Cybersecurity Challenges for a Changing Electric Industry

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MISO is an independent, Regional Transmission Operator in 15 U.S. States and one Canadian province.

**MISO by-the-numbers**

- High Voltage Transmission: 65,853 Miles
- Installed Generation: 177,388 MW
- Installed Generation: 1,594 Units
- Peak System Demand: 127,125 MW

**Mission**

Work collaboratively and transparently with our stakeholders to enable reliable delivery of low-cost energy through efficient, innovative operations and planning.
MISO’s role continues to evolve as the industry’s requirements change

Externalities

- Federal and State
- Design and Operation
- Emerging and Future
- Formal and Informal
- Current and Future
- Supply and Demand

MISO Role

- Ensure reliability
- Create value for members and consumers
- Create and operate efficient markets
- Enable efficient infrastructure investment
- Inform policy decisions via independent analysis
- Inform stakeholders of future market possibilities
Market System Enhancement is transforming our current market platform into a flexible, upgradeable, and secure system.

Extend the life of the current system

Design a flexible, adaptable, high-performing system

Upgrade build & launch a new market system

Program management
Staffing
Vendor engagement

Protect & enhance
Testing environments
Develop/test alternatives

Data management
EMS upgrade
Confirm next phase

Modular
Adaptable
Extensible

2017
2018
2019
2020-2024
Keeping the Lights On
Known unknowns and unknown unknowns

“There are known unknowns. That is to say, there are things that we know we don’t know.

“But there are also unknown unknowns. There are things we don’t know we don’t know.”

- Donald Rumsfeld
The industry faces a complex threat landscape

**Threat Actors**
- Nation State
- Cyber Criminal Enterprise
- Insiders
- Activists / Extremists

**MISO Major Threats**
- Phishing and Malware Distribution Attacks
- Unauthorized Access and/or Exploitation of Systems or Networks
- Misuse of systems and resource access and information by insiders
- Unauthorized Access to MISO network by external parties
- Physical attacks, workplace violence or protests
- Market manipulation, fraud and attacks on the Market Portal

**What Is At Risk**
- Reliability and Market Operations
- Industrial Control Systems
- MISO Reputation
- Financial, business, and customer data
- Physical safety and security of personnel and facilities
- Network, systems, and application design
Manage risk, with a balanced approach between restrictive rules and flexibility/innovation

Follow the Rules!

Do whatever you want, man.
Integrating different technologies and perspectives can be awkward

Disrupter
Traditional
Technologist
Green Tech
Customer Pref.
Thank You