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August 10, 2015

Verena Radulovic
Climate Protection Partnerships Division
US Environmental Protection Agency
Washington DC 20460

Subject: ENERGY STAR[®] Draft 1 Test Method for Electric Vehicle Service Equipment

Dear Ms. Radulovic:

This letter and attachment contain comments submitted on behalf of the California Investor Owned Utilities (CA IOUs) regarding the draft 1 test method for the upcoming ENERGY STAR Electric Vehicle Service Equipment Specification v1.0. We believe that an ENERGY STAR Specification can facilitate energy efficiency and demand response efforts by utility companies, and encourage US EPA's continued development of this test method and specification.

CA IOUs represent some of the largest utility companies in the western United States, serving a combined customer base of over 35 million people, including Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SCGC), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE). As energy companies with an extensive portfolio of efficiency programs, the IOUs understand the potential for appliance efficiency standards to cut costs and save energy while maintaining or increasing consumer satisfaction. We have a responsibility to our customers to advocate for standards that accurately reflect the conditions of our respective service areas, so as to maximize the positive effects of the standards.

We appreciate this opportunity to provide comments on the ENERGY STAR draft 1 test method and encourage US EPA to carefully consider these comments.

Sincerely,

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Attachment – Response to US EPA Request for Comments

Question 1: Proposed scope of products for inclusion

a) Level 1 and Level 2 Electric Vehicle Service Equipment (EVSE)

CA IOUs agree that US EPA should continue developing a test method and specification for Level 1 and Level 2 EVSE.

US EPA should also track DC Fast Chargers carefully for future consideration. While there are few of these units compared to Level 1 and Level 2 EVSE, DC Fast Chargers deliver significantly more energy and have a larger percentage energy loss due to the conversion of AC power to DC power. We also encourage US EPA to track plug in electric vehicle technology, including CA IOU demand response pilots. US EPA should consider in the future whether to address vehicles themselves via ENERGY STAR to promote energy efficient vehicle battery charging¹ and/or demand response.

Question 2: Proposed definitions of products

We do not have comments on the proposed definition of products.

Question 3: Proposed set up for testing EVSE

a) Definitions of modes

US EPA should consider clarifying the operating modes by listing the specific modes and defining each mode without referring to separate tables and lists of functions. We recommend using J2894 categories of modes. We also note that the current proposed definitions do not include climate conditioning, which is an active power delivery mode similar to battery charging.

b) Testing conditions (except those addressed under #5 below)

Section 7.3 of the draft test method should be revised to address the amount of time required to transition from higher power modes to “off” mode (which could include monitoring for a signal to reactivate the device). The test method should require that the EVSE unit is used in active mode (i.e. delivering power to a plug-in electric vehicle) for a minimum amount of time during pre-conditioning and then tested within a specific time limit after completion of active mode to ensure that unit promptly transitions to lower power states.

Section 7.4 of the draft test method addresses “Operational Mode Testing” (as noted above in 3a, we recommend revising the modes). The draft method requires recording percent efficiency (Section 7.4 F.4.i) and should be revised to also require recording average power loss in watts. Data on both may be needed to determine and/or implement the upcoming ENERGY STAR specification or for other informational purposes.

Section 5(F) addresses power input cables to the EVSE, presumably because cable length could affect power losses. The draft test method should also address cords that connect the EVSE to the vehicle

¹ Vehicle battery charging efficiency is not reflected in some types of information provided to the customer, such as vehicle range with a fully charged battery.

and require testing with the longest cord length that is sold with the EVSE. (US EPA should also request information from EVSE manufacturers regarding whether input and output cords are also sold with different wire diameters, since wire diameter could also affect power consumption.)

Question 4: Proposed harmonization with existing standards or standards under development

a) *Definition of terms*

The draft standard refers to letter codes and terms that may be intended to mimic SAE Standard J1772 (see examples in Table 1 below). While consistent terms may be helpful for the purposes of ENERGY STAR testing, they must be defined in the ENERGY STAR test method. For instance, “EVSE” is defined in the draft test method, and a helpful footnote describes the relationship to the definition in SAE Standard J1772. In this case, the test method is clear, because it spells out the definition of EVSE and is not dependent on an external document that requires separate purchase and may change over time.

Table 1

Undefined Term	Test Method Section(s)
State “a”, “b”, “c”	3.B.3, 7.3, 7.4
Mode “s1”, “s2”	7.3, 7.4
Current measurement location “L1”, “L2/n”	5 (C)
“duty cycle”	7.4(D)(3)

In addition, we note that our suggestion above under 3a would increase consistency with SAE 2894.

Question 5: Proposed setup for testing features such as network connectivity, automatic brightness control of EVSE displays, and occupancy sensors

a) *Factory presets such as screen illumination*

Factory presets should be recorded prior to testing (Section 6.1) and adjusted if needed to achieve a specified reasonable EVSE screen illumination level for devices with screens that can provide variable illumination, since installers or consumers will change defaults that do not provide enough illumination (Section 7.1).

b) *Network communications*

Section 7.3 of the proposed test method does not address the presence or absence of network activity. US EPA should develop a standard protocol that addresses two way communications for testing networked EVSE, and potentially also testing and recording power states without communications features if they can be disabled by the user.

In addition, Section 7.3 requires that EVSE demand response and timer functions² are “disabled.” This section should be revised to state that these functions will be set to avoid changing EVSE power delivery during the testing process, since these functions may be inherent to the EVSE.

² Timers may be used to control when charging starts and/or ends.

Question 6: Suggestions for how to test the presence of Smart Grid capability

a) Demand Response capabilities

Demand Response capability is an important aspect of EVSE operations. US EPA should work with utilities to evaluate the potential for a “Demand Response” certification based on ability to respond to both events and price signals using open standards (for example, see Title 24 Joint Appendix 5 and the related IgCC standard for more detailed specifications). While more sophisticated vehicle-grid interactions (VGI) are also an important priority, the potential role of ENERGY STAR for VGI is currently unclear.

Question 7: Potential additional features such as energy distribution or energy storage

a) Scope of ENERGY STAR Specification v1.0

US EPA should exclude speculative possible future features from ENERGY STAR v1.0 due to the lack of data on how to define and test these features; and because we understand that no products are available with these features.