FOR IMMEDIATE RELEASE
July 27, 2020

MEDIA RELEASE

CONTACT: JONATHAN OVERLY, JONATHAN@ETCLEANFUELS.ORG, 865-974-3625
DANIEL SIKSAY, DANIEL@ETCLEANFUELS.ORG, 865-974-9665

Tennessee Tech unveils new DCFC Unit in Cookeville as part of "EV Testbed" Project

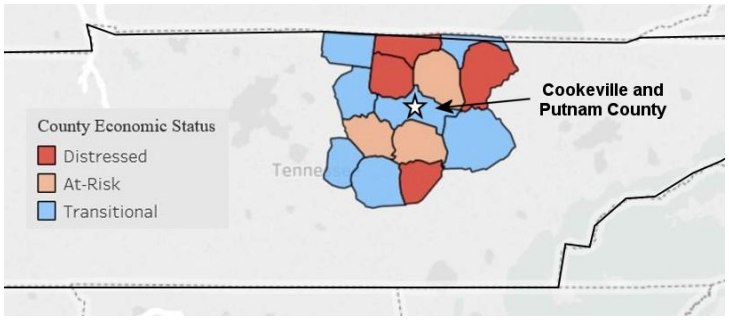
On July 22, Tennessee Technological University (Tennessee Tech, or TTU) unveiled a new Direct Current Fast Charging (DCFC) station that will serve a U.S. Department of Energy-funded project started in 2019, as well as the greater Cookeville area. The unit was installed in a TTU parking lot along a busy corridor in Cookeville and will be the primary refueling site for an all-electric E450 shuttle bus that is part of the same DOE project. Lead project infrastructure partner Seven States Power Corporation managed the installation.

TTU was awarded and started that three-year DOE project last year, towards "developing an Electrical Vehicle (EV) Testbed in the 14-county 'Upper Cumberland' region of Tennessee." The region is a largely rural area and includes a number of economically distressed counties (see map on page 2). The grant's Principal Investigator, Dr. Pingen Chen, is an Assistant Professor in TTU's Department of Mechanical Engineering and has brought a diverse group of about 10 partners into the project.

One component of this multifaceted project is the installation of nine EV charging units throughout the Upper Cumberland region. The first of the nine EV charging units is the DCFC unit that was installed at 320 University Drive, Cookeville, TN 38501. In the coming months, the remaining eight EV charging stations – all of which will

Left to right: East Tennessee Clean Fuels Coalition Executive Director Jonathan Overly, TTU President Dr. Philip Oldham, Project PI and Assistant Professor of Mechanical Engineering Dr. Pingen Chen, and Seven States Power Corporation Director of Distributed Energy Resources Brad Rains all stand with the new DCFC unit that will serve the project and community.

be Level-2 stations – will be installed in select locations in the surrounding counties in the following cities: Lafayette, Carthage, Livingston, Byrdstown, Jamestown, Smithville, Sparta and Spencer. Combined, they will produce the beginnings of a charging network for the entire region that has largely had no focused EV-development efforts within it to date. Once the project is completed, it will have produced a "proof of concept roadmap" for how other rural areas across the U.S. can follow suit and help accelerate their development of EV charging and growth in use.



The 14-county region in the project is along the Cumberland Plateau and in the central part of Tennessee, and has Cookeville as its largest city with a population of just over 35,000.

Another facet of the project includes procuring five electrified vehicles, which include three Nissan Leafs, one all-electric E-450 passenger shuttle, and one plug-in hybrid F-250. "The three Nissan Leafs are ready to be used now for educational purposes, such as showcasing the value of electric vehicles through Ride and Drive or Show and Tell types of experiences specifically for our rural community," said Dr. Chen. "Many times, in our state, we see plenty of EV opportunities and accessibility available in metropolitan cities, whereas rural communities are not prioritized. Our goal is to provide information, education, and a variety of EV experiences and opportunities for business leaders and community members to have access to this new automobile technology and to help inform their buying decisions."

