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FreeWire Comments on Draft ZIP

Additional submitted attachment is included below.

May 13th, 2022
Via Electronic Filing

California Energy Commission
Re: Docket No. 21-TRAN-03
1516 Ninth Street
Sacramento, CA 95814

Re: Docket No. 21-TRAN-03: FreeWire Technologies, Inc. (FreeWire) Comments on the Draft Zero-Emission Vehicle Infrastructure Plan (ZIP)

Dear Commissioners and Energy Commission Staff:

FreeWire applauds the California Energy Commission's (CEC's) ambitious goal of deploying 10,000 direct current fast chargers (DCFC) by 2025. FreeWire also commends the modeling and analysis efforts performed by various CA stakeholders to ensure an equitable buildout of EV charging infrastructure. FreeWire's comments are meant to provide perspective and program design recommendations to meet the ambitious goals set out in the Draft ZIP.

As the leading manufacturer of battery-integrated EV charging systems, FreeWire believes that the incorporation of energy storage with electric vehicle supply equipment (EVSE) is fundamental to ensuring a cost-effective, streamlined, and geographically diverse buildout of EV charging infrastructure. Our battery-integrated direct current fast charging (DCFC) stations have demonstrated the potential for this integration to increase asset utilization and reduce overall deployment costs – enabling charging infrastructure at the grid edge and beyond.

Through our participation in CEC, CARB, and utility programs over the past 8 years, FreeWire offers these recommendations with the goal of enabling CA to meet its near-term infrastructure deployment goals:

- EV charging rebates and grant programs should be inclusive of emerging technologies, especially those that will manage the peak load created by DCFC and provide resilient charging solutions;
- State programs that are utilizing Federal NEVI funding should provide flexibility to site hosts and not create impediments to site deployments; and
- EV charging rebates and grant programs should continue to prioritize funding in Disadvantaged and Low-Income Communities.

Emerging Technologies Will Be Needed to Meet Deployment and Infrastructure Goals

FreeWire applauds the CEC's efforts to recognize and provide dedicated funding for emerging technologies. FreeWire also respectfully suggests that emerging technologies are considered as

an additional option in programs that provide pathways and incentives to more conventional charging solutions. Many of the current charging incentive programs, such as make-ready programs, are not inclusive of emerging technologies. Technologies such as off-grid charging paired with solar (Beam's Arc solution) and battery-integrated fast charging stations are deployed at a lower rate through these programs even though they may be more economical and efficient options at certain locations.

FreeWire believes several challenges for charger deployments– increasing charger utilization, reducing the total cost of deployment, and improving the charging experience – represent fundamental challenges in need of innovative solutions. In addition, these emerging technologies often address the issue of resiliency in the face of outages across the state associated with utility shutoffs, wildfires, earthquakes, and other events. The Public Safety Power Shutoffs will create a drag on vehicle electrification as fleets, particularly in critical service industries, will need chargers that can operate independently of the grid. These fleets may not electrify or may elect to retain both internal combustion as well as electric vehicles to have transportation during these events. Similarly, when fires occur and the grid is preemptively shutdown, evacuation in electric vehicles will present serious, if not impossible, challenges to surmount using conventional charging infrastructure. Deployment of resilient charging infrastructure is critical for fully meeting the state's electrification goals and its goal of deploying 10,000 DCFC by 2025.

Additionally, innovate and emerging technologies can often be deployed much faster than traditional DCFC stations and can reduce operating costs by tens of thousands of dollars a year. The average time to deploy traditional DCFC stations in California is anywhere from 18-30 months, due to the installation of utility infrastructure. Battery integrated stations can be deployed in a matter of days or weeks without the need for costly utility-side and customer-side infrastructure upgrades. In addition to reductions in construction timelines, innovative and emerging technologies such as battery integrated DCFC, can reduce the operating expenses of owning DCFC by reducing a site's peak load. The Electric Power Research Institute (EPRI) published a report of a pilot study on the Boost Charger for its Incubatenergy Labs that documented up to $29,180 of savings *per year* for both the utility and the site host.

> "Generation capacity costs are typically $75/kW-year. Distribution costs are typically $100/kW-year. For a Boost Charger shift of 100 kW, the capacity savings from generation and distribution would be $17,500/ year. Shifting the energy from peak to off-peak also produces savings in the range of $0.12/kWh to $0.08/kWh for 8 hours per day. This benefit would be $11,680/year. The combined maximum benefit from shifting load of 100 kW and its corresponding energy would be $29,180/year over the life of the FreeWire system."[1]

FreeWire provides the following recommendations with respect to emerging technologies:

