

National Strategies on Cyber and Grid Security

- Duane Highley, President/CEO, Arkansas Electric Cooperative Corp.
- Co-chair, Electric Subsector Coordinating Council (ESCC)

Reliable
Affordable
Responsible

Powering Communities and
Empowering Members to
Improve the Quality of Their Lives



ARKANSAS'

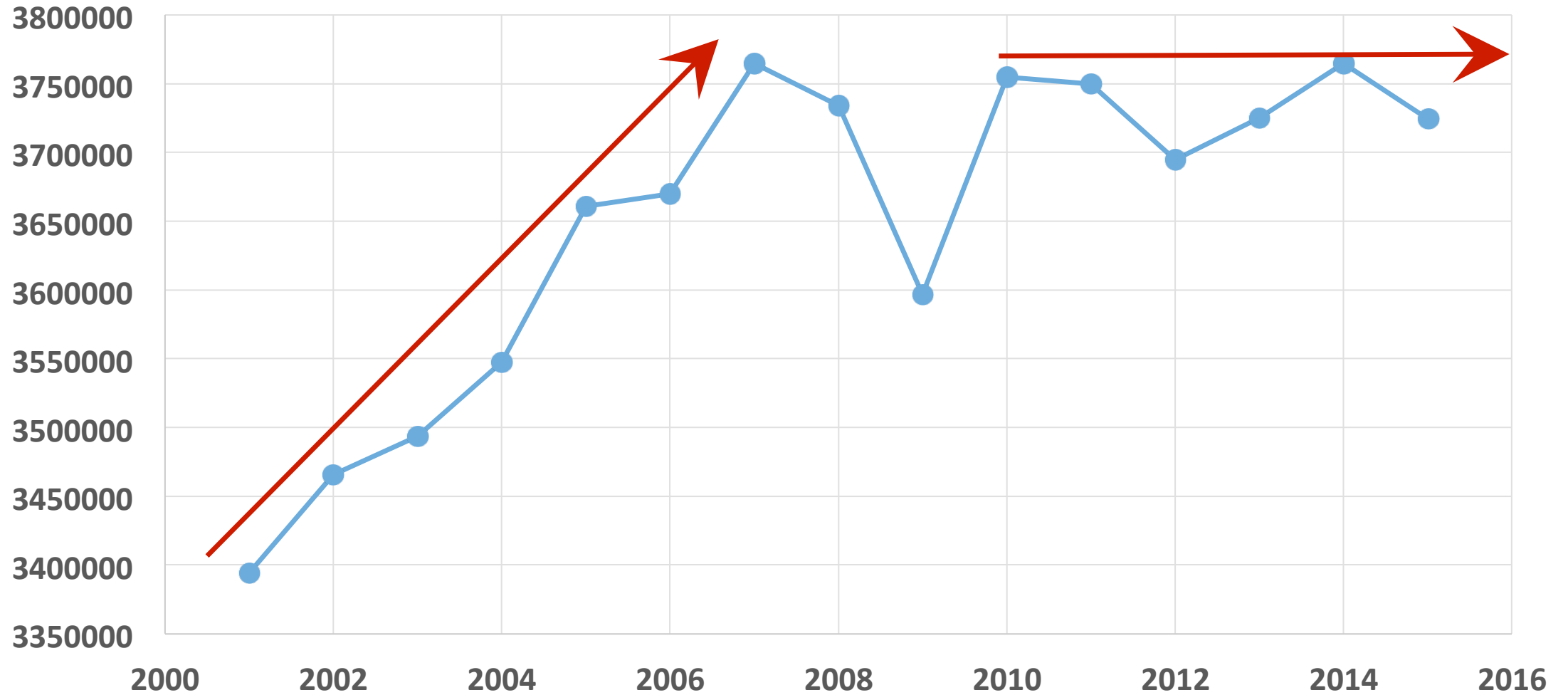
BEST PLACES

TO WORK

2016



retail sales of electricity



bankrupt



markets create incredible efficiency ... at a cost



the *post-coal* era has become the *post-central-station* era



new players





disruptive threats

-or-

disruptive opportunities?

