

**DOCKETED**

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*Comment Received From: Thomas Ashley*  
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**Greenlots Post-Workshop Comments, VGI Roadmap Update**

*Additional submitted attachment is included below.*



November 21, 2018

Docket No. 18-MISC-04  
-Via e-file-

California Energy Commission  
Docket Unit, MS-4  
1516 Ninth Street  
Sacramento, CA 95814-5512

RE: Greenlots Post-Workshop Comments in Vehicle-Grid Integration Roadmap Update

Greenlots submits these comments following the Staff Workshop on the California Vehicle-Grid Integration Roadmap Update held October 29<sup>th</sup> and 30<sup>th</sup>, 2018 in partnership with California Independent System Operator, California Public Utilities Commission, and the California Air Resources Board.

Greenlots is a leading provider of electric vehicle (EV) charging software and services committed to accelerating transportation electrification in California. The Greenlots network supports a significant percentage of the DC fast charging infrastructure in North America, and an increasing percentage of the Level 2 infrastructure. Greenlots' smart charging solutions are built around an open standards-based focus on future-proofing while helping site hosts, utilities, and grid operators manage dynamic EV charging loads and respond to local and system conditions. Greenlots is a strong advocate for open standards, and is a founding member of the Open Charge Alliance.

California has set pivotal goals for reducing emissions with 50% renewable energy generation and deploying at least five million zero-emission vehicles (ZEVs) by 2030, as well as deploying 250,000 charging stations, including 10,000 Direct Current (DC) fast charging stations by 2025. Vehicle-grid integration (VGI), such as smart/managed charging, will play a critical role in achieving these goals. It is widely recognized that managed charging can increase operational cost savings relative to fossil-fueled vehicles and offer a range of grid services, in addition to promoting overall electric system efficiency. For these reasons, Greenlots strongly supports initiatives to proliferate open standards, access, and interoperability that facilitate current and future-state VGI functionality necessary to fully realize the tremendous promise and opportunity presented by transportation electrification.

As the Energy Commission's 2017 Integrated Energy Policy Report concluded in its recommendations that began the more recent process, the VGI Roadmap should be updated to reflect "the needs to use open standards, to return the value of grid integration to stakeholders, and to commercialize prior investments in research and maintain leadership in advanced technology development".<sup>1</sup> Its recommendations also emphasized the need to "standardize electric vehicle charging equipment to enable resource dispatch" and "better integrate electric

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<sup>1</sup> At p. 141.

vehicles into the grid”.<sup>2</sup> These recommendations encapsulate what should be the primary emphasis of this updated roadmap: to recommend and implement actions that move the market towards existing and emerging open standards, with a focus on those that relate to the charging infrastructure being developed or supported by the agencies. While we support efforts to study and prove out VGI values across different use cases, including those that do not relate to State EV charging infrastructure investments, this effort should not distract from these essential, overdue, primary deliverables. While some stakeholders appear to have interests in doing this, we must not conflate or confuse the entire universe of VGI topics and issues with those that pertain to short and near-term infrastructure investments that are going in the ground.

Greenlots recognizes that this goal is not easily achieved. The process and results thus far make this very clear. It is also a result that does not come naturally from politically safe middle-ground compromise policy making, which in this context can ultimately compromise results. For California to continue its leadership in advanced mobility and clean transportation, bold, pragmatic action will be required of its agencies, and the financial risk associated with a continued failure to do so will become increasingly large.

Greenlots suggests that this roadmap and process focus first on VGI functionality that is possible with current state technology, and the standards and protocols related to State EV charging infrastructure investments needed to support this. This is a pragmatic priority, focusing on high-value, low-cost V1G capabilities available today and appropriately equipping and future-proofing near-term taxpayer and ratepayer investments to support this. In doing this, we strongly encourage the State’s agencies to support OCPP (1.6 or 2.0+) for hardware-software communications and interoperability. Further, consideration of OpenADR 2.0b/SEP 2.0 as standard for communication upstream of the EVSE/network is also appropriate for ratepayer or taxpayer funded infrastructure. These already are the de-facto standards for these use cases and communication pathways, and hardware-software interoperability is one of the most critical considerations for protecting investments in infrastructure, while also being a critical component of VGI, and serving EV drivers and the evolving market.

