



## **Reliability, Risk and Energy Diversity**

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Federal Energy Regulatory Commission**

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# Key Concept

- Three components of delivering electricity
  - Generation: Produces electricity
  - Transmission: High voltage lines that connect generation (often distant) to the local areas where it is used
  - Distribution: lower voltage lines that distribute power locally to serve end-use customers

# FERC and State Jurisdiction

- FERC oversees (among other duties)
  - Wholesale sales of electricity
  - Reliability of the “bulk power system”
  - Transmission of unbundled electricity
  - Allocation of costs for interstate electric transmission
  - Licensing of non-federal hydro power
  - Capacity requirements for RTO/ISO
  - M&A activity (shared jurisdiction)
  - Market manipulation (gas and electric)

# FERC and State Jurisdiction

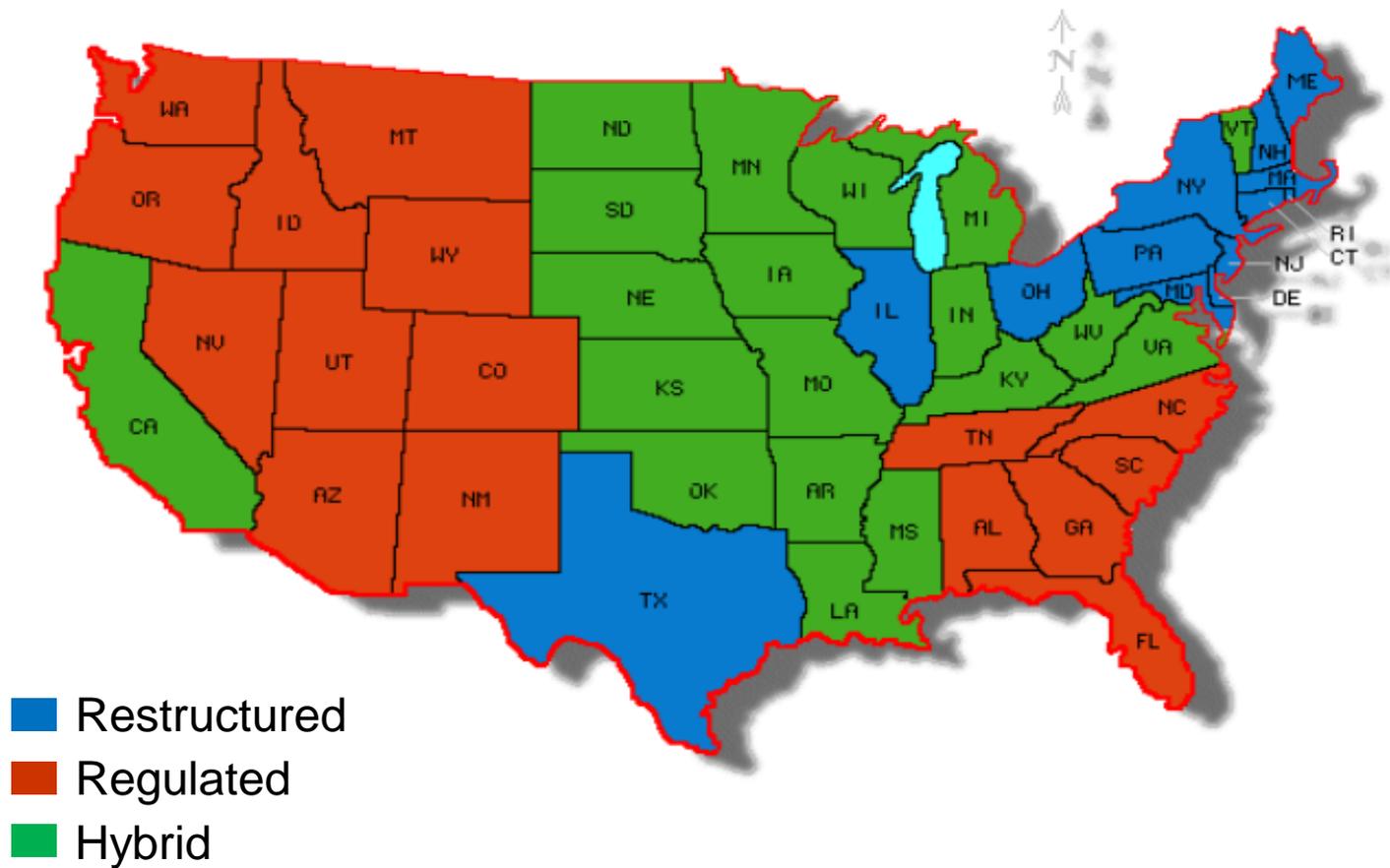
- States Oversee (among other duties)
  - Retail Sales of electricity/structure of retail market in each state (restructured/unbundled vs. vertically integrated utility)
  - Permitting/siting of transmission (\*with limited exceptions)
  - Permitting/siting generation (\*with limited exceptions)
  - Transmission of bundled retail electricity
  - M&A Activity (shared jurisdiction)
  - Other various public policies (renewable portfolio standards, RECs, PURPA – in conjunction w/FERC, integrated resource planning)

