



## PLANNING FOR THE ELECTRIC FUTURE: CHARGING STATION ATTRIBUTES

The automotive industry is at a pivotal and transformative point in history. The industry will invest over \$330 billion in vehicle electrification by 2025 and more than double the available electric vehicle (EV) models within the same time span (roughly 60 EVs today growing to 130 models by 2026). A sustainable and equitable transition to electrification will require public and private collaboration across various industries and sectors. The Infrastructure Investment and Jobs Act (Infrastructure Bill), which includes up to \$7.5 billion for EV infrastructure, is an important down payment to jumpstart the public and private investment in a nationwide charging network.

The Infrastructure Bill directs the U.S. Departments of Transportation and Energy (Agencies) to provide guidance to states to prioritize investment of \$5 billion of the funds through the National Electric Vehicle Formula Program. The guidance is essential to assist states in meeting “current and anticipated market demands for electric vehicle charging infrastructure, including with regard to power levels and charging speed, and minimizing the time to charge current and anticipated vehicles.”<sup>1</sup>

Much like the federal investment in the Interstate Highway System of the mid-1950s, this is a once-in-a-generation opportunity to build a nationwide charging and refueling infrastructure for EVs for decades to come. With this in mind, the Alliance for Automotive Innovation (Auto Innovators)<sup>2</sup> has developed a suite of attributes that should be included in the Agencies’ guidance to meet the needs of current and future electric vehicles. In addition, these attributes can be used by states as they look to invest state and federal funding in EV charging infrastructure.

### CHARGING RATE

**Federally and state-funded DC fast chargers on corridors and at transit hubs must be capable of charging at a rate of 350 kW.** It is imperative that customers have a convenient refueling experience. As more and more electric vehicles come to market with larger batteries, charging speed is going to become increasingly important. EV charging at 350 kW is needed for corridor charging not only to reduce the recharge time of each EV, but also to increase the throughput of EVs to allow more EVs to charge from the same connector. Additionally, it is more cost-effective to have charging sites made capable of 350 kW charging during construction as opposed to after the charger has been installed.<sup>3</sup> By requiring a minimum of 350 kW capability, the Agencies can help future-proof for new vehicle and charging technologies.

<sup>1</sup> Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong., at 2627 (2021).

<sup>2</sup> Formed in 2020, the Alliance for Automotive Innovation is the singular, authoritative, and respected voice of the automotive industry. Focused on creating a safe and transformative path for sustainable industry growth, the Alliance for Automotive Innovation represents the manufacturers producing nearly 99 percent of cars and light trucks sold in the U.S. The newly established organization, a combination of the Association of Global Automakers and the Alliance of Automobile Manufacturers, is directly involved in regulatory and policy matters impacting the light-duty vehicle market across the country.

<sup>3</sup> Atlas Public Policy, 2021. “U.S. Passenger Vehicle Electrification Infrastructure Assessment.” Available at: <https://atlaspolicy.com/u-s-passenger-vehicle-electrification-infrastructure-assessment/>



## CONNECTORS

Auto Innovators supports requirements in the Infrastructure Bill that **EV charging connectors should be SAE J1772 and SAE CCS connectors**. Federally funded EV chargers should not limit use to a single vehicle manufacturer or proprietary technology, which is why we supported language in the Infrastructure Bill that would exclude those chargers from funding eligibility.

## PAYMENT METHODS

**Federally funded EV chargers must accept credit cards via a credit card reader** but can also accept other payment methods. Credit card payments are the most common form of payment for refueling gasoline-powered vehicles. Therefore, to make charging an electric vehicle as similar as possible to refueling a gasoline-powered vehicle, charging stations must, at a minimum, accept credit cards. Limiting charging to an exclusive mobile payment system may exclude groups of users who do not choose or do not have access to a device that supports mobile payment capabilities.

