

**DOCKETED**

<b>Docket Number:</b>	19-AB-2127
<b>Project Title:</b>	Implementation of AB 2127 Electric Vehicle Charging Infrastructure Assessments
<b>TN #:</b>	242493
<b>Document Title:</b>	Fermata Energy Comments on the Electric Vehicle Infrastructure Projections in Assembly Bill 2127 Second Assessment Workshop
<b>Description:</b>	N/A
<b>Filer:</b>	System
<b>Organization:</b>	Fermata Energy LLC
<b>Submitter Role:</b>	Public
<b>Submission Date:</b>	3/29/2022 12:32:43 PM
<b>Docketed Date:</b>	3/29/2022

*Comment Received From: Fermata Energy LLC  
Submitted On: 3/29/2022  
Docket Number: 19-AB-2127*

**Fermata Energy Comments on the Electric Vehicle Infrastructure Projections in Assembly Bill 2127 Second Assessment Workshop (Doc**

*Additional submitted attachment is included below.*

March 29, 2022

CEC Commissioners and Staff  
California Energy Commission  
Research and Development Division  
1516 Ninth Street  
Sacramento, CA 95814

**Via: CEC Docket #19-AB-2127**

**Re: Fermata Energy's Comments on the Electric Vehicle Infrastructure Projections in Assembly Bill 2127 Second Assessment Workshop (Docket Number 19-AB-2127)**

Dear California Energy Commission,

Fermata Energy LLC, d/ba/ Fermata Energy, is pleased to submit comments on the California Energy Commission's (CEC) AB 2127 Electric Vehicle Charging Infrastructure Assessment (EVI-Pro) Workshop.

Fermata Energy operates Vehicle-to-Everything (V2X) bidirectional charging technologies that integrate EVs with buildings and the grid, turning EVs into valuable storage assets that reduce energy costs, stabilize the grid, increase energy resilience, and combat climate change. Fermata Energy enables utilities to add more renewable energy to the grid more quickly, and Vehicle-to-Building (V2B) and Vehicle-to-Grid (V2G) revenue makes EVs more cost-effective. In short, Fermata Energy offers solutions to two major challenges we face today: the integration of clean, renewable energy, and the adoption of EVs.

In addition to developing the hardware and software required to perform V2X activities, Fermata Energy has spent nearly 10 years studying how V2X can unlock additional value streams from EVs, including those that are commercially viable today without regulatory intervention and how to best monetize these value streams. Fermata Energy has extensive experience with analyzing use cases, monetization mechanisms, and business models to maximize the benefits of V2X technologies. Our revenue model includes system sales and recurring sources of income.

Fermata appreciates the CEC's recognition of the need to further study and model the role of bidirectional charging in the EVI-Pro model. California is a recognized leader on V2G and vehicle grid integration (VGI) technology, with numerous initiatives led by the CEC (e.g., GFO-21-303 - Vehicle-to-Building Technologies for Resilient Backup Power), the investor owned utilities (e.g., PG&E's and SCE's proposed VGI pilots, the new Emergency Load Reduction Program, the proposed emerging market and technology VGI program, and the utilities' proposed dynamic or export rates that help VGI), and the work of the Smart Inverter Operationalizing Working Group (SIOWG) on standards and interconnection.

V2X technology in California has significant potential to provide mobile, dispatchable capacity. V2X presents a growing yet currently untapped resource to help support grid resilience and reliability. V2X technology at scale can deliver the following benefits:

1. Clean, affordable, and reliable transportation
2. Lower the cost of electricity bills
3. Free, backup power solutions that would normally cost tens of thousands
4. of dollars.
5. Enables EV owners to earn revenue from demand response and other services that help integrate and grow renewable energy on the grid

As PG&E's CEO Patti Poppe noted in an October 2021 interview with the *Los Angeles Times*:

