



ISO New England Regional Update and Interconnection Overview

New Hampshire Nuclear Study Commission

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Overview of Presentation

- About ISO New England
- New England's Evolving Resource Mix
- Interconnection Queue Overview
- ISO New England Publications and Resources



ABOUT ISO NEW ENGLAND



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



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*

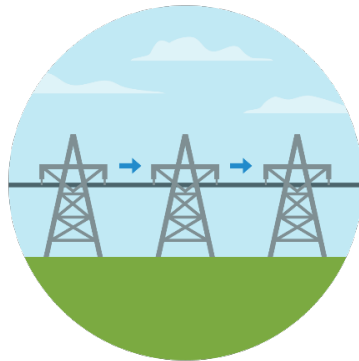
To harness the power of competition and advanced technologies to reliably plan and operate the grid as the region transitions to clean energy



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

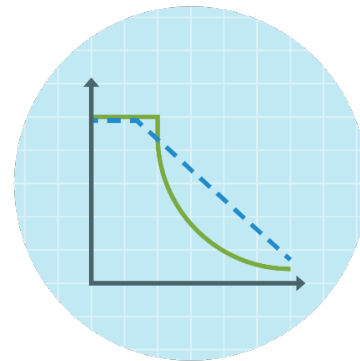
Grid Operation

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



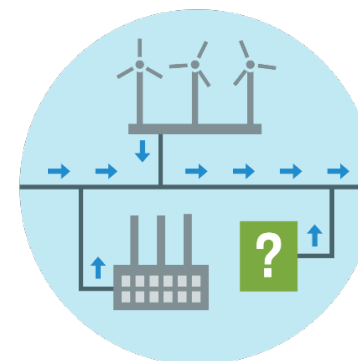
Market Administration

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

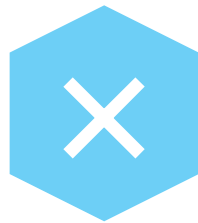


Transmission Planning

Study, analyze, and plan to make sure New England's electricity needs will be met over the next 10 years



Things We Don't Do



Handle
retail
electricity



Own power
grid
infrastructure



Have a stake
in companies
that own grid
infrastructure



Have
jurisdiction
over fuel
infrastructure

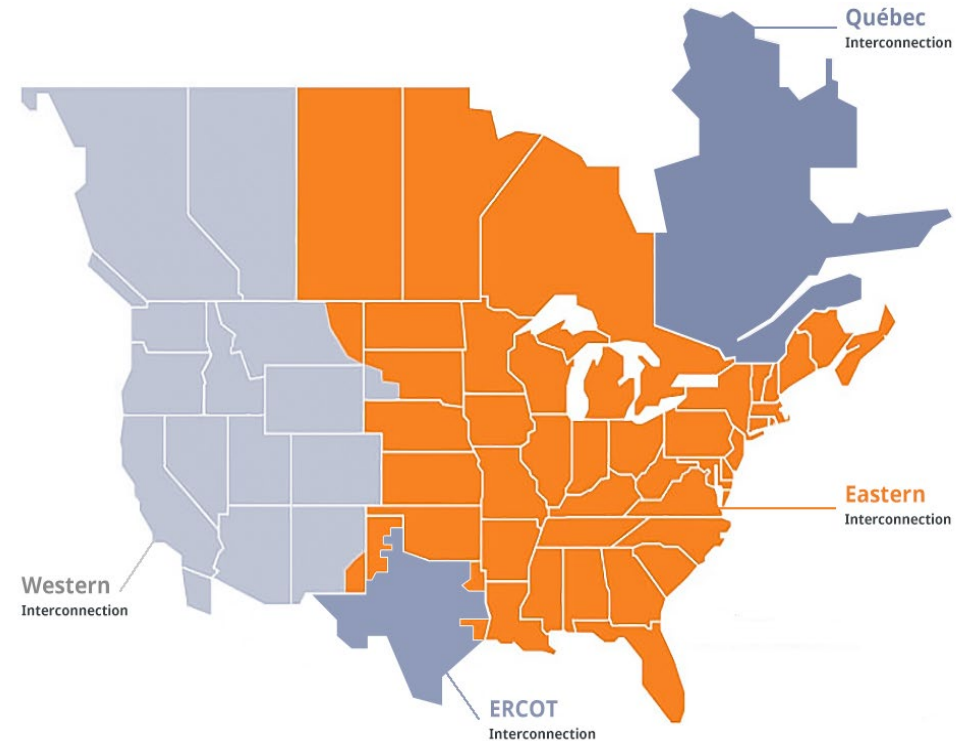


Have control
over siting
decisions



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)

