

Cybersecurity in Distributed Energy Resources: Threat Analysis, Interoperability, and Dynamic Defense of Energy Delivery Systems

Moderator:

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Speakers:

Gordon Lum, CTO Kitu Systems

Tom Tansy, Chairman SunSpec Alliance

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DER systems are increasingly being adopted

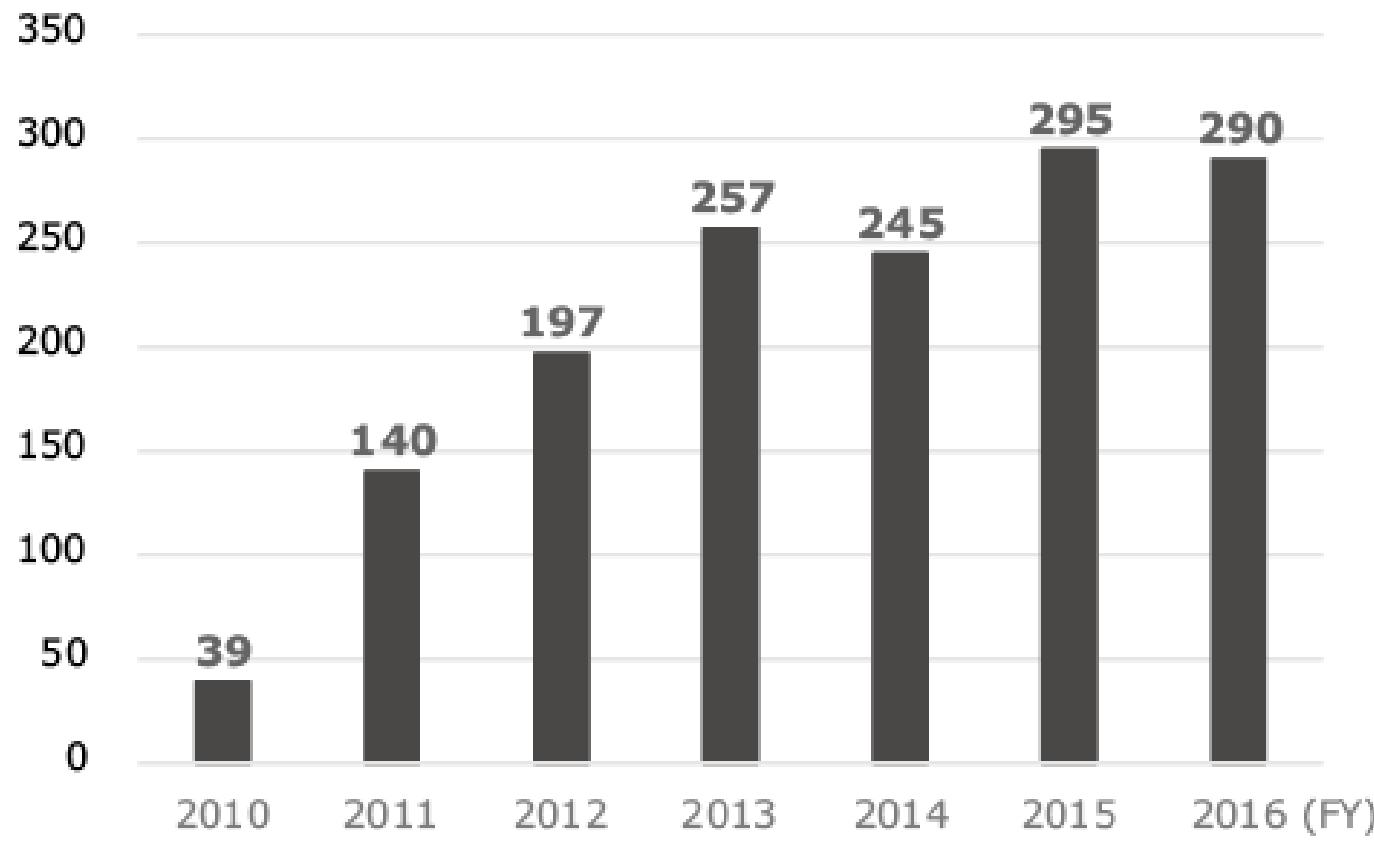
DER technologies are liable to physical and cyber security threats

- Technologically developed countries are more prone to these cyber threats
 - Technology enables audacious attackers to hack and spy on these countries
 - Network, systems, devices are increasingly connected in developed countries

Recent Trends

- Cyber attacks on critical infrastructure – power plants, energy pipelines, water systems, and transportation networks
- Cyber security attacks on DER systems are increasing. Known examples include:
 - Stuxnet – cyber warfare attack against the “air-gapped” network of a nuclear facility in January 2010
 - Ukrainian Blackout – coordinated grid attack in December 2015
 - Large Distributed Denial-of-Service (DDoS) attack using a botnet of IoT devices affected many websites including Amazon, Twitter, and Netflix in October 2016

Growing Cyberattacks Worldwide on Critical Infrastructure



FY : Fiscal Year (Oct./1 – Sep./1)

Graph created based on ICS-CERT Year in Reviews 2012-2016

Reference:

<https://www.nec.com/en/global/techrep/journal/g17/n02/170204.html> (Accessed: 9/22/2020)

Today's Discussion on Cybersecurity and DER Systems



Cyber Threat Analysis (speaker: Gordon Lum)

- Understanding cyber threats to DER systems
- Defining best practices for threat mitigation

Enable secure communication for DER interoperability using PKI (speaker: Tom Tansy)

- PKI is emerging as the de-facto standard for authentication, identification, and digital signatures
- Facilitating DER device and data authentication trust using PKI

Emerging technologies to mitigate DER network attacks (speaker: Adrian Chavez)

- Improving secure communication by creating uncertainties
- Using automation and unpredictable communication paths to increase the difficulty of an attack
- Adapting with automation via machine learning and software-defined networking techniques

Thank You For Your Attention

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