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A systemic approach to cybersecurity

Today's standard based cybersecurity controls for Supervisory Control & Data Acquisition (SCADA) Systems are very IT centric and do little to protect against the Advanced Persistent Threat (APT) from nation states and nefarious organizations that compromise trusted systems and use the security credentials to their advantage. The National Renewable Energy Lab has developed a systemic security architecture that leverages sound network design principles, context based intrusion detection systems and in-line blocking tools to provide an end-to-end security layer across critical infrastructure networks to address cyber-attacks from APTs. In this talk Dr. Erfan Ibrahim, Center Director for Cyber-Physicals Systems Security & Resilience at NREL will provide an outline of this systemic security architecture and explain how this architecture can be used to securely integrate Distributed Energy Resources (DER) such as solar panels, wind turbines, energy storage, electric vehicles and fuel cells to the grid without forcing the power systems to adhere to sophisticated cyber-security controls. This approach will save the electric sector billions of dollars in avoided costs of unnecessary power systems upgrades for improving the cyber-security posture. Purpose built cyber-security technologies maintain the cyber-security posture while leaving the power systems and DER to focus on job of delivering safe, reliable and affordable electricity to the customers.

Biography

Erfan Ibrahim works with the public and private sector to identify security requirements; evaluate cyber-security standards; test cyber-security controls; and determine residual risk in smart networks in the electric, water, oil and gas sectors. He also serves on the cyber-security and resilience team within the Grid Modernization Lab Consortium for DOE.

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