



ISO New England's Role in the Region's Energy Transition

*Energy and Technology Committee
Informational Forum*

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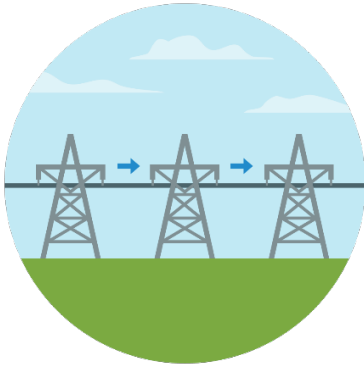
PRESIDENT & CEO



ISO New England Performs Three Critical Roles to Ensure Reliable Electricity at Competitive Prices

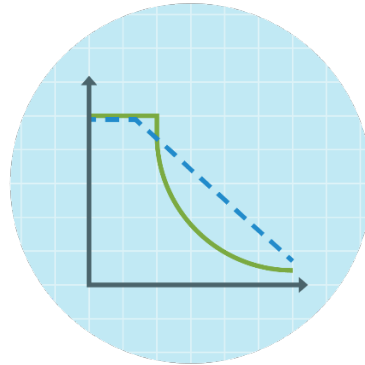
Grid Operation

Coordinate and direct the flow of electricity over the region's high-voltage transmission system



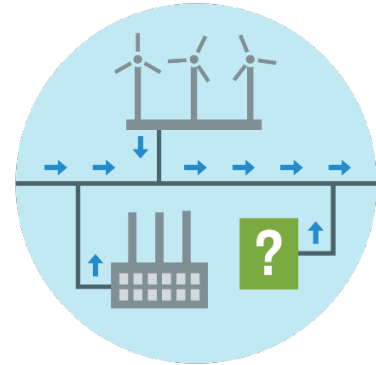
Market Administration

Design, run, and oversee the markets where wholesale electricity is bought and sold



Transmission System Planning

Study, analyze, and plan to ensure the transmission system will be reliable over the next 10 years



Things We Don't Do



Handle retail electricity
—the power you buy from your local utility or electric supplier



Own, maintain, or repair power grid infrastructure, such as power plants, power lines, and substations



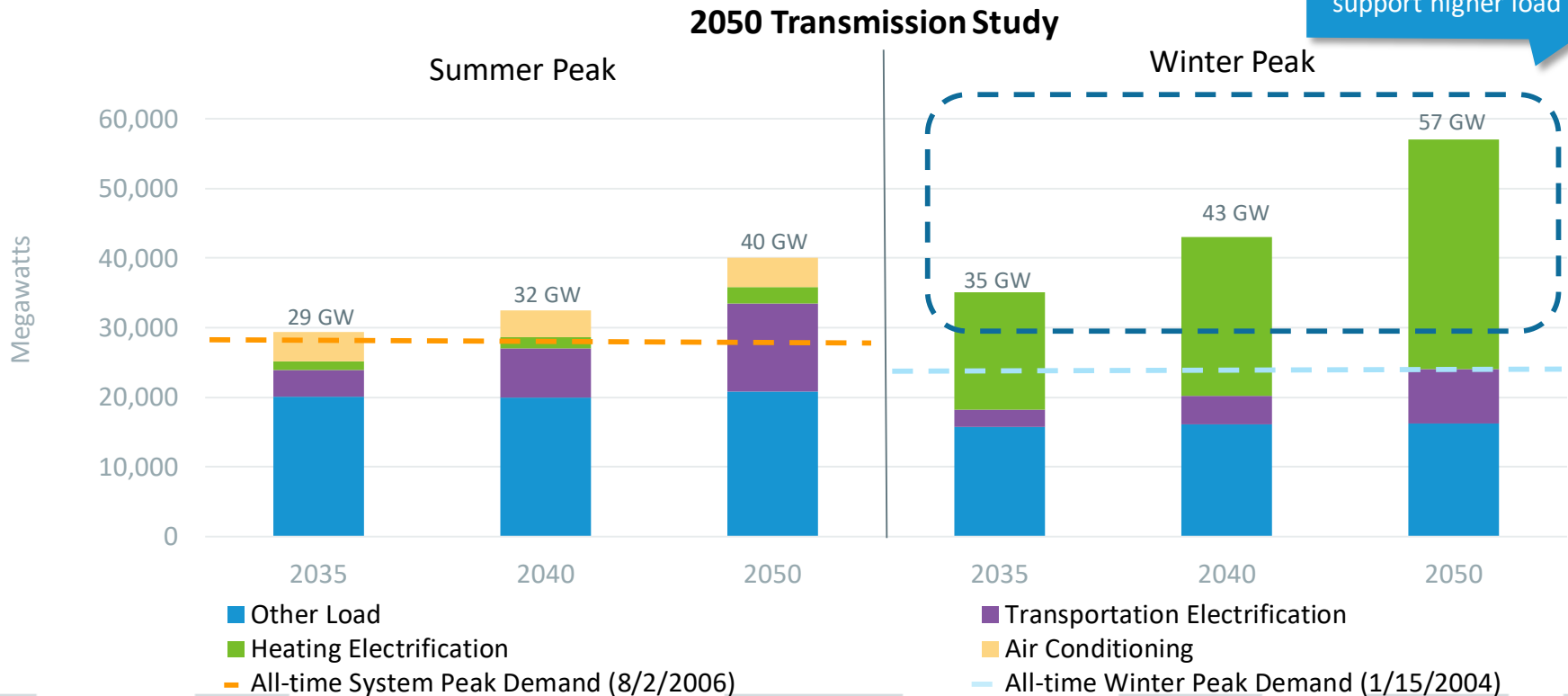
Plan or control the resource mix, or have a financial interest in the companies that own energy infrastructure



