WRITTEN TESTIMONY BEFORE THE
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

MICHIGAN FIELD HEARING ENTITLED
"Building a Workforce to Navigate the Electric Vehicle Future"

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May 20, 2022

Thank you, Chairwoman Stevens, Ranking Member Feenstra and distinguished members of the Subcommittee for inviting me to testify today on the current EV workforce landscape, the growing demand for licensed and credentialed electricians to support the EV industry adequately and safely, and future workforce development pathways.

My name is Jennifer Mefford and I currently serve as the National Co-chair of the Electric Vehicle Infrastructure Training Program, E-V-I-T-P.

It seems only fitting to be with you in Michigan today, in the very market where EVITP began in 2011 around the time of the launch of the Chevy Volt. EVITP started as a convening of automakers, utility providers, charging station manufacturers, safety professionals, EV industry stakeholders, electrical contractors, and electricians to discuss charging installation best practices and installation standards for the growing EV market and specifically the critical role of the *electrician* in the evolution of electrified mobility.

Getting the charging experience right for customers in Residential, Commercial, Public and Fleet markets was critical then and remains so today. Stakeholders recognized early that customers in the new EV market would have more questions, need more support and would be interacting with an electrician as part of the EV ownership experience – and that electrician would need to understand the electrical construction industry beyond the installation of EV charging equipment, as well as, the rapidly evolving EV industry.

We Rolled Up our Sleeves and Built It…Together.

EVITP industry Partner Advisors volunteered time, expertise, and content to develop a comprehensive, brand-agnostic, non-profit training curriculum specifically for licensed electricians or electricians with an equivalent of 8,000 hours of on-the-job training in markets without licensing. Beyond technical equipment specs for EV charging, the course covers vehicle types, electrical code, site assessment, load calculations, solar and storage integration and much more.

EVITP Training & Certification, delivered through an online LMS platform, is an 18-hour comprehensive course plus a 2-hour proctored exam. To date, EVITP has certified thousands of qualified electricians across all 50 States who work for EVITP affiliated contractors. EVITP is recognized by the U.S. Department of Energy and in the official National Electric Vehicle Infrastructure (NEVI) Formula Program guidance to states as a highly regarded training program for electricians working on EV charging installations.

Not a Simple Dryer Outlet.

Substantial investments in EV infrastructure are a tremendous economic engine creating a growing demand for a highly skilled electrical construction workforce to build out an adequate network of charging stations. While EV charging infrastructure electrical work includes some emerging technology elements, EV infrastructure projects are primarily comprised of the electrical construction work skills deployed by experienced electricians every day – including, for example, performing load calculations, electrical service analysis, and applying National Electrical Code standards.

The majority of EV charging today happens at home, making this the primary charging location for most owners. Single family, multi-family, apartment, and urban dwellings all include different site, access, and power requirements.

Adding advanced EVITP training to an experienced electrician's considerable skills, is critical to performing accurate site assessments, load calculations, ensuring adequate sizing, panel upgrades, EV specific access, security and more in any installation. The addition of bi-directional charging, the "micro-grid on wheels" vehicles coming to market, adds more reasons for electricians to have advanced EVITP training to install EV charging equipment properly and safely.

Throughout the U.S., residential homes not built within the past decade likely have smaller service panels (60-100-amp) where load calculations will be of increased importance. For example, in Detroit and Cincinnati (and many other cities), most homes have 60-100-amp service in the older urban and older suburban neighborhoods. While upgrading electrical components and panels increases the cost of EV charging installations – adding an additional burden to underserved and rural consumers – it is essential for the safety of workers, residents and first responders.

Underserved and rural communities are often already in a position of "electrical inequity" due to older electrical systems in the home and community. The need to upgrade electrical panels increases the cost of EV charging installations adding an additional burden to underserved customers in areas with older infrastructure. Newer construction, often in suburban areas, typically includes panel size with 150-200-amp capacity where a panel upgrade may not be needed.

Currently, 17 States do not require electricians to be licensed. This is an additional consideration for verifying experience and expertise among the existing electrician workforce as we examine workforce readiness for the EV industry.

The ability to verify experience and expertise through a nationally recognized EV training and certification program, (EVITP), which requires a state electrical license or 8,000 hours of electrical field experience as a minimum requirement for program participation, will ensure that consumers in all market segments are working with highly skilled, properly trained electricians.

This is especially critical in underserved communities, where existing "electrical inequity" presents additional challenges and safety concerns -- which makes the risk of using unskilled workers even more dangerous.

