

April 5, 2024

Shailen P. Bhatt
Administrator, Federal Highway Administration
Docket No. FHWA-2023-0054
1200 New Jersey Avenue SE
Washington, DC 20590-0001

RE: Request for Information on the J3400 Connector and Potential Options for Performance-Based Charging Standards

Dear Administrator Bhatt:

On behalf of the undersigned organizations including the Alliance for Automotive Innovation, Ford, General Motors, Hyundai, Rivian, Tesla and Volvo (Joint Automakers) we appreciate the opportunity to respond to the Federal Highway Administration's (FHWA) and Department of Transportation's (DOT) request for information (RFI) on the Society of Automotive Engineers (SAE) J3400 connector, also known as the North American Charging Standard (NACS) and the need to modify the federal minimum standards for electric vehicle (EV) charging infrastructure deployed as part of the National Electric Vehicle Infrastructure (NEVI) program.

It is important to ensure that the minimum standards included for EV charging infrastructure under NEVI and other federal funding programs including Clean Fuels and Infrastructure (CFI) program are complementary to current market trends and support the rapidly evolving EV landscape. Accordingly, FHWA should amend the current federal minimum standards expeditiously.

Given the change of pace for technology in the EV charging space, the minimum technical standards should be updated in a manner that will enable flexibility for charging station suppliers, but also recognize that by 2026 the overwhelming majority of vehicles and charging site hosts would benefit from J3400 connectors and as non-Tesla OEMs begin producing certain 2025 models with J3400 charging inlets. The Bipartisan Infrastructure Law (BIL) enacted as the Infrastructure Investment and Jobs Act (IIJA)¹, which established the NEVI program, provides guidance on connector standards, noting that a connector must be non-proprietary, serve more than one vehicle type, and be accessible to the general public. To limit confusion in the market, the federal minimum technical standards for NEVI should be updated as soon as possible to enable utilizing *either SAE J3400 or CCS Type 1 (CCS) connectors*.

In the comments below, the Joint Automakers respond specifically to the questions in section 5 of the RFI: "Performance-Based Standards." While the questions in other sections are important, we believe removing the minimum requirement of four permanently attached CCS connectors in favor of a technology neutral approach between CCS and J3400 is most critical to ensuring the federal minimum standards can support legacy and future EVs in a robust manner.

¹ Infrastructure Investment and Jobs Act (IIJA) Public Law 117-58; 49 CFR 1.81.

NACS Adoption Timeline Automakers

Since May 2023, almost 100% of the EV market has indicated a transition to J3400 starting with Model Year (MY) 2025. The following automakers have announced their intent to adopt the J3400 standard:

- Ford²
- General Motors⁴
- BMW⁶
- Hyundai⁸
- Kia¹⁰
- Mercedes-Benz¹²
- Jaguar¹⁴
- Subaru¹⁶
- Mini¹⁸
- Genesis²⁰
- Stellantis²¹
- Nissan³
- Honda⁵
- Rivian⁷
- Lucid⁹
- Toyota¹¹
- Volvo¹³
- Polestar¹⁵
- Rolls Royce¹⁷
- Fisker¹⁹
- Volkswagen Group (Audi, Porsche, Scout, VW)²²

Given the wave of announcements above signifying the near complete transition of the U.S. EV industry to the NACS J3400 connector, the current minimum standard of four CCS connectors is no longer appropriate. It is important to acknowledge that even if FHWA moves expeditiously to

² <https://media.ford.com/content/fordmedia/fna/us/en/news/2023/05/25/ford-ev-customers-to-gain-access-to-12-000-tesla-superchargers--.html>

³ <https://usa.nissannews.com/en-US/releases/nissan-to-adopt-north-american-charging-standard-nacs-for-ariya-and-future-ev-models?selectedTabId=releases#>

⁴ <https://news.gm.com/newsroom.detail.html/Pages/news/us/en/2023/jun/0608-gm.html>

⁵ <https://hondanews.com/en-US/releases/honda-to-adopt-north-american-charging-standard-nacs-for-its-ev-models-in-north-america>