Have jurisdiction over fuel infrastructure

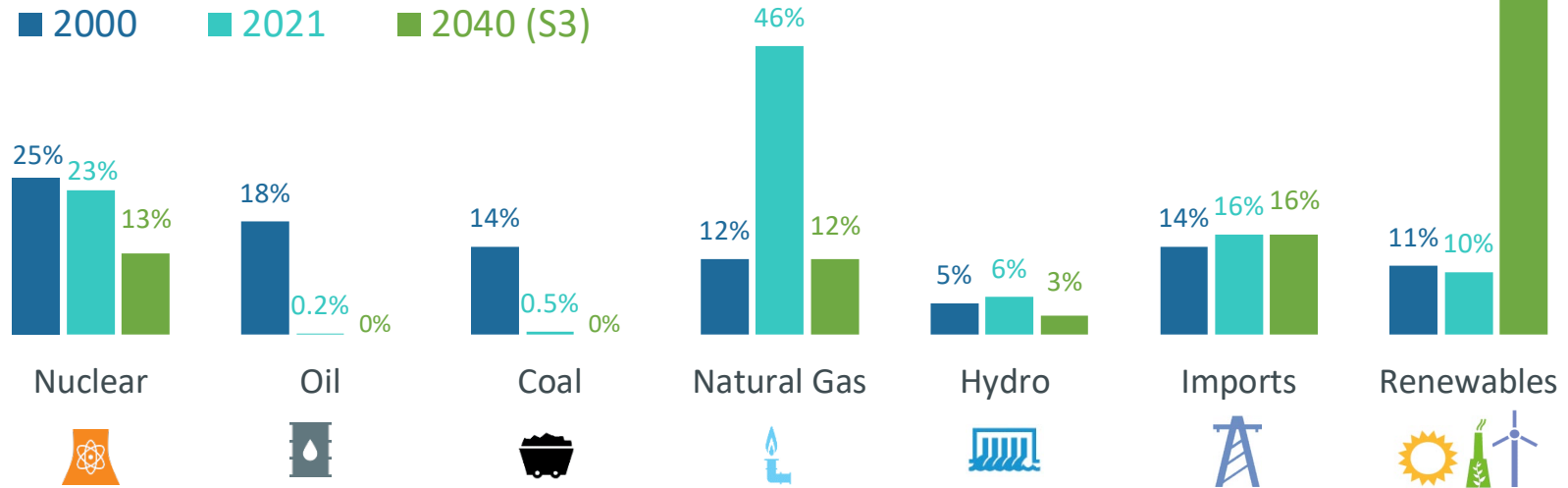
New England System Peak Grows Substantially and Shifts to Winter-Peaking

