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Docket Number:	16-TRAN-01
Project Title:	SB 350 Transportation Electrification (Publicly Owned Utilities)
TN #:	214764
Document Title:	Stacey Reineccius Comments: Additional Factors impacting standards for Vehicle Grid Integration
Description:	N/A
Filer:	System
Organization:	Stacey Reineccius
Submitter Role:	Public
Submission Date:	12/12/2016 4:52:52 PM
Docketed Date:	12/12/2016

Comment Received From: Stacey Reineccius

Submitted On: 12/12/2016

Docket Number: 16-TRAN-01

Additional Factors impacting standards for Vehicle Grid Integration

In evaluating and addressing the potential and benefits of Vehicle Grid integration it is critical to recognize that a standard is several things; it is a part of a solution that embodies a business model and market structure assumptions and it is a means to reduce costs and create revenues for proprietary technologies for the participants in that business model.

Caution and due care are needed when having a State endorsed standard as to the business structure and beneficiaries of that standard. In the case of ISO 15118 and SEP2 two key participants are not represented clearly or with economic participation: Property Owners and Non-Utility economic actors.

Property Owners:

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Property owners are especially critical as they literally own the ground on which the vehicle charging has to occur and are the parties who must consent to any utility or other EVSE installation and is the party liable for the cost of the infrastructure and electric services as well as holding final liability for any negative consequences of damage or injury.. This property has a time value for use (aka rent) and underlying many of the assumptions of activity in ISO15118 is the varying time a vehicle may be in place. It must be recognized that the longer a vehicle is in place in a location the more cost the property is bearing and that slowing the rate of charge of vehicles is shifting a cost to the property.

Compensation and inclusion of the property owner is therefore critical to achieve the approval and participation of these owners in a sufficient scale to enable the other desired benefits.

This same logic applies to independent EVSPs who bring capital, technology and expertise to install and operate EVSE infrastructure on properties. If they are not included in the benefits streams then they bear the cost of longer charge times leading to less utilization and lower revenues. Faced with this an EVSP would be likely to impose additional fees on the driver which would erase any benefits the driver might be receiving from participating in the VGI.

Non- Utility Economic Actors (NUEA)

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An example of this party is the independent EVSP, the app developer, entrepreneurs and the like. These actors may be groups like Uber or Lyft, or new business models or EVSPs seeking to gain access to in-vehicle data in order to provide a better service to their customers.

An example of a useful NUEA would be an API clearinghouse operator who enables open access to vehicle data across various platforms. This might be a party (google, msft, amazon or the like) which enables getting "no cost to developer" access to the various car maker APIs and would enable very useful applications to happen.

Simple examples where charge station and charging app developers could tap into the telematics of a vehicle to tell a driver:

- 1) which charging station is within the available range so a driver is not stranded
- 2) which station is compatible
- 3) with improved accuracy how long it will take to charge to a desired range (ie to get home)

- 4) how long it will be until the vehicle is fully charged
- 5) to allow a driver to dynamically participant in a grid DR event with full understanding of costs
- 6) how many miles of range have been enabled by a given charging station per the various makes and models of cars charged

Another example would be an Open Source clearinghouse for vehicle and charger activity possibly with an economic settlement function In the telecommunications field open source projects like OpenH323 and OpenSIP were instrumental in commoditizing the protocol and enabling and forcing developers to focus on useful applications and sustainable economic models rather than extracting royalties for the protocol. When this occurred in that industry it was a very quick spurt until almost 35% of global telephone traffic left the old circuit switched and TDM networks and become internet based instead.

In sum, the current standards of SEP2 and ISO 15118 are necessary but not sufficient to achieve the desired broad opportunity and advancement of VGI participants and applications. The currently UN-represented parties must be involved or the efforts of the others will inevitably be hindered or rendered moot.