⁶ <https://www.bmwusanews.com/newsrelease.do?id=4258&mid=>

⁷ <https://stories.rivian.com/rivian-and-tesla-accelerate-electrification>

⁸ <https://www.prnewswire.com/news-releases/hyundai-electric-vehicles-to-add-north-american-charging-standard-301948002.html>

⁹ <https://lucidmotors.com/stories/lucid-adopt-nacs/>

¹⁰ <https://www.kiamedia.com/us/en/media/pressreleases/21261/kia-to-adopt-north-american-charging-standard-in-the-fourth-quarter-of-2024>

¹¹ <https://pressroom.toyota.com/toyota-adopts-the-north-american-charging-standard-to-expand-customer-charging-options/>

¹² <https://group.mercedes-benz.com/innovation/drive-systems/electric/integration-of-nacs.html>

¹³ <https://www.media.volvocars.com/us/en-us/media/pressreleases/316416/electric-volvo-car-drivers-will-get-access-to-12000-tesla-superchargers-across-the-united-states-can>

¹⁴ <https://media.jaguar.com/en-us/news/2023/09/jaguar-accelerates-towards-its-all-electric-future-tesla-supercharger-deal-north>

¹⁵ <https://media.polestar.com/global/en/media/pressreleases/669136/polestar-will-adopt-north-american-charging-standard-to-enable-access-to-tesla-supercharger-network>

¹⁶ <https://media.subaru.com/pressrelease/2115/117/subaru-adopt-tesla-north-american-charging-standard-north>

¹⁷ <https://www.bmwusanews.com/newsrelease.do?id=4258&mid=>

¹⁸ <https://www.bmwusanews.com/newsrelease.do?id=4258&mid=>

¹⁹ https://assets.ctfassets.net/cghen8gr8e1n/4f7JR0LEe25l5u51K2Kikn/b6696c398e26ddc09d700b0640e75317/Fisker_Tesla_Charging_FINAL.pdf

²⁰ <https://p-www.genesis.com/ca/en/genesis/the-brand/brand-news/genesis-evs-to-adopt-north-american-charging-standard.html>

²¹ <https://www.prnewswire.com/news-releases/stellantis-to-expand-electric-vehicle-charging-options-in-north-america-with-adoption-of-proposed-sae-standard-j3400-connector-302059482.html>

²² <https://media.vw.com/en-us/releases/1774>

remove the requirement for permanently attached CCS connectors i.e. the minimum connector standard, realistically, any charging infrastructure subject to new minimum standards would likely be deployed no sooner than the latter part of 2025. This is because states would need to update any modified requirements in their next round of NEVI requests for proposals (RFPs), and the project development timeline for new charging infrastructure is on average, no faster than nine months from scouting to energization.

Section 5 Performance-Based Standards Questions

a. If there is a need to include J3400 connectors on chargers, what are the advantages and disadvantages of the following design-based approaches?

Approach 1: Include both J3400 and CCS Type 1/J1772 connectors on each port.

Approach 2: Include a specified number of each type of connector (J3400 and CCS Type 1/J1772) at each charging station.

Under Approach 2, what is the optimal ratio of J3400 connectors to CCS/J1772 connectors? Why?

If there is not a need to include J3400 connectors on chargers, what are the advantages and disadvantages of the following design-based approaches to including J3400, CCS/J1772, or other connectors alongside cables?

Approach 1: Provide at least one adapter for J3400 connectors at each charging station.

Approach 2: Customers must provide their own adapters for use.

Are there alternative design-based approaches to accommodate J3400 and CCS/J1772 equipped vehicles?

The Joint Automakers do not support any of the approaches identified above, whether that is a specific number of each connector, dual ports, or specific adapter requirements. The approaches above are flawed for several reasons including:

1. These approaches would continue to require future modifications to the federal minimum standards as legacy fleets without J3400 ports diminish as a percentage of total EVs deployed grows.
2. These approaches do not align with the underlying IIJA which is technology neutral.
3. These approaches do not take into consideration location-specific factors and variation in vehicle adoption across all 50 states. In some locations, an EV charging operator may want to continue deploying CCS access based on the needs of its customers. In other areas, moving to J3400 for all stalls would be appropriate. Requiring a connector type, ratio, or adapters does not provide this level of flexibility for operator choice to best serve customer demand.
4. These approaches do not recognize that automakers will provide access to validated J3400 adapters for existing legacy CCS customers prior to moving to a native J3400 model. In addition, it is also possible for automakers to provide CCS adapters should customer demand necessitate. It is important to ensure that adapters that are not OEM provided undergo rigorous safety and validation testing. Adapter safety is currently being addressed by both UL and SAE working groups in order to develop industry standards.

