ELECTRIC VEHICLE AND GRID INTEGRATION: TOOLS FOR A RESILIENT ELECTRIFIED TRANSPORTATION FUTURE

THURSDAY: SESSION 3, TRACK 3

SESSION CHAIR

Timothy Pennington, Idaho National Laboratory

PRESENTERS

- Lee Slezak, DOE VTO - Technology Manager for Vehicle Grid Integration
- Brendan Casey, DoN NAVFAC HQ PW7 Transportation - Program Manager, Resourcing & Analysis
- Timothy Pennington, Idaho National Laboratory

SESSION ABSTRACT

The electric distribution grid has long been considered critical infrastructure in need of resilience. Transportation of people and goods is also critical to the operation of our nation with substantial consequences when it lacks resilience as demonstrated in the recent Colonial Pipeline incident. The direct linking of Transportation to Electricity adds possible risks – one compromises the other – but also opportunities to support each other through constructive energy management. This session will share recent relevant research identifying the potential risks to the electrical grid from growing EV adoption, increasing charging power levels, and current cyber security vulnerabilities. We will also discuss proposed and studied mitigations, including large scale demand response, smart charge management, and EVs as a Distributed Energy Resource with bidirectional power flow. Lastly, this session will include insight into design for resilient EV charging station architecture, and cybersecurity best practices for EV charging hardware.

Topics of Focus:

- Grid impacts of EV Charging
- Transportation impacts of EV reliance on the grid
- Design of resilient EV charging stations
- cybersecurity for EV charging infrastructure