Generation and Demand Resources Are Used to Meet New England's Energy Needs

- 350 dispatchable generators in the region
- 31,500 MW of generating capacity
- More than 38,000 MW of proposed generation in the ISO Queue
 - Mostly wind, storage, and solar proposals
- Roughly 5,200 MW of generation have retired or will retire in the next few years
- 765 MW of active demand response and 2,032 MW of energy efficiency with obligations in the Forward Capacity Market*
 - Demand resources have had further opportunities in the wholesale markets since 2018



* In the Forward Capacity Market, demand-reduction resources are treated as capacity resources.

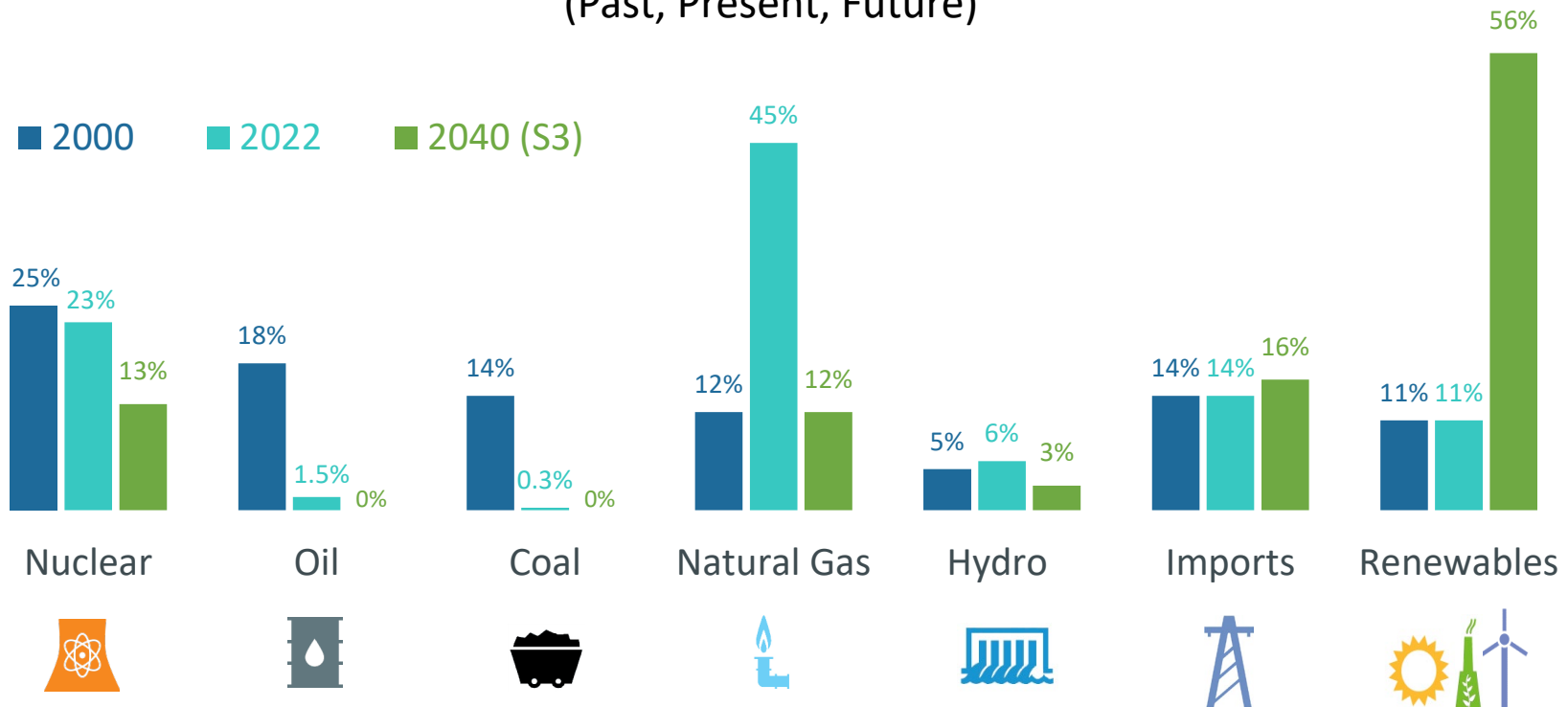
NEW ENGLAND'S EVOLVING RESOURCE MIX



Dramatic Changes in the Energy Mix

New England made a major shift from coal and oil to natural gas over the past two decades, and is shifting to renewable energy in the coming decades

