



**SUSTAINABLE  
FLEET  
TECHNOLOGY**  
**CONFERENCE & EXPO 2023**

**Track A Session 4:  
Training For Success**

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# Training for Alternative Fuels

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# How did we get here?

- The Baby Boomer exit was sped up by Covid \*
- Unemployment is low due to lack of workers and the “Great Resignation” ^
- The Enrollment Cliff will also affect the workforce due to the low birth rates of 15-20 years ago. This will be 10-15 % fewer graduates #

# Today's workforce

- Rising workers are Generation Z (mid 1990's to 2010)
- Technology attracts these individuals
- Students are not lazy, just after a greater work life balance
- Benefits are a great attraction for these individuals

# How do I attract?

- Apprenticeships
- Internships
- Incentives
- Pay is not enough!

# Skilled Trades

- Current push in the High Schools is toward Skilled Trades
  - College debt is not accrued
  - Loss of skills in these areas
  - Immediate job placement
- Immigrant and refugee populations
  - Programs in place for education
  - High School education is not needed for Continuing Ed programs

# Classes in the NC Community College system

- ATT-115 Green Trans Safety & Service
- ATT-125 Hybrid-Electric Transpiration Systems
- ATT-130 Biofuels for Transportation
- ATT-135 Gaseous Fuels for Transportation
- ATT-140 Emerging Transportation Tech
- ATT-150 Sustainable Transportation Tech

# Class Description

- ATT 115 Green Trans and Safety

This course covers workplace safety, hazardous material and environmental regulation relevant to electric, hybrid and alternative fueled vehicles.

Vehicles used are all electric and hybrid vehicles

Taught in the Automotive program



CENTRAL PIEDMONT

COMMUNITY COLLEGE



# Class Descriptions

- ATT 125 Hybrid Electric Transportation Systems

This course covers the theory and operation of hybrid-electric drive vehicles. Topics include maintenance, diagnostics, repair and safety procedures for electrically propelled and hybrid vehicles.

Students in this class disassemble, test and rebuild Hybrid transmissions. Electric motor theory and propulsion systems are studied.

Can be taken in either program

# ATT 130 Biofuels, ATT 135 Gaseous Fuels

These classes are taught in our Diesel and Heavy Duty program.

Biofuel includes Bio Diesel, Refined Diesel, Ethanol, and Green generated fuels (Hydrogen by renewable sources, Propane by landfills)

Gaseous Fuels includes CNG and LPG safety and operation, Hydrogen combustion and fuel cell operation. How the fuel is created is also covered.

This course is taught in the Heavy Equipment and Truck program.

# ATT 140 Emerging Transportation Tech

This course covers emerging technologies in the automotive industry and diagnostic procedures associated with those technologies. Topics include exploring new technologies, diagnostic tools, methods and repairs.

Idle stop technology and idle reduction techniques, low rolling resistance tires, super conductors, controller assemblies and resolver circuits are covered.

This class is taught in the Automotive program.

# ATT-150 Sustainable Transportation Tech

This course introduces fuel neutral technologies used on all classes of transportation equipment. Topics include idle stop technology and idle reduction techniques, low rolling resistance tires, super capacitors, exhaust heat regeneration and diagnostics of hydrogen fuel cell and electrical 6 and 9 phase operation.

This course is taught in the Heavy Equipment and Truck program.

# Continuing Education Classes

Currently we are working with our community to offer safety classes for those working on EV and Hybrid vehicles.

Immigrant and refugee populations

We work with First Responders and technicians

We are planning on running additional classes in diagnostics and repair coming late fall/spring of next year.

# Training for Alternative Fuels

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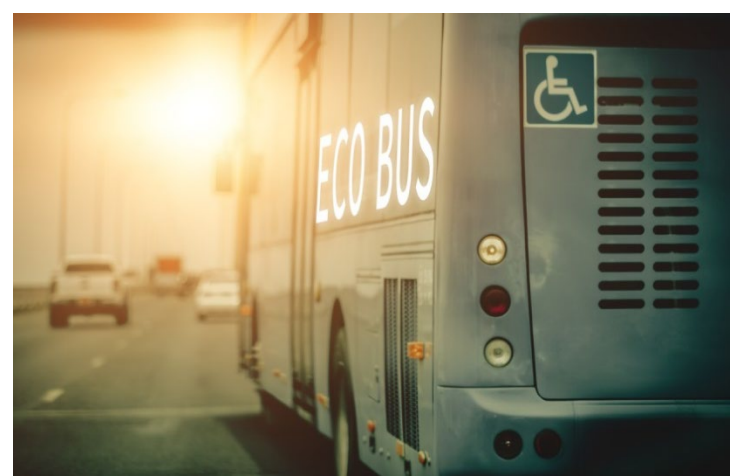
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## EV Market





