AMERICAN PUBLIC POWER ASSOCIATION

DEPARTMENT OF ENERGY · UNITED STATES OF AMERICA

# Public Power Cybersecurity Roadmap

*Midwest Regional Municipal Cybersecurity Summit*

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BEAM REACH
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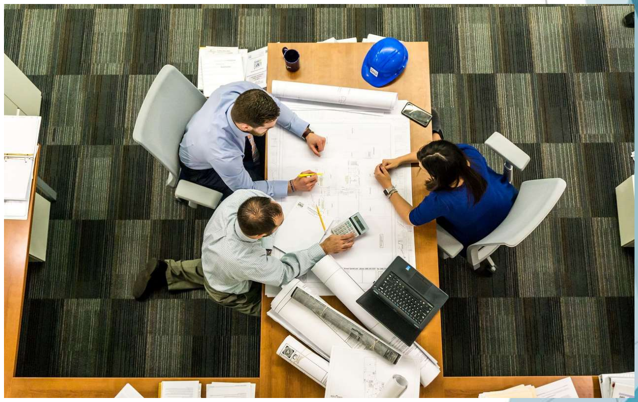
# Beam Reach Consulting Group

- Strategic planning, project management support for energy infrastructure and resilience programs
- Staff have supported over 75 advanced electric grid projects across the US
- Program management for energy infrastructure programs > $7.9 billion
- APPA Associate Member, WOSB



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Make the most of your resources.

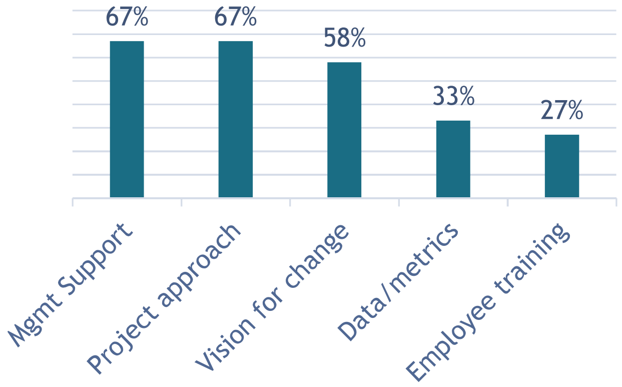
# Overview

- About the Cybersecurity Roadmap Advisory Council
- Initial findings from the CRAC team
- Introduction to the Public Power Cybersecurity Roadmap
- Next Steps

# Public Power Cybersecurity Roadmap Advisory Council

**Designed approach to cybersecurity maturity implementation**

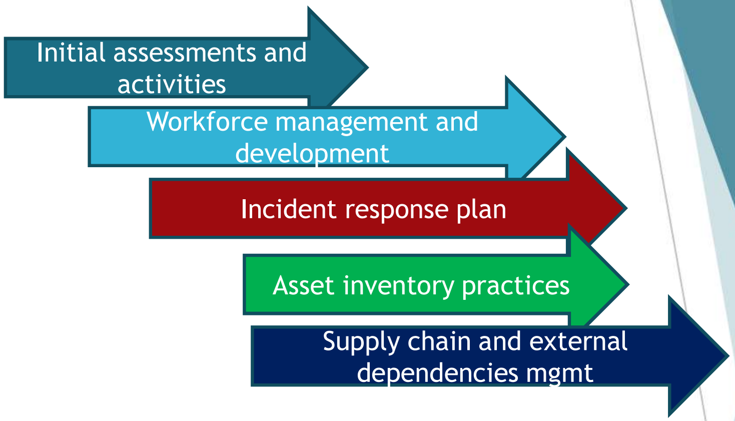
- Establish management buy-in
  - Security program
  - Budget and resources
- Assess the need and set the vision



- Prioritize and treat cybersecurity maturity like a project
- Develop successful employee training
- Establish data/metrics for security program

# Public Power Cybersecurity Roadmap

- Clear actions and outputs for small- to med-public power utilities
- Focused on priority pathways