Region needs to address energy adequacy risk to support higher load levels



Dramatic Changes in the Energy Mix Are Underway

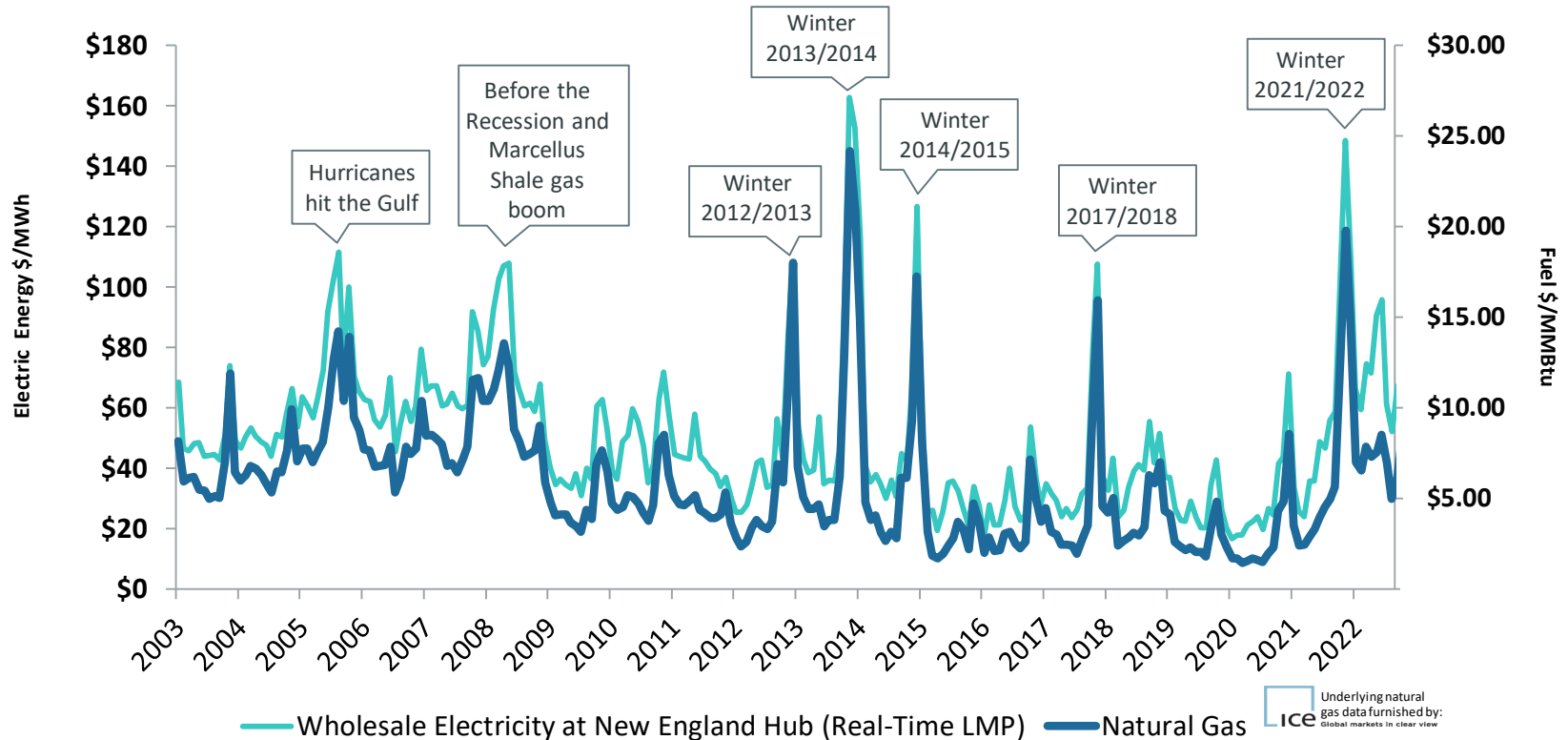
Percent of Total **Electric Energy** Production by Source
(Past, Present, Future)



Source: ISO New England [Net Energy and Peak Load by Source](#); data for 2021 is preliminary and subject to resettlement; data for 2040 is based on Scenario 3 of the ISO New England [2021 Economic Study: Future Grid Reliability Study Phase 1](#). Renewables include landfill gas, biomass, other biomass gas, wind, grid-scale solar, behind-the-meter solar, municipal solid waste, and miscellaneous fuels.