# What is the Electric Vehicle Infrastructure Training Program (EVITP)?

**A non-profit, volunteer, brand neutral, national EV industry collaborative training program launched at the University of Michigan in 2012. EVITP addresses the technical requirements, safety imperatives, and performance integrity of industry partners and stakeholders including:**

- Automobile Manufacturers, and Battery Makers
- Investor-Owned and Municipal Utilities
- Electric Vehicle Supply Equipment/EVSE (“Charging Station”) Manufacturers
- State and Local Electrical Inspectors
- Electrical Contractors and Electrical Workers
- First Responders





# EVITP Partner Advisors





# Eligibility: Qualified Electricians

## Minimum Requirement for EVITP Certification:

- In states or local jurisdictions where required, electricians must be licensed or certified. In California the requirement is:  
State Certified General Electrician
- In other states or local jurisdictions without licensure of electricians, enrollees must have completed at least 8,000 hours of documented on-the-job training

*A key to EVITP success is that the training builds on the platform of qualified electricians' extensive knowledge, skills, and experience.*



## EVITP 4.0 Curriculum

### Comprehensive Residential, Commercial, Industrial Charging Infrastructure Training

- Level 2 (220V) Residential Charging
- Commercial / Institutional Level 2 Charging
- DC Fast Charging
- Medium Duty (MD) Commercial / Institutional
- Heavy Duty (MD) Commercial & Industrial
- Site assessment and load calculations (*Core*)
- Maintenance, Troubleshooting and Repair
- Wireless Inductive Energy Transfer





## Find a Contractor

Tap in to our network of certified installers.

[Learn More](#)



EVITP &  
Workforce Development





Jennifer Mefford  
EVITP National Co-Chair

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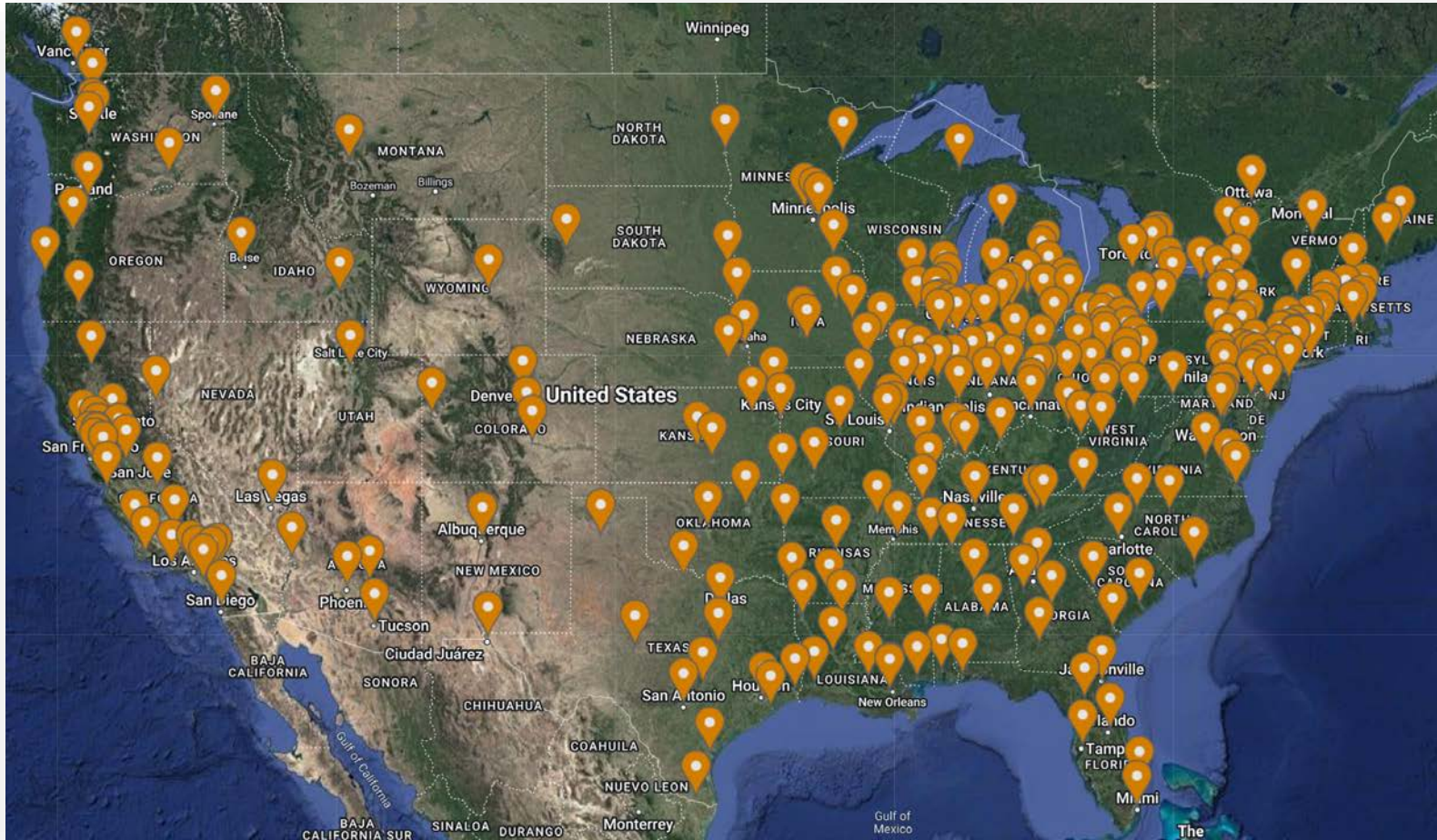


