Preparing the Workforce for EV Charging

Electric Vehicle Infrastructure Training Program Factsheet

Electrification Coalition

With the creation of the National Electric Vehicle Infrastructure (NEVI) program in November 2021, the U.S. will soon have a comprehensive network of 500,000 chargers across the country that will allow EV drivers to travel to any destination on America's highway system.

A once-in-a-generation investment like this will require maintenance and upkeep to ensure reliability, especially in the program's early stages as people assess its effectiveness. One of the provisions in the Bipartisan Infrastructure Law (BIL) requires that the electricians installing and maintaining the NEVI-funded system be certified through the Electric Vehicle Infrastructure Training Program (EVITP) or a state-based equivalent continuing education (CE) credit.

Not only will the EV charging stations installed under the NEVI program require EVITP-certified electricians, but any EV charging station being installed under Title 23 funding, per the EV charging station standards released by the DOE and DOT in February 2023. Final guidance for charging stations not funded by Title 23 funding—such as the new Clean Heavy-Duty program, ports grant program, or the Climate and Environmental Justice Block Grants—could reflect the title 23 standards, requiring EVITP-certified maintenance or other state based training programs.

Background and Basics

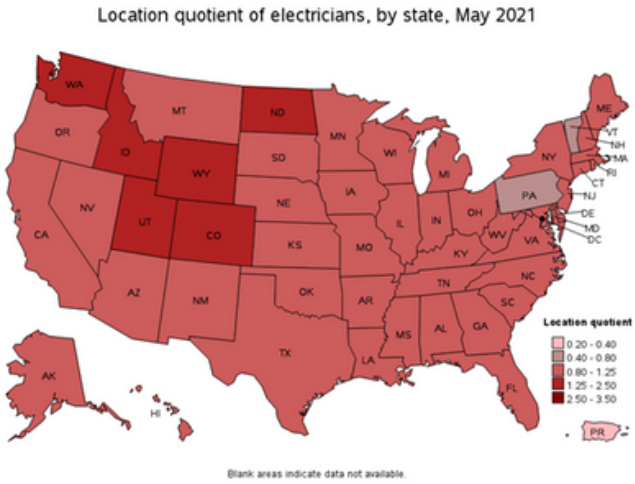
- The EVITP was created by collaborating with industry stakeholders from the private sector and educational institutions. The EVITP program certifies electricians to perform all maintenance, installation, and upgrade implementation for EV charging stations. It also provides information on utility interconnection policies, OEM charging performance standards, and integration of EVSEs into distributed generation infrastructure. This includes all charging levels, from in-home Level 2 charging to MHD depot charging installations. This training program is regularly updated with advancing EV technology and industry standards. The curriculum is currently on its fourth revision since its creation in 2008, so it is up-to-date with current technology. Federal funding will put these chargers into the ground within the year, and the workforce must be ready to meet that demand.
- Currently, the EVITP training course constitutes 20 hours of online classes and costs students $275. To increase the number of EVITP-certified technicians, states should consider creating incentive programs that subsidize this certification.

- EVITP can be eligible as continuing education (CE) credit for an electrician's license renewal if it is on a state's approved list of courses, but EVITP does not currently have any continuing education requirements.

    - State governments should ensure that EVITP is on the approved list, as it provides an excellent opportunity for electricians to become certified later in their careers, rather than only targeting people in their apprenticeship programs at the beginning of their careers. States should also consider a waiver program for the course fee to incentivize electricians to take it as a CE course.

Workforce Needs

- About seven hundred thousand electricians are registered in the U.S. workforce, and about 20,000 have been certified through EVITP to work on EVSEs since the program was launched a decade ago. State governments should ensure that EVITP is on the approved list, as it provides an excellent opportunity for electricians to become certified later in their careers, rather than only targeting people in their apprenticeship programs at the beginning of their careers. States should also consider a waiver program for the course fee to incentivize electricians to take it as a CE course.



Source: Bureau of Labor Statistics, 2021

    - EVITP-certified technicians operate in all 50 states, though demand will increase in rural areas to service NEVI charging stations and other rural projects.
    - The size of the electrician workforce varies by state population. Still, the Bureau of Labor Statistics shows that most states have a workforce in line with the national average, except for Pennsylvania's and Vermont's, which are lower. Washington, Idaho, Utah, Wyoming, Colorado, and North Dakota have workforces significantly larger than the national average. To work on EV charging stations, these electricians must be certified through the EVITP program or an equivalent state-based program.
    - There is no information available on how EVITP-certified technicians are distributed across the country. However, given the scale of the current EV transition, states should still prioritize growing their EVITP workforce. This especially applies to states like Pennsylvania, Vermont, Illinois, Wisconsin, and North Carolina, which have the lowest existing location quotients for generally certified electricians.

Alternative Programs

- The final guidance from the Federal Highway Administration (FHWA) also grants flexibility to states to establish their own equivalent registered apprenticeships programs that cover the same content as that in the EVITP program. This is in response to concerns that requiring only the EVITP certification would not be accessible or affordable to all electricians.