How many electricians will it take to get the job done?

We're in Michigan today, there are currently 19,637* Michigan state certified licensed electricians and Master electricians. They have most of the necessary skills required for EV infrastructure. Electricians are also gaining important additional EV charging infrastructure electrical technology skills through the Electrical Vehicle Infrastructure Training Program (EVITP). More than 450 Michigan electricians** have advanced EVITP certified skills, with hundreds more graduating annually. There are also currently 6,577 registered electrical apprentices in the state.***

Michigan has about 3% of the U.S. population. If the current U.S. goal of 500,000 stations is doubled to 1,000,000, that would be 30,000 stations in Michigan. If we go even further and say Michigan would have a 50,000 station expansion of EV infrastructure, that will put a considerable number of state licensed electricians to work in the following categories and may look something like this:

A) 50,000 Charging Station Installations, of All Types, in Three years.

Residential single family, level 2: Crews consist of one EVITP certified electrician and one apprentice. Each team of two installs, conservatively, eight chargers per week (48 weeks/yr.) or 1,152 in three years. 21 EVITP-led teams of two will install 24,192 units in three years.

Multi-family residential and commercial, level 2: Crews consist of one EVITP certified electrician, one non-EVITP electrician, and one apprentice. Each team of three installs, conservatively, three commercial chargers/week, or 432 in three years. 41 EVITP-led teams of three will install 17,712 units in three years.

Heavy commercial/industrial and DC fast chargers: Crews consist of one EVITP certified electrician, one non-EVITP electrician, and two apprentices. Each team installs, conservatively, two chargers per week, or 288 in three years. 28 EVITP-led teams will install 8,096 units in three years.

In summary, 90 EVITP electricians, 69 non-EVITP electricians, and 118 electrical apprentices would install 50,000 charging stations in three years. That's 277 electrical workers, out of a total of 26,214 or 1.06% of the existing electrical workforce.

B) If we double that 50,000 stations to 100,000 in Michigan, we would need 2.12% of the existing workforce, including 180 EVITP Certified electricians.

**Source: Michigan LARA Office as of October 20, 2021*
***Source: Electrical Vehicle Infrastructure Training Program as of October 20, 2021*
****Source: Michigan Department of Apprenticeship Standards as of October 20, 2021*

Workforce Development: It's a great time to become an Electrician.

EV Market growth and the expansion of the solar and energy storage markets will require more licensed and certified electricians. The best way to get more qualified electricians into the field is through U.S. Department of Labor Registered Apprenticeship Programs and quality pre-apprenticeship programs that prepare and place individuals in Registered Apprenticeship Programs. Registered Apprenticeship Programs have a long history and proven track record of success in training individuals to succeed in the construction trades for long-term careers with great wages, benefits and retirement security.

Apprenticeship Readiness Programs – Pathways to Construction Careers

Quality Pre-Apprenticeship and other Apprenticeship-Readiness Programs: Pre-apprenticeship and other apprenticeship-readiness programs may combine classroom education with on-the-job (OTJ) paid work experiences to prepare individuals for success in Registered Apprenticeship programs. apprenticeship. These programs are crucial for engaging returning citizens, veterans, minorities and other underrepresented groups that have traditionally been left out of the construction industry. Pre-apprentices get to learn about the trade and access important support services like math and reading remediation.

In 2021, EVITP was asked to partner on the Bloomberg Philanthropy American Cities Climate Challenge in 26 select U.S. markets to award Scholarships for EVITP training to qualified electricians. 50% of the electricians selected for this program were women, black, indigenous

people or people of color. EVITP strongly supports and engages an EV workforce of qualified electricians that is equitable and inclusive.

In addition to the need for more electricians, the industry will also need more qualified electrical contractors. Partnerships between DOL Electrical Apprenticeships, Community Colleges and Universities may offer vital dual track education to prepare more electricians to become business owners and entrepreneurs to serve the EV industry and the growing electrical industry.

In Summary:

Charging infrastructure plays a key role in the expansion of the EV market. While the number of licensed and certified electricians in the U.S. today is adequate for current installation needs in most areas, additional training for existing electricians and onboarding of new electricians through Registered Apprenticeship Programs and quality pre-apprenticeship programs will be key to meeting future demand. The EVITP Training and Certification program ensures a high level of electrical safety and performance in EVSE installation in all markets.

Thank you for the opportunity to address you this morning on this important topic. I invite any questions you may have around EVITP or electrician workforce readiness.