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

OFFICE OF
AIR AND RADIATION

June 19, 2015

Dear Electric Vehicle Supply Equipment Brand Owner or Other Interested Party:

The U.S. Environmental Protection Agency (EPA) is pleased to announce the launch of a process to develop an ENERGY STAR specification for Level 1 and Level 2 Electric Vehicle Supply Equipment (EVSE). This letter provides background on the ENERGY STAR program, explains EPA's interest in EVSE and proposed approach for developing a specification for this product category, and outlines EPA's goals and next steps for this specification development.

ENERGY STAR is a voluntary program with approximately 16,000 private and public sector partners. More than 2,000 manufacturers currently participate in the program, qualifying over 40,000 product models across more than 70 product categories, including over 15 commercial products. (A complete list of ENERGY STAR products can be found at www.energystar.gov/Products). The ENERGY STAR is an influential label that is recognized by over 85% of Americans nationwide and is required by federal government and many state and local government and institutional purchasers. Products that earn the ENERGY STAR prevent greenhouse gas emissions by meeting strict energy efficiency guidelines.

The ENERGY STAR program benefits partners by benefiting their customers. Last year alone, Americans, with the help of ENERGY STAR, saved $34 billion on utility bills. In doing so, they prevented more than 300 million metric tons of greenhouse gas (GHG) emissions and provided over $12 billion in benefits to society due to reduced damages from climate change. Nearly 700 utilities and other energy efficiency program sponsors, servicing over 87 percent of U.S. households in 50 states, leverage ENERGY STAR to deliver greater energy efficiency. Consistent with our commitment to helping consumers save money and reduce their environmental impact, EPA seeks to expand the ENERGY STAR program as new opportunities arise.

In assessing the suitability of new products for inclusion in the ENERGY STAR program and establishing ENERGY STAR product performance specifications, EPA considers a set of well-tested program principles. In consideration of these principles, EPA ensures that product categories proposed for inclusion in the ENERGY STAR portfolio will yield significant energy savings on a national basis. EPA pursues products where product energy consumption and performance can be measured and verified with testing, and when establishing eligibility criteria, EPA proposes levels that maintain product performance such that performance is not traded for efficiency. Additionally, the Agency sets specifications that enable purchasers to recover their

investments in greater efficiency within a reasonable period of time and such that more than one manufacturer can meet them. For more information, the ENERGY STAR Guiding Principles are available at www.energystar.gov/ProductDevelopment.

EPA's Interest in EVSE and Potential for Energy Savings

EPA is interested in expanding its product coverage to include EVSE due to the rise of electric vehicle charging infrastructure in the home and in the public sphere, and the opportunity to help consumers identify more energy efficient EVSE. EPA sees an immediate opportunity to differentiate products based on energy use in non-charging modes. According to the Electric Power Research Institute's projections, 62 percent of the entire U.S. vehicle fleet will consist of plug-in hybrid-electric vehicles (PHEVs) or plug-in electric vehicles (PEVs) by 2050. In 2012, sales of hybrid and electric vehicles exceeded 470,000 units—a gain of 64% over the previous year—and by 2017 sales could reach 850,000[1]. According to the International Energy Agency, corresponding sales of mostly Level 2 EVSE in the United States are projected to grow from approximately 50,000 units sold in 2013 to 85,000 units in 2015, and potentially up to 500,000 units by 2020.

In its EVSE scoping report (available at http://www.energystar.gov/ia/products/downloads/Electric_Vehicle_Scoping_Report.pdf), EPA identified a non-charging state energy savings opportunity of up to 265 kWh over a 5 year timeframe for a network-connected EVSE. For consumers that purchase EVSE for home use, the product is only actively charging a vehicle for a few hours each day. On an annual basis, total national energy savings could equate to approximately 4.8 GWh/year[2]. Further, as more EVSE are equipped with network connectivity, EPA sees the potential to highlight the most efficient implementations, drawing on its experiences with advancing efficiency in network-connected information technology and consumer electronic products

At this time, EPA is proposing to include Level 1 and Level 2 EVSE external to the vehicle. EPA will monitor the proliferation of commercial DC fast chargers and plans to evaluate opportunities for differentiating them based on energy efficiency in the future. EPA also recognizes that activity related to vehicle electrification, energy storage and accessing power from photovoltaics (PVs) is rapidly evolving. As EVSEs play a role in emerging interactions between products and the grid, and have the potential to evolve into a hub for collecting and distributing DC power in a building, EPA is interested in incorporating and addressing emerging features of EVSE in this EVSE specification that will give users expanded capabilities for more efficient power distribution. Emerging EVSE could include features such as the ability to receive DC power from PV panels or local storage; provide DC power to other devices in a building via USB, Ethernet, or other power transmission medium; supply AC power to a building or specific appliances; coordinate power distribution with other entities in the building; include electricity storage internal to the EVSE; and enabling transmission of power from a vehicle to a home. Such features may affect the EVSE scope, test method, and specifications. EPA seeks to better understand the energy efficiency implications of the presence or absence of these features and

[1] Mintel International Group Ltd., "Hybrid and Electric Cars – US – November 2012," http://www.marketresearch.com/Mintel-International-Group-Ltd-v614/Hybrid-Electric-Cars-November-7280067/view-toc/.