Case Study: Pennsylvania

In a supplemental effort to recruit more EVITP-certified electricians, Pennsylvania will use NEVI workforce development funds to expand the EVITP program and meet the rapidly growing demand for certified technicians in the state. Pennsylvania Clean Cities will assist PennDOT in developing and providing educational workshops in six Pennsylvania regions that coincide with the Department of Education's Career and Technical Education divisions.

Clean Cities' network of stakeholders will enable them to work with both Original Equipment Manufacturers (OEM) and EVSE manufacturers, bringing together firsthand knowledge and best practices to develop a diverse and technically savvy workforce for educational institutions.

  - Some community colleges, like Central Carolina Community College in North Carolina, are developing their own curriculums that prepare students to install and maintain electrical systems found in residential, commercial, and industrial settings, including EVSEs. Students earn an Associate in Applied Science (A.A.S.) degree in Electrical Systems Technology. They also receive 2,000 hours of credit toward the North Carolina Board of Examiners of Electrical Contractors' required four years (4,000 hours) of experience to take the electrical contractor's exam.
  - The California Employment Training Panel (ETP) provides funding to employers to assist in upgrading the skills of their workers through training that leads to good-paying, high-road jobs and long-term careers. Since 1982, ETP has reimbursed employers, including small and minority-owned enterprises, well over $1 billion for training workers. ETP prioritizes construction apprenticeship, as well as apprenticeship training in non-traditional/emerging sectors, such as EVSE manufacturing and installations. Applicable training occupations for EVSE installations include inside wiremen, construction workers, and electricians.

- While the final FHWA guidance does allow for state-based alternatives to the EVITP program, the Electrification Coalition encourages states to work with their local electric trade associations to ensure accessibility and availability of EVITP certification courses as they scale up the workforce to meet growing demands, rather than creating a possibly duplicative or confusing process for technicians and employers.

- The EVITP program has been operating successfully for over a decade, and the federal government has launched several initiatives, including the Talent Pipeline Challenge, to recruit more certified electricians and call upon local community colleges and trade schools to recruit a diverse workforce that can support this infrastructure system long-term.
- State governments, local governments, and NEVI stakeholders should create resources for those interested in becoming certified electricians to begin that career. This includes, for instance, working with local IBEW chapters and other electrician groups actively engaged in recruiting new electricians. Keeping an inventory of apprenticeship programs and technical degrees that include EVITP certification will also be an effective reference.

Ongoing Needs for EV Charging Stations

- While the demand for EVITP-certified electricians will rapidly increase in the next two to five years to install the NEVI AFC charging stations, the need for an EV-trained workforce does not end there. Charging stations will continue to be installed and need to be maintained for decades, including home charging, workplace charging programs, and depot charging for medium- and heavy-duty trucking. This calls for continued investment in the EV-ready workforce to recruit technicians who can repair and upgrade EVSEs as they experience normal wear and tear, as well as interface updates as technology improves. Over time, we can expect the demand for brand-new installations of chargers to slow or even level off, but maintenance will continue to pose a huge demand on the workforce.
- The NEVI program (and other BIL-funded charging station programming) requires states to commit to funding five years of operations and maintenance (O&M) costs for these stations to jumpstart the program. However, chargers can be expected to last upwards of 10 years if correctly maintained, leaving a gap in funding. We encourage states to proactively plan for this lapse and invest in solutions to maintain these chargers long-term.
    - States can appropriate portions of FHWA money after the five-year required commitment for operations and maintenance of NEVI stations. They can also build O&M into the annual state budget, as they do general highway repair funds and construction projects.
    - Alternative solutions include community colleges or IBEW chapters "adopting" specific chargers as a learning tool and performing regular operation and maintenance as part of their certification programs and apprenticeships.

- As they install them, states will learn chargers' regular repair needs for their climate/weather patterns and usage. Still, as a precaution, the Department of Energy recommends that states allocate $400 per charger annually for repairs and maintenance. This can range from $25,000 in Wisconsin, which has a much smaller AFC corridor system planned, to upwards of $4 million in California. Maintaining the nation's network of EV chargers could cost up to $200 million annually.

Takeaways

- The U.S. has a robust system in place to certify electricians to install and maintain EVSEs. More resources are needed to keep the workforce ready for incoming demand, especially in rural areas.
- The EVITP curriculum is regularly updated in accordance with industry standards, and it keeps technicians ready to install bi-directional charging stations, MHD depots, and upgrade grid infrastructure.
- State-based alternatives to EVITP are an option for areas that cannot access the training, but those programs' curricula are less standardized.
- States must think creatively and plan to budget maintenance costs after the five-year commitment required by FHWA.
- The IRA and BIL have established a strong demand for EV-ready technicians and states are just beginning to understand the gaps in their workforces. This process will require collaboration and communication from all stakeholders to meet the needs of the American EV industry.

About the Electrification Coalition

The Electrification Coalition is a nonpartisan, nonprofit organization that advances policies and actions to facilitate widespread deployment and adoption of electric vehicles in order to reduce the economic, public health and national security risks caused by America's dependence on oil. For more information, visit electrificationcoalition.org.