

# All for One: Supporting Cybersecurity Efforts in Public Power Utilities

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Protect Our Power

# CYBERSECURITY & THE ELECTRIC & PUBLIC POWER SECTORS

*National Governor's Association, Energy Policy Institute*  
*July 2019*



# EXPERIENCES WITH CYBERSECURITY

Former President, NJBPU

Former Chairman, NARUC Critical Infrastructure Committee

Former NARUC Representative, ESCC

Member, USDOE Electric Advisory Committee

Senior Advisor, Protect Our Power



# CYBERSECURITY & RESILIENCE IN ELECTRIC & POWER SECTOR

**The ability to defend against and then respond and  
recover from a threat or difficulty...  
whether natural threats or intentional**



# SUPERSTORM SANDY RESPONSE

NJBPU issued Order with 103 separate measures

- Web based outage maps
- Mutual Aid
- Communications Plans

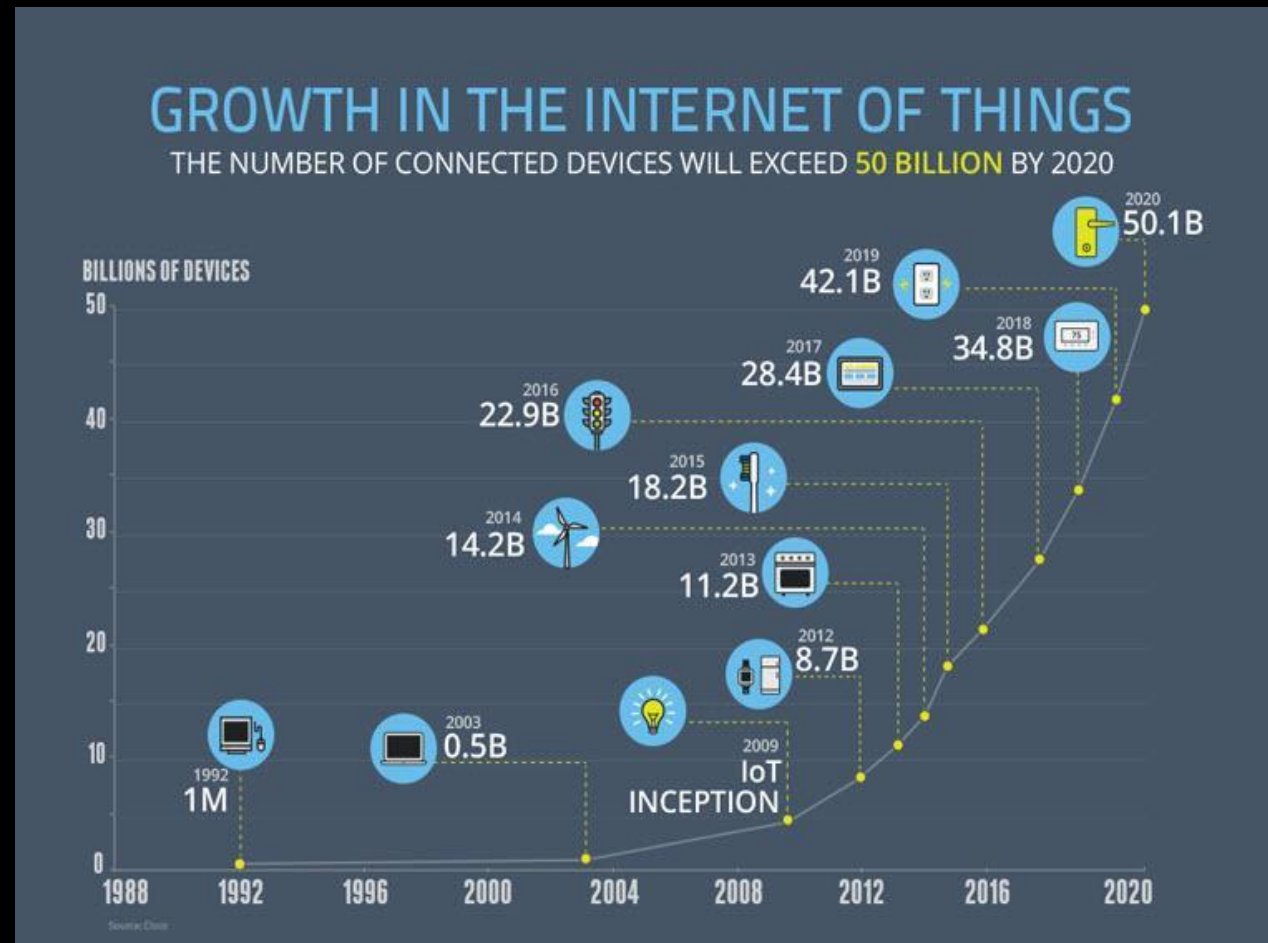
Federal Response

- State Fuel Assurance Plans
- Energy Government Sector Coordinating Council
- Electric Sector Coordinating Council

# CYBERSECURITY IS LIKE NO OTHER THREAT

- No predictions like storms
- Faceless nameless
- Nature of grid and interconnectivity
- Bifurcation of Bulk System vs. Distribution – Federal vs. State jurisdiction
- No common state standard
- Concerns about how the investments fit in ratemaking framework
- No standard for devices
- And the proliferation...

# DISTRIBUTED RESOURCES AND IOT





# CYBERSECURITY IN NEW JERSEY

New Jersey always took “All Hazards” Approach

2009 - NJBPU Initiative with EDCs & GDCs and State & Federal Partners

2011 – First public utility commission to issue Cybersecurity Order

2016 – Order Directing All Elec Gas & Water Cos to Establish a Plan

- NERC CIP Standard
- Protective Measures
- Planning and Exercises
- Workforce
- Join State Fusion Center
- Certified in C- Suite & need Board of Directors Governance

[https://nj.gov/bpu/pdf/boardorders/2016/20160318/3-18-16-6A.pdf?inf\\_contact\\_key=ad617a8a83a53c8af15682f492f33f91f17e6f7a98a7beced0d19ec1422a6256](https://nj.gov/bpu/pdf/boardorders/2016/20160318/3-18-16-6A.pdf?inf_contact_key=ad617a8a83a53c8af15682f492f33f91f17e6f7a98a7beced0d19ec1422a6256)



# CYBERSECURITY EFFORTS NATIONALLY

- Electric Sector Coordinating Council & Tri Sector Group
- NERC and DOE National Exercises - GridEx
- USDOE – Office of Electric Reliability and CESER
- FERC alone and with USDOE
