

DE-FOA-0002797: Request for Information on Electric Vehicle No-Charge Events, including Interoperability

DATE: October 4, 2022

SUBJECT: Request for Information (RFI)

Description

The Vehicle Technologies Office (VTO), within the U.S. Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE), seeks public comment on its Request for Information (RFI) number DE-FOA-0002797 regarding the prevalence of, and solutions to prevent, Electric Vehicle (EV) No-Charge Events. This includes interoperability issues between EVs and the Electric Vehicle Supply Equipment (EVSE or "chargers") and other parts of the charging ecosystem. The VTO is developing plans to implement the Vehicle Grid Integration (VGI) Research, Development, and Demonstration (RDD&D) Program as directed by the Energy Act of 2020 and one of the challenges/barriers to VGI to be addressed is the issue of some EVs failing to charge satisfactorily when connected to EVSE. These no-charge events either fail to start charging or fail to complete the charge without interruption.

Background

The electrification of the U.S. transportation sector has rapidly accelerated in the past year because of large vehicle and infrastructure initiatives at the Federal and State government levels and the shifting of product offerings to electric options by manufacturers. As the increasing number of EV models being produced are adopted by end users and the charging infrastructure to support these EVs is rapidly being deployed, it is critically important to ensure that these vehicles and infrastructure are interoperable and work together seamlessly.

Purpose

The purpose of this RFI is to solicit feedback from industry (e.g., EV manufacturers, EVSE manufacturers, charge network operators, and utilities), academia, research laboratories, government agencies, and other stakeholders on issues related to electric vehicles failing to charge properly when connected to chargers. EERE is specifically interested in information on the prevalence of and factors that lead to electric vehicles failing to charge when connected to chargers and other interoperability challenges. This is solely a request for information and not a Funding Opportunity Announcement (FOA). EERE is not accepting applications.

Disclaimer and Important Notes

This is a Request for Information (RFI) only. EERE will not pay for information provided under this RFI and no project will be supported as a result of this RFI. This RFI is not accepting applications for financial assistance or financial incentives. EERE may or may not issue a Funding Opportunity Announcement (FOA) based on consideration of the input received from this RFI.

This RFI is not a Funding Opportunity Announcement (FOA); therefore, EERE is not accepting applications at this time. EERE may issue a FOA in the future based on or related to the content and responses to this RFI; however, EERE may also elect not to issue a FOA. There is no guarantee that a FOA will be issued as a result of this RFI. Responding to this RFI does not provide any advantage or disadvantage to potential applicants if EERE chooses to issue a FOA regarding the subject matter. Final details, including the anticipated award size, quantity, and timing of EERE funded awards, will be subject to Congressional appropriations and direction.

Any information obtained as a result of this RFI is intended to be used by the Government on a non-attribution basis for planning and strategy development; this RFI does not constitute a formal solicitation for proposals or abstracts. Your response to this notice will be treated as information only. EERE will review and consider all responses in its formulation of program strategies for the identified materials of interest that are the subject of this request. EERE will not provide reimbursement for costs incurred in responding to this RFI. Respondents are advised that EERE is under no obligation to acknowledge receipt of the information received or provide feedback to respondents with respect to any information submitted under this RFI. Responses to this RFI do not bind EERE to any further actions related to this topic.

FREEDOM OF INFORMATION ACT:

Responses received under this RFI are subject to public disclosure under the Freedom of Information Act. Because information received in response to this RFI may be used to structure future programs and funding opportunity announcements and/or otherwise be made available to the public, **respondents are strongly advised to NOT include any information in their responses that might be considered business sensitive (e.g., commercial or financial information that is privileged or confidential), trade secrets, proprietary, or otherwise confidential.**

Consistent with 10 CFR 1004.11, DOE requires that any person submitting information that they believe to be confidential and exempt by law from public disclosure should submit **two well-marked copies**: one copy of the document marked “confidential” which must clearly and conspicuously identify the business sensitive, trade secrets, proprietary, or otherwise confidential information, and one copy of the document marked “non-confidential” with the information believed to be confidential deleted. **Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise.** The Government is not liable for the disclosure or use of unmarked information and may use or disclose such information for any purpose.

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If you choose to provide business sensitive, trade secrets, proprietary, or otherwise confidential information, you must include a cover sheet marked as follows identifying the specific pages containing business sensitive, trade secrets, proprietary, or otherwise confidential information:

Notice of Restriction on Disclosure and Use of Data: Pages [List Applicable Pages] of this response may contain business sensitive, trade secrets, proprietary, or otherwise confidential information that is exempt from public disclosure. Such information shall be used or disclosed only for the purposes described in this RFI DE-FOA-0002795. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.