*"The electric vehicles on the road in PG&E's service area today have 6,700 megawatts of capacity... But imagine a Flex Alert being averted because we actually leverage the supply that's available in vehicles to power homes and business. Sixty-seven hundred megawatts — that's three Diablo Canyon nuclear power plants. It's on the road today, and we are not using it as a power source. We're only using it as a power draw."*<sup>1</sup>

As Patti Poppe remarked, during PSPS events, V2X technology can provide mobile assets that can be flexibly deployed to provide power for a range of resilience scenarios impacting areas and communities most at risk. V2L and V2G technology can also be very cost-effective for ratepayers compared to stationary storage systems, since the cost of the vehicle has already been paid for. For the same level of SGIP incentives that a 6-hour 7 kW stationary system can receive today (e.g. \$35,000), a 7 kW bidirectional charger can be installed at a home or a multi-family building (before any other subsidies) and an entire off-lease EV can be purchased. For example, an off-board 7 kW bidirectional DC EVSE is estimated to cost \$5,000-\$7,000 (purchase and installed price) compared to a more typical Level 2 AC charging station (\$600-1,500).<sup>2</sup> While this is a premium compared to a normal charging station, it is still far less than a comparable home storage system. It is very expensive to purchase long-duration storage to deploy at a home or business.<sup>3</sup>

Given the enormous potential of V2X technology to provide benefits to the grid and ratepayers in California, we recommend the CEC include a variety of V2X use cases in their EVI-Pro 3 modeling. Building on the Smart Charging Analysis (as described in Slide 27) that will incorporate "elements like pricing signals to influence charging behavior and explore V1G and V2G smart charging scenarios," we encourage the CEC to also include the following elements in

<sup>4</sup><https://www.latimes.com/environment/newsletter/2021-10-14/as-california-fires-burn-pge-ceo-promises-fixes-boiling-point>

<sup>2</sup> The Wallbox Quasar, a bidirectional DC charger for home use, is expected to retail for \$4,000. "The price of Level 2 residential EVSE varies, but typically ranges from \$500 to \$2,000 before installation and state or utility incentives." <https://www.mhelectric2020.com/electric-vehicle-chargers/>

<sup>3</sup> "Typically, residential consumers' batteries can reach 5 kW / 13.5 kilowatt-hours (kWh)." Source: IRENA (2019), Innovation landscape brief: Behind-the-meter batteries, International Renewable Energy Agency, Abu Dhabi.



their modeling:

- Modeling Vehicle-to-Grid uses cases involving actual bidirectional power flow to the grid (“grid exports”), as opposed to just V1G or managed/smart charging
- Modeling the value of Vehicle-to-Home and Vehicle-to-Building use cases, including backup power for Public Safety Power Shutoffs and outages, resilience, customer bill management, demand response, etc.
- Modeling V2G and V2B for residential, fleet, and workplace charging
- Modeling for both bidirectionally enabled light duty and medium and heavy duty EVs, as more OEMs bring to market bidirectionally enabled vehicles for both classes

In closing, Fermata greatly appreciates the work of the Commission and staff in organizing and leading this workshop and appreciates the opportunity to provide feedback to the CEC relative to the AB 2127 Electric Vehicle Charging Infrastructure Assessment and the EVI Pro 3 Model.

Fermata Energy also commends the CEC and staff for their continued commitment to supporting this critical piece of the state’s transportation electrification framework. As discussions on these topics continue, Fermata Energy would be happy to provide staff with additional feedback on these and other issues related to V2X adoption in California. As a V2X services provider with projects in California and nationwide, Fermata Energy has years of expertise monetizing and studying V2X use cases, and we look forward to sharing our resources and knowledge on this subject with staff to help develop these models. Our Director of Grid Solutions and Strategic Partnerships, Melissa Chan, may be contacted if you would like to discuss further. You may reach her at [melissa@fermataenergy.com](mailto:melissa@fermataenergy.com).

Sincerely,

A handwritten signature in blue ink that reads 'John Wheeler'.

John Wheeler  
CFO & Co-Founder, Fermata Energy  
[john@fermataenergy.com](mailto:john@fermataenergy.com)