



CYBERSECURITY FOR ENERGY RESILIENCE SUMMIT 2026

Cyber Workforce Development

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Speakers:

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Max Shuftan, SANS Institute

Amanda Theel, Argonne National Laboratory

Tobias Shapinsky, National Laboratory of the Rockies



**National Laboratory
of the Rockies**

Building Cross-Domain Technical Intuition for the Grid Edge

Tobias Shapinsky

CyFERS

April 2026

Emulation-based Distribution Grid Impact Assessment for Behind-the-Meter (BTM) Cyberattacks

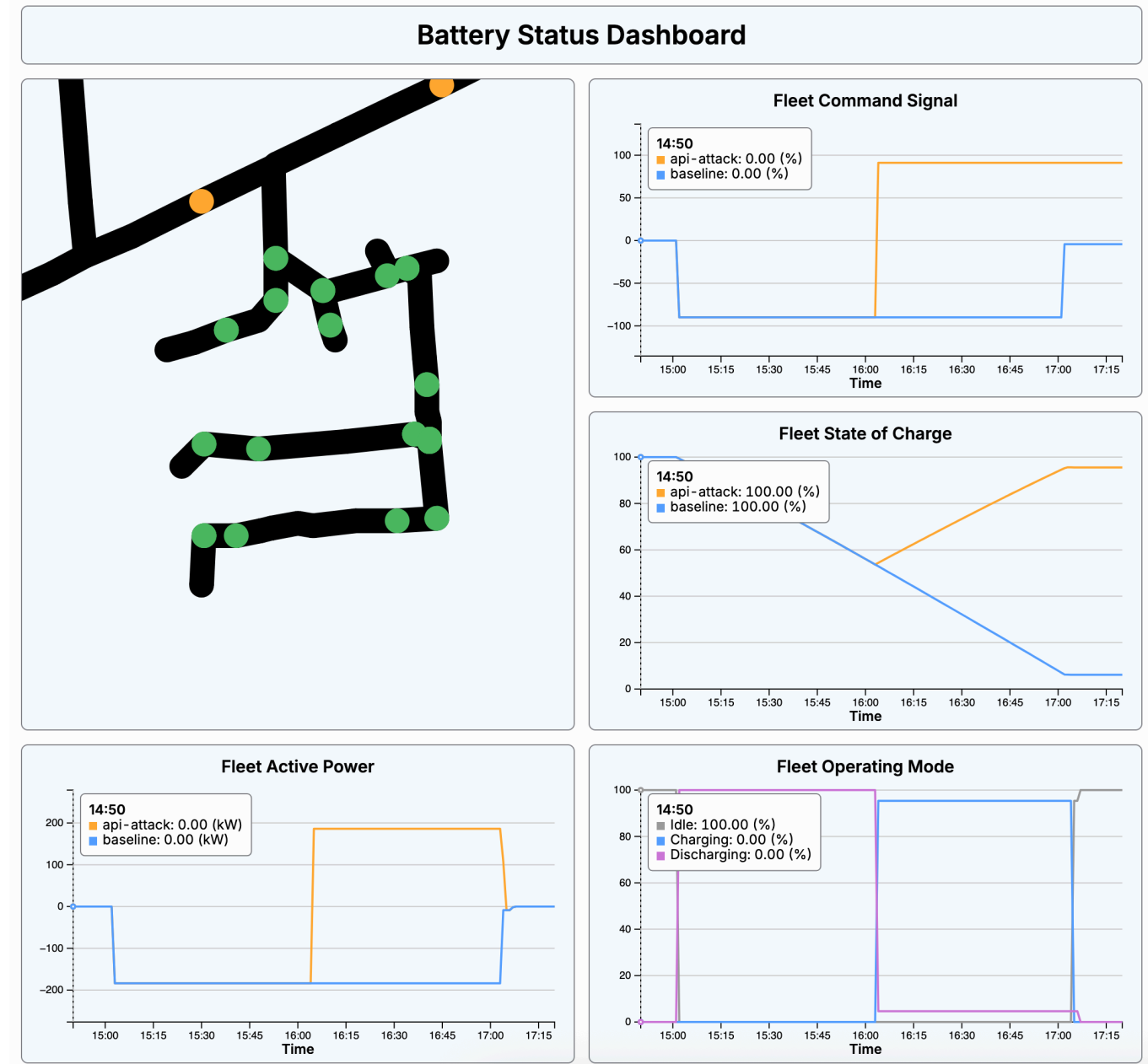
Support cyber informed design of integrated grid edge systems that include utility, customer, OEM, and internet service provider-owned assets.