## RELIABILITY AND REDUNDENCY STANDARD

**Federally funded EV chargers must have a minimum uptime requirement and offer redundancy**. Non-operational chargers do not support our customers and can negatively impact the market. It is unreasonable that a federally funded charging station be non-operational for any extended period of time. Therefore, we encourage the Agencies to adopt a standard method to measure reliability and require any federally funded charger to come with a minimum reliability standard. Auto Innovators welcomes the opportunity to work with the Agencies on the development of such standards.<sup>4</sup>

## ACCESSIBILITY

**Federally funded EV charging stations must be open 24/7 to allow access to a wide range of EV customers**. Just as drivers of gasoline-powered vehicles have access to refueling stations 24 hours a day, the same must be true for EV drivers.

## STATION LAYOUT

**The EV charging station layout should support different vehicle configurations**. Locations that are selected for federal funding for EV chargers should ensure that the layout, including cord, vehicle access, signage, etc., supports a wide range of electric vehicle designs. Additionally, **stations should have multiple ports per site and allow for pull-through for vehicles pulling a trailer**. Multiple ports per site mitigates overcrowding and offers redundancy.

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<sup>4</sup> EV charger reliability standards have been implemented in states already. As part of a funding opportunity, New York requires that state-funded DC fast chargers must be operational at least 97% of the year ([Program Opportunity Notice 4509](#)). In [model state grant and procurement contract provisions](#), the Northeast States for Coordinated Air Use Management (NESCAUM) recommends that each DC fast charging connector be operational at least 99% of the time.



While it may not be necessary to make it a requirement in the Agencies' guidance, station amenities such as rest rooms, overhead coverings or awnings, proper lighting, and security cameras should be considered.

## NETWORK AND COMMUNICATION REQUIREMENTS

**Federally funded public DC fast chargers must be networked.** It is important that drivers know that a charger will be capable of charging their vehicle before they arrive at the station. Therefore, stations must be able to communicate to drivers to inform them if a station is operational and whether the vehicle can be charged at the site. The Agencies should consider options to facilitate customer access to this information.

Electric vehicles can provide grid services through vehicle grid integration, as long as they support customer needs to charge in an expeditious manner. There is a lot of progress on vehicle grid integration (VGI) through smart charging, vehicle telematics, time-of-use rates, and bidirectional charging, but **it is too early in the market to define specific VGI communication standards, especially for corridor charging given customer travel needs.**

## EV CHARGING ON FEDERAL HIGHWAYS

**EV charging should be permitted at federal highway and interstate properties.** With federal restrictions on the location of EV chargers on federal highways, guidance from the White House, U.S. DOT, and DOE will be essential for states regarding the \$5 billion in EV charging funding allocated via highway formula.

## EV CHARGING SIGNAGE

**EV charging signage must be permitted on highway service signs.** Currently, the Federal Highway Administration prohibits EV charging signage on highway service signs, which is counter to creating a national EV charging network and counter to the need to increase consumer awareness of EVs and refueling stations for EVs. Customers need to have knowledge of where they can safely and conveniently refuel their vehicle. In addition to aiding existing EV customers, it is important for potential EV buyers to have confidence that there is an EV charging network available to charge their vehicle. Proper signage is also necessary to ensure that the investment in public charging is not under-utilized.

## STANDARDIZED APPROACH TO COMMUNICATE PRICING

To help customers understand how much it will cost to charge their vehicle, **EV charging pricing should be communicated in a standard \$/kWh value.** Gasoline customers go to a station understanding exactly how much a gallon of gasoline will cost, and the same should be true for electric vehicle customers. Other alternatives may be necessary in some states, as not all states have clarified that charging per kWh is permitted.<sup>5</sup>

<sup>5</sup> Standardized approaches to communicate EV charging pricing is an active topic within the National Institute of Standards and Technology (NIST) and the National Council of Weights and Measures (NCWM). Some states have not allowed electricity to be sold to EV drivers in a \$/kWh; federal guidance to these states would be beneficial.