

**DOCKETED**

<b>Docket Number:</b>	19-AB-2127
<b>Project Title:</b>	Implementation of AB 2127 Electric Vehicle Charging Infrastructure Assessments
<b>TN #:</b>	242472
<b>Document Title:</b>	Cruise Comments - Response to CEC EVI-Pro Workshop
<b>Description:</b>	N/A
<b>Filer:</b>	System
<b>Organization:</b>	Cruise / David Rubin
<b>Submitter Role:</b>	Public
<b>Submission Date:</b>	3/25/2022 1:09:44 PM
<b>Docketed Date:</b>	3/25/2022

*Comment Received From: Cruise / David Rubin*  
*Submitted On: 3/25/2022*  
*Docket Number: 19-AB-2127*

**Cruise Comments - Response to CEC EVI-Pro Workshop**

*Additional submitted attachment is included below.*



March 25, 2022

### **California Energy Commission**

Comments in Response to Electric Vehicle Infrastructure Projections (EVI-Pro) Workshop  
Docket No. 19-AB-2127

Cruise LLC (“Cruise”) appreciates the opportunity to comment on the EVI-Pro Workshop, held on March 16, 2022, to inform how the California Energy Commission (“CEC”) will develop the second iteration of two-year projections for electric vehicle (EV) infrastructure needs in California in support of the Assembly Bill (AB) 2127 assessment.

As California evaluates pathways to achieve its decarbonization goals - including 5M zero-emission vehicles (ZEVs) by 2030 as well as Governor Newsom’s Executive Order N-79-20 - the CEC’s AB-2127 report and underlying tools like EVI-Pro will be critical in generating awareness of the infrastructure gaps that exist to meet these electrification targets.

### **Comments on Infrastructure Needs of Light Duty Fleet & Ridesharing Electrification**

Cruise is a shared, fully-electric, self-driving car company based in San Francisco, California, with a mission to provide safer, cleaner, and more inclusive transportation. Cruise commends the CEC on the revised inputs, assumptions, and methods reviewed as part of the workshop. We submit the following recommendations and comments as areas to further improve the EVI-Pro modeling in the CEC’s second AB 2127 assessment.

As outlined in the workshop, California has made impressive progress already on its ZEV adoption goals, including 1M plug-in electric vehicles on the road in-state. That said, as more fleet use cases with high vehicle utilization and energy demand electrify, there will be tremendous impacts on infrastructure needs in California over the years ahead. Ridesharing and light duty fleet electrification are a prime example of this.

Research cited at the workshop by the CEC shows that home charging represents the most common preference for personally-owned battery electric vehicles (BEVs), followed by workplace charging - reflective of personal EV drivers’ cost minimization strategies and travel behaviors. In contrast, EVs used in ridesharing services have very different charging patterns and behaviors that require greater charging availability and power levels. Research from UC Davis found that while ridesharing EVs represented only 0.5% of total EVs on the road at the time in California, they represented 30% of total energy demand from DC fast chargers.<sup>1</sup> That

---

<sup>1</sup> Dr. Alan Jenn. “Emissions Benefits of Electric Vehicles in Uber and Lyft Services”. *National Center for Sustainable Transportation*. August 2019.  
<https://escholarship.org/content/qt15s1h1kn/qt15s1h1kn.pdf?t=pw4rht>.



analysis also found that these electric ridesharing vehicles visit DC fast charging (DCFC) stations 2.5 times a day, compared to private EVs which visit DCFCs on average once every 2 weeks. Charging behavior for EV ridesharing at DCFCs also showed higher use during overnight periods, compared to near-zero use of this infrastructure for private vehicles. This empirical evidence conforms strongly with the data that the CEC cited, showing a strong preference of personal EV owners to favor at-home and workplace charging over public DCFCs, while EV ridesharing vehicles are charged much more frequently at DCFC sites.

Building on this, recent analysis by UC Davis using the Widespread Infrastructure for Ride-hail EV Deployment (WIRED) model found that the ratio of chargers to vehicles for EV ridesharing in California is approximately 10 times higher than for privately owned EVs.<sup>2</sup>

Furthermore, research from ICCT on San Francisco's granular charging needs found that upwards of 162 additional dedicated DCFCs for EV ridehailing were required by 2030 to support the city's electrification goals - 30% of the 348 DCFCs that would support the total private light-duty charging needs of the estimated 170,000 EVs on the road in SF at that time.<sup>3</sup> And, while we are cognizant that medium and heavy duty fleet electrification is being explored by the CEC through HEVI-Pro rather than EVI-Pro modeling, it does bear noting that this research found 1,101 dedicated depot chargers (including 83 ultra-fast chargers) would be needed in San Francisco to support fleet electrification by 2030, as well. These findings speak at least directionally to the possible scale of infrastructure needed to support broader light-duty fleet electrification across California.

Given recent policy developments in the state, this need will only grow. The California Public Utilities Commission (CPUC) is in the midst of its rulemaking process on the Clean Miles Standard program, informed by the California Air Resources Board's (CARB's) assessment and recommended program guidelines. Based on CARB's targets, the Clean Miles Standard would require net zero carbon emissions for every rideshare passenger mile traveled (PMT) by 2030, as well as at least 90% of VMT to be electric by that same year. Similarly, SB-500 will require all light-duty autonomous vehicle fleets to be zero emission by January 1, 2030, creating additional charging infrastructure requirements.

As reflected in discussions on CARB's rulemaking, the ongoing CPUC proceeding, and in the CEC's own leadership in opportunities like the Charging Access for Reliable On-Demand Transportation Services (CARTS) grant, significant charging infrastructure will need to be installed to support these vehicle use cases. Cruise commends the CEC for programs like

---

<sup>2</sup> Dr. Alan Jenn. "Charging Forward: Deploying Electric Vehicle Infrastructure for Uber and Lyft in California". *ITS UC Davis; Pacific Southwest Region University Transportation Center*. March 2021. <https://escholarship.org/uc/item/6vk0h1mj>.

<sup>3</sup> Chih-Wei Hsu et al. "City charging infrastructure needs to reach 100% electric vehicles: The case of San Francisco". *International Council on Clean Transportation*. October 2020. <https://theicct.org/wp-content/uploads/2021/06/SF-EV-charging-infra-oct2020.pdf>.



CARTS that have nimbly responded to the emergence of these diverse charging models, allowing for flexibility in funding for both publicly-accessible charging sites, as well as fleet-operated charging depots with higher utilization needs that still serve a public benefit, such as with Cruise.

**Recommendations on Further Integrating Fleet and Rideshare Electrification into EVI-Pro**

Based on this evidence, Cruise recommends that CEC staff continue to incorporate the important charging use cases and infrastructure needs of light duty fleet and rideshare electrification into the next iteration of the AB-2127 assessment. As noted by staff during the workshop, there are already efforts to incorporate the WIRED model (cited above) into the CEC's ongoing EVI-Pro modeling efforts.

With charging infrastructure for ridesharing and light duty fleets representing such a potentially critical area of growth and need in the state, it is imperative that use cases like ridesharing and light duty autonomous vehicle fleet electrification be incorporated into the state's forecasting for infrastructure needs to achieve our 2030 targets under AB-2127.

Cruise welcomes the opportunity to provide these comments to the CEC, and thanks the Commission and staff for their continued support and engagement on this topic - critical to achieving a cleaner and more inclusive transportation future for California.

Sincerely,

A handwritten signature in black ink, appearing to read "David Rubin".

**David Rubin**

Head of Policy Research

Government Affairs

[david.rubin@getcruise.com](mailto:david.rubin@getcruise.com)

Cruise, LLC