Also, in attendance at the DCFC unveiling was TTU's President, Dr. Phillip Oldham. "We are pleased with Dr. Chen's EV initiative at TTU. This project fits well within TTU's Grand Challenge Initiative called **Rural Reimagined,** which focuses on how the university will harness science, technology, and innovation to transform rural living," said President Oldham. "Tennessee Tech serves more distressed counties than any other state university in Tennessee and is centrally located to eight counties in great need. We have an opportunity where this EV initiative can drive change through developing partnerships that will help transform our rural community. We find this opportunity energizing and a step-forward for Tech and our community overall."

The new ChargePoint DCFC unit has cables for both the CHAdeMO and SAE Combo standards and connectors.

While the Nissan Leafs will be utilized to showcase EV operations and driving ease to individuals and fleets in the entire region, the E-450 shuttle will be used specifically by the transportation department of the Upper Cumberland Human Resource Agency. They plan to first utilize a TTU and downtown Cookeville route to operate the shuttle, but after any initial problems are worked out and the shuttle has proven its reliability in service, the department plans to move it to other routes around the 14-county region. Finally, the plug-in hybrid F-250 was specifically chosen as 'best choice' for getting farmers in the counties to test drive an electric vehicle. Jonathan Overly of ETCleanFuels notes, "if we really wanted to change the region's farmers opinions about EVs, we thought that range restriction could make them test driving an EV a nonstarter. Thus, we elected to go with a plug-in hybrid so that they could finish any chore or task that they might handle on any

given day." The three Leafs are already in use, while the E-450 and F-250 are still in the process of being converted by those respective partners, Phoenix Motorcars and XL Fleet.

TTU's project includes partnerships with Nissan North America, the East Tennessee Clean Fuels Coalition, ChargePoint, Seven States Power Corporation, the Upper Cumberland Human Resource Agency, the University of Texas at Austin, Phoenix Motorcars, Lyft, and Oak Ridge National Laboratory.

For more information about this grant and project, contact Dr. Pingen Chen at pchen@tntech.edu.

The project's objectives are to:

- ✓ Develop a rural EV testbed to demonstrate and evaluate the applications of EVs in a rural and largely economically depressed region in Tennessee;
- ✓ Help potential fleet owners and the public at large make informed decisions about EV adoption through education and outreach initiatives and support the transfer of newer technology transportation options; and
- ✓ Compliment DOE Vehicle Technology Office's existing EV data set with detailed EV operation and use data in rural applications.

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About Tennessee Technological University – https://www.tntech.edu: *Tennessee Tech produces practical, ready-to-work graduates from a broad range of academic disciplines prepared to compete in a technologically driven world. Here, students have the freedom to discover and pursue their passions, knowing there is a supportive community behind them. Developing their passions into hundreds of student clubs and organizations, Tech students make an impact on campus, in the community and around the world.*

About East Tennessee Clean Fuels – http://www.TNCleanFuels.org: *The East Tennessee Clean Fuels Coalition works proactively with many different fleets and partners in the state to reduce dependence on petroleum and improve air quality and sustainability. It is a voluntary effort built on partners working together to create positive changes for Tennesseans. ETCleanFuels partners regularly with the Middle-West Tennessee Clean Fuels Coalition and the two serve all Tennesseans via direct assistance, educational events, and funding sources and guidance that can help them learn about alternative fuels and make the switch for their own bottom line and for a healthier Tennessee.*

About Seven States Power Corporation – https://www.sevenstatespower.com: *Seven States Power is an energy solutions company that serves 154 local power companies across seven states of the Tennessee Valley. Our members distribute TVA-generated electricity and provide a variety of essential services that build the economy and enhance life in their communities. Our turnkey products and services include EV (electric vehicle) chargers, solar arrays, backup generation, combined heat and power, battery storage, fiber deployment, cybersecurity, economic analysis and distributed energy resource management systems.*