



# PROTECT OUR POWER



Institute  
for Energy  
and the  
Environment

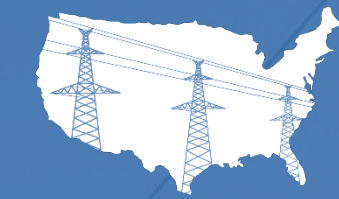
VERMONT LAW SCHOOL

# 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



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# Leadership



**Jim Cunningham**

Executive Director  
Fmr. President,  
Pennsylvania Electric  
Association



**Suedeen Kelly**

Regulatory Counsel  
Fmr. FERC  
Commissioner



**Paul Feldman**

Technical Director  
Fmr. Chairman,  
Midcontinent ISO



**Richard Mroz**

Senior Advisor State,  
Government Relations  
Fmr. President, NJ  
Board of Public  
Utilities



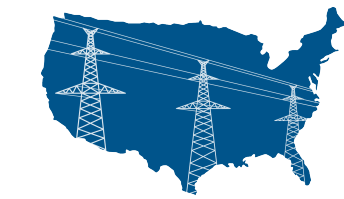
**John Lang**

Chairman  
Fmr. Corporate  
Treasurer, Aetna



**Laurence Moskowitz**

Strategic  
Communications  
Director  
CEO, Lumentus



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# Institute for Energy and the Environment, Vermont Law School

- Provides accessible resources on contemporary energy law and policy with a focus on a cleaner and more resilient grid of the future
- Distributes scholarly, technical, and practical publications; provides forums and conferences for professional education and issue development
- Serves as a center for graduate research on energy issues, with environmental awareness
- IEE research associates are selected from students in the energy and environmental programs at Vermont Law School
- Vermont Law School [top-ranked](#) in the nation for environmental law

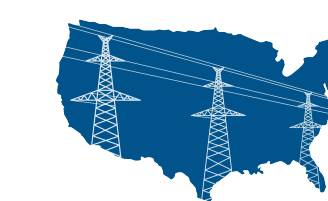
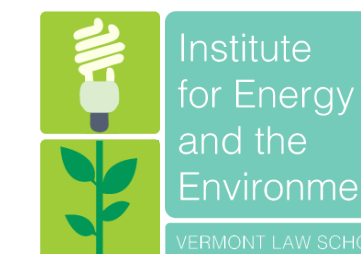
# Purpose of Research

- Identify a pathways or model approaches for state electric utility commissions and their utilities
- Assess opportunities for state governments to advance grid security and resilience quickly
- Develop streamlined approach that can be used in every state to incentivize utilities and assure complete recovery of costs
- Provide needed uniformity to help regulatory agencies make timely decisions on need and cost

# Phase 1 Research Methodology

- **Collected and reviewed primary and secondary sources**
  - Utility commission dockets, orders and reports
  - State statutes and regulations on utility commission jurisdiction and confidential information
  - Cybersecurity policies for national trade organizations, state governments, and federal government departments
- **Conducted interviews with**
  - Investor-owned utilities, electric membership cooperatives, public power utilities, national trade associations, and public utility commissions
  - Former Commissioners, Commission staff, Chief Information Security Officers, Chief Executive Officers, Vice-Presidents of Operations, Directors of Regulatory Affairs

# Reasons for Action



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## **DISTRIBUTION SYSTEM VULNERABILITY IS RISING**

- Anticipatory threat challenges not being adequately met
- As interconnections and devices increase, so does grid vulnerability
- Dissimilar systems are being linked
- Bright lines between IT and OT fading
- Every access point creates potential vulnerability - IOU, coop or public power

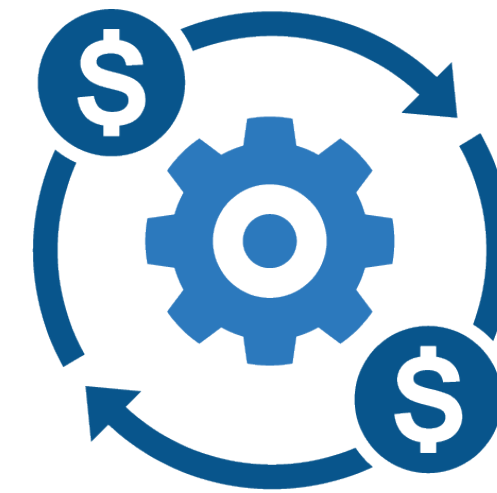
## **COMPREHENSIVE COORDINATION REQUIRED**

- Managing system vulnerabilities requires plan, action from every entity
- Plan must focus on sharing threat and vulnerability information, establishing best practices, facilitating investment via ratepayer benefits
- Continuous communication is key to addressing cybersecurity vulnerabilities
- Utilities, commissions, legislatures, and governors can lead