Project thrusts:

- *Impact assessment capability:* Emulate interconnected grid edge systems under a range of realistic DER deployment, cyberattack, and mitigation scenarios.
- *Cross-domain education:* Utilize cross-domain datasets generated by assessment tool to provide interactive educational experiences that introduce cybersecurity principles to broader engineering community.

BTM Residential Batteries

- Based on real 215-load distribution grid feeder in rural Southeast
- 40 loads replaced with detailed residential building models, including BTM batteries
- Batteries were connected to Original Equipment Manufacturer (OEM) cloud control service
- Cyberattacks run on OEM cloud with and without mutual TLS encryption



Educational Usage

Audience

- Undergraduate and Graduate engineering students
- Energy system operators and planners (early training stages)
- Cybersecurity professionals exploring grid systems

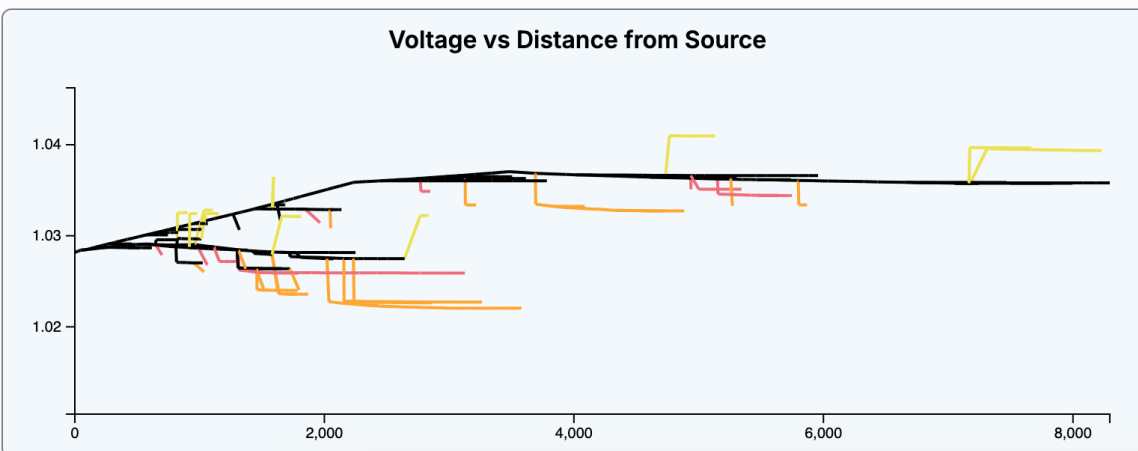
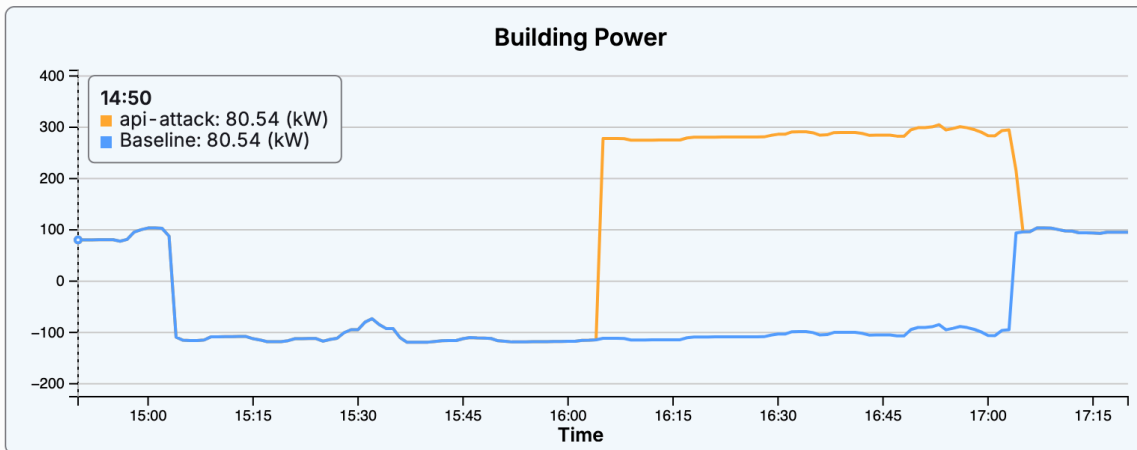
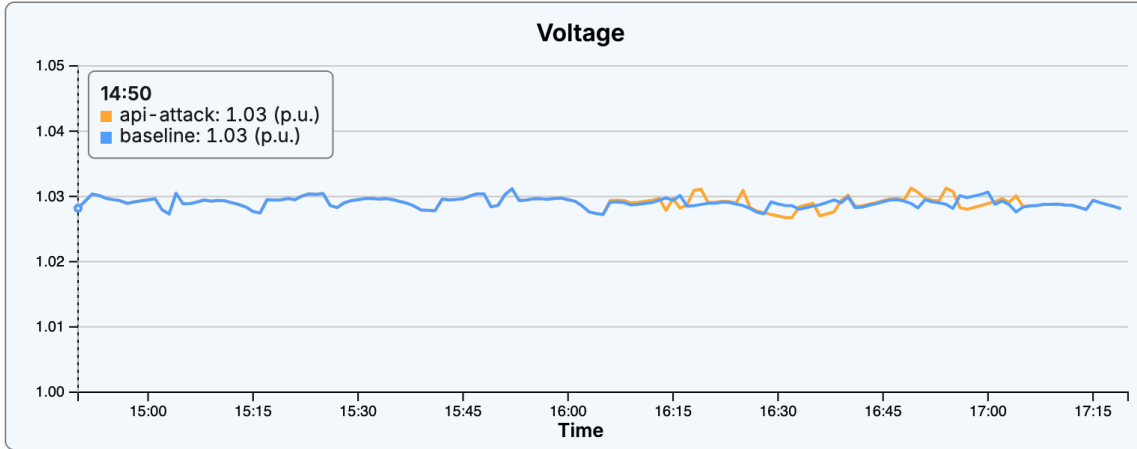
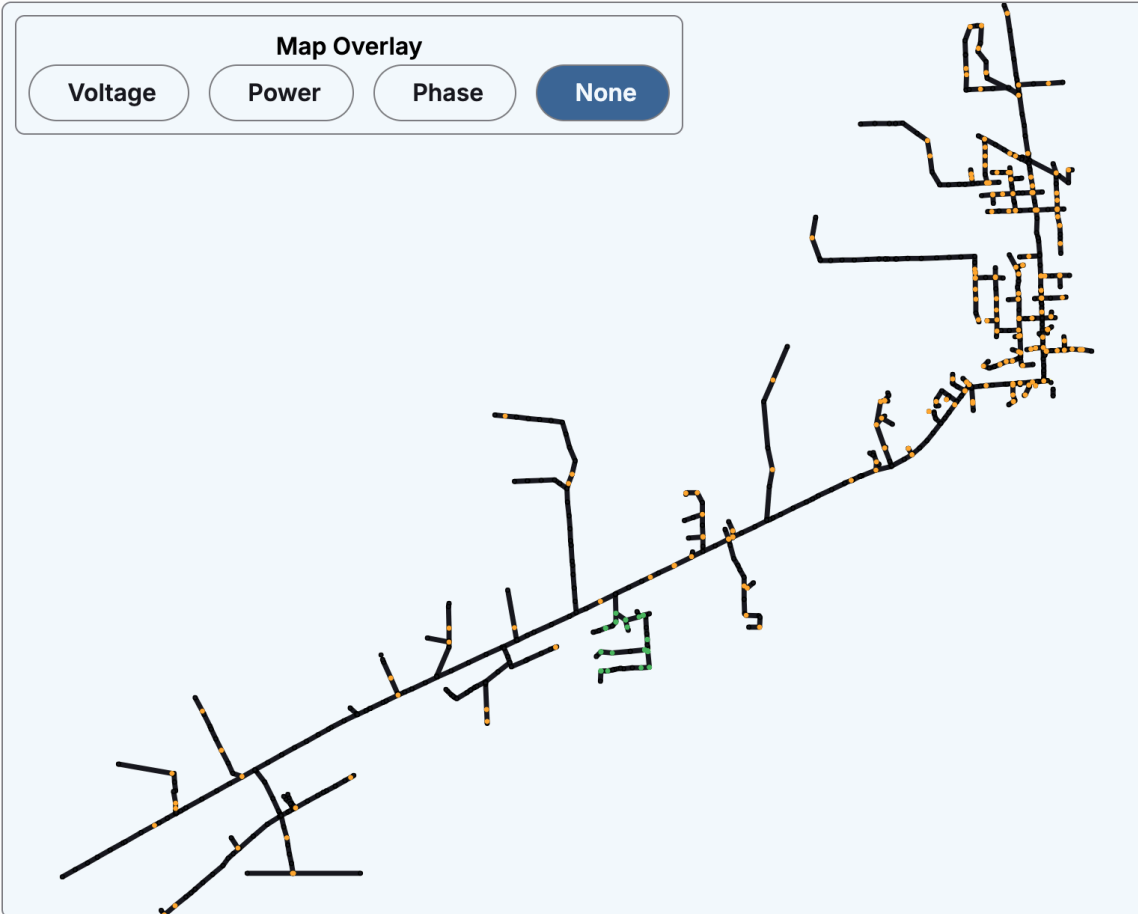
Schedule