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

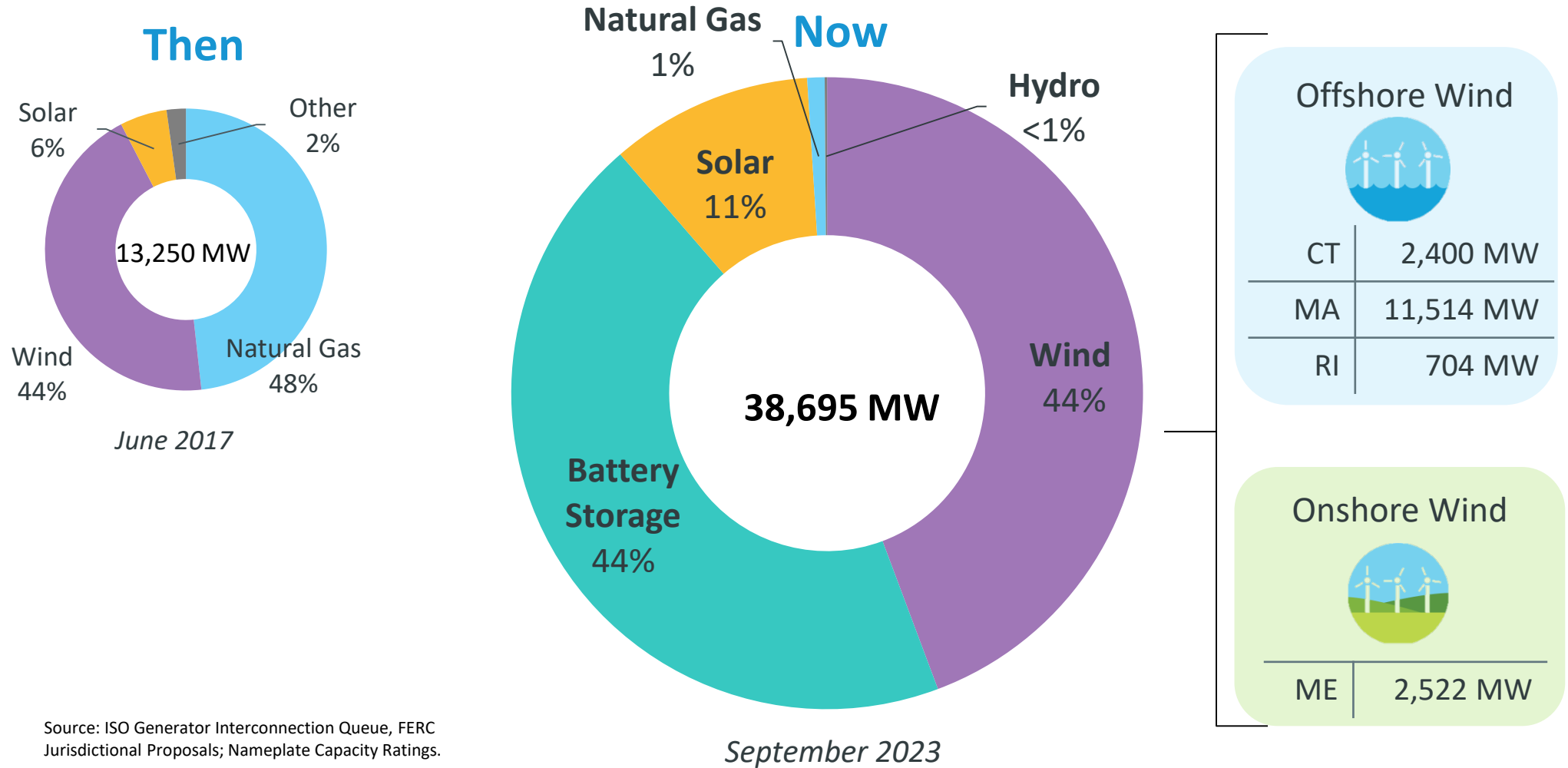


Source: ISO New England [Net Energy and Peak Load by Source](#); data for 2022 is preliminary and subject to resettlement; data for 2040 is based on Scenario 3 of the ISO New England [2021 Economic Study: Future Grid Reliability Study Phase 1](#).

Renewables include landfill gas, biomass, other biomass gas, wind, grid-scale solar, behind-the-meter solar, municipal solid waste, and miscellaneous fuels.

