Incident Response and Resiliency Presentation and Discussion, Part II

Riverside Public Utilities

R.15.06.009 Physical Security of
Electric Facilities
June 21, 2017

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- 814 miles of underground distribution lines
- 531 miles of overhead distribution lines
- 91 miles of transmission lines
- 14 Substations
- 3 Generating Stations
- Over 108,000 electric customers
- Peak Load 612 MW

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Critical Infrastructure Protection Program

- Set Goals and Objectives
- Identify Infrastructure
- Assess and Analyze Risks
- Prioritize
- Implement Programs
- Measure Effectiveness
- Repeat

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National Infrastructure Protection Program

Figure 3 – Critical Infrastructure Risk Management Framework

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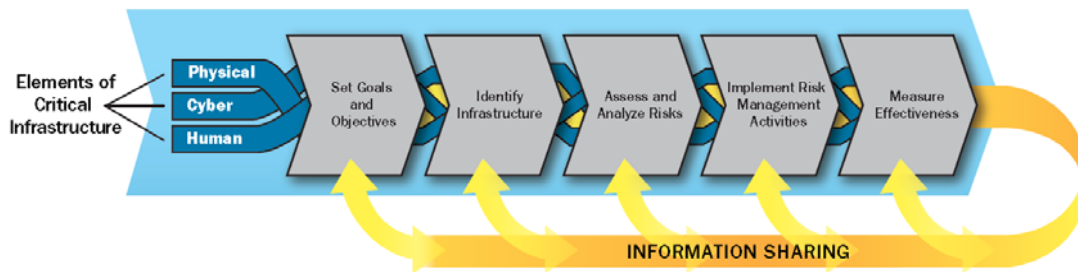
Energy Delivery Division Goals

- Operate a reliable electric system to meet customer needs
- Complete system improvements, infrastructure replacements, and grid modernization projects.
- Recruit/retain employees and prepare for future business needs by developing necessary workforce.
- Maintain public, employee, and cyber safety and security.

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Identify Infrastructure

Electric System

Fiber Optic System

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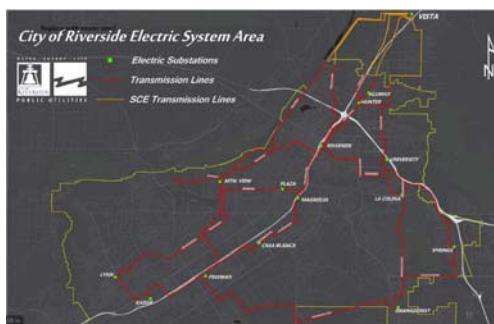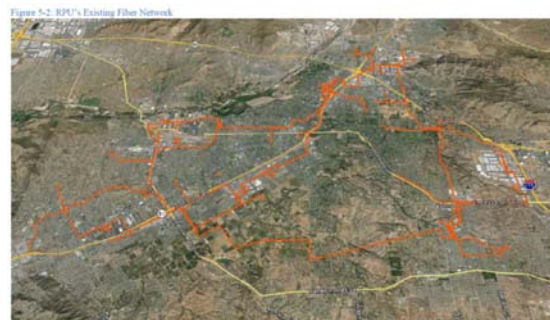
System Assets

Electric System
- Transmission lines
- Generating Stations
- Substations
- Transformers

Fiber Optic System
- Communication Centers
- Lines
- Junction Boxes

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Critical Infrastructure Example
Substation

Google Earth

Google Street View

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Assess and Analyze Risk

- Threat – Intrusion and deliberate damage
- Consequence – severe damage, interrupting essential emergency services and over 16,000 customers.
- Vulnerability – Perimeter chain link fence multiple past incidents of fence cutting, theft and vandalism at this site.

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Prioritize

- High – This site has multiple past incidents of fence cutting, theft and vandalism.

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Implement Program

- Access Control, video surveillance, LED security lighting and intrusion detection systems installed as part of City-wide program.
- Physical security program will replace the chain link fence with a block wall and rolling gates at a cost of $1.3 million
- Physical security program to be coordinated with flood control study at this site.

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Measure Effectiveness

- RPU tracks substation security breaches and fence cuts using routine inspection logs.
- RPU now continuously monitors video and access control system.
- No reported fence cuts or security breaches at this site since Access Control and Video Surveillance project was commissioned in March 2014.

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Transformer Resiliency

- Transformers are loaded to 75% of top rating
- Loss of a single transformer loads adjacent transformer to 150% of top rating
- Planned field switching to reduce surviving transformer peak load to 100% within hours
- Planned field switching to transfer all load at single transformer substations
- Three Mobile Transformers can be deployed within days

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Switchgear Resiliency

- Transfer all load using field ties for switchgear failure
- One portable switchgear can be deployed within days
- One mobile transformer with integral switchgear can be deployed within days.

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Incident Response

- Incident Command System used for coordinated response to ALL Hazards
- Identify Threat
  - Video Surveillance
  - Intrusion Detection
  - Access Control
  - SCADA

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Incident Response

- Dispatch First Responders
  - Public Utilities
  - Police
  - Fire
  - Public Works
- Assess the Situation
- Implement Action Plan
- Stabilize Situation
- Restore Service

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Questions?

Figure 3 – Critical Infrastructure Risk Management Framework