 7 at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=246271

AB 2127 Analysis Should Fully Evaluate Ultra-Fast Charging as a Cost-Effective, Future-Proofed Solution

We appreciate the update provided in the slide presentation regarding the AB 2127 Second Assessment. It is critically important to develop a fair and complete analysis that does not presuppose solutions or close the door to innovative market technologies.

The previous AB 2127 analysis, for example, did not distinguish between different levels of fast charging (e.g., 50 kW and 350 kW) or account for costs associated with different scenarios, when it concluded that the state needed about 1.2 million chargers – mostly Level 2 – to support up to 8 million EVs by 2030.[10] Counter to the findings in the original AB 2127 report, ultra-fast charging is the most cost-effective, customer friendly, and durable solution for the EV market in California, consistent with our own experience as well as third party research.

As previously discussed, research by Atlas Public Policy has found that installing 350 kW DC fast charging is the most cost-effective option for meeting needs to transition the U.S. light duty fleet to 100% ZEV sales by 2035. Emphasis on 350 kW technology provides significant cost savings relative to lower levels, such as 150 kW charging, due to increased throughput and the ability of stations to serve more vehicles. Atlas found that a 350 kW charging strategy would result in $39 billion of needed investment nationwide in public charging stations by 2030, whereas installing 150 kW would require and additional $13 billion in additional public investment, or a 33% increase in cost.[11]

While the Atlas research included investment in Level 2 charging, it comprised a significantly smaller share of stations than contemplated in California's investment. Atlas found that $38.1 billion (97.5%) of the total investment was needed for public fast charging, to build approximately 252,000 ultra-fast 350 kW chargers, while $967 million (2.5%) would be needed for approximately 244,000 Level 2 public and workplace chargers. Electrify America agrees that public charging needs are met most conveniently and cost-effectively through a strategy that prioritizes ultra-fast 350 kW DC fast charging.

Other compelling evidence demonstrates that investment in ultra-fast chargers is an important equity tool. According to research from UCLA,[12] multiunit dwelling (MUD) residents rely on fast chargers as their primary source of charging, using public fast chargers for 43% of charging, more than twice as often as home charging and nearly three times as often as public Level 2.

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[10] Electric Vehicle Charging Infrastructure Assessment - AB 2127 https://www.energy.ca.gov/programs-and-topics/programs/electric-vehicle-charging-infrastructure-assessment-ab-2127

[11] Atlas Public Policy (2021). "How much should the U.S. invest in public EV charging? $39 Billion" Available at: https://atlaspolicy.com/how-much-should-the-u-s-invest-in-public-ev-charging-39-billion/

[12] UCLA Luskin Center for Innovation (2021). "Evaluating Multi-Unit Resident Charging Behavior at Direct Current Fast Charging" Available at: https://innovation.luskin.ucla.edu/wp-content/uploads/2021/03/Evaluating-Multi-Unit-Resident-Charging-Behavior-at-Direct-Charging-Behavior-at-Direct-Current-Fast-ChargersCurrent-Fast-Chargers.pdf

Harvard[13] and Bloomberg[14] research demonstrates that those who live in MUDs and rent are lower income and more racially and ethnically diverse than the average population as a whole. Serving MUD residents and those without charging at home via public ultra-fast charging is a cost-effective way to serve far more residents than Level 2 charging.

In light of this research, we encourage the CEC to directly model a wide array of fast charging technologies, including ultra-fast 350 kW charging, in its next phase of AB 2127 analysis. We also encourage an accounting of costs, in an effort to identify the lowest cost infrastructure solutions to meet the State's goals. We have no doubt that such an analysis would lead to findings similar to those from Atlas Public Policy and reveal ultra-fast charging to be a critical element to most cost-effectively advancing the State's EV goals.

Finally, as we and others in the charging industry have shared previously, we urge you to focus on the intent of AB 2127 to help inform the state about how many chargers are needed to support its goals, not to dictate specifically where chargers should be deployed, nor to gain sensitive company-specific information about the dynamic ways users interact with particular chargers and networks. We are concerned that expanded data collection could have negative consequences for the industry, including compromising privacy and market competitive intelligence, overlapping with data collection efforts by other state agencies, and increasing soft costs associated with EV charger deployment. We encourage CEC to avoid any unnecessary or duplicative data collection that reaches beyond the scope of AB 2127, especially for chargers not funded by CEC programs.

Response to Questions for Consideration

Finally, we offer the following responses to the questions posed in the presentation:

1. Given the prescriptive nature of the General Fund allocations from the State Budget Acts of 2021 and 2022, should the Investment Plan shift fungible Clean Transportation Program dollars to other categories? (E.g., low-carbon fuel production; ZEV manufacturing; workforce training and development?)

   We urge CEC to remain nimble and fund categories of ZEV infrastructure that continue to require support and offer the greatest return on investment in terms of advancing the market for ZEV adoption. While we expect such an approach will lead to a conclusion that additional funding support for light-duty DCFC is appropriate, we encourage CEC to continue to evaluate this in future funding plans, the revised AB 2127 Assessment, and based on demand under various funding programs.

[13] Joint Center for Housing Studies of Harvard University (2018). "The State of the Nation's Housing" Available at: https://www.jchs.harvard.edu/state-nations-housing-2018

[14] Bloomberg (2018). "Who Owns a Home in America, in 12 Charts. Available at: https://www.bloomberg.com/news/articles/2018-08-08/who-rents-their-home-here-s-what-the-data-says

2. Does the timing and allocations between light-duty and medium-duty/heavy-duty infrastructure investments in the Investment Plan strike the right balance for ZEV acceleration? If not, where should adjustments be made and why?

   We believe CEC has taken a prudent approach in initially prioritizing light-duty ZEV infrastructure and now increasing focus on medium-duty/heavy-duty (MDHD) ZEVs. This aligns with market development and opportunities. As CEC increases focus on MDHD ZEVs, we encourage you to continue supporting light-duty ultra-fast DCFC infrastructure as a future-proofed, cost-effective infrastructure solution, and to adjust CALeVIP and other program requirements – as described above – to ensure state funding leads to the most rapid development of effective and reliable infrastructure possible.

3. What should the Investment Plan include within each funding allocation to improve equitable access and benefits from that allocation?

   We believe ultra-fast DCFC fundamentally supports equity and cost-effective ZEV infrastructure and market growth. EV owners without access to off-street parking or home chargers rely on DCFCs as their primary means of charging. We support CEC's targets for 50% of investments to support low income and disadvantaged communities, and are proud that 56% of Electrify America's commissioned stations in California are located in these communities.

Thank you for the opportunity to comment on the Clean Transportation Program's investments and ongoing work to accelerate the transition to electric vehicles in California.

Sincerely,

/s/

Anthony Willingham
State Government Affairs Manager