The ISO Generator Interconnection Queue Provides a Snapshot of Resource Proposals

Dramatic shift in proposed resources from natural gas to battery storage and renewables



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

There Are **Four Pillars** Necessary to Support a Successful 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



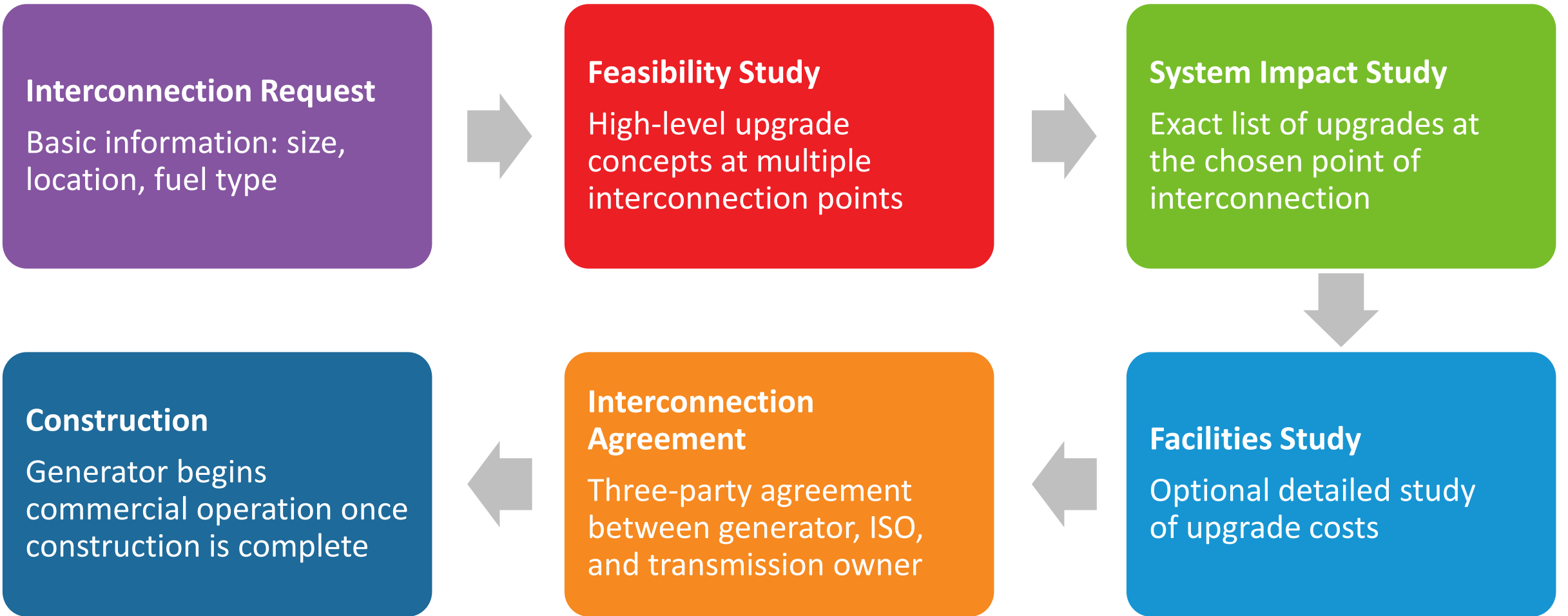