Initial assessments and activities

Workforce management and development

Incident response plan

Asset inventory practices

Supply chain and external dependencies mgmt

Cyber Security Skil

Explore this interactive training road
courses deliver critical skills in the c

1. BASELINE SKILLS

Core Techniques
*Prevent, Defend, Maintain*
2 COURS

Security Management
*Managing Technical Security Operations*
2 COURS

Introduction to Cyber Security SEC

| Function | Category | ID |
|---|---|---|
| Identify | Asset Management | ID.AM |
| | Business Environment | ID.BE |
| | Governance | ID.GV |
| | Risk Assessment | ID.RA |
| | Risk Management Strategy | ID.RM |
| | Supply Chain Risk Management | ID.SC |
| Protect | Identity Management Access Control | |
| | Awareness and Traini | |
| | Data Security | |
| | Information Protectio Processes & Procedu | |
| | Maintenance | |
| | Protective Technology | |
| Detect | Anomalies and Events | |
| | Security Continuous Monitoring | |
| | Detection Processes | |
| Respond | Response Planning | |
| | Communications | |
| | Analysis | |
| | Mitigation | |
| | Improvements | |
| Recover | Recovery Planning | RC.RP |
| | Improvements | RC.IM |
| | Communications | RC.CO |

SANS
TIER 1
Have you communicated the importance of cybersecurity to your business?
Has your business begun to follow basic cybersecurity best practices?
TIER 2
TIER 3

- Driven by Cybersecurity Roadmap Advisory Council
- Informed by industry

Public Power Cybersecurity Roadmap
bridges the gap between assessment and action.

Initial assessments and activities

# Getting Started on the Roadmap Path

- Target profile for small-to-medium public power utilities
- Dedicate time to planning, especially risk assessment and measurement
- Perform baseline assessment and consider independent review/assessment
- Follow a risk-based approach
- Gain senior management support and buy-in
- Establish a project-based approach to cybersecurity
  - Develop cybersecurity strategy
  - Create data and metrics to measure security program
  - Prioritize actions to take
  - Create a project management plan
  - Include communications, outreach, and continuous learning

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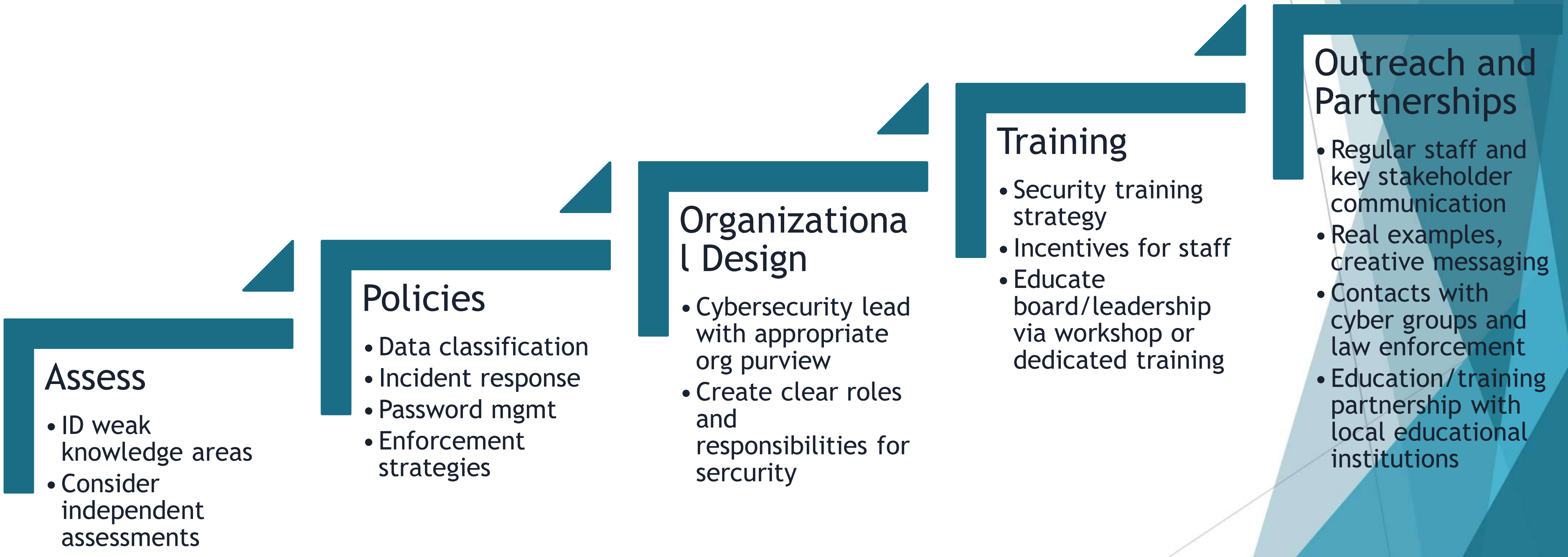
Workforce management and development

# Developing a culture of awareness and building knowledge



## Assess

- ID weak knowledge areas
- Consider independent assessments

## Policies

- Data classification
- Incident response
- Password mgmt
- Enforcement strategies

