National Electric Vehicle Infrastructure Program

Summary of Roundtable, hosted by ATARC in September 2022

WHITE PAPER

During a recent roundtable discussion hosted by the Advanced Technical Academic Research Center (ATARC), representatives from various government agencies at the Federal and state level along with stakeholders from private and nonprofit organizations shared ideas on various aspects of the National Electric Vehicle Infrastructure (NEVI) Formula program.

As demand for electric vehicles (EV) continues to grow, immense coordination among stakeholders in multiple industries and throughout all levels of government will be needed to construct the complex infrastructure network required to support such widespread EV use.

Roundtable participants and stakeholders closely involved in EV development and deployment discussed some of the challenges they have already experienced with these efforts, as well as some of the issues they anticipate with the NEVI Formula Program. Despite opportunities for improvement, stakeholders are encouraged by the innovative possibilities this pioneering effort will have on our futures.

About the NEVI Formula Program

In February 2022, as part of the Biden Administration's Bipartisan Infrastructure Law, the U.S. Departments of Transportation (DOT) and Energy (DOE) announced nearly $5 billion will be made available to build out a national electric vehicle charging network under the new National Electric Vehicle Infrastructure (NEVI) Formula Program.

The program will provide nearly $5 billion over five years to help states create a network of EV charging stations along designated Alternative Fuel Corridors, particularly along the Interstate Highway System. The total amount available to states in Fiscal Year 2022 under the NEVI Formula Program is $615 million.

The intent of the program is for states to build out the needed infrastructure network to support mass electric vehicle adoption among the general public and to serve as a bold response to climate change. By funding and expanding EV infrastructure nationwide, the goal among agencies is to create a convenient, reliable, affordable, and equitable charging experience for all users.

NEVI Formula Program Standards

In order to maintain consistency across state lines and to ensure equitable access to charging stations, the DOT Federal Highway Administration announced in June 2022 a Notice of Proposed Rulemaking on minimum standards and requirements for projects funded under the NEVI Formula Program.

Lack of Standards

General consistency is needed around many key components throughout the installation, operation, and maintenance of EV charging stations:

- Operational practices
- Payment methods
- Site organization
- Display of price to charge
- Speed and power of chargers
- Minimum density of provided chargers
- Customer support services
- Certification standards for technicians
- Charging equipment security and long-term stewardship
- Information on publicly available EV charging infrastructure locations, pricing, real-time availability, and accessibility though mapping applications

The purpose of these minimum standards is to help ensure a national EV charging network that is user-friendly, reliable, and accessible to all Americans. The standards are to ensure

interoperability between different charging companies, with similar payment systems, pricing information, charging speeds, and more.

In addition, the Federal Highway Administration is currently seeking comments on its Buy America waiver, which would initially waive all Buy America requirements for EV chargers and components, phasing out the waiver gradually over two years until all components of EV chargers are manufactured on American soil.

The Importance of EV Investment

When comparing EV zero emission trucks and buses to those with diesel combustion, the upside to public health, especially for disadvantaged communities across the country, is clear. When diesel combustion is replaced with electric battery technology, a multitude of environmental and societal benefits are created.

Even if just Federal agencies were to leverage these funding opportunities to transition petroleum-based fleets to run entirely on battery electric, our breathing environment will improve, and the climate will be better protected.

Investing in EV infrastructure is not only important for environmental and personal health, the transition to carbon-free mobility will have a significant impact on economies across the globe. Trillions of dollars of institutional and private capital will be unleashed in the coming years, creating new and dynamic markets.

While the economic future of EV may appear bright, experts in the roundtable caution all involved that the deployment of EV infrastructure should remain agile in order to respond to the rapidly changing markets. The stakeholder network required to successfully build out EV infrastructure is arguably as complex as the economics behind it.

Challenges with EV Execution

Supply Chain

Roundtable participants directly involved with EV deployment are already experiencing numerous choke points in the supply chain. Certain materials are increasingly hard to source, primarily the raw materials needed for electric batteries. Stakeholders share in their concern that meeting the deployment timelines set by NEVI will be challenging particularly as the supply chain issues are unlikely to improve and will likely have major budget impacts.

Other roundtable participants experience lengthy deployment delays due to utility companies not being able to source transformers. On one account, delays span upwards of fifty weeks. With this surge of investment into EV adoption, roundtable participants caution that electric grids across the country will need serious attention and investment in order for nationwide EV deployment to be successful and equitable.

