

Cybersecurity & Energy

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Resilience

- ▶ Fault Tolerance
 - ▶ Disaster Tolerance
 - ▶ People
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Resilience – Fault Tolerance

- ▶ Design systems to actively recover from a failure with no / minimal interruption to service:
 - Identify critical resources
 - N+1 configurations or greater
 - Clustering Technologies
 - Local fail-over documented, tested
 - Virtualization
 - Redundant paths (network, power, infrastructure)

Resilience – Disaster Tolerance

- ▶ Design systems to support a return to operations (RTO) within a specific timeframe.
 - Remote fail-over capabilities
 - Vendor relationships
 - Exercise:
 - Disaster Recovery Plan (and UPDATE it)
 - Alternative / Manual Process

Resilience – More

- ▶ Remember to focus on things besides Technology:
 - People (physical attack, pandemic, etc.)
 - Facilities (loss of data center, key resource, etc.)
 - Infrastructure (roadways, cell-service, Internet)

Resilience – People

- ▶ Quick Focus on People
 - Develop a culture of SAFETY
 - Corrective Action Program
 - Active Safety Education & Awareness
 - Document your processes
 - Include this action with employee reviews
 - Know you can staff critical roles

Protecting Critical Assets

- ▶ Identify your critical assets
- ▶ Incorporate security controls (**huge**)
 - administrative
 - technical
 - physical

Protecting Critical Assets

- ▶ Security Control Overview
 - Inventory
 - Patch Program
 - SIEM – monitor, monitor, alert
 - Incident Response Plan
 - Vulnerability / Risk Management Plan
 - Culture of Security Awareness
 - AND improved behavior

Relationships

- ▶ Vendor Partners
 - Know your vendors
 - Who to call
 - What service to expect (timelines)
 - Have a backup

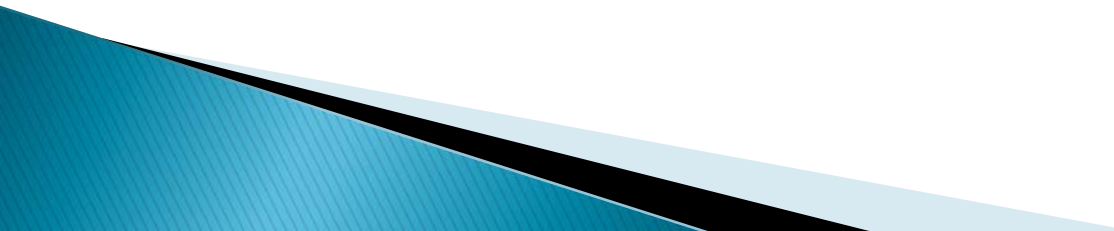
Relationships

▶ Utilities

- Good working relationships within organizations such as:
 - LPPC
 - APPA
 - RMEL
 - EPRI
- Why?
 - Consistency
 - Best practices
 - Awareness

Relationships

- ▶ Government
 - DHS, FERC (NERC), FBI, PUC

 - ▶ Why?
 - Cybersecurity Awareness (DHS AIS)
 - Regulatory Compliance (NERC)
 - Information Sharing / Reporting (ALL)
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Relationships

▶ Customers

- Be of service to the community
- Be present (events, parades, etc.)
- Be an asset to the community

- Be the source for problem resolution
 - All calls are important
 - All outages must be minimized

- Be the best stewards of rate payer dollars

Relationships

- ▶ Customers
 - Instill confidence, promote community culture
 - Green Energy
 - Solar
 - Wind
 - BioMass

Relationships

▶ Customers

- Always deliver the best possible service
 - System Average Interruption Frequency Index
 - SAIFI: 0.61 (average # of interruptions)
 - Average service interruption frequency of 5 minutes or more per customer during a 12-month period
 - System Average Interruption Duration Index
 - SAIDI: 50.21 (average # of minutes)
 - Average service interruption duration per customer on the electric system during a 12-month period

UT Energy Week

- ▶ Thanks