## Organizational Design

- Cybersecurity lead with appropriate org purview
- Create clear roles and responsibilities for sercurity

## Training

- Security training strategy
- Incentives for staff
- Educate board/leadership via workshop or dedicated training

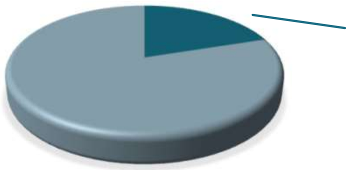
## Outreach and Partnerships

- Regular staff and key stakeholder communication
- Real examples, creative messaging
- Contacts with cyber groups and law enforcement
- Education/training partnership with local educational institutions

# Why is (organizational) Change Management so important to cybersecurity projects?

Focus on technology > Impact on people?

People make your organization work (or fail)



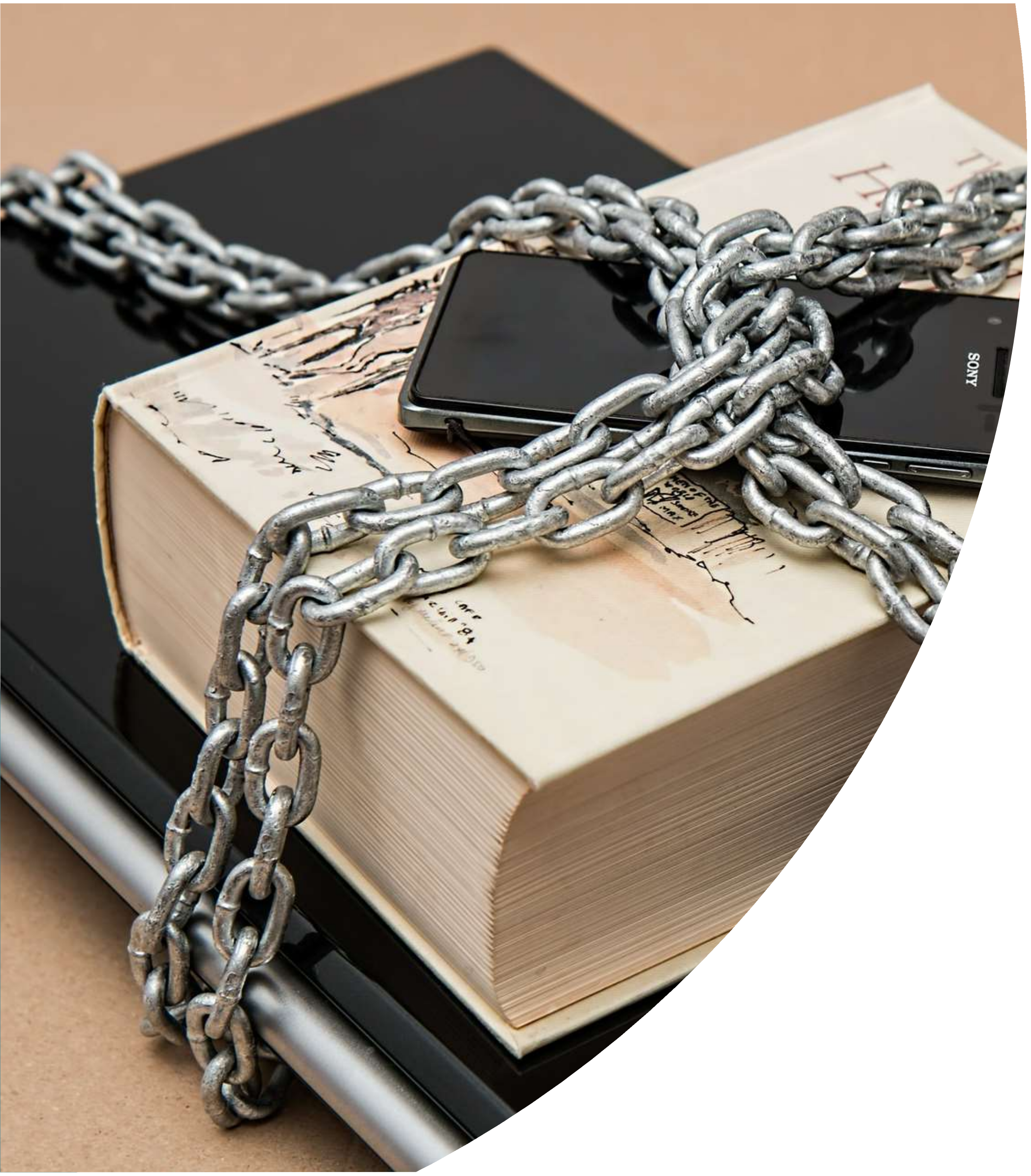
20% of employees willing to sell passwords to a third party*