- State Actions or Regional Initiatives
- NARUC – Resource Repository
- NGA – Continuing Cybersecurity Initiative
- NGOs - Protect Our Power

[www.protectourpower.org](http://www.protectourpower.org)

# MISSION

- Build consensus among government and industry to strengthen our electric grid against all potential attacks
- Independent, not-for-profit organization – 501 (c)(3) and (c)(4) status
- Robust, highly-experienced Board of Directors, Staff and Advisory Panel from across government, industry and private sectors

# Goals

- Define and prioritize Best Practices that must be implemented in short- and long-term to make the electric grid more robust and resilient
- Identify the measures to ensure that urgent improvements and upgrades be implemented
- Develop innovative proposals to fund improvements, including methods that incentivize utilities to accelerate making grid more resistant to attacks



**PROTECT  
OUR  
POWER**

# PROTECT OUR POWER CYBERSECURITY INITIATIVES

- Best Practices in OT / IT
  - 97 Separate Functionalities
  - “Peer Review” by University Partners

<http://www.EnergyCollection.us/POP-BP-Overview.pdf>
- Supply Chain Issues – Ridge Global
  - Smart Inverters – 2018
  - Survey of Supply Chain Efforts with Industry & Regulators

<https://protectourpower.org/wp-content/uploads/2018/11/Ridge-Global-and-Potential-Electric-Grid-Vulnerability.pdf>

# PROTECT OUR POWER CYBERSECURITY INITIATIVES

- Vermont Law School Research
  - Need for Continued Investment
  - Costs Not Always Clear
  - Cost Recovery and Legal Constraints
  - Inconsistent Oversight by State Regulators
  - Municipal and Rural Systems Challenged for Capital & Human Resources

<https://www.protectourpower.org/resources/vls-ieee-pop.pdf>
- Funding and Investments
  - Vermont Law School Phase 2 – Fall 2019
    - Best Practices in Regulatory Decisions
    - Recommendations or Proposed Legislation
  - Federal Funding Infrastructure and Cybersecurity Legislation
  - Policy Discussions Potential Entity to Capitalize Investments

The background of the slide is a solid black field. At the top, there is a decorative horizontal band with a wavy, fluid appearance. This band features a color gradient: on the left, it transitions from yellow to orange to red; on the right, it transitions from green to cyan to blue. The colors blend into each other, creating a sense of motion and energy.

