



CharIN North America
1300 Eye Street NW, Suite 400E
Washington, DC 20005
(202) 886-3842
northamerica@charin.global

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Michael Berube
Director (Acting), U.S. Department of Energy's Vehicle Technologies Office
Forrestal Building
1000 Independence Avenue, SW
Washington, DC 20585
VTO@ee.doe.gov

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

Dear Mr. Berube,

We write on behalf of the Charging Interface Initiative (CharIN), the largest global association focused on the electrification of all forms of transportation based on the seamless and interoperable charging experience enabled by the Combined Charging System (CCS) and the Megawatt Charging System (MCS). CCS and MCS are the global standards for charging vehicles of all kinds. An inclusive, industrywide coalition, CharIN represents nearly 300 leading e-mobility stakeholders, from automakers to utilities, grid operators, component suppliers, and charging station developers. Nearly 50 of these members are based in the United States. A complete list of members may be found on our website at www.charin.global.

We applaud the Vehicle Technologies Office for issuing this Request for Information to identify the barriers to EV charging, in part related to interoperability. CharIN would like to specifically comment on **Category 4: Testing and services to verify compatibility and functionality and prevent no-charge events.**

Additionally, the list of no charge events identified in Category 2, includes two key areas that are being evaluated as the EVSE hardware or component failure and payment systems. While CharIN does not provide specific data on no charge events since it does not have access to that information directly, promoting seamless charging systems, like what is enabled via ISO 15118 (Plug & Charge) can help decrease any payment system related failures and general points of failure on the hardware side. In a future state where everyone is utilizing Plug & Charge and the systems are interoperable, the EV charging system will by design be more reliable. We encourage VTO to evaluate the advancement of payment technologies and a seamless Plug & Charge experience in the context of Category 3, solutions to no-charge events.

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.

While the EV industry in the United States has experienced some growing pains, the market is working to learn and advance a seamless EV driver charging experience through interoperability testing events around the world organized by associations like CharIN. CharIN has hosted and facilitated interoperability testing and demonstration events in the United States for the past eight years. From our first 2014 testing event in Chicago to our recent testing event in October 2022 in Portland,¹ CharIN has a demonstrated history of convening e-mobility companies and technology experts to conduct hands-on conformance and multivendor interoperability tests involving electric vehicles, charging infrastructure components and chargers, electric control units (ECUs), and communication controllers based on CCS (and next year MCS) including the ISO/IEC 15118 standard. CharIN has successfully built support for EV charging standards in North America, such as the commercial deployment and public announcement of Electrify America (and other charge point operators) to use Plug & Charge as a direct result of CharIN's Festival events and other collaborative activities.

In 2021, the CharIN global organization founded CharIN Inc., also known as CharIN North America, to support EV charging policy more effectively – particularly as policymakers need guidance on building the next generation of clean transportation infrastructure. CharIN North America's mission is to promote CharIN's global approach to decarbonization through the electrification of regional transport, acting locally to extend charging interoperability on a global scale.

In 2022, CharIN North America hired full-time staff, including an Executive Director, Erika Myers, based out of Washington, D.C. Ms. Myers has been actively engaged with the Vehicle Technologies Office, serving as an EV industry expert on the EVGrid Assist Steering Committee, the Grid Integration Technical Team on U.S. DRIVE (Driving Research and Innovation for Vehicle efficiency and Energy sustainability), and the Electric Vehicle Steering Committee.

How can design verification and testing be efficiently scaled as the number of EVSE and EVs coming to market increases? Is there a need for additional testing tools, services, and facilities (like the Vehicle Grid Innovation Laboratory being developed by the State of California)? Please explain.

CharIN's position is that the correct implementation of open standards will ensure long-term interoperability and reliability and that the communication protocol, ISO/IEC 15118, including Plug & Charge, is a major solution to preventing no-charge failures. Public testing events are one avenue to verify correct implementations of standards like ISO/IEC 15118 (including Plug & Charge), such as the upcoming VOLTS Interoperability Event planned for Spring 2023 in California and funded in part by the California Energy Commission.

CharIN's members are interested in and supportive of more frequent and flexible interoperability testing at established locations to supplement these successful testing events, which will become increasingly important as the industry expands and the number of charging equipment vendors increase. CharIN North America is developing plans to set up a permanent public testing facility to aid the EV industry and foster broader collaboration through interoperability testing via an affordable self-certification option. The CharIN community can provide technical guidance, oversight, expertise, and time from volunteers to supplement this activity. CharIN is experienced in bringing the technical expertise from its members and access to

¹ To see a highlights video of the Fall 2022 CharIN Festival go to: <https://www.youtube.com/watch?v=zGDGZ5gHleA>

industry stakeholders to help advance interoperability and reliability, as already achieved through Festival events.

CharIN managing the Interoperability Test facility would ensure the latest equipment is supplied by its member organizations. Further, CharIN interoperability testing could become the benchmark for quality and reliability that would provide assurance of a consistent EV charging experience. CharIN's Interoperability seal of approval would further bolster confidence for the charging Eco system while bring EVSE manufacturers, Charge Point Operators and vehicle OEMs together to help achieve a common goal of "A No Compromise Charging Experience."

CharIN North America proposes that the federal government partner with CharIN to create a permanent, industry-led, and supported facility to provide reliable and low-cost EV testing. Given the time-sensitive nature of the National EV Infrastructure (NEVI) Program funds, companies would significantly benefit from this type of a testing program to comply with required public infrastructure technical standards. To drive greater accessibility to the testing facilities, it is possible CharIN could also establish a second testing site in a different geographic location, depending on demand.

In summary

The United States can only meet its EV targets and decarbonize its transportation sector through the nationwide deployment of universal, reliable charging infrastructure. Industry-standard charging technologies, including CCS, MCS, and ISO/IEC 15118, create a platform for interoperability, which is key to unlocking innovation and exponential growth throughout the e-mobility ecosystem, as well as a convenient, accessible charging experience for consumers.

The United States has a once in a generation opportunity with available government funding to support EV/EVSE testing and resolve the major infrastructure challenges the industry faces as it rapidly deploys charging infrastructure. We can learn much from the experience of other successful technology deployments led by industry alliances, which established certification programs for Wi-Fi, Bluetooth, and USB. In those instances when industry led the way, the technology became ubiquitous, and many disparate competitors converged around the standard that was the easiest to deploy and best for the consumer.

CharIN North America is here to support the federal government, and CharIN members would welcome federal support to expand our EV interoperability testing activities. We appreciate the opportunity to submit these comments.

Oleg Logvinov
President
CharIN North America

Erika Myers
Executive Director
CharIN North America