electric vehicles

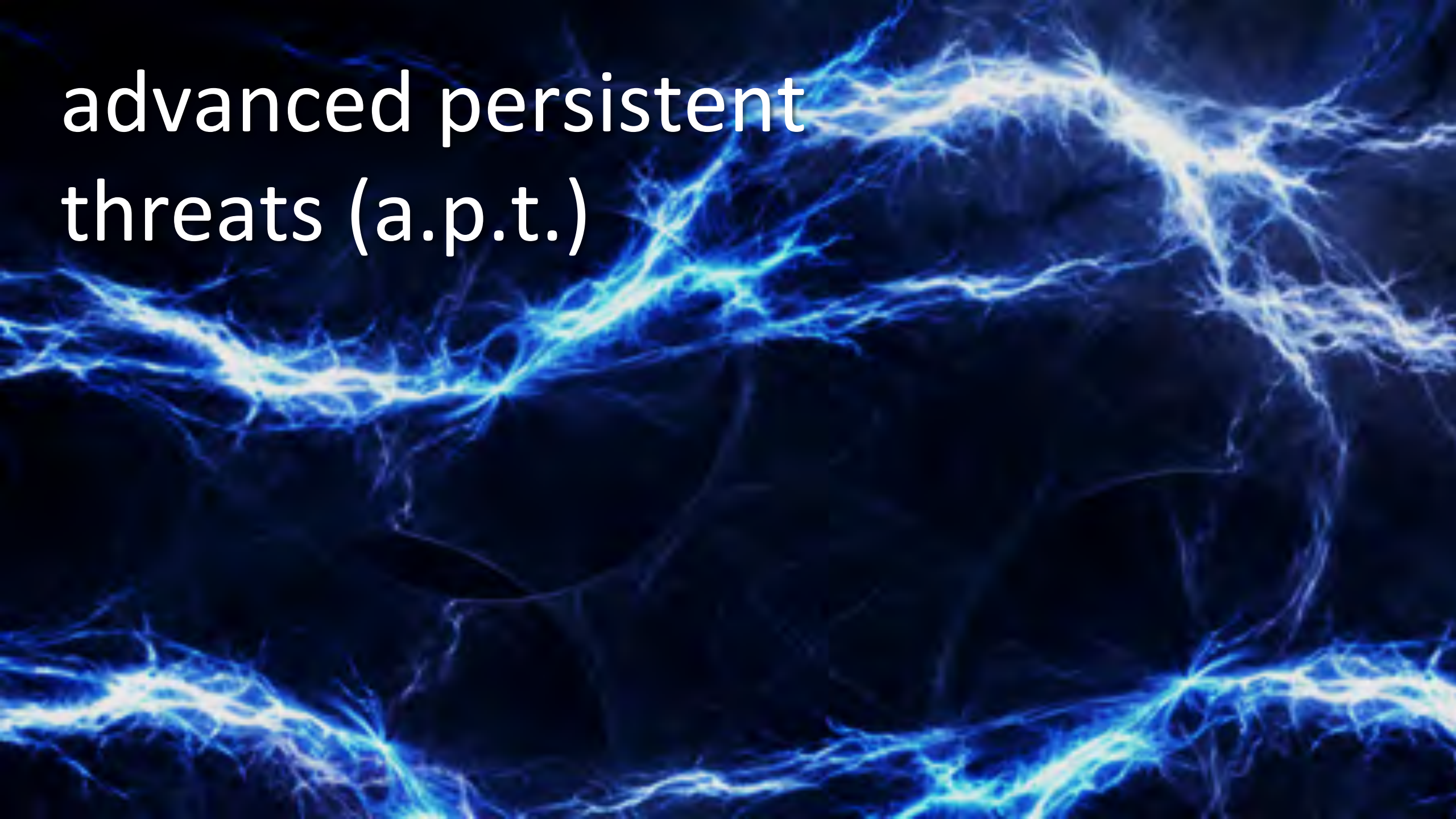
solar generation

energy efficiency

new threats



advanced persistent
threats (a.p.t.)