THANK YOU

**AMERICAN**  
**PUBLIC**  
**POWER**<sup>TM</sup>  
**ASSOCIATION**

Powering Strong Communities

# 2019 Energy Policy Institute: Navigating A Changing Energy Landscape

July 18-19, 2019

## ***All for One: Supporting Cybersecurity Efforts in Public Power Utilities***

“American Public Power Association’s Cybersecurity Services Program”

Michael Hyland, P.E.

SVP – Engineering Services



# APPA Members

- 1450+ public power utilities
- Retail service in 49 states
- Very large to very small systems
- *Median* size: 1,977 meters
- 14.4% of sales to electric consumers

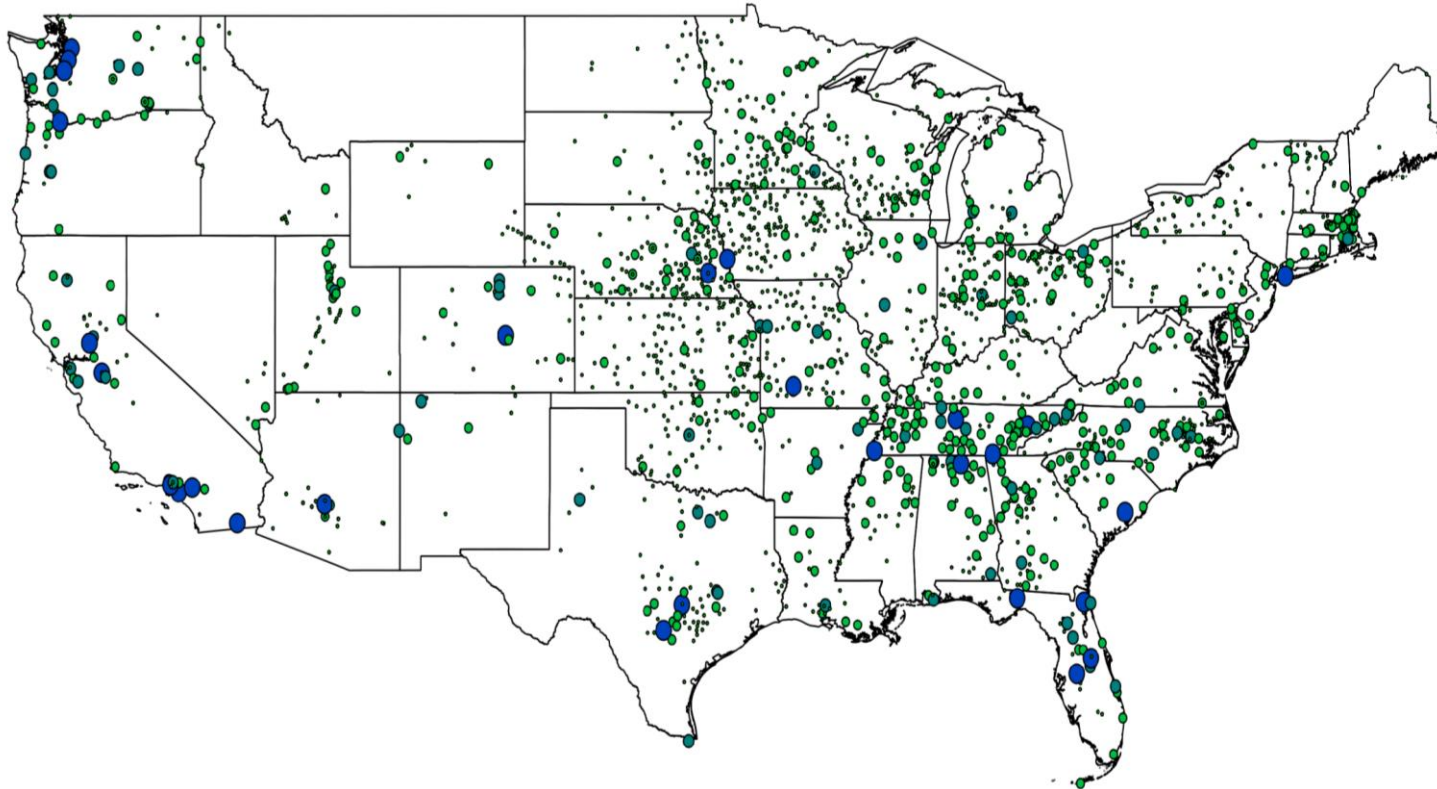


**1 IN 7**

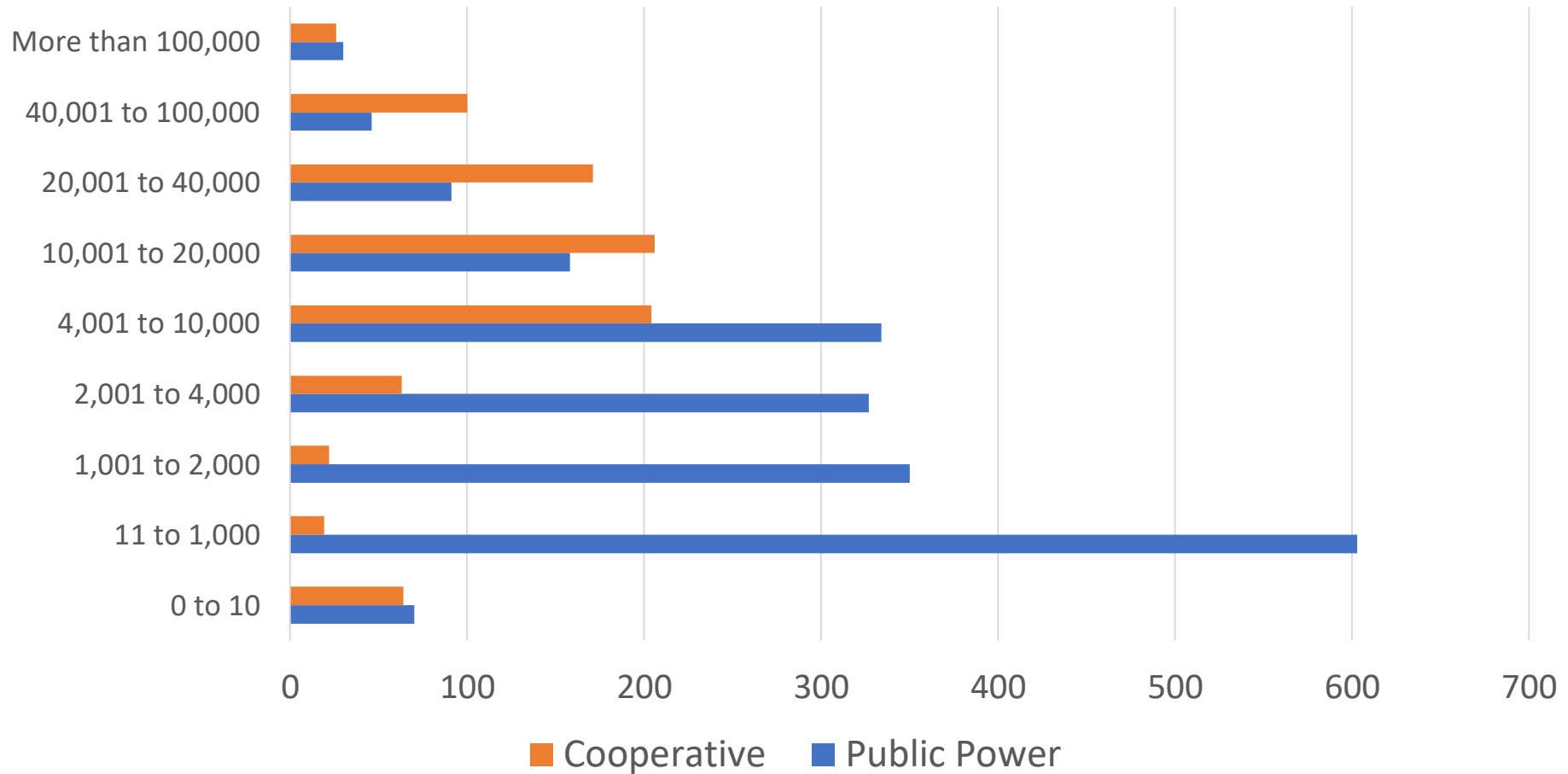
electricity customers in the U.S.  
are served by public power