## Partners in Progress: IBEW and NECA

**The International Brotherhood of Electrical Workers** Formed in 1891 (IBEW) represents approximately **820,000 Members** who work in a wide variety of fields, including construction, utilities, telecommunications, broadcasting, manufacturing, railroads and government.

**The National Electrical Contractors Association** (NECA) The voice of the **\$225 Billion Electrical Construction Industry**. NECA's national office and 119 local chapters advance the industry through advocacy, education, research and standards development



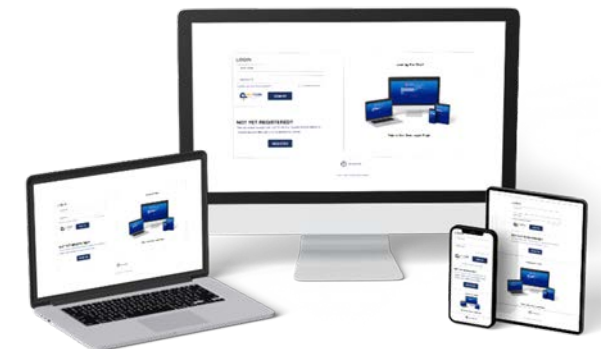


National Joint Electrical Training ALLIANCE, has created a nationwide network of hundreds of privately funded state-of-the-art facilities that provides apprentices and journeymen with a modern setting to learn the intricacies of all types of electrical work.



The electrical training ALLIANCE was created over 70 years ago as a joint training program between NECA and IBEW aimed at training the best electrical workers the industry has to offer.

Today, the electrical training ALLIANCE has developed into the largest apprenticeship and training program of its kind, having trained over 350,000 apprentices to journeyman status through local affiliate programs.







#### CORE CURRICULUM

Specialty trade skills mean nothing without a solid foundation of core skills. Our core curriculum allows students to specialize in their trade while still becoming well-rounded craftsperson.



#### BLENDED LEARNING

With our unique blended learning approach, training centers can easily combine classroom instruction with our online tools to continue educating and communicating with students long after class was dismissed.



Highly qualified instructors that staff the centers are trained in using the most current blended learning techniques, incorporating the best aspects of both online and classroom instruction, course administration and delivery.

# It's a great time to become an IBEW Electrician!!

- Workforce demand is very strong
- 5-7 years look strong for demand in most sectors
- Actively adding Apprentices
- Exploring new pathways like Pre-apprenticeship and Workbased learning
- Streamlined process for acceptance into apprenticeships
- Earn as you Learn
- Pathway to a career – graduate debt free







## Training for the Future

Electric Vehicle Service Equipment

Battery Storage

Solar

Offshore Wind

Hydrogen





# IBEW 10th District



## 2022-2024 Project Forecast

Total Projects = 4,870

Total Project Value = 241 (B)

Labor Hours = 425 (M) Estimated Workforce = 118,000





The U.S. electrical contracting industry is made up of over **70,000 electrical contracting firms** employing over 650,000 electrical workers.

NECA contractors set the standard for traditional and integrated electrical systems and lead the industry in the practical application of new technologies.

NECA contractors employ the most highly trained and reliable workforce in the industry, so your job is done right the first time, on time, without disrupting your business.

## Connect with NECA

<https://www.necanet.org/about-neca/directories/find-a-contractor>







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***Arkansas, Tennessee and the Carolinas are open for business!***

[https://www.youtube.com/watch?v=4N\\_gFyDAnTU](https://www.youtube.com/watch?v=4N_gFyDAnTU)