44% willing to do for less than $1,000

Some would do it for $100

⚠ Trap: The value of technology improvements are self-evident

*SailPoint Market Pulse Survey (2016)



# Change Management Challenges for Cybersecurity Adoption

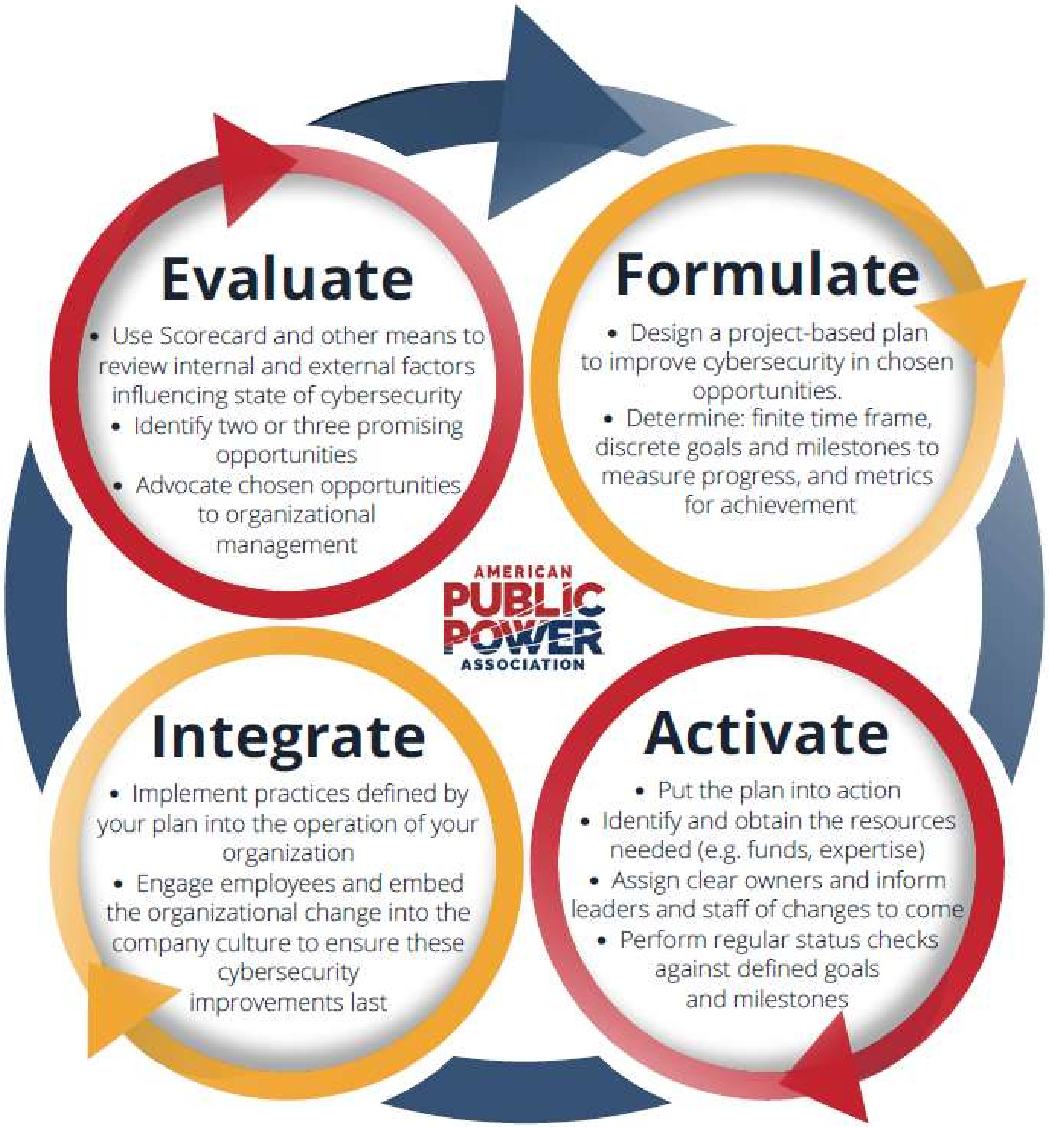
- Security is the enemy of productivity!
- Cybersecurity has never been an issue for us before.
- We are a small utility in a small town. We're not on the radar screen.
- We can't afford it!
- I already have 3 day jobs. How do I have time for one more?