# Who's APPA?

## Public Power By Location



## Public Power and Cooperative Utilities by Customer Class



# Seven External Initiatives

- Communicate the value of public power
- Address technological change  
Public Power Forward
- Address adverse impacts of federal regulation
- Improve physical preparedness/reliability, cyber & physical security,
- Focus on research and development
- Help meet utility workforce challenges
- Promoting association excellence



# Cyber & Physical Preparedness

- Help members develop “all-hazards” approach to disaster preparation and response
- Show federal policymakers public power’s commitment to security and mutual aid
- Strengthen government/industry partnerships
- Minimize new federal regulation

# DOE Cooperative Agreement Overview

**Goal:**

Develop a culture of cyber security within public power utilities.

**Objective:**

Engage with public power distribution utilities to understand their cyber security awareness, capabilities and risks. Move each utility from its existing state to a public power target profile.

**Tasks:**

1. Cybersecurity risk assessments (Cybersecurity Scorecard)
2. Onsite cyber vulnerability assessments
3. Pilot existing and emerging security technologies
4. Information sharing between utilities and APPA, E-ISAC, MS-ISAC, other partners

**Acknowledgment:** *These activities are based upon work supported by the Department of Energy under Award Number DE-OE0000811.*

# DOE Cooperative Agreement Overview

- In 2016 APPA partnered with the Department of Energy
- 3-year, \$7.5M Cooperative Agreement;

