RELIABILITY | RESILIENCE | SECURITY

POWERING TODAY. PROTECTING TOMORROW.

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Reliability Outlook

IECA Annual Meeting

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Limited Disclosure

"Hyper-complex" Risk Environment



Resource Adequacy Challenges

- Retirements, new build challenges
- IBR growth/integration
- Load growth/CLEs
- Natural gas interdependencies



Energy & Environmental Policy

- Electrification
- Emissions
- Siting and Permitting



Extreme Weather Complexities

- Extreme not infrequent
- Broader deeper longer



Toxic Soup Threat Landscape

- S/W vulnerabilities
- Supply chain
- Ransomware
- Physical attacks
- "One to many" attacks
- AI driven attacks

Increasing concentration of risk

- Common mode failure
- Declining fuel diversity

Growing Affordability Concerns

- Capital needs
- Capital cost environment

Loss of key "Essential Reliability Services"

- Inertia/frequency response
- Reactive Power/voltage support
- Dispatchability/flexibility

Expanding cyber attack surface

- Industry Control Systems
- Internet of "Threats"
- IBRs/DERs/EV Charging/Large Loads

Rapidly evolving security needs

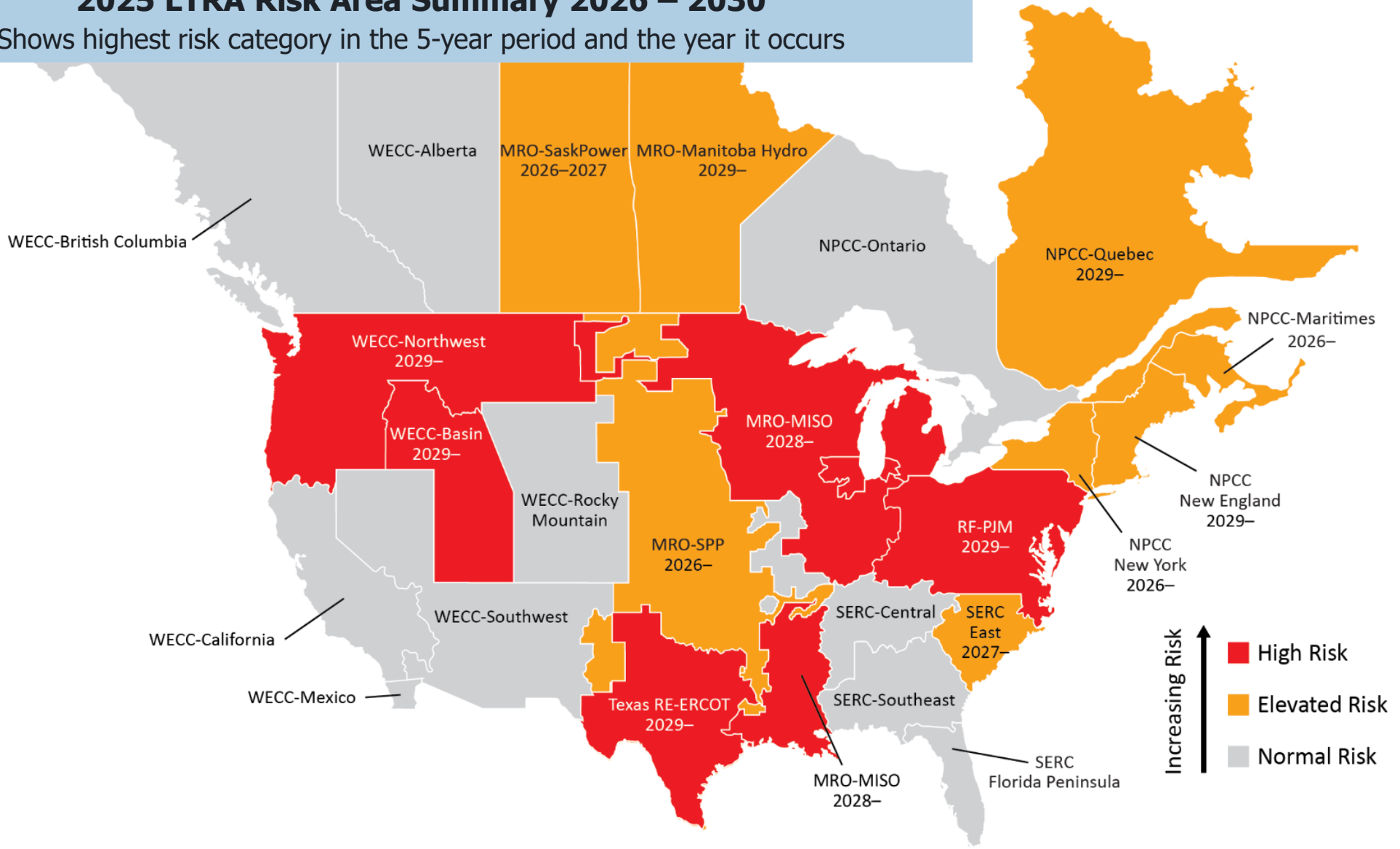
- Supply chain protections
- Low impact protections
- Responsible cloud use
- AI deployment/protection