- May 4th – Dartmouth, Energy Transition Master's Program
- Fall 2026 – Carnegie Mellon, Civil Engineering Graduate Program
- Fall 2026 – Clark Atlanta, Undergraduate Intro to Energy Systems

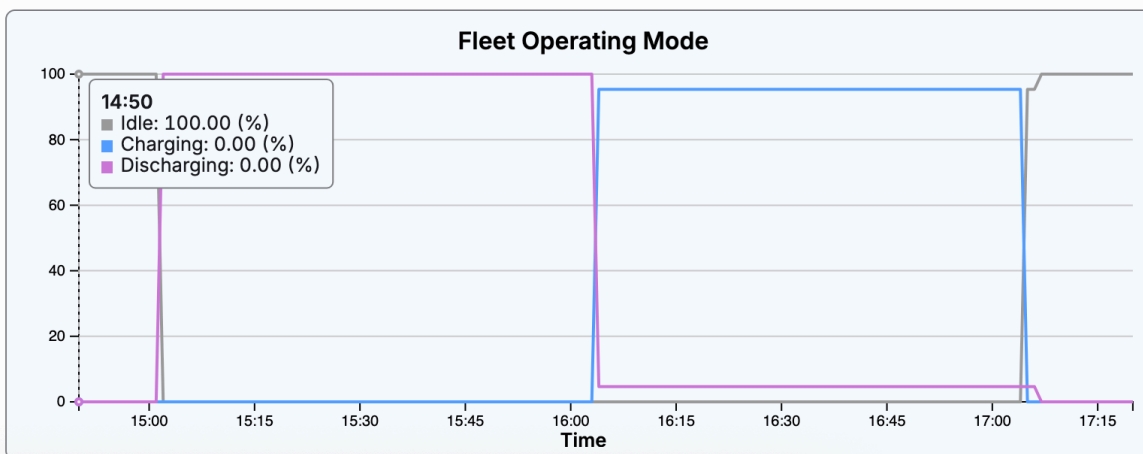
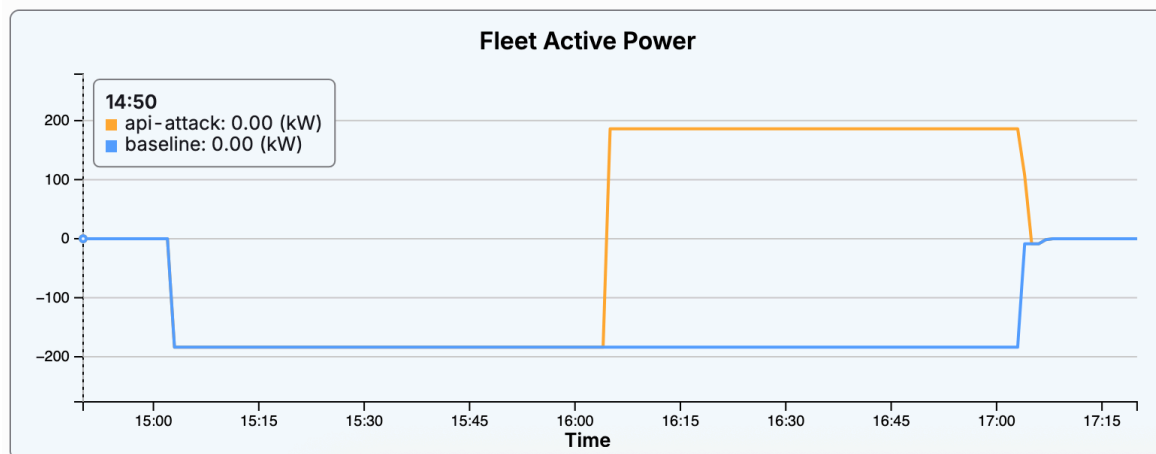
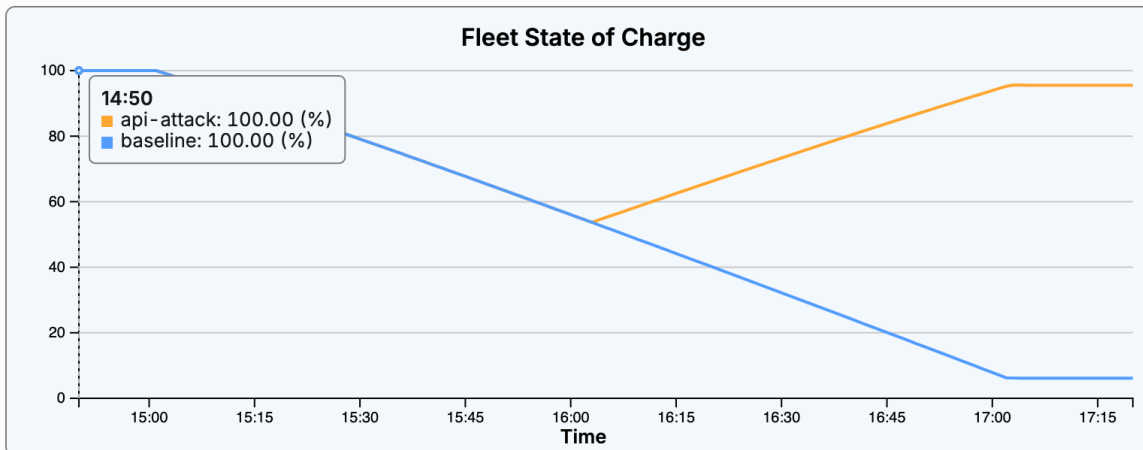
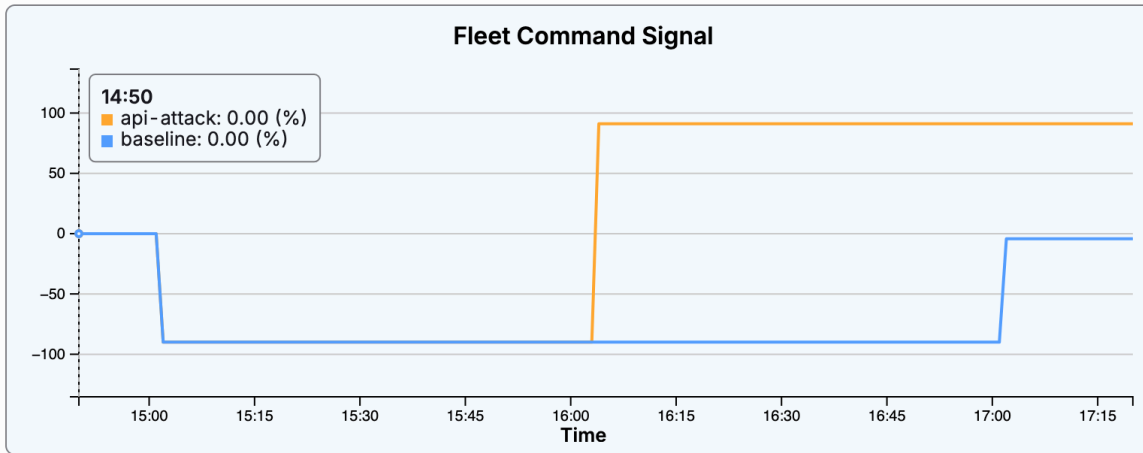
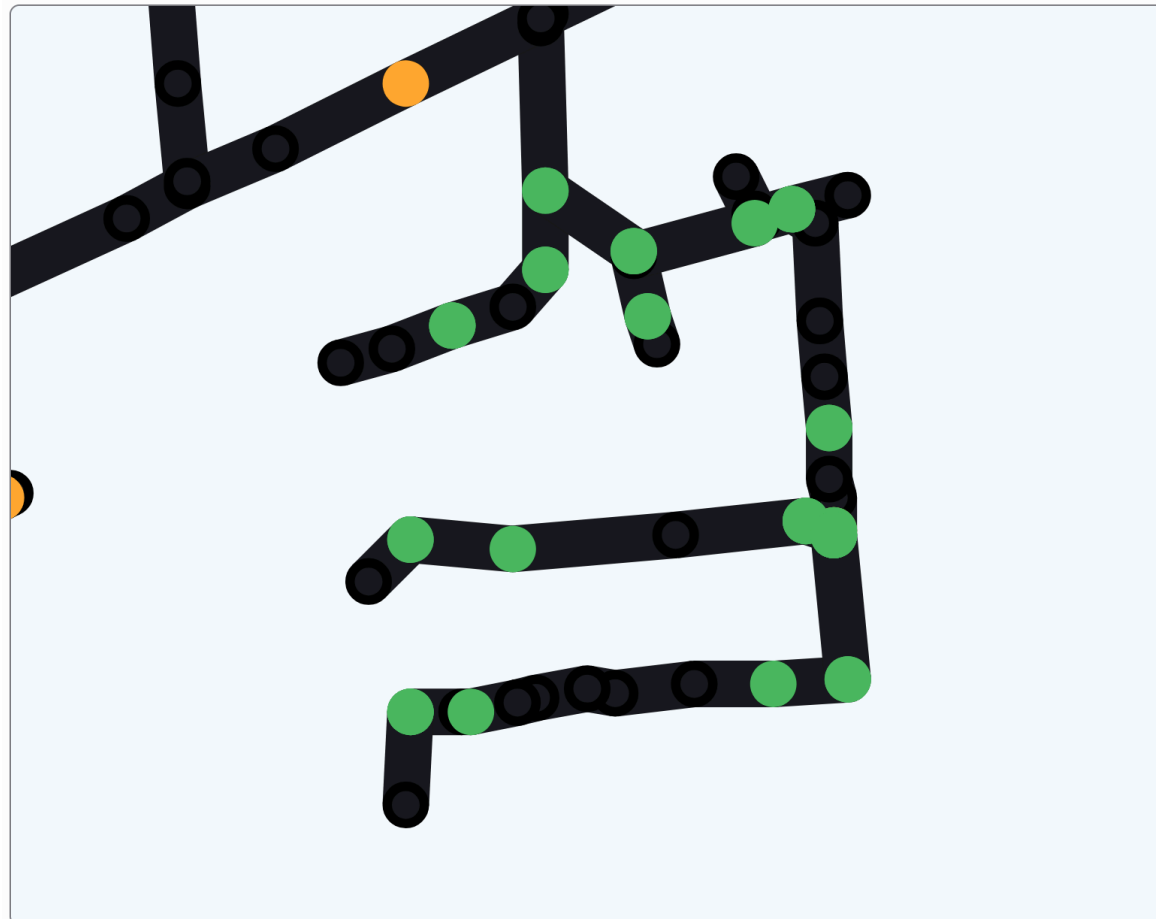
Scope