# Playbook and Preparation

Incident response plan

- Make policies and actions very clear in advance (e.g. pre-approval for kill switch authority)
- Clear roles and responsibilities (staff, SMEs, vendors)
- Engage and share plan with law enforcement/FBI/National Guard
- Weigh pros and cons of engaging outside entities and be clear on actions for the plan.
- Use cyber mutual aid as both a communications and resource support tool
- Integration with corporate business continuity and emergency response plans
- Reinforce the plan through training, exercises
- Leadership signoff

*Roles for APPA and Joint Action Agencies?*



## Evaluate

- Use Scorecard and other means to review internal and external factors influencing state of cybersecurity
- Identify two or three promising opportunities
- Advocate chosen opportunities to organizational management

## Formulate

- Design a project-based plan to improve cybersecurity in chosen opportunities.
- Determine: finite time frame, discrete goals and milestones to measure progress, and metrics for achievement

## Activate

- Put the plan into action
- Identify and obtain the resources needed (e.g. funds, expertise)
- Assign clear owners and inform leaders and staff of changes to come
- Perform regular status checks against defined goals and milestones

## Integrate

- Implement practices defined by your plan into the operation of your organization
- Engage employees and embed the organizational change into the company culture to ensure these cybersecurity improvements last

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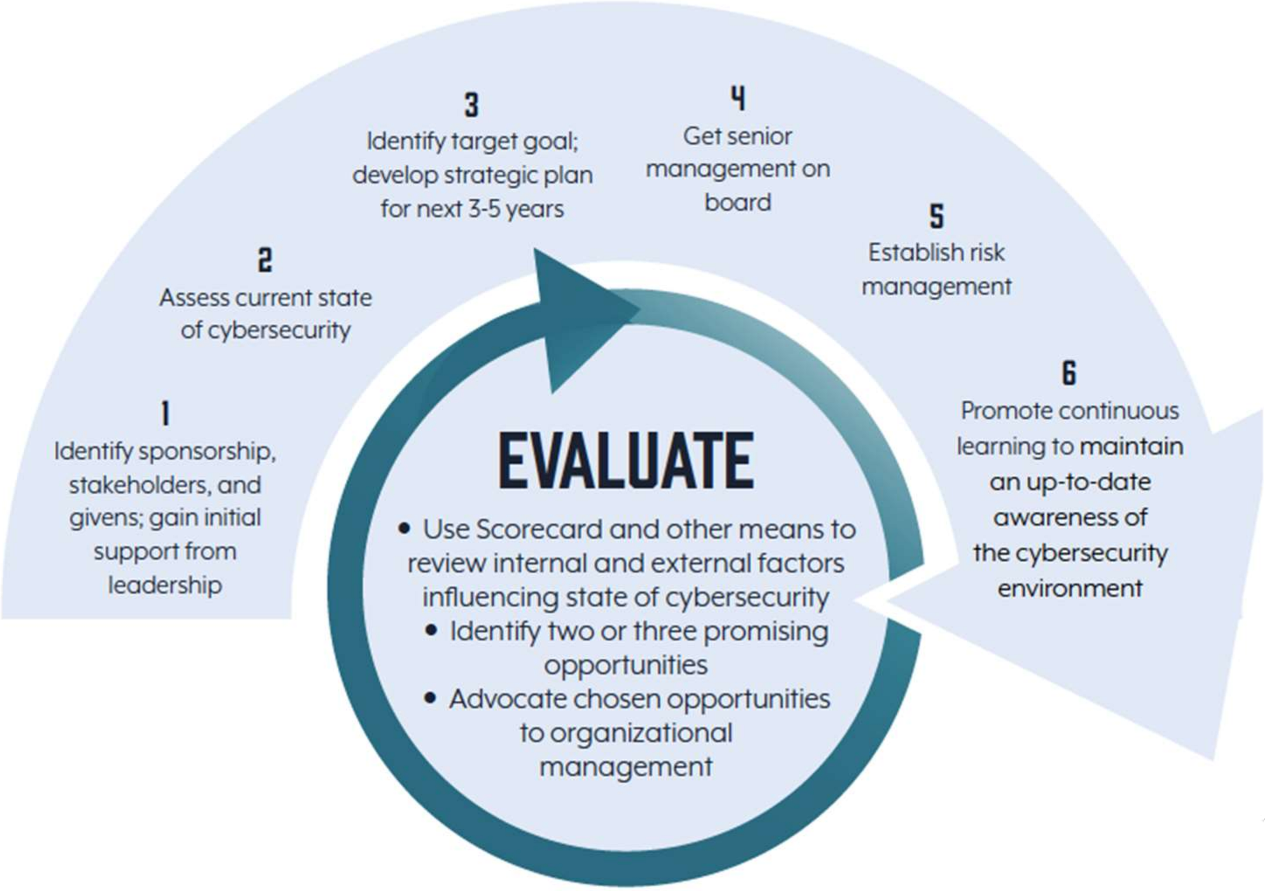
# Stage 1: Evaluate