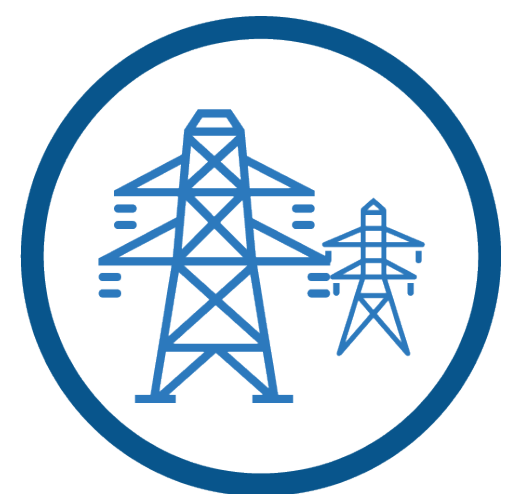
# Phase 1 - Key Areas of Focus



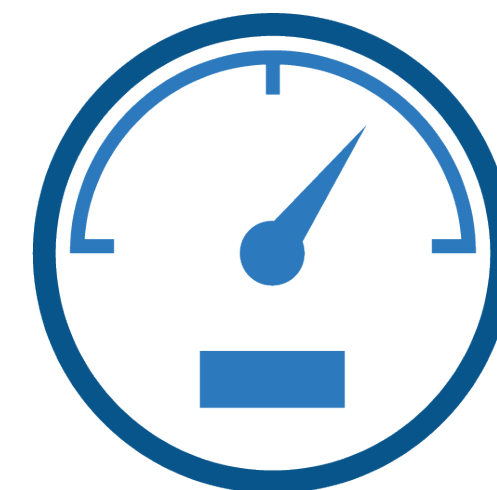
**Protecting Confidential  
Information**



**Cost Considerations + Cost  
Recovery Methods**



**Diversity of Distribution  
Utilities**



**Resiliency Metrics**



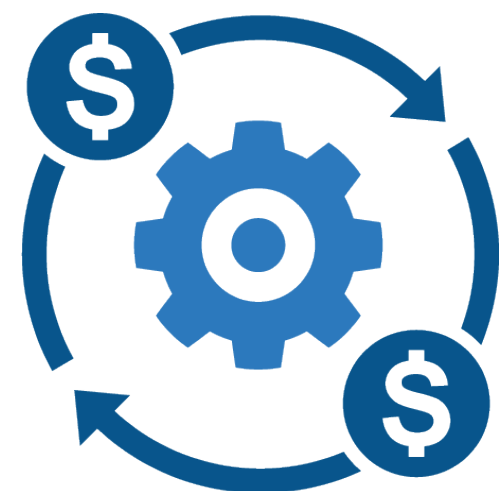
# Phase 2 - Key Areas of Focus



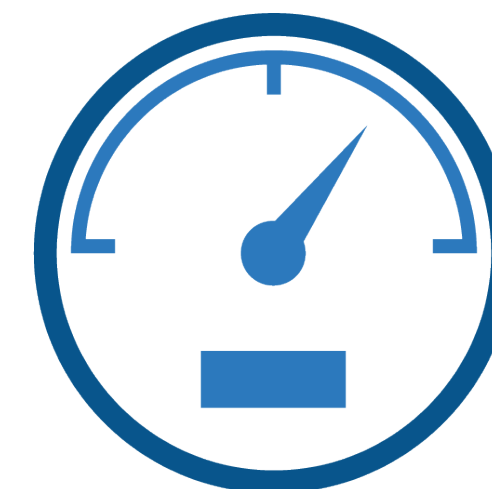
**Protecting Confidential  
Information**



**Reports and Audits**



**Cost Considerations + Cost  
Recovery Methods**



**Resiliency Metrics**



**Grid Modernization**

# Phase 2 - Research Methodology



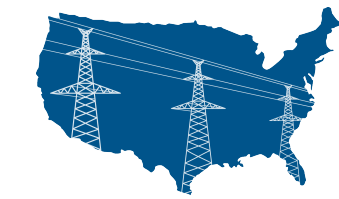
## Actors

- Governors
- Legislatures
- Commissions

## Actions

- Executive orders
- Agency actions
- Statutes
- Commission dockets
- Commission orders

# Pathways to Action



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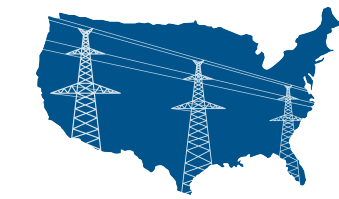
- Pathways are examples of states taking action to address issues that limit the response to cyber threats
- Pathways reveal that many of the tools needed to address cybersecurity issues already exist or can be developed from existing processes
- Pathways are a forerunner of shared norms, practices, and principles
- Our research pulls examples from 26 states and the federal government

# Principles

- Flexible and adaptive
- Respectful of grid architecture
- Considerate of institutional capacity
- Secure movement of information
- Protective of the public interest



# Protecting Confidential Information



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## Issue Addressed: Protecting Critical Infrastructure Confidential Information

Information sharing between utilities and regulators builds environment of trust and action. Creating concrete steps to facilitate the flow of information builds trust.