In addition, (1) the header and footer of every page that contains business sensitive, trade secrets, proprietary, or otherwise confidential information must be marked as follows: “Contains Business Sensitive, Trade Secrets, Proprietary, or Otherwise Confidential Information Exempt from Public Disclosure” and (2) every line and paragraph containing such information must be clearly marked with double brackets or highlighting. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Confidential Business Information

Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email, postal mail, or hand delivery two well-marked copies: one copy of the document marked “confidential” including all the information believed to be confidential, and one copy of the document marked “non-confidential” with the information believed to be confidential deleted. Submit these documents via email or on a CD, if feasible. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Evaluation and Administration by Federal and Non-Federal Personnel

Federal employees are subject to the non-disclosure requirements of a criminal statute, the Trade Secrets Act, 18 USC 1905. The Government may seek the advice of qualified non-Federal personnel. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The respondents, by submitting their response, consent to EERE providing their response to non-Federal parties. Non-Federal parties given access to responses must be subject to an appropriate obligation of confidentiality prior to

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being given the access. Submissions may be reviewed by support contractors and private consultants.

Request for Information Categories and Questions

EERE understands that there are many components in the EV charging ecosystem that must work together to facilitate an EV charging, including the EV/EVSE interface or interoperability, the EVSE hardware functionality, the EVSE to network communications, and the power supply from the grid. VTO is specifically interested in information on:

Category 1: The occurrence of no-charge events

- 1) The frequency of no-charge events (as a percentage of total events) at non-residential locations by charging type:
 - a. AC Level 2 chargers,
 - b. DC Fast Chargers (50kW-200kW), and
 - c. Extreme Fast Chargers (XFC >200kW).

Category 2: The causes of no-charge events

- 1) Please identify the cause of no-charge events:
 - a. EV component failure,
 - b. EVSE component failure
 - c. Internet connection (Wi-Fi/cellular),
 - d. Payment system failure (e.g. authentication, authorization),
 - e. Charging network operator system disruptions (Information Technology/Operational Technology),
 - f. EVSE network-to-network interoperability (roaming transaction errors),
 - g. Power failure or interruption (lack of charge restart),
 - h. Cybersecurity compromises,
 - i. EV/EVSE Interoperability, please specify charging connector type,
 - j. Operator error, and
 - k. Other, please specify.
- 2) For the causes identified above, what percentage of no-charge events result from each cause, by charger type?
 - a. AC Level 2 chargers,
 - b. DC Fast Chargers (50kW-200kW), and
 - c. Extreme Fast Chargers (XFC >200kW).
- 3) For the causes identified above, can they be tracked? If so, how and to what level of detail are they tracked?

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Category 3: Solutions to overcome no-charge events

- 1) For the causes identified above, what are the potential solutions to address each?
Please describe solutions for
 - a. The existing vehicles and chargers already deployed in the field,
 - b. The current production vehicle and charging products, and
 - c. The future production vehicle and charging products.

- 2) Does the Federal government have a role in supporting these solutions through research, development, and/or demonstration? Please explain.

Category 4: Testing and services to verify compatibility and functionality and prevent no-charge events

- 1) What is the adequacy of testing standards/protocols, testing tools and services to detect, understand, and prevent the causes of no-charge events? Please explain.
- 2) How can design verification and testing be efficiently scaled as the number of EVSE and EVs coming to market increases? Please explain.
- 3) Is there a need for additional testing tools, services, and facilities (similar to the Vehicle-Grid Innovation Laboratory being developed by the State of California)? Please explain.

Request for Information Response Guidelines

Responses to this RFI must be submitted electronically to VTO@ee.doe.gov no later than 5:00pm (ET) on November 18, 2022. Please include "No-Charge Event RFI" in the subject line. Responses must be provided as attachments to an email. It is recommended that attachments with file sizes exceeding 25MB be compressed (i.e., zipped) to ensure message delivery. Responses must be provided as a Microsoft Word (.docx) attachment to the email, and no more than 10 pages in length, 12-point font, 1- inch margins. Only electronic responses will be accepted.

Please identify your answers by responding to a specific question or topic if applicable. Respondents may answer as many or as few questions as they wish.

EERE will not respond to individual submissions or publish publicly a compendium of responses. A response to this RFI will not be viewed as a binding commitment to develop or pursue the project or ideas discussed.

Respondents are requested to provide the following information at the start of their response to this RFI:

- Company / institution name;

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- Company / institution contact;
- Contact's address, phone number, and e-mail address;
- Company / institution role in the EV charging ecosystem (e.g., EV operator, charging site manager, EV charging network operator, vehicle manufacturer, EVSE manufacturer, fleet operator, utility, etc.).

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