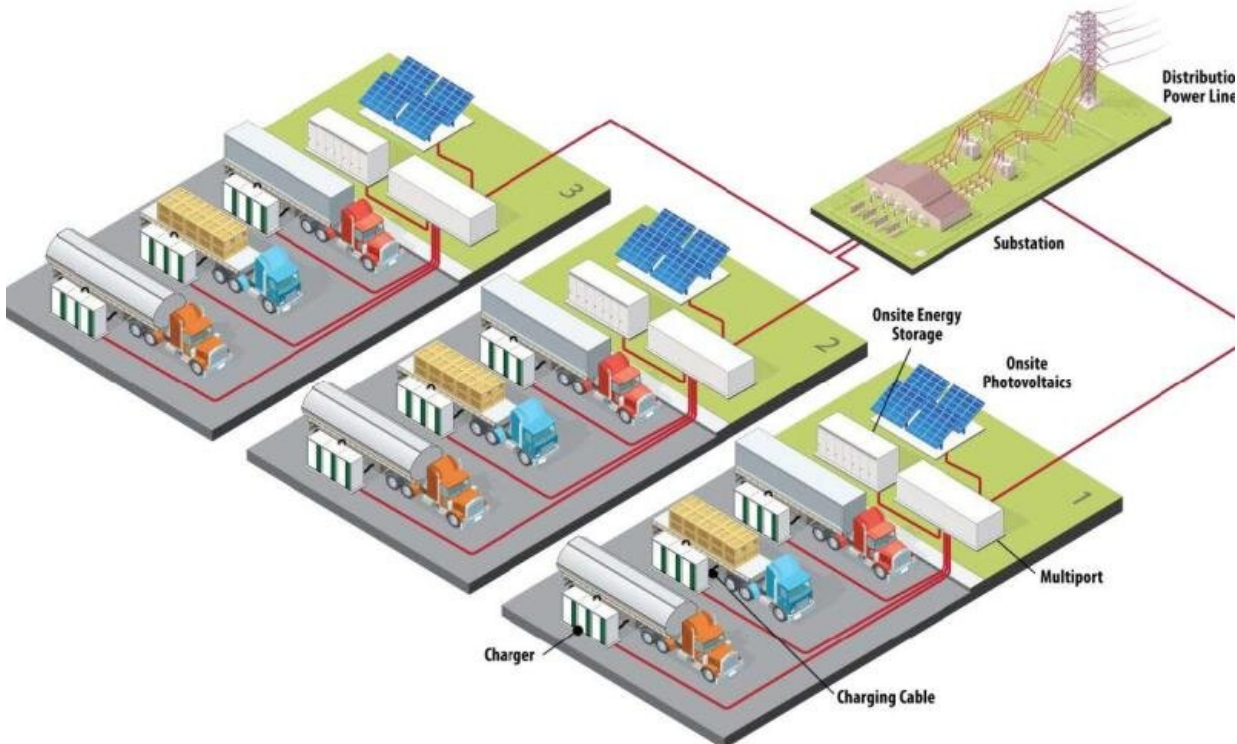


Long-haul trucking meets megawatt-scale charging

December 8 2022, by S. Heather Duncan



A multiport design allows a utility to easily interface with an EV truck stop to provide fast charging at megawatt scale. Credit: ORNL, U.S. Dept. of Energy

Transitioning long-haul trucks from diesel to electric power will require convenient ways to rapidly recharge electric vehicle batteries at power-plant scale. Researchers at Oak Ridge National Laboratory have

designed architecture, software and control strategies for a futuristic EV truck stop that can draw megawatts of power and reduce carbon emissions.

The station's design uses [solar arrays](#) and batteries, which generate and store enough power to handle the unpredictable load swings from recharging these large power plants on wheels. The software manages the system to draw a steady, predictable flow of power from the grid. The team fine-tuned the complex control hierarchy using real-time simulation, then verified those results with electronics in the lab.

The research is published as part of the *2022 IEEE Transportation Electrification Conference & Expo (ITEC)*.

"The next phase is looking at how to coordinate multiple stations in a network along the interstate," said ORNL's Radha Krishna Moorthy. Paired with advances in low- and zero-carbon fuels, electrification can help reduce the trucking industry's carbon footprint.

More information: Michael Starke et al, A MW scale charging architecture for supporting extreme fast charging of heavy-duty electric vehicles, *2022 IEEE Transportation Electrification Conference & Expo (ITEC)* (2022). [DOI: 10.1109/ITEC53557.2022.9813825](https://doi.org/10.1109/ITEC53557.2022.9813825)

Provided by Oak Ridge National Laboratory

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