[1] https://app.hubspot.com/documents/4369470/view/304840773?accessId=232ea6

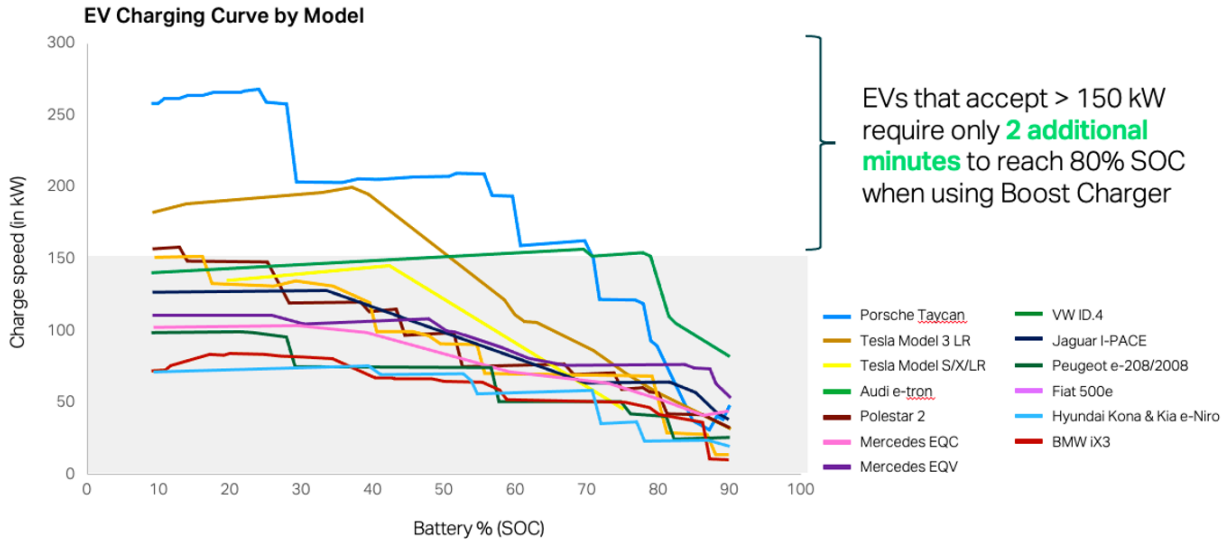
- Provide additional funding for technologies that reduce demand charges and infrastructure constraints, via rebate or grant programs that target regions most impacted by these barriers; and
- Continue to fund programs such as EnergIIZE, which utilizes a "Fast Track" method to provide funding for shovel-ready projects.

State Implementation of the Federal NEVI Funds Requires Careful Consideration of Grid Constraints and Impacts

FreeWire appreciates the CEC's recognition of the importance of thoughtful electrical distribution build-out and managed charging strategies. However, FreeWire respectfully disagrees that there are no fundamental obstacles to increased PEV adoption. As the CEC's own analysis in its AB 2127 report acknowledges, a substantial amount of the grid cannot currently accommodate additional load. This has resulted in delayed deployments of DCFC stations and difficulties in finding suitable sites that can be deployed within many program and site host budgets.

As California develops its plans and programs for the Federal funding, FreeWire encourages California to consider the challenges of finding sufficient sites that can support an additional 600 kW of load. FreeWire also cautions California to not increase capacity requirements by requiring any charging capacity above 150 kW. FreeWire is concerned that the Federal requirements for the NEVI funding could experience similar deployment delays if states chose to exceed capacity requirements.

While California has not yet indicated that there will be a blanket 350 kW requirement at NEVI sites, other states are considering this structure. FreeWire believes that site hosts need flexibility to meet the minimum Federal requirements and provide additional capacity if the site, utilization, or the budget supports an increased load. FreeWire also questions the need for additional capacity for light-duty vehicles. As shown in the chart below, vehicles that can accept more than 150 kW require just two additional minutes to reach 80 percent state of charge at a 150 kW station as compared to a 350 kW station. Therefore, FreeWire recommends caution in exceeding Federal guidelines for NEVI-funded programs.



EV Charging Rebates and Grant Programs Should Continue to Prioritize Funding in Disadvantaged and Low-Income Communities

The CEC has demonstrated a strong commitment to invest in projects that benefit low-income and disadvantaged communities. FreeWire supports this approach and believes that investments in retail areas and areas within low-income communities helps to create equitable access to charging. While NEVI funding is focusing on corridor charging, California has the opportunity to focus on ensuring equitable charging access that provides access to drivers that may not have access to charging at home.

Conclusion

FreeWire appreciates the opportunity to provide feedback on the Draft ZIP. FreeWire believes the incorporation of emerging technologies into EV charging programs will ensure an equitable, sustainable, and scalable approach to expanding EV charging infrastructure across the state.

Sincerely,

/s/ Renee Samson
Renee Samson
Director, Regulatory Affairs
FreeWire Technologies, Inc.
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