- Scenario-based DER cyber-attack scenarios
- Role based visualizations for simulating response
- Interactive decision points with action and reasoning capture
- Reinforcement loop to help build intuition

Grid Operations Dashboard

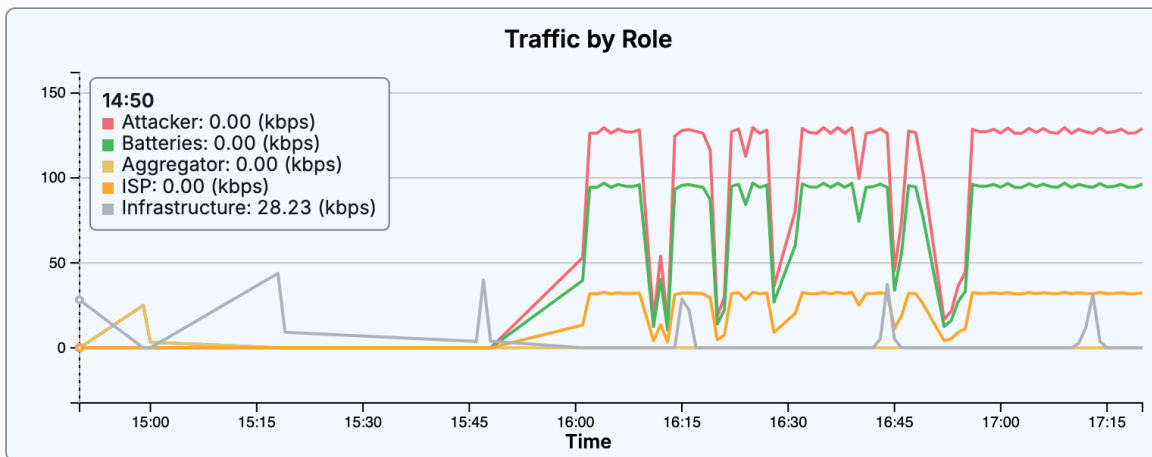
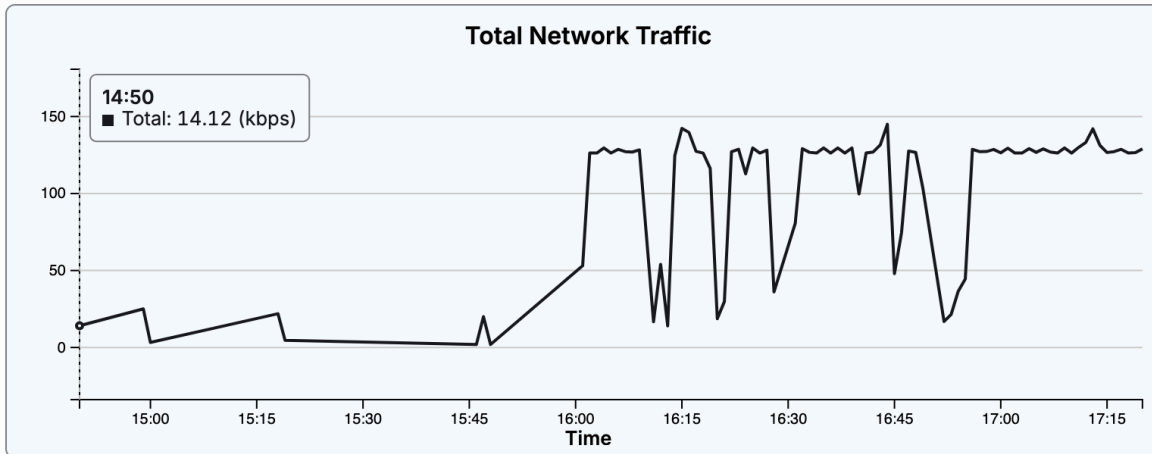
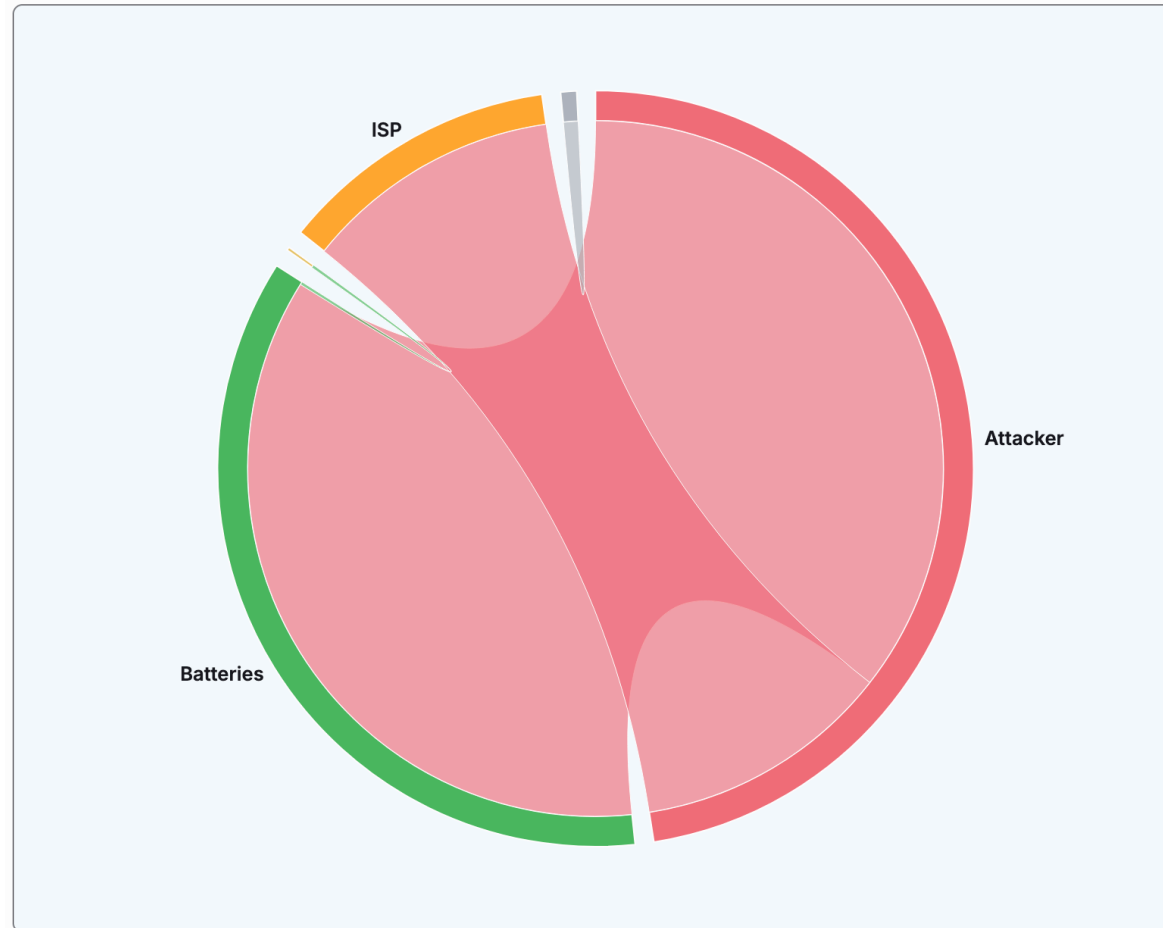