1
Identify sponsorship, stakeholders, and givens; gain initial support from leadership

2
Assess current state of cybersecurity

3
Identify target goal; develop strategic plan for next 3-5 years

4
Get senior management on board

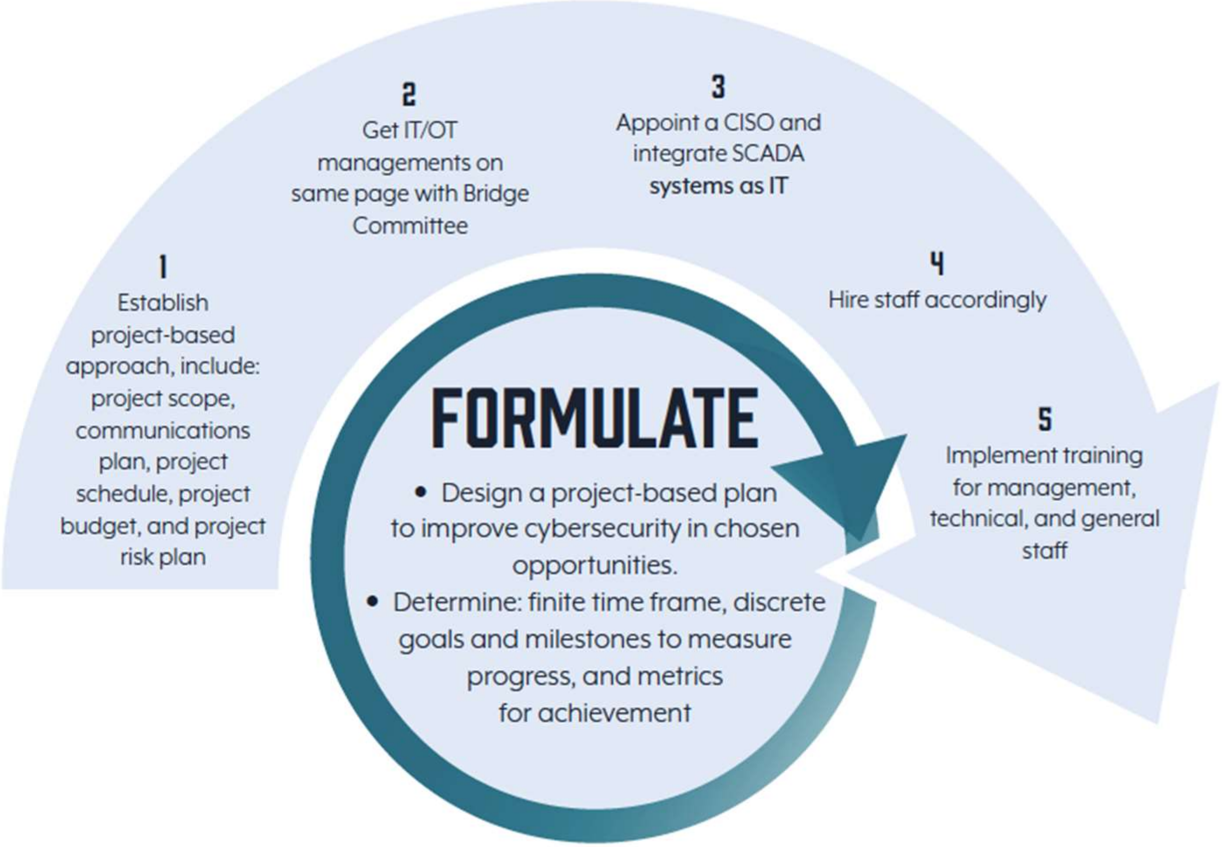
5
Establish risk management

6
Promote continuous learning to maintain an up-to-date awareness of the cybersecurity environment

EVALUATE

- Use Scorecard and other means to review internal and external factors influencing state of cybersecurity
- Identify two or three promising opportunities
- Advocate chosen opportunities to organizational management

# Stage 2: Formulate



1
Establish project-based approach, include: project scope, communications plan, project schedule, project budget, and project risk plan