Limited Disclosure

"5-Alarm Fire" brewing

2025 LTRA Risk Area Summary 2026 – 2030

Shows highest risk category in the 5-year period and the year it occurs



Takeaways and Calls to Action

Familiar issues continue…

- Extreme weather risk
- Generation retirements
- Load growth increasingly uncertain
- Winter load growth increasing faster and increasingly uncertain
- Large load integration
- Natural gas interdependency
- Capable cyber adversaries

Some bright spots emerging…

- Retirement deferrals
- Gas and Electric sectors “leaning in”
- Energy Assurance Planning Standard (in drafting)
- Expanded IBR registration, FERC 901 actions completed
- Computational Load Registry Criteria and foundational commissioning standards filed
- Battery / synchronous condenser deployments helping
- CIP Roadmap in place

Continued focus required…

- Critical infrastructure investment
  - Generation and Transmission
  - Natural gas transmission and storage
- Computational Load operational performance
- Retention of essential reliability services as well as energy supply
- Gas-Electric Coordination
  - Planning and operations
  - Commercial constructs
- Technology (nuclear and LDES) development and deployment
- Emergency response to”GridEx-like” scenario

Key External Focus Areas



Oversight Modernization
- "Pilot" pilotable MSPP recommendations while creating SPM and ROP language
- Capture CMEP efficiencies



Gas-Electric Coordination
- Planning
- Operational Planning
- Operations



Large Loads
- Ongoing learning
- Level 3 Alert and Guideline
- Standards initiation
- Registration criteria



"Heavy Lift" Standards
- CIP roadmap
- IBR 901/902 Completion
- SCRM Directive
- Energy Adequacy

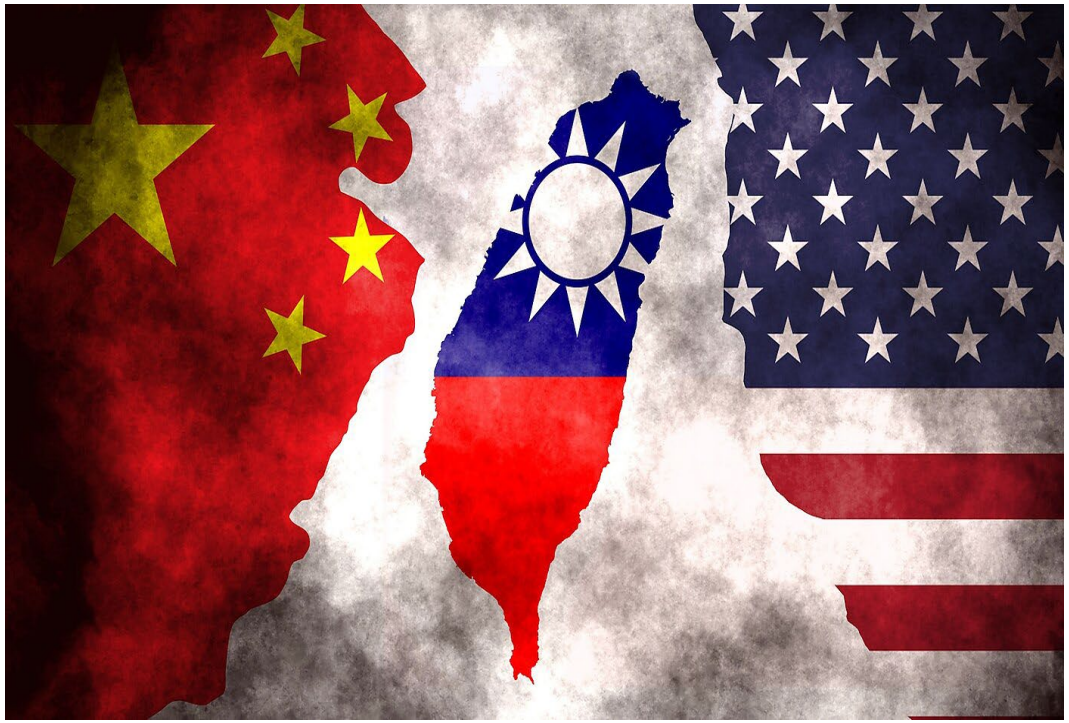


Reliability Assessments
- Regional consistency
- Wide area energy
- Design basis/accreditation
- Reliability Services
- Large/small signal stability



Strategic Engagement
- New players
- Policy Community (State, Provincial, Federal)

Key External Focus Areas (continued)



Cyber and Physical Security preparedness

- Playbook for global conflict
  - Industry
  - Government
  - E-ISAC
- GridEx / RC Tabletop Follow up (esp. Resilient Comms and very wide area coordination)
- Defense Critical Electric Infrastructure resilience
- Member support and engagement

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Discussion