

REV WEST: VOLUNTARY MINIMUM STATION STANDARDS

Background

In October 2017, the Governors of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming signed a Memorandum of Understanding to establish a Regional Electric Vehicle Plan for the West (“REV West Plan”). Through the REV West Plan, the Signatory States are working together to create an Intermountain West Electric Vehicle (EV) Corridor that will make it possible to seamlessly drive an EV across the western states’ major transportation corridors. As part of this regional planning effort, the REV West states have developed Minimum Voluntary Standards for the deployment of DC fast-charging stations along the Intermountain West EV Corridor. It will be up to each state to apply these standards as they see fit.

Process

In August 2018, a Voluntary Minimum Standards Working group comprised of REV West states was convened to develop these recommended standards. The group issued a request for information in October 2018 to gather feedback from industry, government, and nonprofit stakeholders on what should be considered in developing these standard recommendations. Using the feedback received, the Working Group developed a set of voluntary minimum standards that the REV West states may follow. The Working Group also established a set of stretch standards for those states that want to go beyond the minimum standards.

Voluntary Minimum Standards

The standards listed below were developed to promote buildout of DC fast-charging stations along the Intermountain West EV Corridor that are convenient, reliable, and safe for EV drivers. While these standards are voluntary, they represent minimum best practices, and their use will help ensure a consistent and consumer-friendly experience. Across the Intermountain West, conditions may exist at some potential locations that limit application of all minimum standards or lack the amenities found in more populated areas. For instance, some locations may lack adequate electrical capacity to install a DC fast-charging station. Where this is the case, states are encouraged to provide or promote the development of charging options that still meet as many of the minimum standards as possible. Stretch standards are included in italics. The Voluntary Minimum Standards Working Group will update these standards as needed.

Station Siting Standards

REV West states should work to ensure that charging stations are sited in consumer-friendly locations. Whenever possible stations should be sited in locations that allow:

- Public access 24 hours a day, each day of the year;
- ADA-compliance with wheelchair accessibility;
- Access to drinking fountains, bathrooms, and food or vending;

- Security cameras, adequate lighting, and an emergency shelter;
- *Within walking distance of full-service amenities such as local restaurants, retail shopping, or tourist attractions.*

Location Standards

REV West states should strive to locate stations in a way that reduces range anxiety and provides a convenient user experience. Stations sited under the following conditions can meet these objectives:

- Within 50-100 miles of the next station in either direction. For distances above 50 miles, consider elevation changes or driving conditions under extreme weather to ensure standard EV batteries can make the trip on a single charge.
- Within one mile of a highway interchange or exit.
 - *Within 0.5 miles from a highway interchange or exit to maximize driver convenience.*
- *In areas that provide dedicated parking for the maximum number of vehicles that can be charged simultaneously.*

Technical Standards

Corridor stations installed along the Intermountain West EV Corridor should provide high-speed charging, durability, and reliability. Technical specifications include:

- Charging power output of at least 50 kW.
 - *Charging power output of 150 kW in order to meet the charging needs of future electrical vehicles.*
- Dual protocol - at least one CHAdeMO fast charger and one SAE Combined Charging System (CCS) fast charger.
 - *Two or more DC fast-charging stations at each site.*
- Designed for safety, durability, and all anticipated operating conditions. Third-party certified by Underwriters Laboratories, National Electrical Manufacturers Association, etc.
- Connected to a network. Networking protocols should be open and non-proprietary.
 - *Capable of collecting and reporting on data related to station usage.*
- Cell service or free Wi-Fi available to customers.
- Support multiple payment options, including but not limited to, ability to pay with a credit card, app-based mobile payments, subscription services, chip and pin, or vehicle-based payments.

Signage Standards

Signage informs EV drivers and non-EV drivers alike that DC fast-charging stations are available. The following conditions will identify locations and accommodate EV charging:

- Highway signs indicating their location.
- Parking spaces should be marked with “EV Charging Only” signs.

Additional Stretch Standards¹

The standards identified in the following sections go above and beyond the Voluntary Minimum Standards, and may be adopted and promoted by states as they see fit.

Station Operations

REV West states should ensure that charging station owners keep their stations well-maintained and reliably available for consistent public use. Stretch operational standards include:

- *Uptime requirement for station owners/hosts of at least 97%.*
- *Customer support service that is accessible 24/7 with either an onsite station operator or a toll-free telephone number clearly posted near the charging equipment that is available to EV drivers accessing the charging equipment.*
- *Customer support service capable of providing or dispatching service to address customer concerns at the charging station including rebooting the system if necessary.*
- *Proactive station health monitoring which enables charging station service providers to repair faulty equipment before a customer submits a complaint.*

Future Proofing

To ensure that charging stations are able to keep pace with advancing vehicle technology and expanding market share of EVs, REV West states should consider the following standards to future-proof charging stations:

- *Include larger or additional concrete pads, transformers and other utility-related equipment, and larger and/or additional conduit to avoid having additional construction and conduit costs in the future.*
- *Sufficient real estate for the addition of future DC fast-charging stations, ideally enough space to double the initial installed capacity.*
- *Placed in locations where they can be expanded to accommodate increasing demand in the future.*

¹ Additional Stretch Standards are voluntary stretch standards that go above and beyond the voluntary minimum standards and may only be adopted/promoted by a subset of REV West states.