2
Get IT/OT managements on same page with Bridge Committee

3
Appoint a CISO and integrate SCADA systems as IT

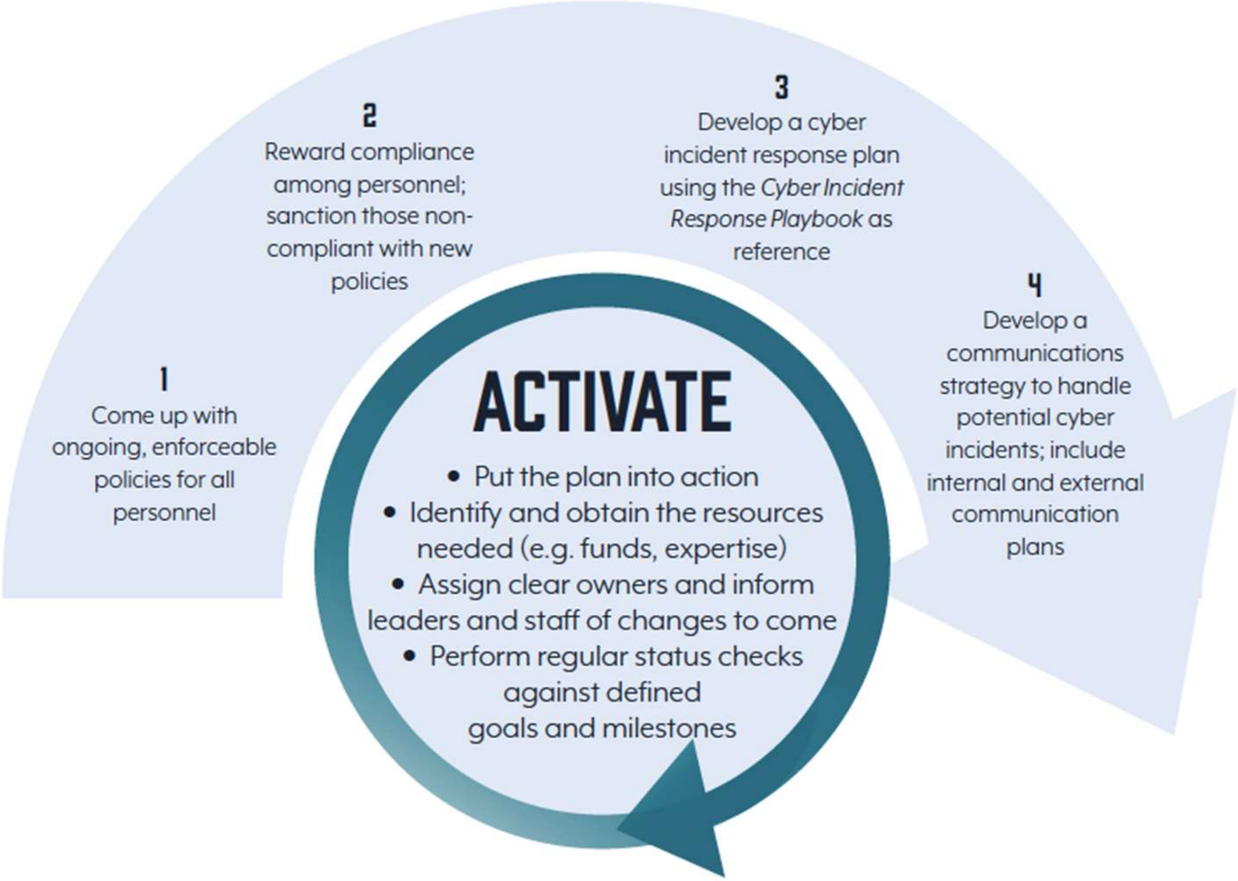
4
Hire staff accordingly

5
Implement training for management, technical, and general staff

FORMULATE

- Design a project-based plan to improve cybersecurity in chosen opportunities.
- Determine: finite time frame, discrete goals and milestones to measure progress, and metrics for achievement

