California Energy Commission Staff Workshop on the State's Role in Supporting Interoperability for Electric Vehicle Supply Equipment (EVSE)

Purpose:

The Energy Commission seeks to understand how it can best support the development of EVSE interoperability in California and what interoperability criteria should be considered, if any, in the development of EVSE solicitations.

Background and Questions

1. Governor's 2013 ZEV Action Plan

The Governor's 2013 ZEV Action Plan states that the state should "*encourage industry efforts to develop interoperability standards for EVSE's that enable PEV drivers to locate and reserve public charging stations and be billed regardless of drivers' memberships or subscriptions to a network of EVSE."* The Governor's Office is the lead agency on this action item with the Energy Commission in a supporting role.

a. *What should be the State's role in supporting industry efforts to develop interoperability standards for (i) PEV drivers to access charging stations and (ii) backend software management platforms to allow for various EVSE?*

2. Statewide Plug-in Electric Vehicle Infrastructure Plan Workshop

On January 30, 2013, the Energy Commission hosted a workshop for stakeholders to provide input on the development of the Statewide PEV Infrastructure Plan. One of the sessions was on the topic of interoperability and stakeholders' primary feedback regarding the State's role was:

a. Support national standards
b. Monitor industry standards development
c. Encourage Open Charge Point Protocol
d. Support interoperability standards and encourage but not mandate interoperability
e. Existing EVSE network cards should remain in use

3. Network Interoperability (Roaming) or (Driver Roaming)

Network (or driver) interoperability would allow PEV drivers to locate, use and reserve public charging stations with their existing membership subscription eliminating the need for drivers to maintain subscriptions for multiple charging networks. An alternative to network interoperability (roaming) is use of credit cards which can be used without requiring a membership subscription.

a. *What should the State prioritize in an EVSE solicitation to support the development of network interoperability—driver access, cost reduction or other priorities?*

b. *What costs and benefits should be considered in the development of network interoperability from the perspective of various stakeholders including drivers, EVSE providers, utilities, and automakers?*

4. Network Roaming Examples: Collaboratev and Hubject

ChargePoint, Inc and ECOtality, Inc. established Collaboratev, LLC in March 2013 which will enable charging network interoperability, exchange session data and allow financial billing reconciliation services among EVSE networks. Collaboratev will invite other EVSE network providers to join as affiliates for a fee. Collaboratev intends to provide PEV drivers with easy access to participating EVSE using common authentication credentials and one bill for all charging usage.

Hubject, is a joint venture in Europe that offers a cross-industry and business and data platform which allows providers of e-mobility services and charging infrastructure to integrate e-roaming as one of their services. The central platform provides for the authorization of charging operations at third party charging stations and the digital exchange of billing data and information about the location and availability of charging stations.

a. *What current business models exist in the EVSE market with regard to interoperability?*
b. *Should the State provide support for these interoperability business models? If so, why and what kind of support should it provide?*

5. Open Charge Point Protocol and Hardware Interoperability

Hardware interoperability, in contrast to network interoperability, allows a network to support multiple types of hardware such as the Open Charge Point Protocol (OCPP) communications standard between backend and charging stations used in Europe. The OCPP allows delinking of EVSE from networks so that site hosts have the capability to switch their backend software platform.

a. *What are the advantages of ensuring that EVSE in California have hardware interoperability? Are there any disadvantages and if so what are they?*

b. *What are the overlapping issues and relationships between network and hardware interoperability? Where do they intersect and what are the future implications of adopting network interoperability without hardware interoperability?*
c. *How can the Open Charge Point Protocol used in Europe serve as an example to California?*

6. Current California EVSE Landscape

With over 44,000 plug-in electric vehicles on California roads and over 1,824 non-private EVSE deployed, the state leads the nation in PEV adoption and charging infrastructure. The Energy Commission has funded over $25 million in charging infrastructure and installed over 4,500 residential, public, fleet and corridor EVSE to date. The existing EVSE installations have proprietary networks that do not have open architecture such as Open Charge Point Protocol. In order for a site owner to change networks either the EVSE would have to be replaced or a retrofit would have to be made. In the meantime, these EVSE site owners do not have an option to easily change their service provider.

a. *What criteria should future EVSE solicitations require with regard to interoperability?*
b. *What data should be made available to the public from state-funded EVSE?*
c. *What payment methods should be required for state-funded EVSE?*

7. Standards

The American National Standards Institute (ANSI) Electric Vehicles Panel has identified obstacles to mass adoption of electric vehicles. They have selected the National Electrical Manufacturers Association (NEMA) to address these issues lead by chairmen from ChargePoint and ECOtality.

a. *What is the impact of the development of NEMA standards on network and hardware interoperability, and if testing and implementation does not occur until 2014, how does that affect development of network interoperability?*

8. Legislation

SB 454, which would create the Electric Vehicle Charging Stations Open Access Act, is making its way through the California legislature at this time.

9. Alternative and Renewable Fuel and Vehicle Technology Program Funding

The portion of the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP) administered by the California Energy Commission is about $100 million per year to help transform California's transportation market into a diverse collection of

alternative fuels and technologies and achieve the greenhouse gas and petroleum reduction goals of the State. Each year the ARFVTP Investment Plan specifies how the funds will be allocated among various categories including Electric Drive. In the 2013 - 2014 Investment Plan, there is an allocation of $7 million for electric vehicle charging infrastructure and related activities.