Koppel: “There is no plan.”



is there a
better plan?



DHS: Sixteen Sectors

CRITICAL INFRASTRUCTURE SECTORS

 Agriculture and Food	 Banking and Finance	 Chemical
 Commercial Facilities	 Communications	 Critical Manufacturing
 Dams	 Defense Industrial Base	 Emergency Services
 Energy	 Government Facilities	 Healthcare and Public Health
 Information Technology	 National Monuments and Icons	 Nuclear Reactors, Materials and Waste
 Postal and Shipping	 Transportation Systems	 Water

Source: http://www.dhs.gov/files/programs/gc_1189168948944.shtm

Mandatory, Enforcable Standards



Federal Energy
Regulatory Commission



NERC

**NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION**

“...we have to work *beyond the standards* to communicate between the government and industry to make sure threat information is shared and responses can adapt rapidly.”



ESCC



Electricity Subsector
Coordinating Council

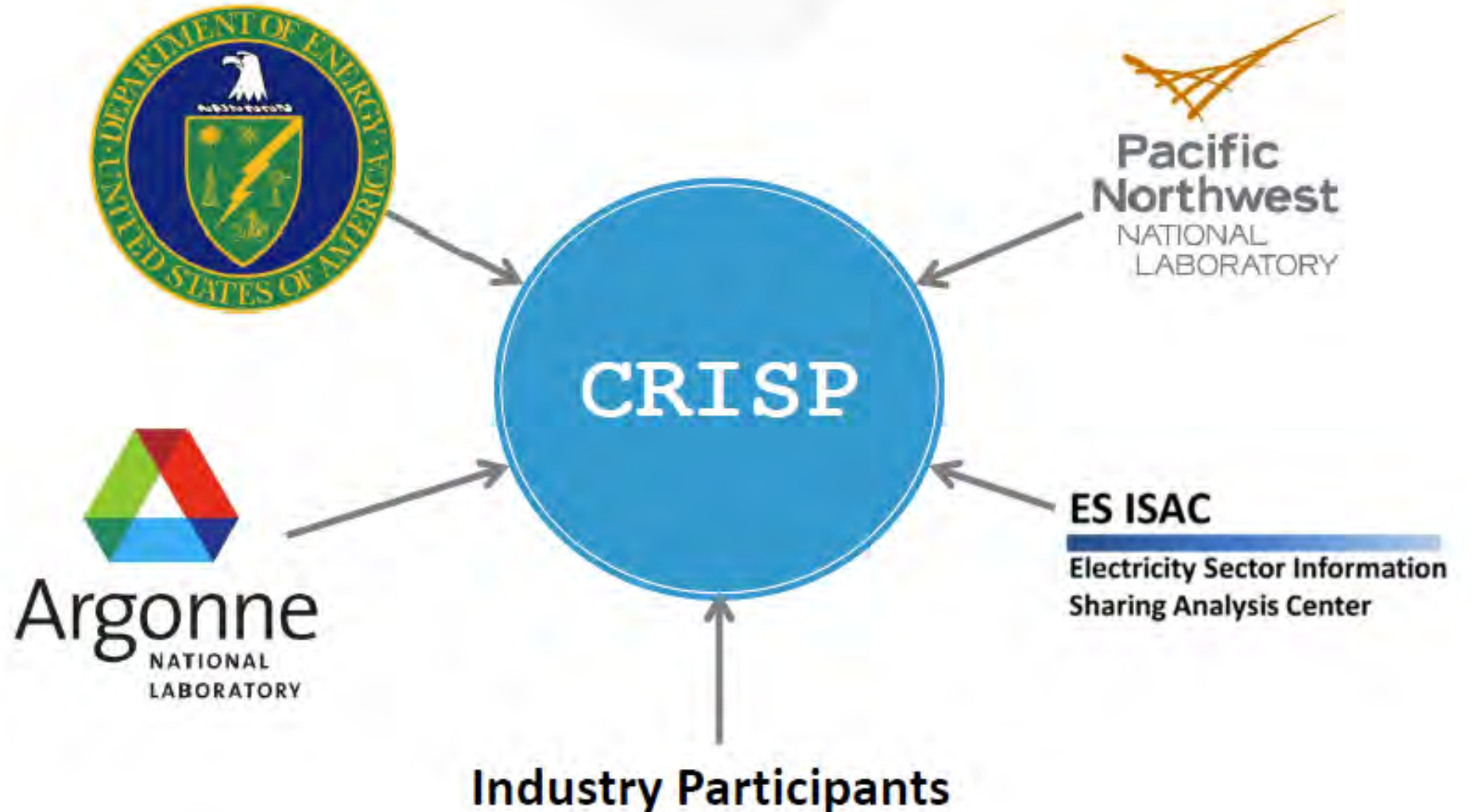
Information Sharing

DOE/DHS/White House/FBI/NSA/DOD



Tools and Technology

- CRISP (Cyber Risk Information Sharing Program)