Natural Gas and Wholesale Electricity Prices Are Linked

Monthly average natural gas and wholesale electricity prices at the New England hub



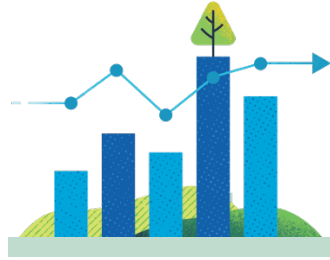
Four Pillars of Supporting a Successful Energy Transition

New England is on a path to achieve a clean-energy future over the next several decades. Calling upon the results of several key studies, as well as 25 years' experience planning the region's power system, the ISO has identified four pillars critical to supporting the region's clean energy transition



1

Significant amounts of clean energy to power the economy with a greener grid



2

Balancing resources that keep electricity supply and demand in equilibrium



3

Energy adequacy - a dependable energy supply chain and/or a robust energy reserve to manage through extended periods of severe weather or energy supply constraints



4

Robust transmission to integrate renewable resources and move clean electricity to consumers across New England

Questions to Consider

- How does the region manage the risk of price volatility in the global energy market that is driving up electricity prices?
- What can the states do to mitigate risks to consumers?



Looking at Some Market Fundamentals

New England Wholesale Markets

- New England has highly efficient gas-fired generation, but high fuel prices are driving up wholesale (and retail) electricity prices
- Market prices reflect vulnerabilities in the region's energy system:
 - Potential supply/demand imbalance during severe cold periods
 - Dependency on imported fuels and vulnerability to global commodity prices
 - Lack of sufficient retail demand-side participation in the market

Global Energy Markets

- Energy crisis in Europe caused by War in Ukraine forced European countries to look to LNG as an alternate to Russian pipeline gas
- New England, which depends heavily on LNG imports during cold weather, is forced to compete in global market with increasing demand for LNG
- This global pressure *exacerbates* already high fuel prices in New England

Region Faces Short- and Long-Term Challenges

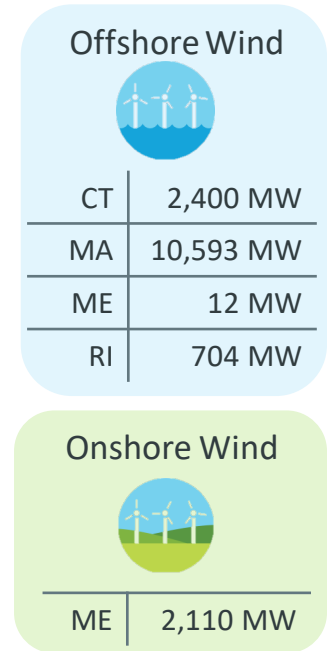
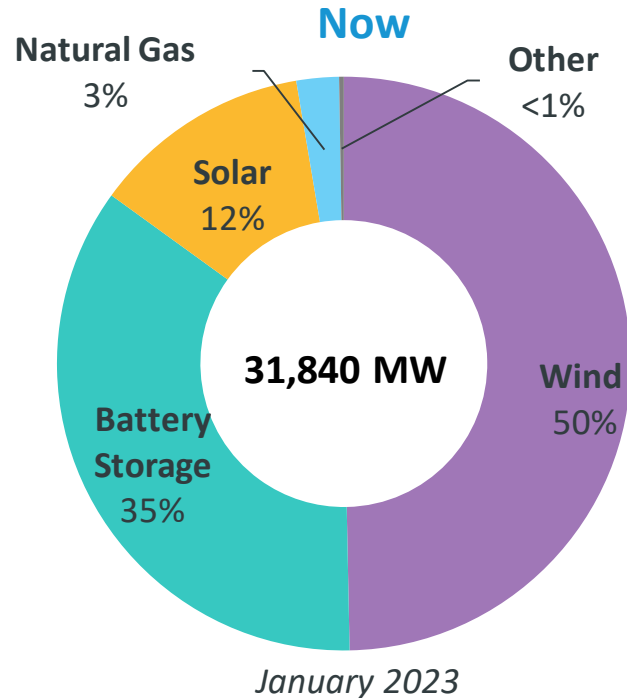
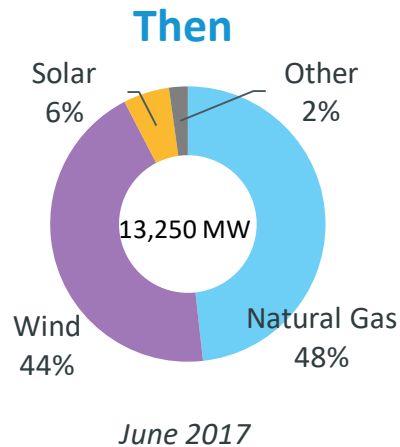
- **ISO retained Mystic Generating Units and the Everett LNG Terminal** in Boston through summer of 2024 through a limited, FERC-approved, cost-of-service agreement
 - This ensured adequate supplies of LNG to cover a moderate winter for two winters, but once the agreement terminates, the future of Everett LNG Terminal is uncertain
 - Retirement of Everett will **reduce** competition for the supply of LNG to the region
 - Reliability risks necessitate sharpening incentives for generators to make fuel arrangements
 - There is a direct correlation between price volatility and infrastructure/supply chain constraints
- Region needs to bring on large amounts of renewable and clean energy to meet states' goals for **decarbonizing a grid that will need to supply twice as much energy as today**
 - *As our dependency on renewables grows, the need for long-duration balancing energy will grow. This will increase our dependency on high-energy-density fuels (such as LNG) during periods when renewables may not be able to produce*
- New England needs to overcome persistent barriers to siting and building **infrastructure** (transmission, renewables) and have a plan to replace gas/LNG as the **balancing energy** source to successfully **transition** to an electric grid that is powered fully by clean energy

