

**National Science Foundation (NSF) Advanced Technology Education (ATE)  
Pathways for Alternative Energy Automotive Technicians (1600689)  
Project Summary**

**Total: \$587,687**

**Project Period: 9-15-2016 to 8-31-2019**

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Columbus State Community College will work in collaboration with Clean Fuels Ohio, the Center for Automotive Research at The Ohio State University, local high school districts and technical centers, several industry partners, and a previously awarded NSF ATE projects at Owensboro Community & Technical College, Macomb Community College's Center for Advanced Automotive Technology (CAAT) and the Center for Aviation and Automotive Technical Education using Virtual E-School (CA2VES) at Clemson University. The project will develop a new career pathway in Alternative Energy Automotive Technology, a dedicated Industry Leadership Team to lead the direction of the pathway, and a curriculum. The curriculum will optimize emerging techniques and technologies including project-based learning, integrated learning objects, simulations, and a STEM-intensive curriculum that incorporates education in technology, engineering, automotive and mathematics to prepare a technical workforce appropriately educated to support the increasing market for Alternative Energy Automotive Technicians.

The **goal** of this project is to develop a college and career readiness pathway for Alternative Energy Automotive Technicians at Columbus State Community College to meet the increased demand in the Ohio region industry and contribute to the diversity of the region's work force. The **project objectives** are as follows:

- Increase the supply of skilled technicians by creating a pathway from high school to two-year, and potentially four-year degree programs and/or an employable exit points.
- Expand the pool of qualified students entering automotive program from various and non-traditional backgrounds by involving targeted high school students early in STEM.
- Increase the number of students enrolled in Automotive Technology program at Columbus State.
- Disseminate the model regionally for replication at other institutions.
- Expand existing TechLINK Cooperative Work Experience with additional focus on alternative energy diagnosis and repair.
- Provide professional development for teachers/faculty and engage additional high school faculty in alternative energy automotive technology education.

The project will develop a defined college and career readiness pathway that promotes articulated dual credit for high school students from diverse backgrounds to enter a new pipeline in alternative energy automotive technician training. The project will integrate a high-performance STEM-based alternative energy curriculum using innovative pedagogy at the college as well as at high school and university partners. The **primary deliverables** of the project are as follows:

1. Four modified courses enhanced with additional focus on alternative energy leading to AAS Degree in Automotive Technology and Master Automotive Service Technician Certificate (MAST).
2. Two new courses for Hybrid and Alternative Fuels (CNG, H2, etc.) developed and leading to a new Alternative Energy Automotive Technology Certificate.
3. Summer workshop for first responders to understand safety concerns with hybrid and alternative fuel vehicles.
4. Fall workshop for high school faculty to understand emerging trends in Alternative Energy Automotive Technology education.