

Keeping the Lights On: Security Priorities for the 21st Century



Harvard Energy Policy Group
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Tamara Linde
Vice President – Regulatory

The PSEG Companies



PSEG Fast Facts

Assets: \$32.5 billion

Revenues: \$9.97 billion

Installed Generating Capacity: 13.4 GW

Customers: 3.3 million electric, 1.8 million gas

PSEG Power

- Diversified portfolio of power plants, including 3.6 GW nuclear, 3.2 GW combined cycle natural gas, 2.4 GW coal, and 92 MW solar
- Operates in three RTO regions; PJM, NYISO and ISO-NE

PSE&G

- NJ's oldest and largest electric and gas distribution utility
- Customers in more than 300 NJ communities, including its six largest cities
- 1,500 circuit miles of transmission
- Recently received approval for Energy Strong, a \$1.22 billion investment in system resiliency and hardening
- \$1 billion in solar and EE investments

PSEG Long Island

- Operating LIPA electric T&D system, beginning on January 1, 2014
- Twelve year agreement with potential for an additional eight years
- 1.1 million electric customers

Nature of Threats and Risks

Various threats and risks can have an impact on our operations

Cyber
Attacks

Physical
Attacks

Extreme
Weather

Goal is to protect our people, assets, information and infrastructure systems while providing safe and reliable service at reasonable prices

Threat Landscape

We see the breadth of the types of threats in the news

Extreme Weather

- Superstorm Sandy
- Polar Vortex

Physical Attacks

- Metcalf station attack

Cyber Attacks

- Target credit card hack
- Indictment of Chinese officials by US DOJ

The New York Times New York Journal of
Tonight,
morning,
Weather

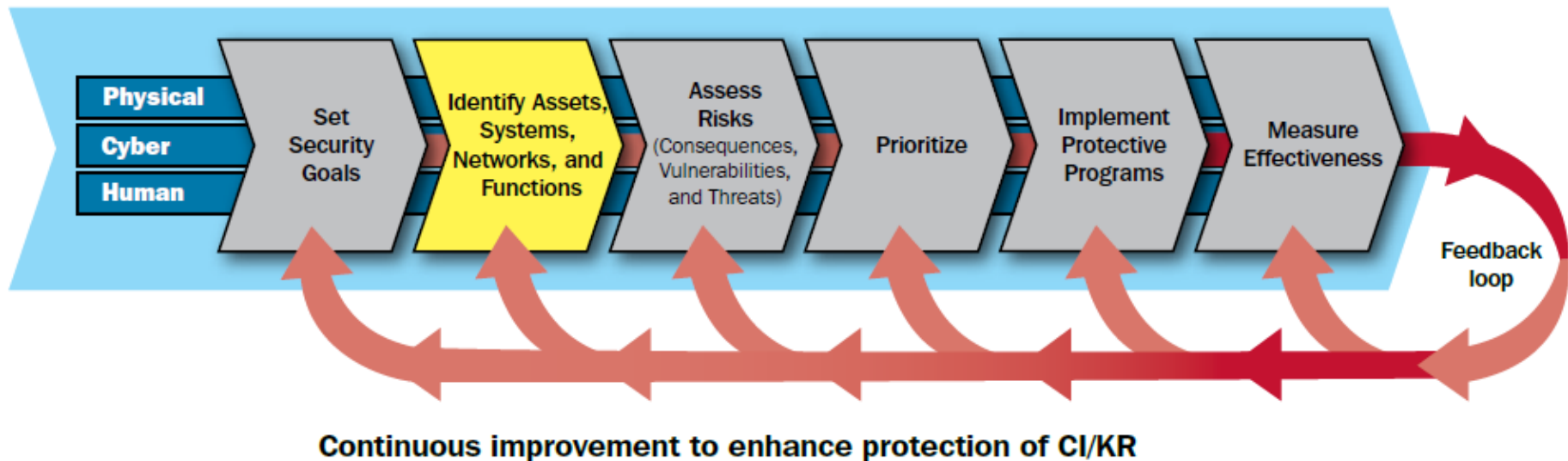
Data Breach Hurts Profit at Target

THE WALL STREET JOURNAL.
Nation's Power Grid Vulnerable to Sabotage

The New York Times
Frigid Blast Disrupts Life in South and
Midwest as Emergencies Are Declared



Security Risk Framework



Framework must also recognize:

- Absolute security or reliability cannot be achieved and should not be the goal
- Investments and expenses must be prudent and cost effective

Building resiliency and redundancy into the electric system reduces risks

Role of the Regulators

- Facilitate confidential collaboration and information sharing
- Priorities and focus
 - Bulk electric system; potential for large scale impacts is high
 - Cyber security; most elusive with potential for large scale impacts

Role of Congress

- Information sharing
 - Enhance information sharing between government and industry
 - Provide strong protections for sensitive utility information
- Enable security investment
 - Facilitate tech transfer from government to utilities
 - Provide liability protection
 - Bolster critical infrastructure insurance market
- Equipment spares
 - Bolster domestic manufacturing capacity
 - Support the housing, maintenance and transportation of equipment

