



March 31, 2017

Steven V. King  
Executive Director and Secretary  
Washington Utilities and Transportation Commission  
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Greenlots' comments in Docket UE-160799 on UTC Draft Policy and Interpretive Statement Describing Commission Policy Related to Utility Investment in Electric Vehicle Supply Equipment pursuant to RCW 80.28.360 and Commission Regulation of Electric Vehicle Charging Services

Greenlots appreciates the opportunity to comment on the Commission's Draft Policy Statement and respond to questions posed by the Commission.

Greenlots is a leading provider of grid-focused electric vehicle charging software and services. The Greenlots' network supports a significant percentage of the DC fast charging infrastructure in North America, including the West Coast Electric Highway in British Columbia. 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. By communicating with hardware through an open communication language, the Greenlots' software platform is able to be paired with a wide range of hardware options, with a focus on protecting the hardware investments made by our partners and clients, and maximizing site host choice.

Greenlots appreciates and agrees with the Commission's balanced approach to the utility role in transportation electrification, while clearly identifying the need for utilities to be deeply involved in transforming and scaling the market both for EV charging infrastructure, but also, really, for the vehicles themselves.

*Q. What specific policies should the Commission adopt regarding interoperability of utility-owned charging infrastructure? We expect that both the EVSE hardware developed by the manufacturers and the software and communications components to continue to advance and develop rapidly over time. Accordingly, how should the Commission ensure that EV owners are not locked in to a certain type of technology (either hardware or software) as the market develops, and what role should the Commission have in assuring some type of backend interoperability between the EVSE at the hosting site and the operator of the overall EVSE systems?*

The Commission plays a critical role in ensuring that ratepayers are protected, both through equitable rates and the prudent use of ratepayer funds by investor owned utilities. As transportation electrification expands, the Commission should ensure that electric vehicle

charging station hardware investments remain viable and are not stranded due to software or network changes.

The Commission should adopt policies to ensure that to the extent feasible, utility owned hardware is able to be used and useful for as long as hardware is not rendered obsolete due to technology change (particularly with regard to ports and charging methodologies). Under the portfolio approach, this may appropriately include “managed” hardware in addition to “provided” hardware.

Specifically, the Commission should adopt a policy that ensures hardware need not be replaced when a different software network management platform is desired. Simply put, hardware should be able to “plug and play” with software and remain viable regardless of software or network changes.

For open communications to ensure interoperability between hardware and software, we recommend the Open Charge Point Protocol (OCPP). OCPP is the de facto industry standard with wide adoption world wide, including Europe and North America.

Unfortunately, the formal standardization of OCPP in the U.S. through OASIS (Organization for the Advancement of Structured Information Standards) begun in 2016 was ended due to repeated legal threats by ChargePoint. While it is our belief that the claims underlying the threats are without merit, the derailment of this effort through OASIS has caused the formal standardization process for OCPP to take a different pathway forward.

However, although formal standardization is desirable, the industry has grown increasingly comfortable with a de facto standard. Indeed, most significant deployments are requiring OCPP on both the hardware (native, not via cloud) and software side. Notable recent examples of deployment planning with OCPP in the U.S. include the approximately 7500 Level 2 EVSE to be deployed through Pacific Gas & Electric’s EV Charge Network program, and Volkswagen/Electrify America’s planned deployments under Appendix C (ZEV Investment Fund) of its settlement decree. In the case of the latter, the 10 year operational commitment of Electrify America includes strong commitments to interoperability and reliability.

Beyond the critical base interoperability facilitation of “plug and play” switching capability of software, the next level of interoperability at the hardware/software and system level is the facilitation of demand response and smart charging signaling. OCPP version 1.6 facilitates a range of smart charging commands that allow a range of activities around demand response and load management. This is a critical pathway beyond that of OpenADR, SEP, etc. that would be utilized between the utility and EVSE network management software. There are also other communication languages between different parts of the larger electric vehicle charging ecosystem. Some of these are treated in the recently released *EV Related Protocol Study* authored by Elaad. The report is available for download at:

[https://elaad.nl/uploads/files/EV\\_related\\_protocol\\_study\\_v1.1.pdf](https://elaad.nl/uploads/files/EV_related_protocol_study_v1.1.pdf). This report is a helpful reference for both backend and driver-focused interoperable communication options and is hereby offered into the record of this docket.

Ensuring backend interoperability between host site operations and overall network management is not as simple as requiring an open communications protocol such as OCPP to manage software-hardware communications. While that is an important foundation, it is our belief that the utility needs to have the flexibility to choose its management platform for both “managed” and “provided” charging following an open and competitive procurement process. While transportation electrification is certainly in the early adoption stage, the ultimate platform managing these resources is and will be an integral aspect of a utility’s operations.

*Q. What policy mechanisms or standards are available to promote system-wide interoperability for drivers, such that EV drivers can charge any EV model and pay for the charge without joining a multitude of charging networks? Does the Commission have a role in overseeing the development of these standards or protocols, or should it provide guidance on the characteristics of an open EVSE system or a more common interoperable platform?*

Interoperability for drivers, or driver roaming, is an objective that most all players in the electric vehicle and electric vehicle infrastructure industry share in some shape or form. However, there are stark differences of perspective within the industry as to how best to achieve this capability.

While it is reasonable and important to protect charging station network companies’ ability to operate their own smart phone applications and branding, when part of a program supported by ratepayer investment managed by a utility, there may be additional standards of care to consider.

Indeed, while this realm may seem a departure from what the Commission traditionally regulates, it is a critical aspect of building a network of electric vehicle charging infrastructure that protects ratepayer investment by maximizing the used and useful life of the hardware, and is open and equitable for the citizen ratepayers of Washington.

As the industry has yet to be able to come together on a standard or methodology to effect driver interoperability, despite law in California requiring the industry to enable this functionality as of January 1, 2015, it seems appropriate for the Commission to explore its role in this space. As with interoperability between hardware and software, the Commission need not prescribe a standard or protocol, but can—and should—identify characteristics of a protocol, standard, or methodology for ensuring open driver access to charging infrastructure deployed with ratepayer funds. Aspects of this methodology that Greenlots recommends include freedom from intellectual property and attendant royalties.

An open, free method of interoperability is critical to supporting innovation among market participants and minimizing costs and complication to drivers. At this very early stage of the

market, these are both elements that—rightly or wrongly—affect the experience and decision-making of new and prospective EV drivers. Widely adopted in Europe are the Open Clearing House Protocol (OCHP) and the Open Intercharge Protocol (OICP) and there are facilitators such as eclearing.net and Hsubject. Europe is now in process on developing a full pan European interoperable network for drivers that incorporates all of these protocols and players. As the U.S. market is far less mature in this space, and as there are a range of options for the Commission to consider, it is our recommendation for the Commission to convene or caused to be convened a working group of key stakeholders to explore options within a clear framework of objectives and deadlines provided by the Commission.

Thank you for your consideration. Please do not hesitate to contact me should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'T Ashley', with a stylized, flowing script.

Thomas Ashley  
Senior Director, Government Affairs & Public Policy  
Greenlots