TCIPG

ANNUAL INDUSTRY WORKSHOP
NOVEMBER 12-13, 2014

CYBER SECURITY FOR THE MICROGRID

NOVEMBER, 13, 2014

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FUNDING SUPPORT PROVIDED BY DOE-OE AND DHS S&T

MICROGRIDS

- What they are
  - Decoupling of generators from loads
  - Seamless transition to/from utilities
  - Increased redundancy of generation
- What they aren't
  - Uninterruptable Power Supplies
  - Renewable energy
  - Controls only solutions
  - Out-of-the-box solutions
  - Source of revenue

SPIDERS MICROGRID

- Any power source can be a generator
- Controls are distributed to match generators & loads
- Dynamic electrical topology responds to system events
- Includes renewable energy sources
- Communicates over cyber secure network

S*mart*
P*ower*
I*nfrastructure*
D*emonstration*
for
E*nergy*
R*eliability and*
S*ecurity*

SANDIA REFERENCE ARCHITECTURE

- Isolation
- Segregation through enclaves
- IDS/IPS
- IPv6
- IPSec/SSL

SPIDERS NETWORK

- Firewall & IPS on the perimeter
- Enclaves
- Hardened systems & network
- Encrypted data in transit
- IPv6
- Peer-to-peer authentication
- Whitelisting

WHAT WE LEARNED

- IPv6 improves security
- Don’t use DHCP/ND
- Use RAGuard and SEND
- Use whitelisting
- Use static addresses
- Throttle network traffic at the switch interface

QUESTIONS?

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