### Steps

#### **1. Defining Critical Infrastructure Information**

- a. Federal Definition
- b. State Definitions
- c. Public Records and Public Meetings Laws

#### **2. Limiting Commission Access to Confidential Information**

1. Limiting Collection of Information
2. Limiting Retention of Information

#### **3. Balancing the Public's Right to Access Information**

# Reports and Audits



## Issue Addressed: Enhancing Commission Knowledge of Utility Cybersecurity Practices

Reports and audits are a simple way to increase the information that a commission receives from its regulated utilities.

- **Cybersecurity reports**
  - Mandatory or voluntary formats
- **Smart grid reports**
  - Maturation of smart grid implementation programs is an opportunity
- **Management and operations audits**
  - Flexible design allows for customization

# Cost Recovery Mechanisms



## Issue Addressed: Incentivizing Investment in Cybersecurity Protections

The impact of regulatory lag on cybersecurity investments will grow as system needs increase.

### Key Questions

- 1. Does the alternative rate mechanism exist?**
- 2. Should the Commission deploy the alternative rate mechanism?**
- 3. How can the alternative rate mechanism be designed to protect the public interest?**

# Resiliency Metrics



## Issue Addressed: Filling in Information Gaps

Resiliency metrics are not widely deployed or accepted in the utility sector. Consistent use will help utilities transition to best practices-based approach to cyber risk management.

- **Historical adoption and refinement of reliability metrics**
- **Options for accelerating integration of resiliency metrics**
  - Technical working groups
  - Legislative mandates
  - Re-tasking existing metrics reporting obligations
  - Developing new metrics for grid modernization



# Grid Modernization



## Issue Addressed: How to Make Cybersecurity a Core Part of Grid Modernization

The pace of change on the grid is accelerating. Commissions must take an active role in controlling and shaping the coming changes.

### Key Elements

#### 1. Define cybersecurity

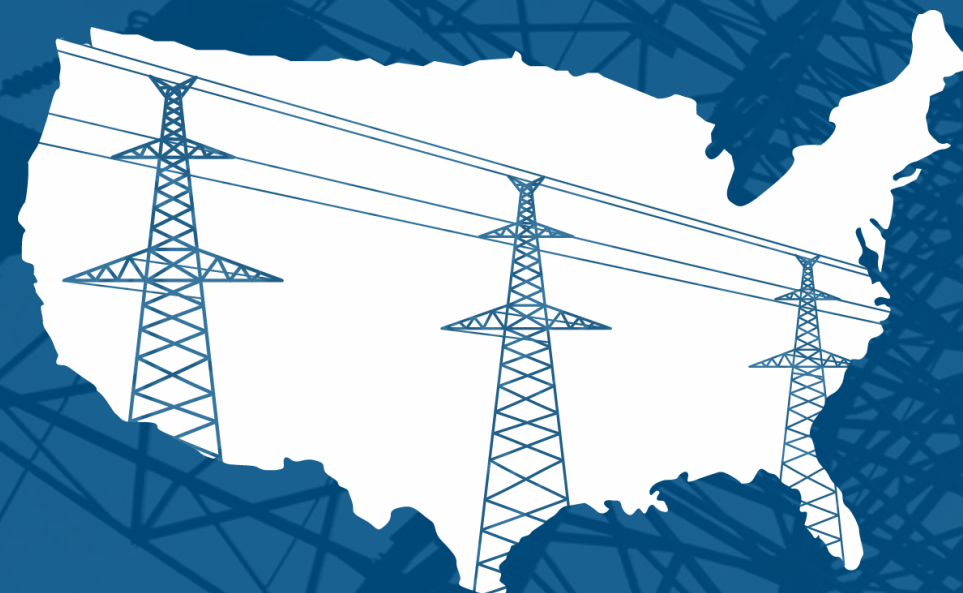
- Clear, unambiguous definition of what is cybersecurity

#### 2. Define boundaries of investigation

- Acknowledge changing grid architecture and the growing role of third parties

#### 3. Design process for flexibility and efficiency

- Set goals, objectives, and policies and allow room for change



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