



Success Story: GridWise Alliance FHWA EV Charging Infrastructure Deployment RFI Response reflected in the Considerations published in the National Electric Vehicle Infrastructure (NEVI) Formula Program Guidance

Final GridWise Alliance Comments to the FHWA RFI on EV Charging Infrastructure Deployment

- <https://www.regulations.gov/comment/FHWA-2021-0022-0354>

National Electric Vehicle Infrastructure (NEVI) Formula Program Guidance
Section IV.B: Pages 21-27

- https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/nominations/90d_nevi_formula_program_guidance.pdf

Consideration Area 1. The distance between publicly available EV charging infrastructure **GWA Comments:**

- If a distance requirement was set, it would need to be a minimum threshold subject to periodic review because changes in factors like EV deployment, EV adoption, and population density would necessarily affect it over time. For the same reasons, any distance requirement should only focus on highway charging needs given that it is more relevant for long-distance highway travel.
- We recommend that it be a priority to identify areas where no infrastructure exists, and if there is already infrastructure in an area, then that specific location should be assessed based on the ability of and need for additional infrastructure to serve nearby communities, as well as through traffic.

NEVI Guidance:

- New EV charging infrastructure locations should be spaced a maximum distance of 50 miles apart along designated corridors (including planned stations and existing stations, with both conforming to NEVI Formula Program minimum standards and requirements), unless a discretionary exception has been granted.
- In initial planning and during the development of their Plans, States should also consider existing stations that substantially meet the minimum standards and requirements to be published in their spacing plans and work to upgrade and expand the capacity of these stations.

Consideration Area 2. Connections to the electric grid, including electric distribution upgrades; vehicle-to-grid integration, including smart charge management or other protocols that can minimize impacts to the grid; alignment with electric distribution interconnection processes, and plans for the use of renewable energy sources to power charging and energy storage

GWA Comments:

- Utilities, EVSE owners and operators, state transportation departments, and state energy offices must collaborate to ensure rapid and cost-effective deployment of EV chargers. It is critical that utilities are engaged early in the EV charging infrastructure deployment process to plan strategic grid investments that can prevent delays, abate costs, and

mitigate the need for additional grid upgrades in the future. This early engagement between the EVSE vendor, site host, and utility should be a requirement to secure federal funding.

- It will also be important to streamline the process for creating new service points for DCFC or for upgrading existing service to support direct current fast chargers (DCFC). There are major differences in process, timelines, and degree of review across various utilities—even at times within the same utility across different territories. This has the potential to increase project soft costs and delays. Federal funding should encourage a streamlined approach to the creation of new service points for DCFC.
- Energy storage, when co-located with public highway charging infrastructure, could play a role in mitigating peak electricity demand of highway charging stations and ultimately lower the cost of charging for consumers.

NEVI Guidance:

- States should work with applicable federal, State and local permitting agencies to identify and streamline permitting processes for EV charging infrastructure installation, including energy storage and renewable energy generation, to support operations within six months of procurement. The Joint Office will work with States to identify best practices to expedite this process.
- States should also work with local utilities, transmission and distribution operators, and public utility commissions to identify and streamline the planning and approval of grid connections for EV charging infrastructure, including energy storage and renewable energy generation, to support operations within six months of procurement. The Joint Office will work with States to identify best practices to expedite this process.

Consideration Area 5. The long-term operation and maintenance of publicly available EV charging infrastructure to avoid stranded assets and protect the investment of public funds in that infrastructure

GWA Comments:

- Programs, owners, and operators should be required to submit well-developed operations and maintenance plans that demonstrate the ability to maintain reliable operation of their chargers over a multi-year period, including the ability to service chargers within a reasonable timeframe. These plans should include service level agreements (SLAs) backed by the manufacturers of that charging equipment. Maintenance, operations, and service plans should be set up for the useful life of the charger and should include close coordination with charging manufacturers.
- A well-developed operations and maintenance model could include a number of features, including, but not limited to, the following. These features could be performed in-house by the owner or operator or via service level agreements or contracts with third-party providers.
 - Scheduled and risk-based preventative maintenance
 - 24/7/365 customer call center to receive service calls
 - 24/7/365 connectivity and monitoring of the operations of each charger

- Service ticketing and procedure to ensure service and operational issues are addressed in a reasonable timeframe
- Service level agreements backed by charging manufacturers
- Sufficient technicians trained to work on the make and model of each charger they operate in each region in which they operate
- Detailed documentation and procedures to troubleshoot and repair chargers
- Sufficient local inventory of spare parts and logistics infrastructure
- Sufficient safety protocols that incorporate advanced hazard identification methods and controls to keep field personnel and the public safe when servicing assets
- Leveraging technologies such as artificial intelligence, machine learning, or sensors to optimize uptime and performance
- From GWA Response to Consideration Area 2: Interoperability is critical to mitigate the risks of stranded assets and deliver superior customer experience. Any funding through this program or along highways should require charging infrastructure to conform to a standardized set of interoperability requirements. There are two main forms of interoperability that should be in place (1) vehicle to charger, and (2) vehicle to network. All public chargers should be interoperable with different charging networks and charging locations should be able to charge most vehicles. A charger is more than just hardware. Software enables the many features of a charger and allows it to communicate with charging operators, drivers, payment systems, vehicles and more. Interoperability promotes key outcomes for public infrastructure including: safety, scalability, savings, security, and simplicity for consumers.