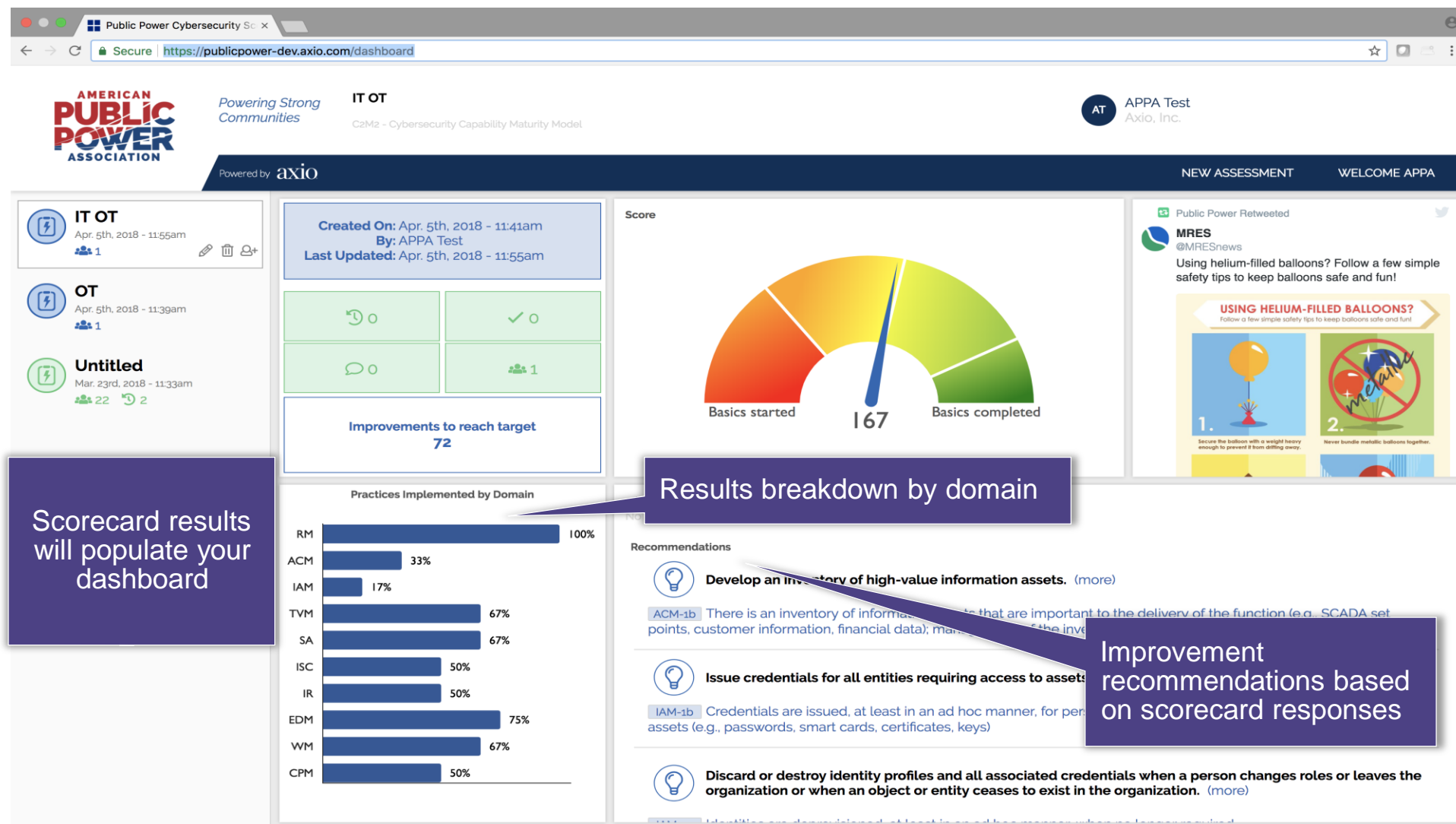


- 2016-17 – Analysis and Data Collection
- 2017-18 – Deployment and Resource Development
- 2018-19 – Sustainability

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#PublicPower [www.PublicPower.org](http://www.PublicPower.org)





# Scorecard Activity

- 256 public power utilities participating
  - (2019 Goal is to reach 400 utilities)
- 478 foundational cybersecurity self assessments and 430 users
  - (14 Questions – 45 minutes)
- All public power utilities have free access to the Scorecard portal
- Utilities who have taken the assessment have reported that the Scorecard is helping to **“take the guesswork out of what they should be striving to achieve”**

# Cybersecurity Roadmap

## Cybersecurity Roadmap

- Using the Scorecard output, provide public power utilities with clear actions to improve their cybersecurity program
- Provide information that creates a compelling business case for security investments.



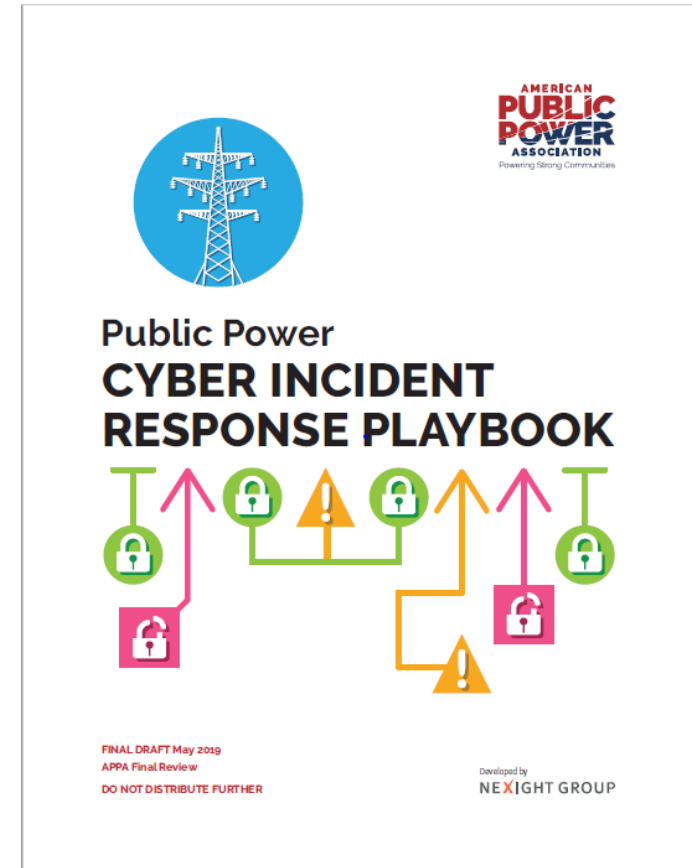
## Public Power Cybersecurity Roadmap



# Incident Response Playbook

## Cyber Incident Response Playbook

- Modeled after mutual aid response network
- Cyber Mutual Assistance (CMA) being developed nationally
- Utilities sharing cyber resources and expertise in a crisis
- Exercising the playbook to be prepared