Electricity - Information Sharing and Analysis Center



NCCIC: National Cybersecurity and Communications Integration Center



Response and Recovery – Cyber Mutual Aid



STEP: Spare Transformer Equipment Program



Spare Connect

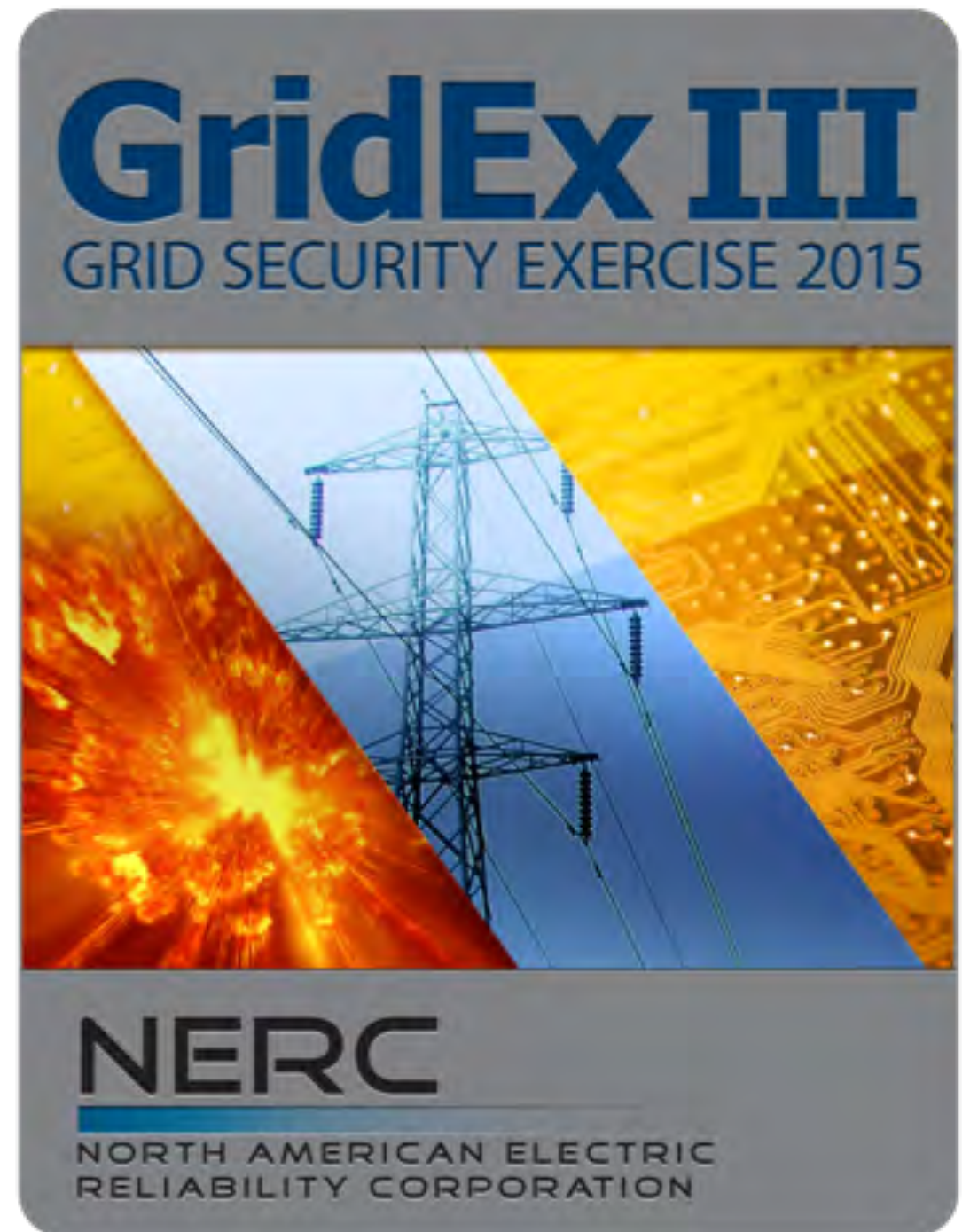


114th Congress F.A.S.T. Act

- **SEC. 61004. STRATEGIC TRANSFORMER RESERVE.**
- (a) FINDING.—Congress finds that the storage of strategically located spare large power transformers and emergency mobile sub-stations will reduce the vulnerability of the United States to multiple risks facing electric grid reliability, including ***physical attack, cyber attack, electromagnetic pulse, geomagnetic disturbances, severe weather, and seismic events.***

Preparedness, Drills

- GridEx III, over 4400 participants
- Next exercise November 15-16, 2017
- “cross-sector” exercise
 - Financial/Communications/Electric
- “Playbook”
- National Cyber Incident Response Plan
 - per PPD-41
 - DHS lead, coordinated with DOD and DOE
 - To be issued October 2016
 - 30-day comment period