Possible State Solutions

- Continue to pursue all cost-effective **energy efficiency** and conservation
 - Reduce how much electricity the ISO, utilities, suppliers, and state officials must plan for, procure, and build infrastructure to support
- Enable dynamic **demand response** in retail rate designs
 - Encourage consumers to *use less* electricity when supplies are scarce and prices are high
- **Transmission investment** to enable renewable energy development
 - ISO is providing technical support to the states to assist them with transmission
- Secure existing **LNG import capability** at Everett LNG Terminal
- Stabilize the **LNG supply chain** and energy prices by considering longer-term hedging of the gas component of electricity supply, so consumers are not continually exposed to the volatility of the region's current *short* position on LNG (similar to what has been done with Millstone and renewables)

APPENDIX: BACKGROUND INFORMATION

The ISO Generator Interconnection Queue Provides an Indicator of What's Coming onto the System



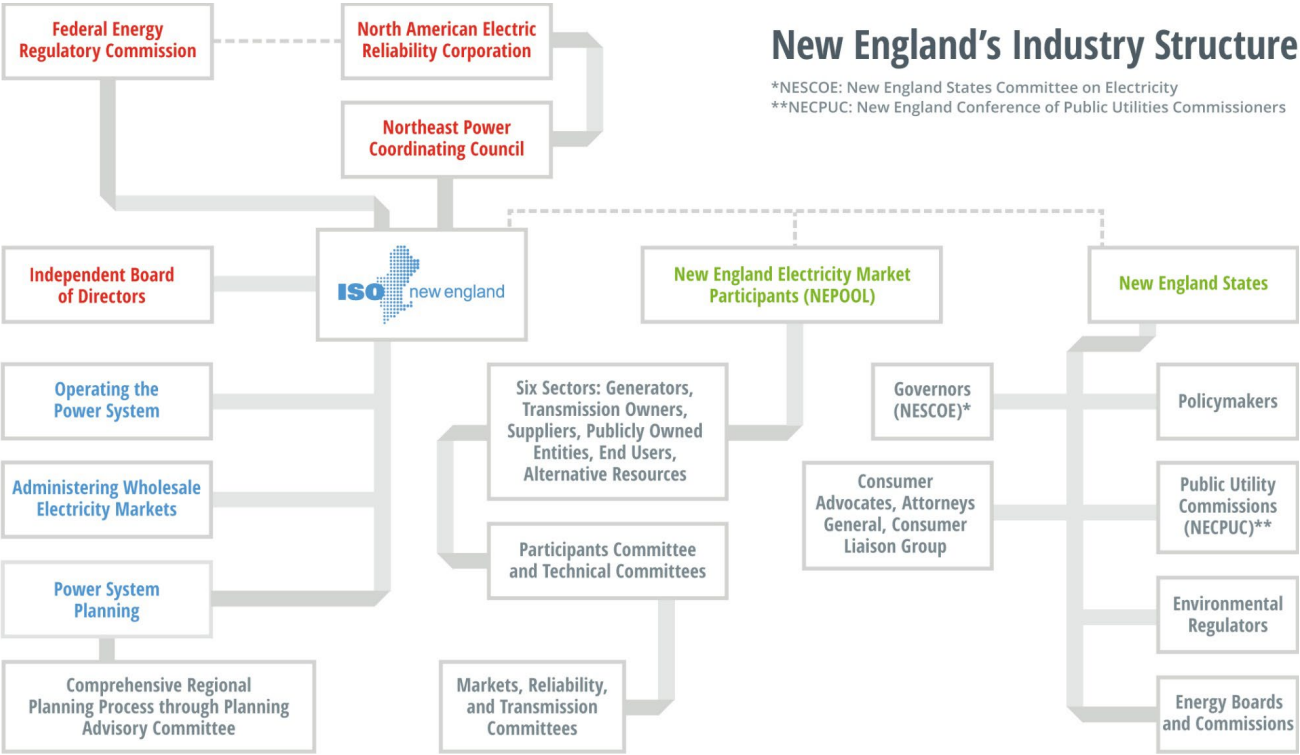
Source: ISO Generator Interconnection Queue, FERC Jurisdictional Proposals; Nameplate Capacity Ratings.

