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Balancing Reliability and Public Policy Requirements to Enable the Clean Energy Transition

New England Electricity Restructuring Roundtable

Electricity System & Wholesale Markets: the Big Picture

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ISO New England's *Mission and Vision*

Mission: *What we do*

Through collaboration and innovation,
ISO New England plans the transmission system, administers the region's wholesale markets, and operates the power system to ensure reliable and competitively priced wholesale electricity

Vision: *Where we're going*

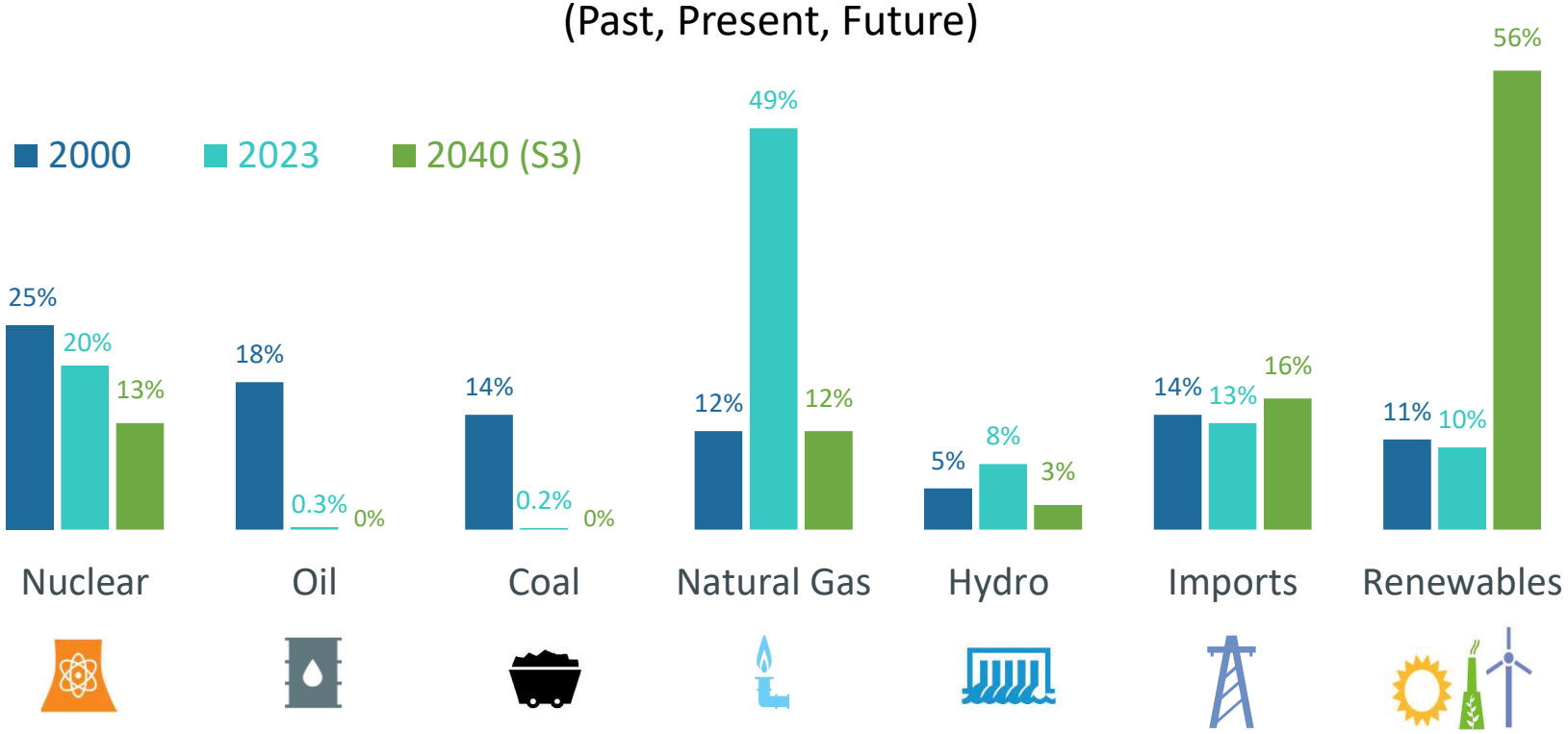
To harness the power of competition and advanced technologies to reliably plan and operate the grid as the region transitions to clean energy