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# Cybersecurity Training

- Signing up JAAs to be host sites for training
  - [Cybersecurity@publicpower.org](mailto:Cybersecurity@publicpower.org)
- Deliver low cost **cybersecurity training and exercises** that align with the Scorecard
- Conduct Regional facilitated
  - Orlando July 10-11
  - Kearney Nebraska July 24-25
  - California Late August
- Hosting a year end public power **cybersecurity summit (November 18-20, 2019 Nashville TN)**

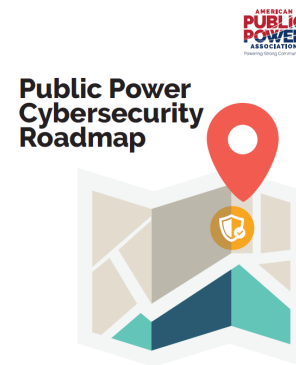
# Secure Information Sharing

- Sign up for the E-ISAC at [www.eisac.com](http://www.eisac.com)
- Sign up for the MS-ISAC at [www.cisecurity.org](http://www.cisecurity.org)
- We continue to recommend the E-ISAC as the trusted source of public power utility's ICS threat information.
- Developing a program for **Shared Cybersecurity Services**
  - Joint Action Agency model as a framework to possibly provide a shared cyber analyst
  - Mature organizations mentoring others
  - Concise threat feed in our Secure Trusted Community (STC) network

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# Additional Cybersecurity Resources

- **Cybersecurity Scorecard**
  - 256 public power utilities
- **Cybersecurity Roadmap**
  - Helps you develop an action plan
- **Incident Response Playbook**
  - Cyber Mutual Aid
  - Shared cyber resources
- **Cybersecurity Training**
  - We bring training to you
- **Secure Information Sharing**
  - Weekly Situation Report (new)

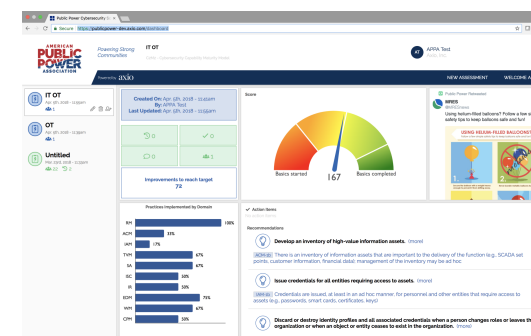
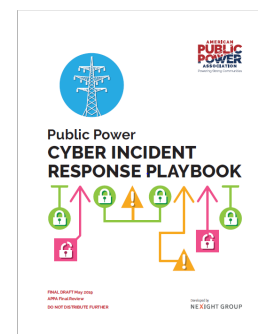


## Weekly Situation Report July 3, 2019



### Summary

Section	Items	Source
Urgent Alerts/Vulnerabilities	<a href="#">Multiple ICS-CERT Vulnerabilities</a>	<a href="#">CISA-19-178-01</a> <a href="#">CISA-19-178-02</a> <a href="#">CISA-19-178-03</a> <a href="#">CISA-19-178-04</a> <a href="#">CISA-19-178-05</a>
Current Activity	<a href="#">Microsoft Outbreak Security Feature Bypass Vulnerability</a>	<a href="#">CVE-2017-11774</a>
Strategic Awareness	<a href="#">Rising cyber conflict between the U.S., Iran and Russia</a> <a href="#">Multiple U.S. Cities hit by ransomware</a>	<a href="#">Bleeping Computer</a>
Request for Information	-	





Resources page:

[www.publicpower.org/gridsecurity](http://www.publicpower.org/gridsecurity)

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