**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

| | |
|---|---|
| Order Instituting Rulemaking to Consider Alternative-Fueled Vehicle Programs, Tariffs, and Policies. | Rulemaking 13-11-007 |

## COMMENTS OF VOLKSWAGEN, AUDI, PORSCHE, DAIMLER (MERCEDES-BENZ), BMW, LUCID MOTORS AND IOTECHA ON ASSIGNED COMMISSIONER'S RULING SEEKING COMMENT ON VEHICLE-GRID INTEGRATION COMMUNICATION PROTOCOL WORKING GROUP ENERGY DIVISION STAFF REPORT

Barry Sole
Porsche AG
barry.sole@porsche.de

Veit Rohrberg
Audi AG
veit.rohrberg@audi.de

Dr. Gunnar Baerwaldt
Volkswagen AG
gunnar.baerwaldt@volkswagen.de

Dr. Andreas Heinrich
Daimler AG
andreas.heinrich@daimler.com

Eric Bach
Lucid Motors
eric.bach@lucidmotors.com

Claas Bracklo
BMW AG
claas.bracklo@bmw.de

Oleg Logvinov
IoTecha
oleg@iotecha.com

The above mentioned OEMs would like to thank the Public Utilities Commission and other state agencies for the time and effort they've put into the VGI Working Group[1]. We highly appreciate having had the opportunity to participate in the working group and would like to formally submit the following comments pertaining to the resulting draft report[2].

---

[1] http://cpuc.ca.gov/vgi/

[2] http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M211/K654/211654688.PDF

**Response to the *Questions for Parties and Stakeholders* defined in section 2 (p. 5) of the draft report:**

**Question 2: Scope of electric vehicle service equipment (EVSE) hardware performance requirements**

Q 2a)  Is it appropriate, as described in the Staff Report, to exclude single-user EVSE in privately-accessible locations (e.g., home charging) from the EVSE hardware requirements for utilities?

A 2a)  We find this appropriate. However, we would like to point out that due to the long charging times associated with these EVSEs, there is certainly potential for grid benefits by enabling VGI functionality. Accumulatively, home charging will account for a significant load on the grid, particularly in the evenings and overnight.

Q 2b)  Is it appropriate, as described in the Staff Report, to exclude workplaces or fleets that only use their EVSE for business vehicles from the EVSE hardware requirements for utilities?

A 2b)  Again, as this is not a public EVSE, this is appropriate. However, as mentioned above, there is potential for grid benefits by enabling VGI due to the long charge times and accumulative load.

Q 2c)  If a third party, such as an aggregator, plans to aggregate residential or private workplace charging loads to provide grid benefits, would the recommended hardware requirements be appropriate to apply to these use cases?

A 2c)  3rd parties do not have to conform to the Staff Report. However, a recommend best practices guideline may be appropriate in the spirit of interoperability.

**General Comments to the Staff Report from the aforementioned OMEs**

- The Staff Report should not be limited to AC Level-2 charging, and needs to include wireless/inductive and DC charging as these methods of charging will become commonplace in the near future.

- We support the hardware recommendation of HomePlug Green PHY as the physical layer for EVSE-to-EV communication for conductive charging.

- For the software protocol recommendation between the EVSE and EV, we would like to see a clear recommendation in order to minimize interoperability issues and reduce overall costs.

- If California is serious about being a world leader in E-Mobility, it is imperative that an EVSE-to-EV communication protocol be recommended which is:
  o internationally used for EVSE-to-EV communication
  o will have substantial market support in terms of vehicle brands, models, and volumes
  o is future proof and offers significant benefits for the customer (e.g. plug & charge, wireless charging, automated billing, etc.), which will further boost EV adoption.

- Any EVSE adopting a communication protocol which does not have international support, substantial market backing in terms of vehicle volumes, or significant customer benefits, will be at risk of becoming a stranded asset.

- As stated[3] in the past, the VW Group alone, which comprises of 12 brands, we will be equipping their vehicles with ISO/IEC 15118. This roughly translates to rover 30 new fully electric models and annual sales of 2 – 3 million electric vehicles by 2025.

- All OEMs submitting this statement fully support the use of ISO/IEC15118 as the EVSE-to-EV communication protocol and will be equipping their vehicles and devices with this technology due to the numerous benefits it offers such as:
  o Plug and Charge, Smart Charging and VGI
  o AC, DC and wireless[4] charging
  o Internationally adopted as the standard EVSE-to-EV communication

---

[3] http://docketpublic.energy.ca.gov/PublicDocuments/16-TRAN-01/TN214654_20161207T083603_VehicleGrid_Integration_Communications_Standards_Workshop__Volk.pdf
[4] ISO/IEC 15118 Ed.2

- o Already being planned and built into production vehicles and EVSEs due to its maturity.
- Thus, we request that the draft report's Table 5, row 3 - "EVSE to EV", column 2 - "Recommended Protocols Currently Available*", be changed to "ISO/IEC15118" only.
- Recommending ISO/IEC15118 more accurately reflects the current and planned future state of the market as emphasized by the draft report's Table 2 – "Protocols included in participating automakers' 10-year time horizon". This level of OEM support for ISO/IEC15118 will prevent any compliant EVSE from becoming a stranded asset.
- By recommending only one EVSE-to-EV protocol the industry will be able to:
  - o Achieve multi-vendor EVSE to EV interoperability on large enough scale to meet California's demanding charging infrastructure ambitions.
  - o Reduce the overall complexity and cost of the EVSE
  - o Improve the user experience which will ultimately foster higher EV adoption rates
  - o Begin supporting VGI and grid benefits sooner

Once again we would like to thank the Energy Division Staff for their tireless efforts and allowing us the opportunity to submit our comments. Furthermore, we would appreciate the opportunity to participate in further discussions, together with the state agencies and various VGI stakeholders, about the next steps and future VGI programs.

In closing, we would like to point out that the road to worldwide, multi-vendor interoperability is a long one. The ecosystem supporting ISO/IEC 15118 has been driving international interoperability efforts for the last 5 years with remarkable results. A change in the communication protocol between EV and EVSE would set the industry back by many years and will negatively impact all stakeholders, including consumers.