*The ISO's **Vision** for the future represents our long-term intent and guides the formulation of our Strategic Goals*

Dramatic Changes in the Energy Mix

*New England is shifting to **renewable energy** following a major shift from coal and oil to natural gas over the past two decades*

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



Source: ISO New England Net Energy and Peak Load by Source; data for 2023 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.

There Are Four Pillars Necessary to Support a Successful Clean Energy Transition

PILLAR ONE

Clean Energy

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

PILLAR TWO

Balancing Resources

Resources that can supply electricity, reduce demand, or provide other services to maintain power system equilibrium

PILLAR THREE

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

PILLAR FOUR

Robust Transmission

To integrate renewable resources and move clean energy to consumers across New England

We Are Developing Responsive Market Designs to Accommodate the Changing Resource Mix

Capacity Market Reforms

- Alt. Commitment Horizons
  - Replace the Forward Capacity Auction with a **prompt** auction (same as year of need) and make capacity a **seasonal** product
- Resource Capacity Accreditation
  - Implement new methodologies to **accredit** resources' capacity contributions to regional resource adequacy

Ancillary Services and Energy Adequacy Improvements

- Day-Ahead Ancillary Services
  - Procure and transparently price ancillary service capabilities for the next day's operating plan
- Flexible Response Services
  - Evaluate additional ancillary services for **ramping** and **longer-duration** reserves
- Regional Energy Threshold Metric
  - Establish a new Regional Energy Shortfall Threshold ("REST") metric to complement existing loss-of-load resource adequacy standard

Net Carbon Pricing Would Directly Price Carbon Emissions

Would drive the resource mix toward greater amounts of clean energy by harnessing the power of competitive wholesale markets

- **An efficient, market-based solution**
  - Compensates new and existing clean energy resources for their carbon-free energy
  - Provides powerful incentives to existing resources to reduce carbon emissions

- **Mitigates wholesale price effects**
  - Requires carbon-emitting resources to account for the cost of carbon emissions in their offer prices
  - "Net" means returning some revenue from higher energy market prices to load, and the balance to clean and low-emitting resources
  - Reduces dependency on a capacity market for all resources, and/or long term PPAs (for carbon-free resources that are uneconomic in the wholesale market)

We Are Conducting Longer-Term Transmission Studies to Support State Policies

- State-Requested Process to Identify Transmission Concepts
  - Analyzes future scenarios identified by the New England States Committee on Electricity (NESCOE), based on one or more states' or localities' government requirements, mandates, or policies
  - Extends beyond the 10-year planning horizon
  - Identifies high-level transmission concepts and, if requested, cost estimates
  - ISO-NE's first Longer-Term Transmission Study (LTTS), the "2050 Transmission Study," was released in early 2024
- Process to develop transmission projects identified in a LTTS is under development
  - Would include a cost allocation mechanism for the transmission improvements

New England Must Balance Multiple Objectives

Robust Wholesale Markets to Ensure Reliability

- The region's wholesale electricity markets are working as designed to maintain **reliability** of the region's bulk electric system while selecting the **lowest-priced** resources
- But, there is not an adequate regional mechanism to sufficiently value **clean energy attributes** or price carbon – which are public policy decisions

Affordable Decarbonization of the Regional Energy System

- Individual New England States have adopted policies to promote **renewable energy** and **decarbonization** of the region's power grid and economy
- **Existing carbon-free energy resources** are an important part of achieving these policies

***The Consequence**: Greater dependency on the capacity market for all resources, and a need for supplementary, out-of-market revenues for carbon-free resources that are uneconomic in the wholesale market*