4

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

OVERVIEW OF INTERCONNECTION QUEUE



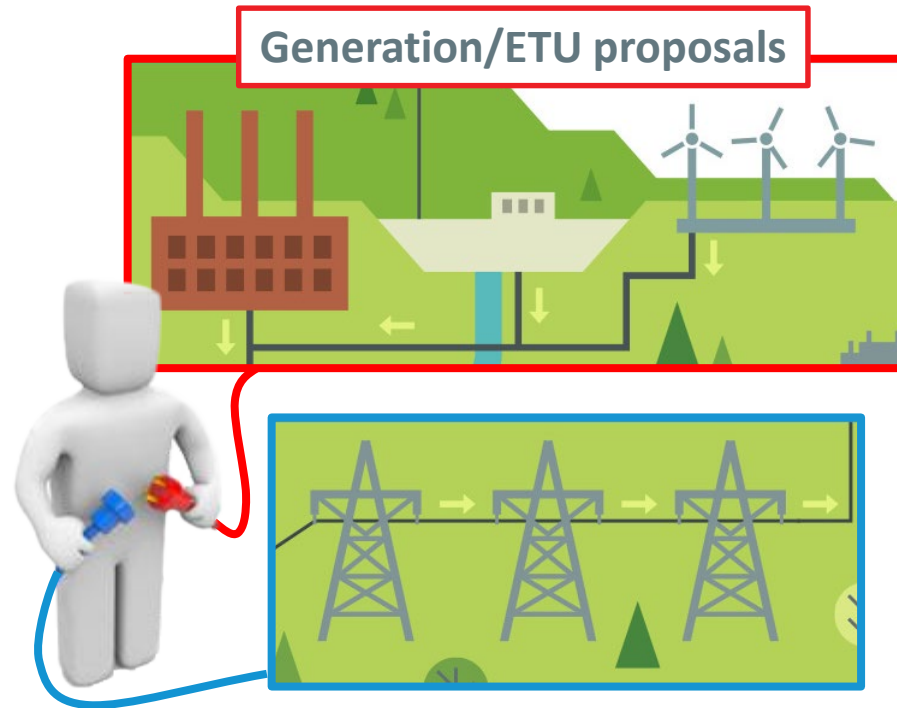
Interconnection Process – Basic Flow



For more information about this process, visit ISO New England's [Interconnection Process Training Overview](#)

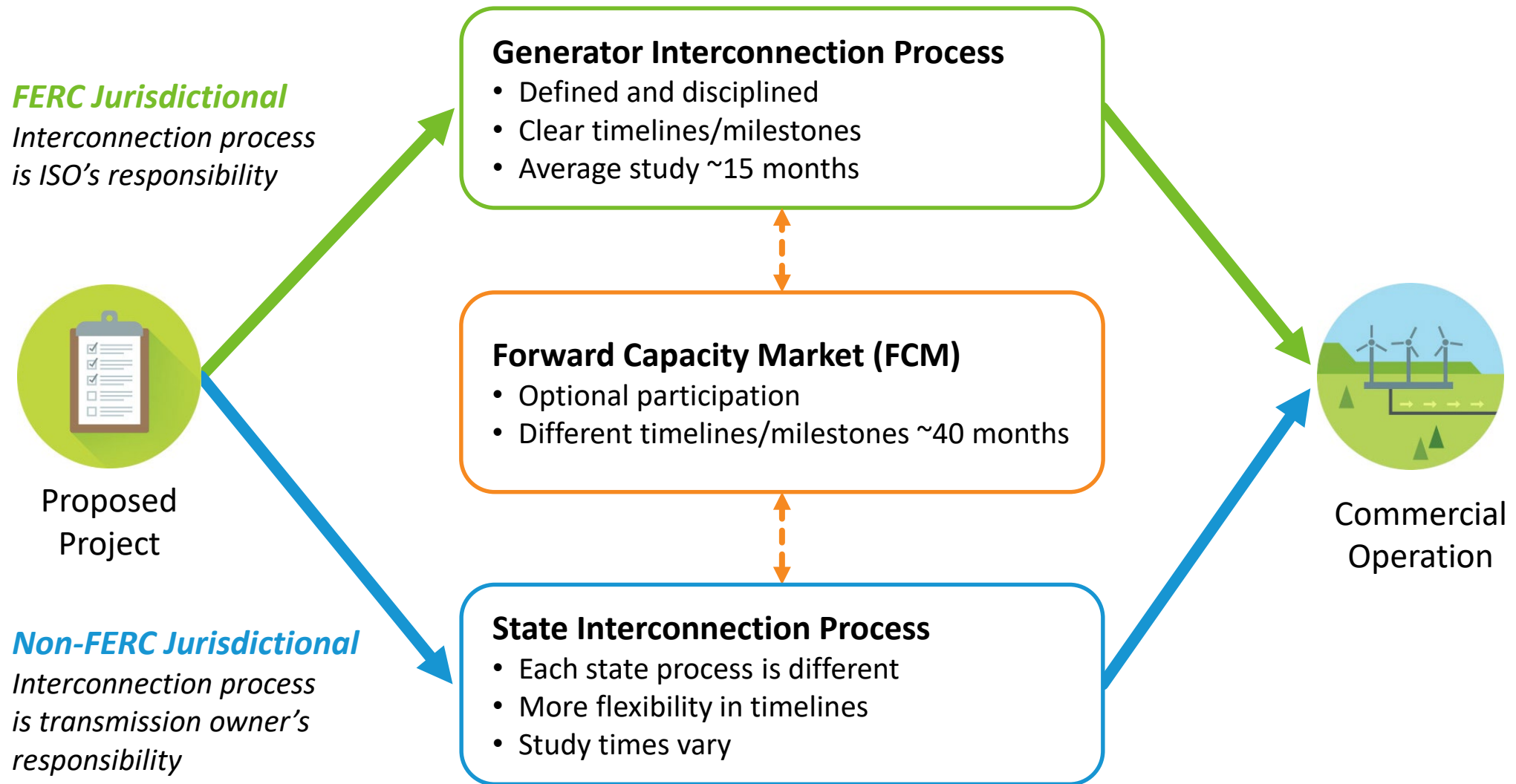
Connecting Resources to the Power System

