Dynamic Resiliency Modeling and Planning for Interdependent Critical Infrastructures

Industry-Researcher Presentation
April 10, 2019
CIRI Symposium
Problem Statement from Industry Perspective

• How to assess the impact of CI interdependencies on resiliency?

• How to understand the impact of human behaviors on resiliency?

• With interdependencies, then what?

• How to measure and improve cyber resiliency of CI?
Outcomes and Solutions

- Network frameworks and risk assessment
- Modeling of human-cyber-physical interactions
- Informed decision-making tools
- Threat modeling and resilience technologies
Distinct Features of the Research and its Partnerships

• Integration of human behavior with CI resiliency

• Real-time decision-making capabilities

• Unique multiple partners from three sectors: government, private, and public utility
Industry and Researcher Exchanges and Mutual Benefits

**Industry/Gov’t**
- Consolidated Edison of New York
- Transportation utilities
- Local resilience offices
- Siemens Corporate Technology
- U.S. DHS/U.S. DHS Region 2
- Emergency Responders

**Data for CI Network structure, reliability and behavior**
- Attack Scenarios

**Knowledge of CI network behavior (models)**
- Identification of CI users and providers

**Decision-making tools**
- Identification of Tool Users; Dissemination

**Academia**
- New York University
  - Tandon School of Engineering
  - Wagner Graduate School of Public Service
## Partnership: What each provides

### Industry
- Regulatory constraints
- Decision-making priorities
- Customer behaviors
- Industry need for tools
- Case studies

### CIRI Researchers
- Understanding of important impacts that are outside utility’s primary concerns
- Knowledge of network behavior with interdependencies
- Coordination of efforts among industries
- Avoiding duplicate work
Lessons Learned

**Industry**

- Sharing data is a particular challenge

**CIRI Researchers**

- A more flexible time-period to develop a user-friendly decision-making tool
- Finding a suitable platform to collaborate
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