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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



OFFICE OF AIR AND
RADIATION

August 3, 2018

Dear Electric Vehicle Supply Equipment (EVSE) Stakeholder:

The U.S. Environmental Protection Agency (EPA) plans to host two upcoming working sessions to engage with stakeholders on topics key to the development of the ENERGY STAR® EVSE Version 1.1 Test Method. With this letter, EPA is outlining the topics and timing for those conference calls. Background on the Version 1.1 development process to-date can be found below. To facilitate a meaningful discussion of these topics, EPA is also sharing a summary of each discussion topic, stakeholder feedback, potential approaches, as well as discussion questions. This is intended as a starting point to facilitate stakeholder discussion on paths forward for the ENERGY STAR EVSE program.

Registration and Timeline for Working Sessions

WORKING SESSION #1: August 22 at 3 – 5 PM Eastern Time

Focus Areas: EPA intends to focus on how to test certain product configurations (i.e., products with a separate cabinet and dispenser), as well as which modes of operation are most relevant for testing DC EVSE.

Registration: If you would like to participate in the Working Session #1, [please register here](#).

Additional Webinar Details:

First Time GoToWebinar Users: To save time before the meeting, [check your system](#) to make sure it is ready to use GoToWebinar.

Telephone conferencing – use the information below to connect:

Dial: 877-423-6338

International Number: +1-571-281-2578

Access Code: 773366#

WORKING SESSION #2: Date and Time TBD

Focus Areas: EPA would like to discuss any proposal outcomes from the first working session, appropriate loading conditions for testing during a charging event, and accounting for features/functions such as cooling systems (e.g., those used for the entire system and cooling specific to the cables) and battery banks.

Registration: A separate memo will be sent for Working Session #2 that will provide the date and registration link, along with a further description of the topics to be addressed.

ENERGY STAR EVSE Version 1.1 Development To-Date

On May 24, 2018, EPA released the [ENERGY STAR Version 1.1 EVSE Discussion Guide](#) to launch an effort to include DC-output EVSE in the scope of the ENERGY STAR EVSE program. The goal of this effort is to first create a test method to measure the energy efficiency of these products and then develop efficiency criteria to recognize the most efficient products. The Discussion Guide document outlines the key issues for developing a test method and specification for DC EVSE, including considerations for:

- Test setup – includes proposed instructions for how the unit should be connected to test equipment, ambient conditions (e.g., temperature and humidity), and input supply requirements
- Test conduct – describes how the unit should be configured in terms of network connection and a luminance test for products with a display

- Test procedure – proposes a test procedure for No Vehicle Mode and Operation Mode
- Definitions of key terms, scope of the effort, and currently available information on product efficiency

EPA discussed this document with stakeholders in a [webinar](#) on June 4, 2018 and received stakeholder comments that are available on the [Version 1.1 EVSE specification development webpage](#). In acknowledgement of the complexity of DC-output EVSE products, and due to the extensive feedback during the webinar on key issues from the Discussion Guide, EPA is proposing to host these phone-based working sessions to discuss key outstanding issues. The first working session will cover the topics addressed in detail below.

Discussion Topics for Working Session #1 on August 22, 2018

Testing Varying Product Configurations: All-in-One vs. Separate Cabinet/Dispenser Products

EPA has learned that DC EVSE are typically configured in one of two ways:

1. All-in-One: where the product has all of the components included in one enclosure
2. Cabinet/Dispenser: where the product has components included in two separate enclosures – one including the power conversion equipment (cabinet) and another enclosure that connects to the vehicle and has the user interface (dispenser)

The test method will need to appropriately account for both configurations and allow for comparison between their efficiency measurements. Since the Discussion Guide was released and stakeholders have provided feedback, EPA has included additional information on potential proposals, as a starting point for discussion during the first working session call:

1. **Testing Cabinet/Dispenser Configurations:** In the Discussion Guide, EPA suggested testing the Cabinet and Dispenser components separately to potentially reduce testing burden. Three stakeholders preferred to test Cabinet/Dispenser products as one system.

Based on this feedback, EPA is considering testing Cabinet/Dispensers together in a manner representative of how they would be used and more comparable to All-in-One products. EPA welcomes feedback on the following topics:

1. Is there any disadvantage to connecting Cabinet/Dispensers in a representative configuration for testing (e.g., will this result in higher test burden versus testing separately)?
 2. If tested separately, how would the tester control the cabinet without the dispenser interface? And which tests are most applicable for each component?
 3. Are there instances where the manufacturer offers a number of combinations of cabinet and dispenser products?
2. **Cable Losses:** How should EPA account for losses from the cable connecting the two enclosures? Three stakeholders commented that Cabinet/Dispenser products should be connected by a cable with a representative gauge and length unless EPA identifies technical reasons for testing the two enclosures separately.
 - a. Proposal #1: Choose a standard cable length (e.g., 40 feet) and choose a cable gauge per the National Electric Code or manufacturer instructions, to be used for testing all Cabinet/Dispenser products.
 - b. Proposal #2: Do manufacturers ship cables with the product or are they obtained by the site owner? If manufacturers commonly ship cables with the product, test the cable that is shipped with the product and then extrapolate the losses at a common length (40 feet), from the National Electric Code, to report losses for each product based on the same length.

Testing in Relevant Modes of Operation

In the Discussion Guide, EPA proposed a test procedure for No Vehicle Mode and Operation Mode and believed that these were the most relevant modes for DC EVSE because EV drivers are often encouraged to disconnect vehicles from DC charging stations at the end of a charging session to allow for more turnover. However, stakeholders noted that there are applications where DC EVSE may be connected to a vehicle, but not actively charging for significant periods of time – including fleet-based applications, future residential applications, and when a battery is present.

In the Version 1.0 specification for AC EVSE, EPA also tested EVSE in Partial On Mode (mode in which the vehicle is connected to the EVSE but is not ready to accept energy, i.e., the relay is open) and Idle Mode (mode in which the vehicle is connected to the EVSE and is ready to accept energy, i.e., the relay is closed).

Three stakeholders noted that additional testing for Partial On and Idle Modes will be most applicable for DC

EVSE with a rated current of 80 A or less, because drivers may leave their vehicles plugged in for longer periods of time after a charging event when parked at a DC charging station that takes longer to charge. They also recommended testing DC EVSE with a rated current greater than 80 A in Partial On due to a demand response event.

Questions for discussion:

1. Should EPA include a test procedure for these other modes of operation? If DC EVSE are in Partial On or Idle Modes for a significant amount of time, EPA believes they should be accounted for in this test procedure. However, including these additional modes will increase test burden.

All work on the test method and specification development effort will be posted to the [Version 1.1 EVSE specification development webpage](#). Please contact me at Kwon.James@epa.gov or (202) 564-8538, or Emmy Feldman at ICF at Emmy.Feldman@icf.com or (202) 862-1145, with any questions or concerns. EPA looks forward to working with stakeholders to find a successful path forward for these issues key to including DC-output EVSE in the ENERGY STAR program.

Best Regards,



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Manager, ENERGY STAR for Consumer Electronics

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