DOCKETED

Docket Number:	16-TRAN-01
Project Title:	SB 350 Transportation Electrification (Publicly Owned Utilities)
TN #:	215084
Document Title:	eMotorWerks comments on the workshop regarding VGI communications Standards held on 7 December 2016
Description:	N/A
Filer:	System
Organization:	eMotorWerks
Submitter Role:	Public
Submission Date:	12/21/2016 3:56:47 PM
Docketed Date:	12/21/2016

Comment Received From: Steve Taber
Submitted On: 12/21/2016
Docket Number: 16-TRAN-01

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Additional submitted attachment is included below.

eMotorWerks
SMART [GRID] EV CHARGING

TO: California Energy Commission
California Air Resources Board
California Independent System Operator
California Public Utilities Commission

FROM: Val Miftakhov PhD
Chief Executive Officer
eMotorWerks

RE: eMotorWerks comments on the workshop regarding VGI communications Standards held on 7 December 2016

eMotorWerks appreciates the opportunity to participate in the workshop and to submit these comments.

eMotorWerks agrees strongly with the position taken by the auto OEMs (BMW, Ford, GM, Nissan, Toyota, Tesla, Fiat-Chrysler, Honda) that it is premature to adopt ISO 15118 as a mandatory standard for VGI communications. At this stage of the industry, when the technology for VGI is rapidly advancing, it is imperative that the policy makers "remain … open to innovative communication pathways that offer benefits to customers and the grid." In particular, eMotorWerks is working with OEMs in the Electric Vehicle (EV) / Electric Vehicle Service Equipment (EVSE) ecosystem and is finding numerous opportunities to innovate in VGI communications. Some of these opportunities that could provide superior benefits to California GHG objectives could be closed off if ISO 15118 were made mandatory in the state. In particular, despite the fact that eMotorWerks manufactures EVSEs, eMotorWerks believes that one viable evolution of the ecosystem is cloud-2-vehicle communication pathways taking primacy over EVSE-2-vehicle connections. Longer term, direct linkage between cloud-based energy management platforms and vehicles may provide the needed information for managing EV charging to grid conditions, including and eventually bi-directional energy transfer, also known as V2G.

eMotorWerks further agrees with the position taken by the auto OEMs that "additional research and implementation experience is required to understand the effectiveness of a single standard in this area. It is more appropriate for the utilities to pursue multiple communication avenues that do not limit or direct the technology in ways that might prove to be counterproductive. While a single standard may offer the best benefits in the long-term, it is not clear that a single standard is necessary to support broad scale adoption of vehicle-grid integration at this time. Additionally, without defined use cases it is impossible to determine if any standard is a good fit from a performance, cost, and time-to-market perspective."

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eMotorWerks emphasizes the importance of the residential charger sector in this matter as residential charging accounts for up to 80%-85% of EV charging by energy consumption. Whereas commercial chargers are often used by many different EV owners over the course of a day, a residential charger is typically used by only one or two EVs. Imposing ISO 15118 on a residential charger is less useful imposing it on a commercial charger. Furthermore, residential EVSE buyers are much more price-sensitive than commercial EVSE buyers, so the added cost of conforming to ISO 15118 is a potential obstacle to penetrating the residential EVSE sector.

Residential charging represents a large opportunity for benefits produced by vehicle-to-grid integration, including but not limited to the following reasons. First, residential chargers are commonly connected for 2 to 4 times as many hours as are needed to charge, so the potential for load shifting to accommodate renewable overgeneration and frequency fluctuations is very significant. Second, residential charging typically takes place during the hours of highest potential for wind overgeneration, and therefore represents a major opportunity to mitigate curtailment of wind energy.

eMotorWerks also comments on the position taken by the auto OEMs that "the primary obstacle to scaling smart charging in California is … the uncertainty around the grid value of smart charging and lack of clear contracting opportunities to access this value." eMotorWerks notes that a material portion of such grid value of smart charging is expressed in the CAISO wholesale markets, and the contracting opportunities are manifest in the rules for participating in those markets. While some of these market access models, notably the Distributed Energy Resource Provider role, is still being developed, eMotorWerks has confidence in the ability of CAISO to implement successfully the design and management of the markets for wholesale grid commodities.

However, a significant improvement is needed to simplify the customer acquisition process to enable distributed EV charging to become valuable resource at scale. For example, a well-publicized recent study by EnergyHub has shown that the sign-up rate for the current California Rule 24/32 program is an order of magnitude lower than sign-up rates for similar programs in ERCOT (Texas) territory. The study attributed the likely root cause to onerous sign-up process and systems. This type of friction is a primary barrier to bringing more resources into the wholesale market. Regarding the contracting opportunities, eMW prefers a completely open, broadly and constantly accessible competitive environment, such as the CAISO wholesale markets and yet to be devised distribution system operator markets, to a periodic procurement mechanism run by utilities through RFPs. Such RFP processes are inherently difficult for the utilities to design and manage for optimum ratepayer benefits, creating niches in the market which are closed off to all but the bid winners. With the CAISO wholesale markets, the price signals are constantly being fine-tuned by the market, and the degree of competition is always maximized.

In addition to making CAISO market more accessible via a more streamlined resource qualification and enrollment process, eMotorWerks believes that it is also critical

to enable full participation of smart EV charging, across all charging environments, in potentially applicable incentive programs such as CEC's Self-Generation Incentive Program (SGIP) and CARB's Low Carbon Fuel Standard (LCFS) program. Specifically, it has already been established that smart EV charging can deliver similar flexible resource attributes to stationary storage for purposes of complying with the CPUC storage procurement mandate (see a recent study from LBNL, presented at the Dec 12, 2016 VGI research workshop at CEC). eMotorWerks therefore proposes that smart EV charging (either or both V1G and V2G) should be considered by the CPUC for eligible storage technology status for purposes of compliance procurement as well as eligible for SGIP funding, thereby promoting a more level playing field in developing California's distributed energy storage resources. Additionally, eMotorWerks supports CARB's consideration of additional means within the LCFS Regulation to explicitly acknowledge the value of smart charging in reducing carbon intensity of EV charging across all charging environments..

Finally, we strongly endorse the comments of Mehdi Ganji regarding cybersecurity. This is perhaps the most compelling reason not to adopt ISO 15118 at this time, since a single standard may turn out to be a pathway into broad scale cybersecurity breaches.

eMotorWerks looks forward to participating in the VGI Working Group

About eMotorWerks: eMotorWerks is revolutionizing the electric vehicle charging market with its JuiceNet™-enabled smart-grid EV chargers. These devices are manufactured by eMotorWerks (such as the JuiceBox™, the bestselling charger on Amazon), and by major OEMs such as GE and Honda, that use eMotorWerks' proprietary software embedded in their devices. JuiceNet-enabled devices maximize charging efficiency & speed while providing EV owners with intuitive control and visibility.

In addition to providing a best-in-class user experience, the JuiceNet platform enables eMotorWerks to control when and how fast chargers draw power from the grid. This enables eMotorWerks to help utilities and grid operators reduce costs, ease congestion, and absorb additional solar and wind power. eMotorWerks is paid by grid operators for these services and shares a portion of the proceeds to the EV drivers. For fleet owners and operators, the JuiceNet technology offers substantial operating cost savings, as well as substantial new revenue opportunities.

For more information on eMotorWerks, visit www.emotorwerks.com.