PSEG Security Actions

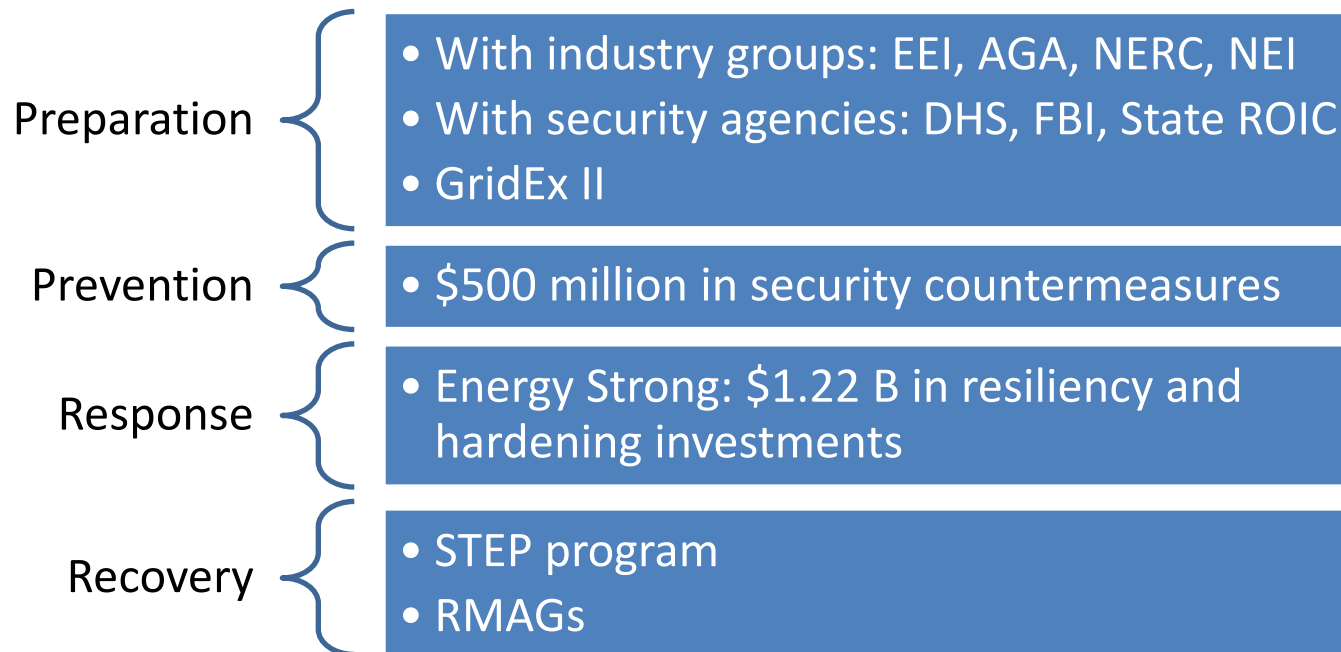
- Dedicated staff
 - Homeland security manager and security intelligence analyst
 - Dedicated IT FTEs to cyber security and NERC CIP
- Training of our associates
- Participation in 3 FBI Joint Terrorism Task Forces (NJ, NY, and PA)
- Member of NJ Infrastructure Advisory Committee and NJ ROIC Working Group
- Participation in industry efforts on physical and cyber security
- Compliance

Investments Principles and Practice

■ Principles

- Proactive and preemptive countermeasures driven by what is the likelihood of event and tolerance for the risk
- Informed decisions based on situational awareness

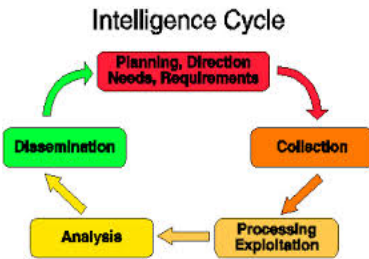
PSEG investments and other actions



Best Practice

Holistic Model

INTELLIGENCE COLLECTION, ANALYSIS, and EXPLOITATION



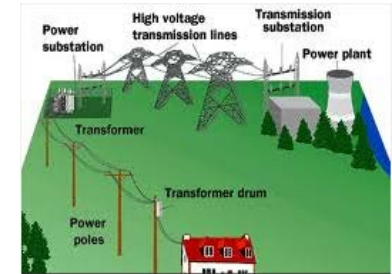
CYBER SECURITY / OPSEC (SCADA) (PRIVACY)



INDUSTRY ENGAGEMENT AND BENCHMARKING



PHYSICAL SECURITY ASSET HARDENING



LAW ENFORCEMENT AND INTELLIGENCE AGENCY LIAISON



PSEG SECURITY COUNCIL



RISK ASSESSMENT



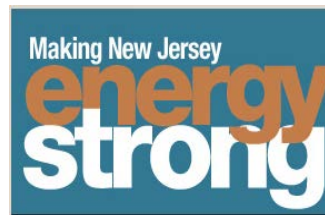
REGULATORY COMPLIANCE



SECURITY TECHNOLOGY Security Command Center



INVESTMENT IN CRITICAL INFRASTRUCTURE



RESILIENCY

- BUSINESS CONTINUITY
- CRISIS MANAGEMENT
- BIM COMMITTEE