Workforce Development

Currently, the proposed regulations of the NEVI Formula Program include a requirement for certified electricians to install, maintain and operate electric vehicle supply equipment (EVSE). Not only must certified electricians conduct this work, but they must also be certified through the Electric Vehicle Infrastructure Training Program (EVITP). While logical in theory, in practice this requirement presents challenges, primarily due to the low number of certified electricians. Roundtable participants do not believe NEVI will be implementable with this requirement in place. One participant shared the statistic that there are only 180 certified electricians in the entire state of California.

Because this requirement also extends to residential installations of EVSEs, there will not be enough certified, EVITP trained electricians to meet demand. Roundtable participants also argue that certified electricians are not needed to maintain EVSEs much of the time. Even with robust workforce development initiatives in place, it is unlikely there will be enough certified electricians trained in time to meet NEVI implementation timelines.

This requirement, and the scarcity of trained electricians it will create, could also impact subsidized installation of EV infrastructure in low-income areas. Roundtable participants emphasized the criticality of prioritizing workforce development in areas that are more impacted by air pollution, generally coinciding with low-income communities.

Challenges at the Local Level

Most current EV charging installations have occurred in large metropolitan areas with sufficient existing infrastructure to support the needed electric capacity. As the NEVI Formula

Program progresses and as EV deployment reaches smaller, more rural localities, participants cautioun about the ability of these localities to manage such rapid change.

Small communities typically manage their own distribution infrastructure. In order to support government EV fleets and personal EV of employees and residents, there must be massive coordination among stakeholders to ensure that not only is the infrastructure deployed in a timely manner, but that there is enough grid capacity to support deployment.

Stakeholders at the roundtable also shared challenges when obtaining permits at the local level. Many localities are slow to adopt local ordinances and put procedures in place that will ensure a streamlined process for commercial EV installations. Stakeholders are also seeing delays among utilities, and caution that the NEVI Program is going to be contingent on the weakest links in the chain. The number of EV charging stations that are deployed is directly related to the speed of localities and utility companies.

State Highway Deployment

One of the primary challenges stakeholders are working to solve is to deploy charging stations within fifty miles of one another along highway systems to allow for long distance travel of EV vehicles. To do this, both private and public stakeholders must identify locations along the highway systems to meet these requirements equitably.

Rest areas come to mind as logical opportunities to install EV charging stations; however, a longstanding rule has been that state highways cannot have for profit activities located in the right-of-way, which also includes rest areas. Some argue this would put state governments in direct competition with private enterprises and create significant inequities in the deployment of EV infrastructure. Currently, the NEVI Program requires EV installations to be off or outside of the right-of-way and within a mile of a designated spot on the highway, which creates huge opportunities for private businesses, but also opens the door for inconsistencies in EV deployment. One suggested strategy for more efficient deployment is to develop public-private partnerships with large travel centers or existing facilities.

A common concern shared among roundtable participants is the capacity of existing electric grids and the availability of electricity to support EV deployment in rural areas. All stakeholders want to avoid scenarios where hundreds of kilowatts are delivered to a charging station in a rural area where there is little to no demand for EV. While stakeholders want to meet corridor goals and requirements set by the NEVI Formula Program, flexible application of EV deployment should be available for areas that may not adopt EV anytime soon.

Equity

Equity and the democratization of electrification is the underpinning to the NEVI Program and conversations about deployment. It is already clear among stakeholders that installing EV in low-income areas is challenging due to lack of funding. Private EV charging companies make a profit from fast chargers and not level 2 chargers commonly used at residences.

Because there is a lack of incentive for private companies to invest in EV infrastructure in certain areas, a subsidy structure should be created to ensure low-income areas have access to EV infrastructure and opportunities.

Even if the NEVI Program works as intended to deploy charging stations along highway systems, people still need to charge their vehicle at home. Stakeholders are witnessing instances where low-income individuals, who have been given funding through programs to purchase an EV, choose instead to purchase a hybrid vehicle due to the lack of available EV charging stations.

Stakeholders caution this challenge will become more apparent as apartment complexes and landlords begin to market EV chargers as an amenity. One stakeholder noted that the website Apartments.com logged over 17 million searches for the term EV charging stations in just the first quarter of this year. Private businesses will need to start thinking how they might be able to meet this inevitable demand for EV infrastructure.

This roundtable is only the beginning of an effort by ATARC and its public and private partners to kickstart a government-wide discussion on EV infrastructure and encourage secure and effective nationwide implementation. Check out www.atarc.org for more information.