

AMERICAN
PUBLIC
POWERTM
ASSOCIATION

Powering Strong Communities

American Public Power Association's Cybersecurity Services Program

MPUA Annual Meeting 2018

Tan-Tar-A Resort

October 4, 2018

APPA Members

- 1400+ 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



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

DHS open source alerts: HIDDEN COBRA - North Korean Malicious Cyber Activity

- **August 9, 2018: North Korean Trojan: KEYMARBLE**
- **June 14, 2018: North Korean Trojan: TYPEFRAME**
- **May 29, 2018: HIDDEN COBRA – Joanap Backdoor Trojan and Brambul Server Message Block Worm**
- **May 29, 2018: HIDDEN COBRA RAT/Worm**
- **March 28, 2018: North Korean Trojan: SHARPKNOT**
- **February 13, 2018: North Korean Trojan: HARDRAIN**
- **February 13, 2018: North Korean Trojan: BADCALL**
- **December 21, 2017: North Korean Trojan: BANKSHOT**
- **November 14, 2017: North Korean Remote Admin Tool: FALLCHILL**
- **November 14, 2017: North Korean Trojan: Volgmer**
- **August 23, 2017: Analysis of Delta Charlie Attack Malware**
- **June 13, 2017: HIDDEN COBRA – North Korea’s DDoS Botnet Infrastructure**
- **May 12, 2017: WannaCry Ransomware (300,000 computers affected)**

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

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

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.

Year 1 Tasks:

1. Cyber security risk assessments
2. Onsite cyber vulnerability assessments
3. Pilot existing and emerging security technologies
4. Improve how we communicate cyber threats

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Cybersecurity Risk Assessments

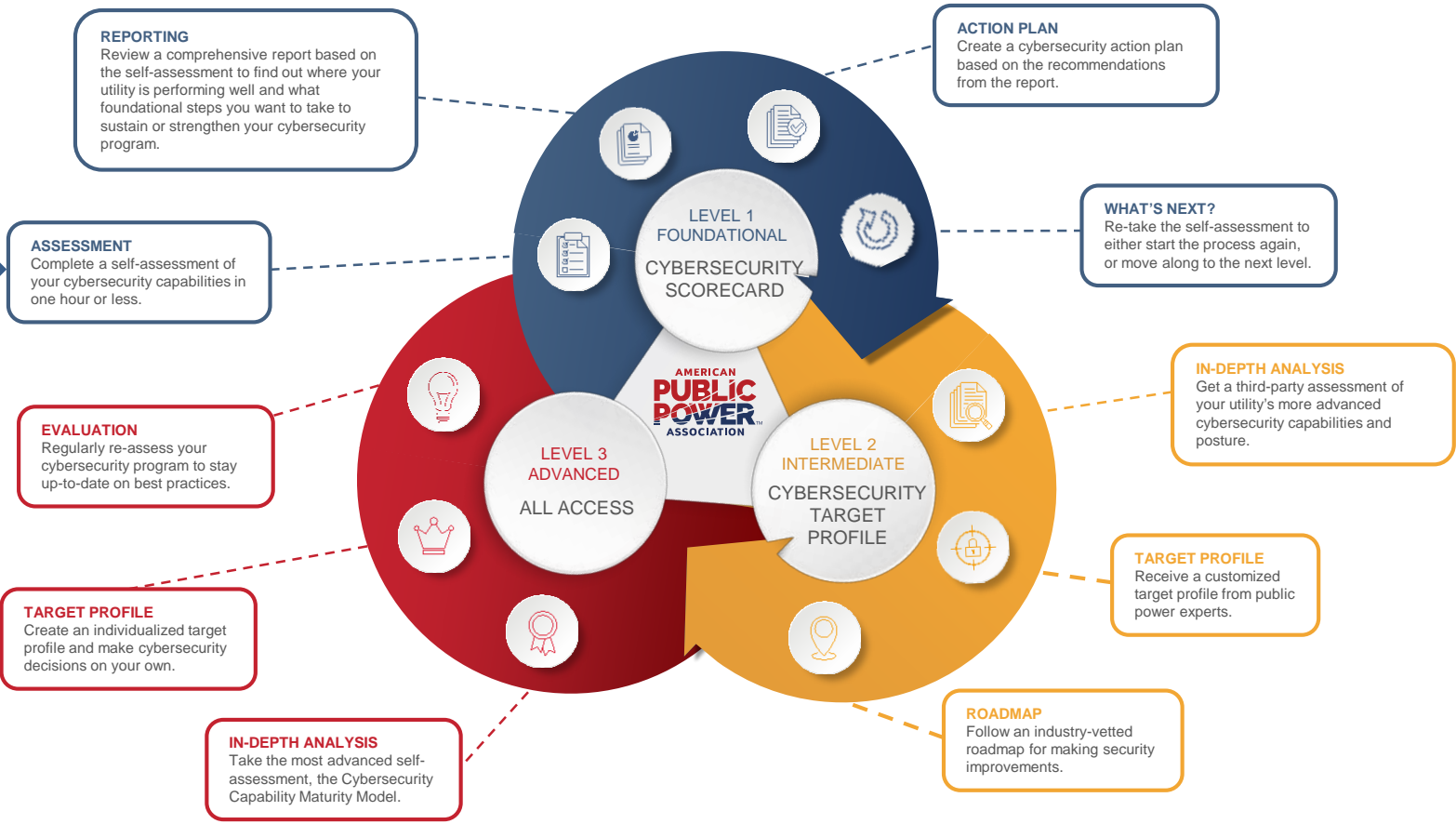
Cybersecurity Scorecard

- Use existing cybersecurity models to inform a product that is useable by all public power utilities
- Developed a self-assessment tool called the public power **Cybersecurity Scorecard**,
- Usable by small to mid-sized public power utilities to start evaluating their cybersecurity program.
- Also scalable so all public power utilities will find it useful.