Next, the roadmap and State agencies should be looking at standards and protocols that apply to the other side of the EVSE, in particular setting a communication standard for EVSE to facilitate vehicle-EVSE VGI communication. Again, this is of top priority because it pertains to “steel in the ground” charging infrastructure being deployed with taxpayer and ratepayer dollars, and is an essential and overdue deliverable necessary to normalize smart charging and lower a component of investment risk. As already apparent to many stakeholders including Greenlots, and as illustrated during the workshop on November 30<sup>th</sup>, ISO/IEC 15118 is the clear and leading communication standard for this use case. It supports “plug and charge” capabilities and a relatively seamless EV driver charging experience. Moreover, the standard is being deployed and supported internationally, with a significant set of automakers committed to equipping millions

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<sup>2</sup> I.d.

of EVs with 15118 capabilities over the next several years. Inaction in California while much of the market coalesces around this standard for EV-EVSE communication may prove detrimental to the growth of the EV market, and would be out of line with the State's longstanding leadership role in clean mobility. Supporting industry efforts to coalesce around a standard for this communication will accelerate EV adoption while helping future-proof an element of EVSE deployment. Additionally, it no way hampers or prevents development of alternate VGI communication pathways unrelated to taxpayer and ratepayer-supported EV charging infrastructure (e.g. telematics), and indeed may catalyze and accelerate those efforts by moving the market forward and providing opportunities for competition in providing VGI value.

Based on some comments at the workshops, Greenlots is compelled to also address the notion of Level 1 (L1) charging as it appears some believe it relates to VGI. Due to its low power level and limited flexibility, L1 charging presents relatively less opportunity for vehicle-grid integration, and as such should probably garner little or modest consideration within the VGI Roadmap. Vehicle-grid integration implies a flexible grid resource that can be used to adapt to and respond to grid needs and conditions. Level 2 and higher power charging presents a VGI opportunity because of its ability to shift load, increase load, or decrease load in response to grid needs. Without this ability, there is not a VGI use case. Additionally, L1 chargers generally lack the "smarts" to respond to grid needs or conditions even if there were value or an ability to do so. While there may be some continued use cases for L1 charging in certain contexts, and it deserves consideration in the context of broader transportation electrification policy and planning exercises, it should not have a meaningful place in the VGI Roadmap as it inherently does not have the technical capability to provide significant VGI value.

This should not be confused with V1G, which unlike L1 charging does represent tremendous value achievable with current-state technology. As many stakeholders have illustrated, V1G or smart charging can provide the value of energy storage but at a much lower cost as it does not require any major capital investment. As a result, V1G should be a high priority fixture of the VGI Roadmap update.

The adoption of open protocols and standards is essential to support transportation electrification at this market stage, grow the market for EVs and EV charging products and services, enhance the driver/customer experience, integrate with the electricity system, and lower the cost of ownership of both EVs and EV charging infrastructure. The proliferation of open standards and communication methodologies provides a platform and ecosystem for innovation and customer choice that is critical to guarding against stranded assets and protecting the prudence of ratepayer and taxpayer investments. For these reasons, Greenlots encourages the State's agencies to keep these considerations front and center as it considers updates to the VGI Roadmap.

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Greenlots appreciates the opportunity to provide these comments, and looks forward to continued participation in this process, and engagement in efforts to support transportation electrification and advanced mobility in California.

Sincerely,

A handwritten signature in black ink, appearing to read 'Thomas Ashley', with a stylized, cursive script.

Thomas Ashley  
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