U.S. DEPARTMENT OF ENERGY | Office of Cybersecurity, Energy Security, and Emergency Response

Synchrophasor Data Quality

CREDC
CYBER RESILIENT ENERGY DELIVERY CONSORTIUM

Advanced system visualizations for power grid cybersecurity awareness and improvement

The National Institute of Standards and Technology (NIST) has outlined a highly complex architecture of power grid components and security requirements. Making sense of it is both daunting and time consuming. This project develops a web-implemented, flexible, and adaptive 3D visualization tool for learning about and understanding cybersecurity structures and requirements for energy delivery systems (EDS). The tool allows the automatic ingestion of complex data to accommodate updates, as security requirements and concepts evolve over time. It also accelerates data and information assembly to facilitate the synthesis of the complex ideas and relationships necessary to improve cybersecurity.

KEY TAKEAWAYS

- Delivers a tool for complex energy delivery system visualizations
- Enables straightforward identification of cybersecurity requirements and adoption of updates
- Facilitates the training and education of the energy delivery system work force

OUTCOME

The visualization tool developed in the project overcomes the implicit barrier of educating the diverse EDS workforce on the highly complex requirements and standards for power system cybersecurity frameworks. It will accommodate structural conceptual changes to power grid infrastructures for long-term usability.

PARTICIPANTS	ROLE
CREDC CYBER RESILIENT ENERGY DELIVERY CONSORTIUM	The CREDC performs multidisciplinary research and development that focuses on the cybersecurity of energy delivery systems. The central project goal is to create an ecosystem where research results lead directly to the development of applications and methodologies, which are then validated in realistic contexts.
ILLINOIS	Leads research, development, and testing
RESEARCH PARK UNIVERSITY OF ILLINOIS URBANA CHAMPAIGN	Using the technology; security spin-off from the University of Illinois
EPRI ELECTRIC POWER RESEARCH INSTITUTE	Engages utility stakeholders
Pacific Northwest NATIONAL LABORATORY	Conducts validation
ATC AMERICAN TRANSMISSION COMPANY®	Provides early data

CONTACT INFORMATION

Initial Leads:

Carol Hawk
Program Manager

Peter Sauer
Professor, Principal Investigator
University of Illinois
217-333-0394
psauer@illinois.edu

Current Contact as of February 2020:

Akhlesh Kaushiva
Senior Technical Systems and Cybersecurity Advisor
Department of Energy (DOE)
Office of Cybersecurity, Energy Security, and Emergency Response (CESER)
202-287-6062
Akhlesh.Kaushiva@hq.doe.gov

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DOE Share: $22,476,290
Cost Share: $5,622,968

CYBERSECURITY FOR ENERGY DELIVERY SYSTEMS (CEDS)

CEDS projects are funded through DOE CESER, which aims to enhance the reliability and resilience of the nation's energy infrastructure by reducing the risk of energy disruptions due to cyberattacks.

Website: https://www.energy.gov/ceser

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