[2] U.S. Environmental Protection Agency (EPA): "Market and Industry Scoping Report for Electric Vehicle Supply Equipment", September 2013, www.energystar.gov/Scoping.

invites stakeholders to comment on the feasibility and benefit of including these features in this test method and specification for EVSE.

Process for Developing a Specification and Test Method
Prior to developing a specification, to ensure that products can be tested uniformly, EPA has drafted a test method for Level 1 and Level 2 EVSE in collaboration with the Department of Energy's Idaho National Laboratory (INL), Argonne National Laboratory (ANL), and Lawrence Berkeley National Laboratory (LBL). These partners bring expertise in developing standards related to EVSE and electric vehicle infrastructure and expertise in improving the efficiency of devices in a low-power, network-connected state. As a first step, EPA seeks feedback from stakeholders on the draft test method, which outlines a proposal for how to set up and test EVSE energy efficiency, how to measure the efficiency of secondary function (such as network connectivity), and how to confirm the availability of potential energy savings features, such as occupancy sensors and automatic dimming of the display panel.

The test method seeks to harmonize, where possible, with existing internationally accepted standards pertaining to EVSE. In the test method, EPA also proposes a scope and definitions sections, which will later be moved into a draft specification. Once the test method has been further developed based on stakeholder feedback, EPA will assemble test data for Level 1 and Level 2 chargers currently on the market. This data, which EPA anticipates assembling in Fall 2015, will form the basis for proposing energy efficiency criteria during the specification development process.

Stakeholders are encouraged to provide input on the issues presented in this document as well as other thoughts related to developing an ENERGY STAR test method and specification for this product category. The enclosed draft test method addresses the following topics, on each of which EPA is seeking stakeholder feedback:

- Proposed scope of products for inclusion;
- Proposed definitions of products;
- Proposed set up for testing EVSE;
- Proposed harmonization with existing standards or standards under development;
- Proposed set up for testing features such as network connectivity, automatic brightness control of EVSE displays, and occupancy sensors;
- Suggestions for how to test the presence of Smart Grid capability.

Stakeholder Participation: Launch Webinar and Next Steps
The exchange of ideas and information between EPA, industry, and other interested parties is critical to the success of ENERGY STAR and stakeholder participation is strongly encouraged. Stakeholders are encouraged to submit comments to EPA on the draft test method as well as any other issues associated with the development of an ENERGY STAR specification for EVSE to ElectricVehicleSupplyEquipment@energystar.gov. The deadline for submitting comments is **July 24, 2015**.

EPA also invites stakeholders to participate in an initial web meeting to discuss the draft test method on July 9, 2015 at 11AM–2PM, Eastern Standard Time. Webinar registration is available

at: https://attendee.gotowebinar.com/register/2924628729209884417. This discussion will be important as EPA begins development of a draft test method and subsequent specification, and we hope you can participate.

As EPA moves forward with developing a specification, the Agency will solicit input from all stakeholders on an ongoing basis via draft specifications and stakeholder webinars or in-person meetings. EPA intends to finalize the test method in the Fall of 2015 and develop a first draft of the specification **by late 2015 or early 2016** for stakeholder review and comment. EPA will likely host at least one in-person meeting for all stakeholders during the specification development process. Comments received will inform subsequent drafts which culminate with the finalization of a product efficiency specification. Multiple opportunities to actively discuss proposed elements for each specification are provided through meetings and webinars. All documents related to each specification development are posted on the ENERGY STAR web site at www.energystar.gov/NewSpecs.

Next Steps and Proposed Schedule

Launch Webinar	July 9, 2015
Deadline for Written Comments on Draft 1 Test Method	July 24, 2015
Draft 2 Test Method Issued	September 2015
Deadline for Written Comments on Draft 2 Test Method	October 2015
Data Assembly	Fall 2015
Final Draft Test Method Issued/Draft 1 Specification Issued	Winter 2015-2016
Subsequent Draft of Specification Issued	Early Spring 2016
Final Test Method and Specification Issued	Spring 2016

Please forward this letter onto colleagues who might be interested in being a part of this effort. Your input is very valuable during this specification development process. To be added to the EVSE e-mail distribution list, please send your full contact information to ElectricVehicleSupplyEquipment@energystar.gov.

If you have any questions about the ENERGY STAR program and this effort in particular, please contact me at Verena Radulovic, EPA, at Radulovic.Verena@epa.gov and (202) 343-9845 or Matt Malinowski, ICF International, at Matt.Malinowski@icfi.com and (202) 862-2693.

Thank you for your support of ENERGY STAR. I look forward to working with you during the specification development process.

Sincerely,

Verena Radulovic, Product Manager
ENERGY STAR for Electric Vehicle Supply Equipment
Enc: Draft 1 Test Method for Electric Vehicle Supply Equipment