# Key Reliability Findings

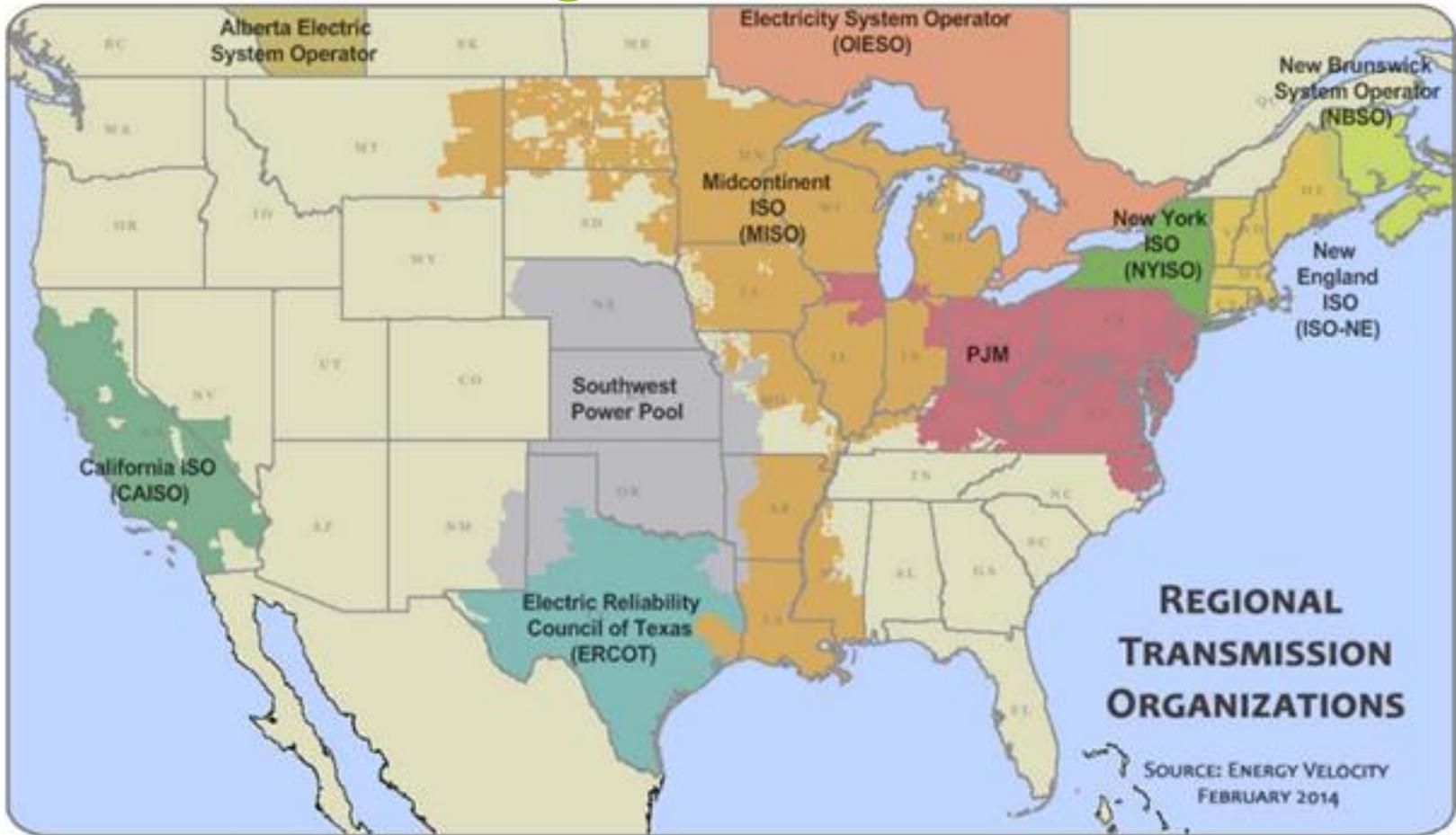
(As Identified by NERC 2013 Long-Term Assessment)