ISO New England (ISO) Has More Than Two Decades of Experience Overseeing the Region's Restructured Electric Power System

- **Regulated** by the Federal Energy Regulatory Commission
- **Reliability Coordinator** for New England under the North American Electric Reliability Corporation
- **Independent** of companies in the marketplace and **neutral** on technology

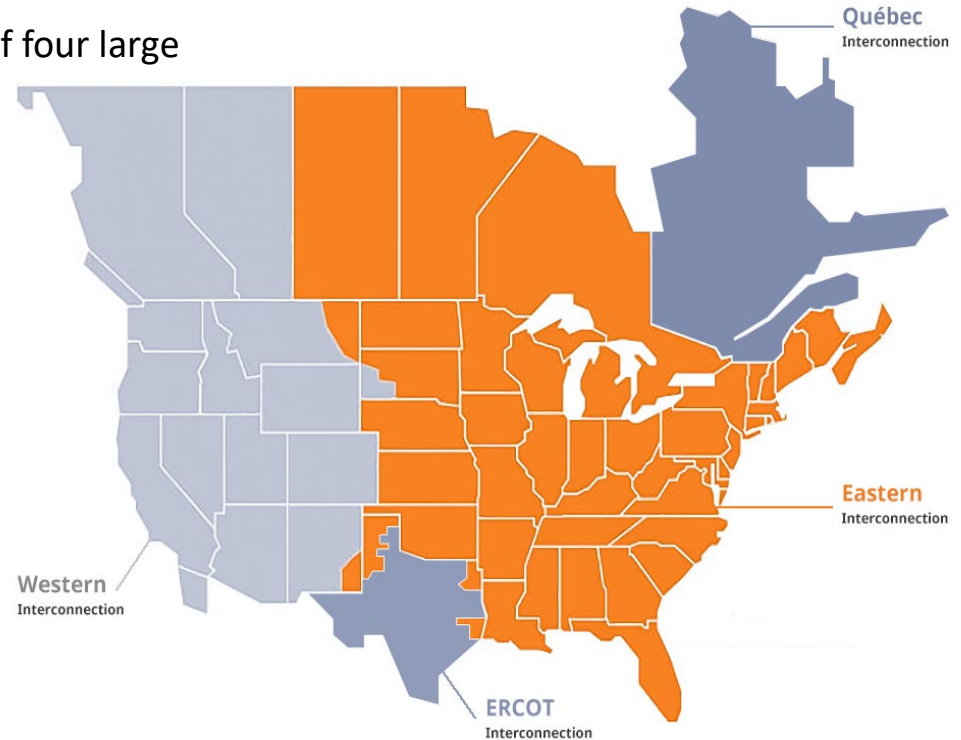


Numerous Entities Including an Independent Board Provide Oversight of and Input on ISO's Responsibilities



New England's Power Grid Is Part of a Larger Electric Power System

- Part of the **Eastern Interconnection**, one of four large power grids in North America
 - Interconnected through primarily alternating current (AC) transmission
- Tied to **Québec** only through direct current (DC) transmission
- 2003 blackout ushered in wide-area monitoring and **mandatory** reliability standards
- Subject to reliability standards set by **NERC** and **NPCC***



* North American Electric Reliability Corporation (NERC) and Northeast Power Coordinating Council (NPCC)