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The Public Power Cybersecurity Scorecard



Foundational Cybersecurity Practices

1. Cyber Asset Inventory
2. Configuration Baseline
3. Access Control
4. Vulnerability Management
5. Threat Management
6. Cyber Risk Management
7. Cyber Event Detection
8. Cyber Incident Response
9. Operational Resiliency
10. Monitoring Cyber System Activity
11. Cyber Threat and Event Information Sharing
12. Supply Chain Risk
13. Workforce Management and Cybersecurity Training
14. Cybersecurity Program Management

Public Power Cybersecurity Sc... x
 Secure https://publicpower-dev.axio.com/dashboard

AMERICAN PUBLIC POWER ASSOCIATION
 Powering Strong Communities

IT OT
 C2M2 - Cybersecurity Capability Maturity Model

AT APPA Test
 Axio, Inc.

Powered by **axio** NEW ASSESSMENT WELCOME APPA

IT OT
 Apr. 5th, 2018 - 11:55am
 1

OT
 Apr. 5th, 2018 - 11:39am
 1

Untitled
 Mar. 23rd, 2018 - 11:33am
 22 2

Created On: Apr. 5th, 2018 - 11:41am
 By: APPA Test
 Last Updated: Apr. 5th, 2018 - 11:55am

0 0

0 1

Improvements to reach target
72

Score

Basics started 167 Basics completed

Public Power Retweeted
MRES
 @MRESnews
 Using helium-filled balloons? Follow a few simple safety tips to keep balloons safe and fun!

USING HELIUM-FILLED BALLOONS?
 Follow a few simple safety tips to keep balloons safe and fun!

1. Secure the balloon with a weight heavy enough to prevent it from drifting away.
2. Never bundle metallic balloons together.

Scorecard results will populate your dashboard

Practices Implemented by Domain

RM	100%
ACM	33%
IAM	17%
TVM	67%
SA	67%
ISC	50%
IR	50%
EDM	75%
WM	67%
CPM	50%

Results breakdown by domain

Recommendations

- Develop an inventory of high-value information assets. (more)
- ACM-1b There is an inventory of information assets that are important to the delivery of the function (e.g. SCADA set points, customer information, financial data); management of the inventory is performed.
- Issue credentials for all entities requiring access to assets.
- IAM-1b Credentials are issued, at least in an ad hoc manner, for personnel accessing critical information assets (e.g., passwords, smart cards, certificates, keys)
- Discard or destroy identity profiles and all associated credentials when a person changes roles or leaves the organization or when an object or entity ceases to exist in the organization. (more)

Improvement recommendations based on scorecard responses

Public Power Scorecard Activity

- 116 public power utilities participating
 - (2019 Goal is to reach 700 utilities)
- 158 foundational cybersecurity self assessments
 - (14 Questions – 45 minutes)
- 39 completed a full self assessment
 - (312 Questions – 2-3 days)

- 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 Resources

- Developing a **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.
- Developing a **Cyber Asset Tracking** system to provide public power utilities with an online tool for:
 - Cyber Asset Inventory
 - Configuration Baseline
 - Vulnerability and Threat Management
 - Cyber Event Logging
 - Supply Chain tracking

Cybersecurity Resources

- Developing a program for **Shared Cybersecurity Services**
 - Joint Action Agency model as a framework
 - More mature organizations mentoring others
 - Joint training sessions
 - Investigating a shared cyber analyst
- Developing a **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 Resources

You can find published material on our website at:

www.publicpower.org/gridsecurity

- Cybersecurity Information Engagement Plan,
- Cybersecurity Information Sharing Report,
- Cybersecurity Essentials: A Public Power Primer,
- Managed Cybersecurity Service Providers Guide,
- Physical Security Essentials.
- Cybersecurity Awareness Videos

Cybersecurity Training

- Signing up JAAs to be host sites for training
 - Cybersecurity@publicpower.org
- Deliver low cost **cybersecurity training and exercises** that align with the Scorecard
- Conduct Regional facilitated workshops (**JAA/State Association sites**)
- Hosting a year end public power **cybersecurity summit (November 13-14, 2018 Austin, TX)**

Cybersecurity Technology Assistance Program

- After completing the [Scorecard](#), utilities may be ready to reduce risk by investing in cybersecurity technologies from managed security service providers or other vendors.
- The Association's new [Cybersecurity Technology Assistance Program](#) (CTAP) can support that investment first by connecting public power utilities to [cybersecurity technology solution providers](#).
- Next, the Association can contribute partial funding through our cooperative agreement with the Department of Energy to qualified utilities.
- Interested utilities should contact us at: cybersecurity@publicpower.org

Future Sustainability Model

- APPA will continue to provide the platform to conduct cybersecurity self assessments
- APPA will encourage members to mature their cybersecurity program over time to fill the gaps identified in the self assessments
- Partner with Joint Action Agencies, Regional Agencies and State Associations across the country to provide services and resources to help utilities sustain their cybersecurity program

Resources page:

www.publicpower.org/gridsecurity

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