- Resource adequacy assessments in MISO and Texas fall below planning reserve margins
- High levels of variable generation may present operational and planning challenges
- Fossil fired outages and coordination of outages for environmental control retrofits continue to present challenges
- Continued increases in natural gas fired generation may require enhancements to planning and operations
- Increased use of demand side management creates more uncertainty for system planner and operators
- Nuclear generation retirements and long-term outages reduce flexibility and present potential reliability challenges

# US Electricity Regulatory Models



# US Regional Transmission Organizations



# Implications of State Structural Choices

- The more regulated states have direct tools available for ensuring fuel source diversity and security, but captive ratepayers may be obligated to pay for projects that underperform (or go over-cost) in retrospect
- Restructured/unbundled states may be able to tap into market efficiencies and not have captive ratepayers, but they have less direct tools available to deal with ramifications of things like the “dash to gas”

# Winter Operations Conference

- FERC has been undertaking a multi-year effort to assess the increasing interdependency of electricity and natural gas
- The 2013-14 winter was a harsh one, which revealed a number of stresses on the system
- On April 1, FERC held a widely attended conference to address “lessons learned” from this past winter

# Lessons Learned: Regional Issues on Horizon

- The West
  - System generally performed well this winter, though it was subjected to less stress than the eastern US; concerns related to technical market constructs and how gas price volatility was priced into the market
  - Regulatory structures support an ability to address generation diversity and security

# Lessons Learned: Regional Issues on Horizon

- The West (cont'd)
  - The integration of variable energy resources (wind, solar) tend to be major issues in the west – both at the FERC and State jurisdictional levels
  - California continues to be a very active energy policy incubator (e.g. aggressive renewable standards, CARB regs,). To the degree this triggers interstate issues and affects either reliability or the rest of the West, it could become a FERC jurisdictional matter

# Lessons Learned: Regional Issues on Horizon

- Heartland Region (MISO and SPP)
  - Coal retirements a major issue
  - MISO anticipates a 2016 shortfall in reserve margins (central/north regions) – which could impact system reliability if not addressed
  - State regulatory structures generally are supportive of fuel security and diversity, but logistical issues remain during the 2015-16 timeframe during which numerous coal retirements/retrofits and conversions are occurring

# Lessons Learned: Regional Issues on Horizon

- The Southeast
  - State regulatory structures support fuel diversity and security
  - In recent years, like other areas of the country, the Southeast has moved away from coal and towards natural gas
  - Primary challenges in the Southeast relate to becoming more gas dependent; technical gas scheduling issues, for example

# Lessons Learned: Regional Issues on Horizon

- Mid-Atlantic & parts of Midwest (PJM)
  - A mix of restructured and regulated states
  - Many expected coal retirements
  - PJM is planning to rely heavily on “demand response (DR)” resources to meet its capacity needs
  - This region has been focusing on ways to ensure that these DR resources are available when called upon

# Lessons Learned: Regional Issues on Horizon

- The Northeast
  - This region has some of the biggest and most pressing challenges
  - Some of the problems related to geography
  - Some of the problems relate to market constructs
  - Some of the problems relate to public policies that work at cross-purposes with market constructs

# Looking Ahead

- FERC, States/state regulatory commissions should continue engaging directly with utilities and regional grid operators to ensure adequate electricity resources going forward; if inadequacies exist, use regulatory tools to correct problems (this will differ by jurisdiction)
- Encourage a more transparent process for understanding grid reliability as it relates to impending EPA regulations

# Looking Ahead

- FERC will continue making incremental design tweaks to the regional markets to help ensure grid reliability in an era of increasing natural gas use
- Longer term, for regions like the Northeast, FERC may need to assess if there is a need/ability to begin pricing into the market things like fuel source security and/or diversity – things that apparently are not now being valued

# Looking Ahead

- Especially for those regions of the nation (most specifically in the Northeast & Mid-Atlantic), these issues are existential questions for the future of competitive markets
- If widespread power failures become common or electricity prices spike repeatedly, it will draw into question the entire unbundled/restructured construct

# Conclusion

- Thanks for the invitation to be with you today!

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