b. Are there performance-based alternatives to specifying charging standards and communication standards (such as J3400, J1772, or ISO 15118) by reference that would

support a convenient, affordable, reliable, and equitable EV charging network while reducing the need for future refinement to federal regulations?

The underlying statute already provides the performance-based alternative that will reduce the need for future refinement to federal regulations as it pertains to connector standards. It states that EV charging infrastructure installed using federal funds appropriated under this law should include “non-proprietary charging connectors that meet applicable industry safety standards” and “open to the general public or to authorized commercial motor vehicle operators from more than one company.” Given this language, the federal minimum standards should be modified to reflect a technology neutral approach for connectors so long as they are accessible to the general public, non-proprietary, conform to standards from SAE and serve more than one vehicle type. Furthermore, the minimum standards already include many other performance and design-based requirements for uptime, communications protocols and other key elements that will support a convenient, affordable, reliable and equitable charging network.

The Joint Automakers recommend modifying the language as follows:

(c) *Connector type.* **At each site all** charging connectors must meet applicable industry standards **from the Society of Automotive Engineers**. Each DCFC **and AC Level 2** charging port **must be non-proprietary and capable of serving more than one vehicle type**. ~~capable of charging any CCS compliant vehicle and each DCFC charging port must have at least one permanently attached CCS Type 1 connector.~~ In addition, permanently attached CHAdeMO (www.chademo.com) connectors can be provided using only FY2022 NEVI Funds. Each AC Level 2 charging port must have a permanently attached J1772 connector and must charge any J1772-compliant vehicle. **For DCFC, connectors may include CCS1 or J3400. For AC Level 2, connectors may include J1772 or J3400.**

c. Which performance-based alternative (i.e., standards that specify a level of service and types of vehicles a charger must support without specifying specific connectors) would best facilitate competition and innovation in EV markets? Which performance-based alternatives have the potential to harm competition, create consumer lock in, or otherwise erect or increase entry barriers?

Competition and innovation in EV markets for LD EVs will be best facilitated by taking a technology neutral approach between CCS and J3400. Beyond design and form factor, CCS and J3400 share many underlying similarities for performance, including the use of the same underlying communications protocols. Focusing on the physical form factor of the connector should not be the main objective of the NEVI program. Rather, it is important to let charging providers decide how to adequately serve the EV market to meet its underlying needs.

Conclusion

The Joint Automakers appreciate the opportunity to respond to this RFI regarding the NACS J3400 connector standard. It is important for the FHWA to update the federal minimum technical standards to reflect the adoption of NACS J3400 as the main connector in the U.S. going forward. This can best be achieved by eliminating the CCS minimum connector requirement and instead utilizing a technology agnostic approach which enables CCS and NACS J3400 to be deployed as most appropriate from a use case specific perspective.

The commitment by almost 100% of automakers to transition to NACS J3400 sends a strong signal that a technology neutral approach will help ensure the minimum standards are not just relevant for charging stations designed in 2026, but also for future NEVI program years.

We strongly urge the FHWA to update the minimum standards as quickly as possible to reflect the transition to NACS J3400.

Sincerely,

Dan Bowerson
Vice President, Energy & Environment
Alliance for Automotive Innovation

Cynthia Williams
Global Director, Sustainability, Homologation and Compliance
Ford

Mike Maten
Director, EV Policy and Regulatory Affairs
General Motors

Gilbert Castillo
Director, Regulatory Compliance
Hyundai Motor North America

Kelsey Johnson
Sr. Lead Policy Advisor
Rivian

Francesca Wahl
Senior Charging Policy Manager, Public Policy and Business Development
Tesla

Katherine Yehl
VP Government Affairs
Volvo Car Corporation