NEVI Guidance: [Opportunity for GWA RFI response to inform forthcoming FHWA minimum standards]

- EV charging infrastructure should be maintained in good working order and:
 - In compliance with all EV charging infrastructure manufacturer requirements;
 - In compliance with all requirements in the forthcoming minimum standards issued by FHWA
- Owners of NEVI Formula Program funded EV charging infrastructure should provide reasonable plans and guarantees for maintaining the chargers, related equipment, and overall charging locations in good working order
- To avoid stranded assets, EV charging infrastructure should be capable of using open protocols and standards for network connectivity to meet interoperability requirements to allow for easier transfer of operations to a new network provider if needed in the future.

Consideration Area 6. Existing private, national, State, Local, Tribal, and territorial government EV charging infrastructure programs and incentives;

GWA Comments:

- Building out a national EV charging infrastructure network is going to require significant investment beyond the funds appropriated in the Infrastructure Investment and Jobs Act. Federal funding should both encourage new infrastructure development and complement existing regional partnerships and programs in place or under consideration. Allocating

new funding to state agencies that have demonstrated success and have the appropriate authorization to spend money on EV charging infrastructure is important.

- State and local boundaries in the EV experience must be broken down by regional cooperative and complementary efforts addressing EV charging infrastructure availability and marketing. Coordination in EV infrastructure planning amongst government agencies and the utility industry will help to alleviate consumer concerns about charging availability.
- Multi-jurisdictional planning and coordination is needed to ensure that regional travel routes are properly resourced with charging infrastructure that allows for a seamless consumer experience.

NEVI Guidance:

- Decisions about siting, construction, installation, operation, and maintenance should involve consultation with relevant stakeholders to coordinate existing EV charging infrastructure programs and incentives. The involvement of relevant private entities, Federal, State, local, Tribal and territorial governments should allow for the identification of opportunities for States to leverage the NEVI Formula Program funds in concert with other funding/deployment programs including those managed by other agencies.
- States should consult with entities including:
 - Counties and cities, including coordination with existing EV charging programs;
 - State departments of energy, including Clean Cities Coalitions, as applicable;
 - Electric utilities and transmission and distribution owners and regulators;
 - Electric vehicle service providers;
 - *[subset of the list included above]*

Consideration Area 7. Fostering enhanced, coordinated, public-private or private investment in EV charging infrastructure;

GWA Comments:

- Allow flexibility in building different charging models, however, in all cases, owners and operators should have to provide a portion of the costs, rather than the Federal government covering it 100%
- [From GWA Response to Area 8]: While there should be flexibility allowed in building, owning, and operating different charging infrastructure models, in all cases, owners and operators should have to provide a portion of the costs, as opposed to the federal government covering 100% of costs. Public charging infrastructure is not “set it and forget it” and requires significant resources to operate and maintain. Requiring cost share encourages owners and operators to develop well-structured business and operational models for delivering reliable and customer focused charging services.
- Require state DOTs to host stakeholder meetings and collect input regarding plans for how the federal funding will be used in the state. Stakeholders should include, but not be limited to, utilities, municipalities, other pertinent state agencies, members of the community, representatives of disadvantaged or underserved communities, regional public transportation authorities, transportation network companies, truck or hauling industry associations, retailers, and other businesses

NEVI Guidance:

- States are encouraged to develop programs with cost-share requirements or rebates to leverage private investment in EV charging and maximize the impact of NEVI Formula Program funding. Cost-share and rebate programs can be powerful tools for optimizing infrastructure deployment by providing States the opportunity to partner with existing EV infrastructure providers without bearing additional risk of upfront funding prior to deployment and diminishing the risk of half-built or stranded assets.
- The involvement of relevant private sector and industry representatives throughout the development and deployment of the Plan should allow for the identification of EV charging market opportunities and challenges, along with potential solutions to address them. Coordinated planning across private and public investments is necessary to provide a seamless and convenient national network.
- States should consult with entities including:
 - Private sector EV charging infrastructure owners and network operators;
 - Vehicle manufacturers;
 - Utilities
 - *[subset of the list included above]*

Consideration Area 8. Meeting current and anticipated market demands for EV charging infrastructure, including with regard to power levels and charging speed, and minimizing the time to charge current and anticipated vehicles;

GWA Comments:

Table 1. Charger Classes and Characteristics

| Charge Level | Rated Power | Charging Time | Use Case |
|------------------|----------------|------------------|--|
| AC Level 2 (L2) | 7kW to 19kW | 4 to 10 hours | Residential, Workplace, Commercial Buildings, Last-mile Fleet |
| DC Fast Charging | 50kW to 90kW | 30 to 90 minutes | Retail, Shopping Malls, Restaurants |
| DC Fast Charging | 90kW to 180kW | 15 to 45 minutes | Convenience Stores, Fueling Stations, Travel Plazas, Commercial Fleets |
| DC High Power | 150kW to 350kW | 10 to 30 minutes | Fueling Stations, Travel Plazas, Truck Stops |

- [From GWA Response to Area 2]: Forecasting EV loads at public highway sites will be an important component of determining strategic investment needs. Loads could grow very rapidly as drivers convert to electric so initial EV charging installations should be planned with the potential for additional capacity in future years to reduce total costs.

NEVI Guidance:

- Maximum charge power per DC port should not be below 150 kW and should consider design and construction practices that allow for 350kW or greater charging rates through future upgrades.
- Station designs should also consider the potential for future expansions needed to support the electrification and charging demands of medium- and heavy-duty trucks, including station size and power levels.



Consideration Area 9. Any other factors, as determined by the Secretary.

GWA Comments:

- Ensuring cybersecurity and integrity of EV charging infrastructure is of paramount importance, with two main areas of concern: 1) securing user physical safety and personal information and 2) protecting operational integrity and connected infrastructure.

NEVI Guidance:

- Cybersecurity: States should consider cybersecurity needs of the electrical grid, station, vehicles, and customers using EV charging infrastructure.