

Electric Vehicle Supply Equipment

Request for Information March 2010



Abstract: Request for Information specific to technical information on electric vehicle supply equipment for electric vehicles.

Statement of Need

To provide pioneering communities and municipalities across the United States and Canada with detailed, technical information specific to charging stations for plug-in electric vehicles (EV).

With numerous cities currently exploring installation for early rollout/adoption of EVs, there is a clear and present need for charging stations more accurately referred to as electric vehicle supply equipment (EVSE). This Request for Information (RFI) seeks to gather information from commercial vendors, service providers and other interested parties (“Respondents”) on EVSEs, including, but not limited to:

- EVSE equipment and related systems/services
- Installation of EVSE
- Use of “smart charging” concepts
- Projected maintenance/repair schedules and costs
- Anticipated EVSE billing models/systems, such as subscriptions, etc.

Specific information and detailed qualifications can be found under *Information Requested*.

Background

Across the United States and throughout Canada, major cities and regions – including the entire state of Rhode Island – are joining Project Get Ready, a program which helps community stakeholders work together to prepare for and adopt electrified transportation. Project Get Ready serves as a national forum for these communities, promoting coordination and a common gauge for readiness/acceptance.

The Rocky Mountain Institute and Advanced Energy continue to work collaboratively with these pioneering communities to accelerate the early adoption of plug-in hybrid electric vehicles and full-battery electric vehicles. As adoption/integration gets closer, there is a need to review, analyze, test and evaluate available EVSEs. Additionally, communities will need to have a clear understanding of each vendor’s offering in order to determine the best solution for the various types of sites to be included in their implementations. Currently, these communities are reviewing available opportunities to design and implement a variety of projects, pilot programs, technologies and policies that will accelerate the use of electric vehicles in their region. It is expected that this RFI will result in information that, subsequently, will enable each region to develop Requests for Proposals or other means for one or more pilot projects and/or other programs.

Any and all information submitted in response to this RFI will be collectively shared specifically with Project Get Ready’s past, present and future participating cities and, more broadly, with the general public in the format received and/or via a standard report(s). The information may be posted on Advanced Energy and the Rocky Mountain Institute’s Web sites, including any affiliated partner sites. By submitting information, Respondents authorize their consent to the use and distribution of the information gathered. Respondents may request modifications or

removal of content from their respective posted information. Additionally, all posted information will include a revision date.

Points of Interest

The following should be taken into account for submission, as this RFI is seeking to identify:

- EVSEs that will accommodate the needs of the full range of vehicles requiring access to electrical charging, including plug-in hybrids, all-electric vehicles and low-speed EVs.
- EVSEs that universally accommodate vehicles from all manufacturers, and that comply with all applicable building codes, SAE standards, UL safety codes, ADA requirements and industry standards.
- EVSEs that meet customers' EV charging needs in any or all key locations including residential garages, commercial garages and parking lots, transit hubs, workplace locations, and on-street parking in residential and non-residential neighborhoods.
- Use of "smart charging" concepts to minimize charging during on-peak hours and to maximize customer convenience, and which may be compatible with the utility industry's Advanced Metering Infrastructure systems ("smart meters").
- Although not required, in some cases, it will be useful to have billing capability ranging from point-of-use payment options to subscription based services
- Consideration of means to accommodate the extended-range needs of EV drivers, such as fast charging or battery swap systems.
- Provisions for maintenance requirements and other ancillary services provided by vender or distributor.

Information Requested

When responding to this RFI, please be sure to include the following information:

- If viable, describe a specific pilot project, demonstration or conceptual approach, including potential roles and costs for the city and other participants, that may address any or all of the items identified under *Points of Interest*;
- Provide information demonstrating the Respondent's qualifications and capabilities for conducting the activity described above. Respondents who would have a commercial interest in the activity are requested to provide the following:
 - Year the company was established, and the country or state in which the firm was incorporated or otherwise organized.
 - A narrative description of the Respondent's management and its relationship to any larger business entity.
 - A description of the overall operations of the Respondent, the number and scope of other similar projects currently ongoing or set to begin in the near future.
 - A narrative description of the Respondent's familiarity with and prior operating experience in the region that might be relevant.
 - Any other information that might demonstrate the Respondent's relevant qualifications and capabilities.

- A brief summary of the Respondent's business model specific to the initial cost, deployment and maintenance of said EVSE as well as possible additional costs (optional and required) such as back-end services, subscriptions, repairs and upgrades.
- Detail each product's warrantee and any available extended warrantee plans.
- Detail diagnostic tools available.
- Detail any particular meter types that may be added to the hardware.
- Provide the following information related to the Respondent's business model:
 - How will a purchaser use the station?
 - Is there a monthly subscription fee? If so, what does it include?
 - Are there other services the Respondent offers?
 - What is the estimated cost for the EVSE (if available)?
 - What is the estimated cost to use?
 - What is the estimated cost to serve?
 - Define the Respondent's value proposition
 - Define the Respondent's channel to market

Specify Applicable Technical EVSE specifications, listing and testing such as:

- SAE Standards met:
 - SAE J551 Electromagnetic compatibility standards
 - SAE J1772™ Conductive 5-pin coupling for EVSE
 - SAE J1850 Communication network between EVSE and the EV
 - SAE J2178 Message format for the communication network
 - SAE J2293 Energy transfer system, umbrella document for EV standards
 - SAE J2294 Onboard power charger quality
 - SAE J2836 Digital communications use case between EVSE and vehicle
 - SAE J2847 Digital communications specifications
- UL Listed / Tested
 - UL 2202 Safety of EVSE
 - UL 2231 Shock prevention measures for EVSE
 - UL 2251 Safety of cord set
- Circuit re-closure – remote or automatic re-energized after a fault has cleared
- Cold load pickup (random restart after power outage)
- Load management connection (for future utility control)
- Input voltage and amperage range
- Self testing – diagnostics, safety, ground monitor, etc.
- Diagnostic status indicator
- Operating temperature range:
- Mounting – wall, pedestal, other
- Charge status display
- EVSE dimensions
- EVSE footprint dimensions (for installation)

Submission Criteria

Respondents are invited to respond to this RFI by May 10, 2010. Respondents that do not adequately address the four criterion listed below may not be accepted and published. To ensure successful submission:

1. Include/address all items as found in the *Points of Interest and Information Requested* sections; TBD can be used where the information is not available for public release
2. Limit your response to five (5) pages in length*
3. Include the primary contact's name, telephone number, mailing, email address and web site
4. Submit electronically (via email) as an attached document either in Word or PDF format to RFI-EVSE@EVTaskforce.com

*Note: While the response is limited to five pages, we will accept the following appendices:

- Specification / data sheets
 - Base Model
 - Options and add-ons
 - Standard disconnect details and options
- Operation and Installation manuals
- Dimensions and Mounting Information
- Detailed Standard Labeling
- Cord Management information
- Wiring Diagrams
- Detail ventilation requirements and labeling

Again, any and all information submitted in response to this RFI will be collectively shared specifically with Project Get Ready's past, present and future participating cities and, more broadly, with the general public in its delivered format and/or via a standard report(s). This report will be posted on both Advanced Energy and the Rocky Mountain Institute's Web sites. By submitting information, Respondent's authorize their consent to the use of the information gathered.

For questions, please contact:

David Berkowitz
Director of OEM Test Services
Advanced Energy
www.AdvancedEnergy.org

RFI-EVSE@EVTaskforce.com
919-857-9047 [PHONE]
919-832-2696 [FAX]