Battery Status Dashboard

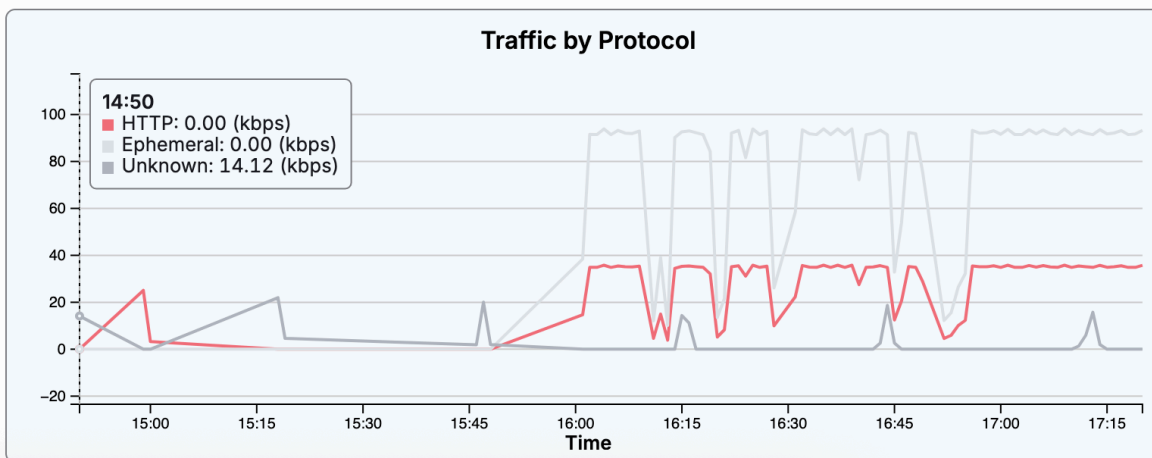


Cyber Security Dashboard

Click a ribbon to filter



No RST data for this scenario



We Want to Hear From You

What are your pain points and how can our project help?

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