# Stage 3: Activate



1
Come up with ongoing, enforceable policies for all personnel

2
Reward compliance among personnel; sanction those non-compliant with new policies

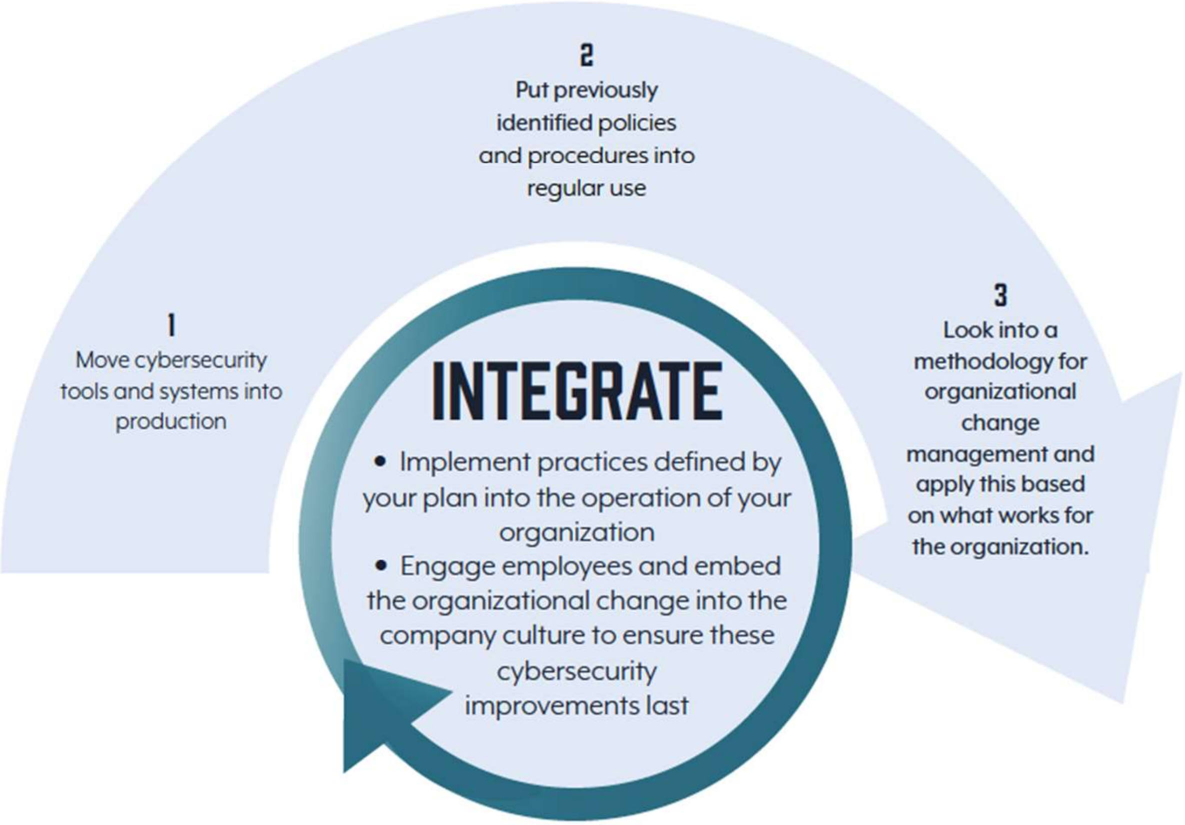
3
Develop a cyber incident response plan using the *Cyber Incident Response Playbook* as reference

4
Develop a communications strategy to handle potential cyber incidents; include internal and external communication plans

ACTIVATE

- Put the plan into action
- Identify and obtain the resources needed (e.g. funds, expertise)
- Assign clear owners and inform leaders and staff of changes to come
- Perform regular status checks against defined goals and milestones

# Stage 4: Integrate



2
Put previously identified policies and procedures into regular use

1
Move cybersecurity tools and systems into production

3
Look into a methodology for organizational change management and apply this based on what works for the organization.

INTEGRATE

- Implement practices defined by your plan into the operation of your organization
- Engage employees and embed the organizational change into the company culture to ensure these cybersecurity improvements last

# Next Steps

# Next Steps

- The Roadmap serves as a guide
- Success of any project lies in its execution
  - The Roadmap should help chart a path to an improved state in the future.
- Communication among peers and collaboration with APPA and experienced subject matter experts may be necessary,
- Working together we can improve the cybersecurity of the entire public power sector
- Maintain a posture of continuous cybersecurity improvement, no matter the size of your public power utility.
- Take advantage of resources and tools available to public power utilities referenced in the Roadmap.
- For the latest recommendations visit APPA's website at: https://www.PublicPower.org or email Cybersecurity@PublicPower.org.

# Questions?

I'M NOT AN ENGINEER, SO THIS MIGHT BE A DUMB QUESTION.
BUT WHY CAN'T WE 3-D PRINT A BLOCKCHAIN AND HTML IT INTO A BITCOIN?
ALICE CAN ANSWER THAT.
I QUIT.
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4-20-18
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