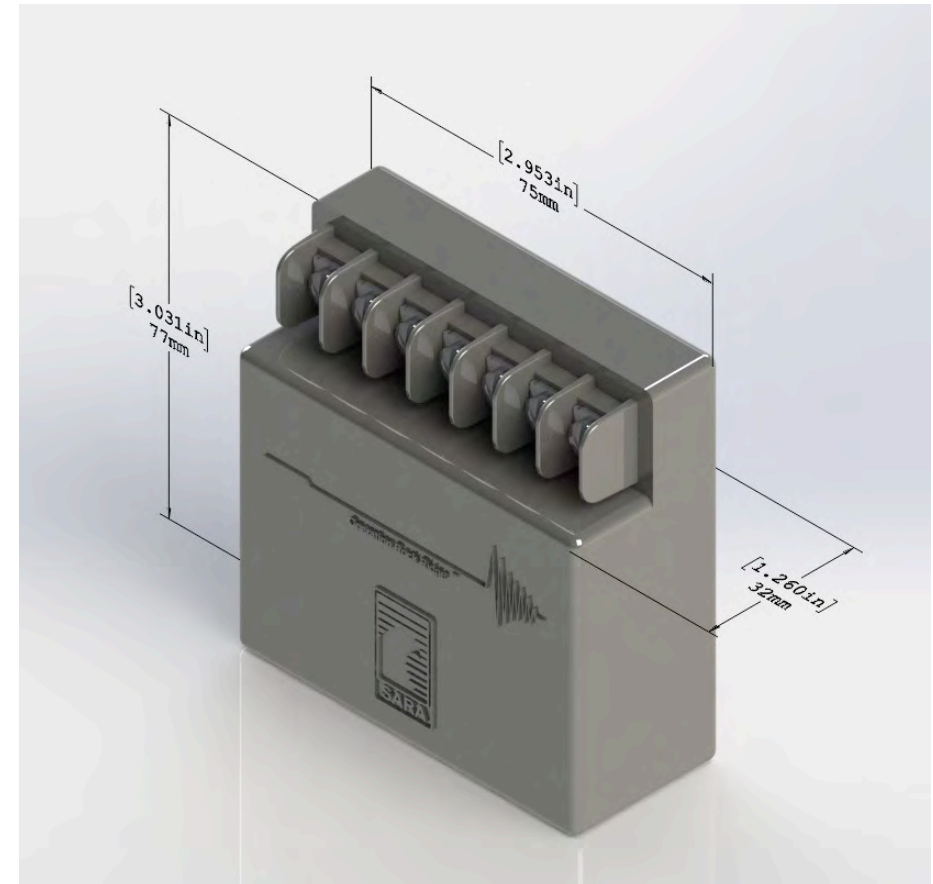
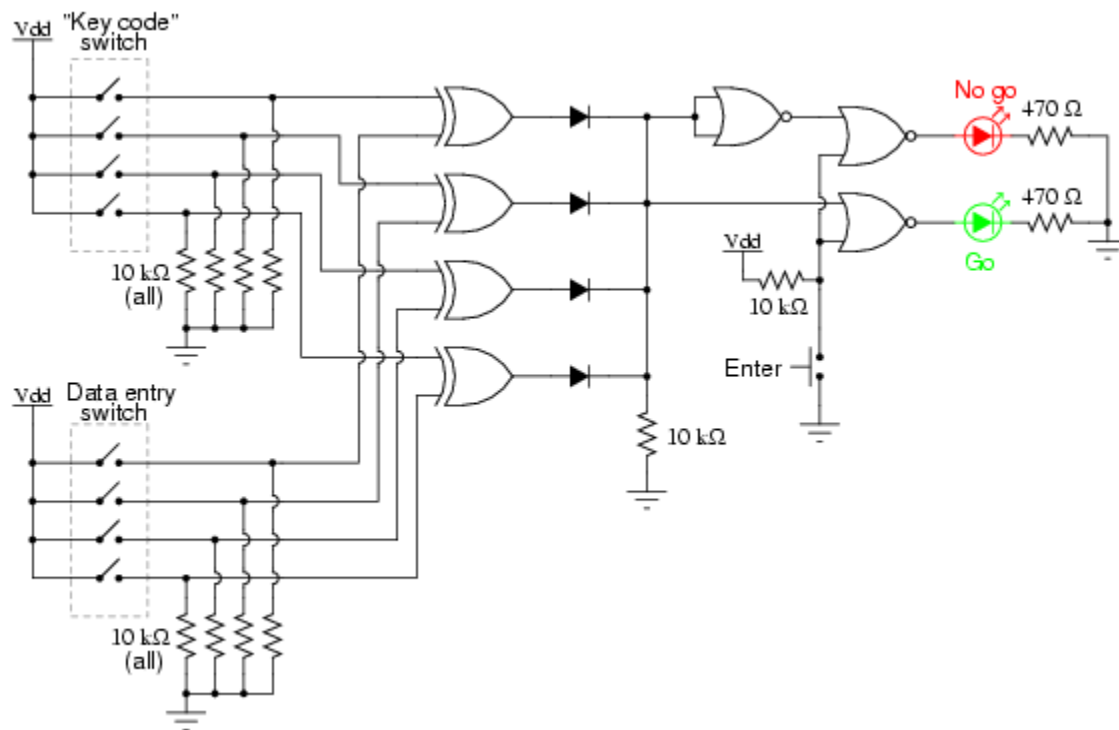
EMP Research – EPRI/DOE





new (old) technology

- rediscovering analog circuits



manual operations



Transition Planning



Ted was wrong.





reliable • affordable • responsible