CRI CRITICAL INFRASTRUCTURE RESILIENCE INSTITUTE

A DEPARTMENT OF HOMELAND SECURITY CENTER OF EXCELLENCE

Researchers:

NYU: Quanyan Zhu, PI; Rae Zimmerman, co-PI

Industry Partners:

Consolidated Edison, Siemens, U.S. DHS Region 2 Office

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



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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



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Industry and Researcher Exchanges and Mutual Benefits

Industry/Gov't Data for CI Network structure, reliability and behavior Consolidated Edison of New York Attack Scenarios Transportation utilities Knowledge of CI network behavior Local resilience offices Identification of CI users and providers Siemens Corporate Technology Decision-making tools U.S. DHS/U.S. DHS Identification of Tool Users; Emergency Identification of Tool Users; Dissemination Dissemination	Academia New York University Tandon School of Engineering Wagner Graduate School of Public Service
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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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