ISO administers the FERC generator interconnection process



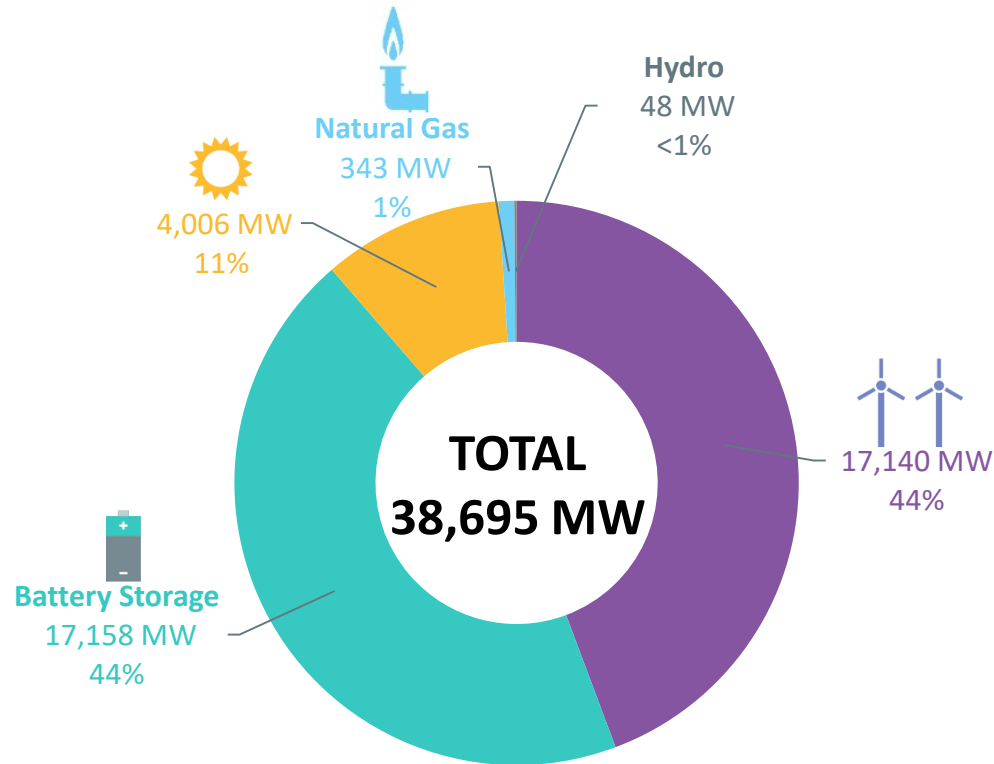
- Proposals are:
 - Maintained in interconnection queue
 - Subject to ISO reliability review
 - Studied in order received
- End result is a three-party interconnection agreement among:
 - ISO New England
 - Generator/Elective Transmission Upgrade (ETU) project sponsor
 - Interconnecting transmission owner

Resource Paths to Commercial Operation



Wind Power & Battery Storage Comprise Most of the New Resource Proposals in the ISO Interconnection Queue

All Proposed Resources



| State | Megawatts (MW) |
|---------------|----------------|
| Massachusetts | 21,590 |
| Connecticut | 8,214 |
| Maine | 5,688 |
| Rhode Island | 1,683 |
| New Hampshire | 1,145 |
| Vermont | 375 |
| Total | 38,695 |

Source: ISO Generator Interconnection Queue (September 2023)
FERC Jurisdictional Proposals

Source: ISO Generator Interconnection Queue (September 2023)
FERC Jurisdictional Proposals; Nameplate Capacity Ratings

Note: Some natural gas proposals include dual-fuel units (with oil backup).
Some natural gas, wind, and solar proposals include battery storage. Other includes
hydro, biomass, fuel cells and nuclear uprate.

Additional Information for Resources

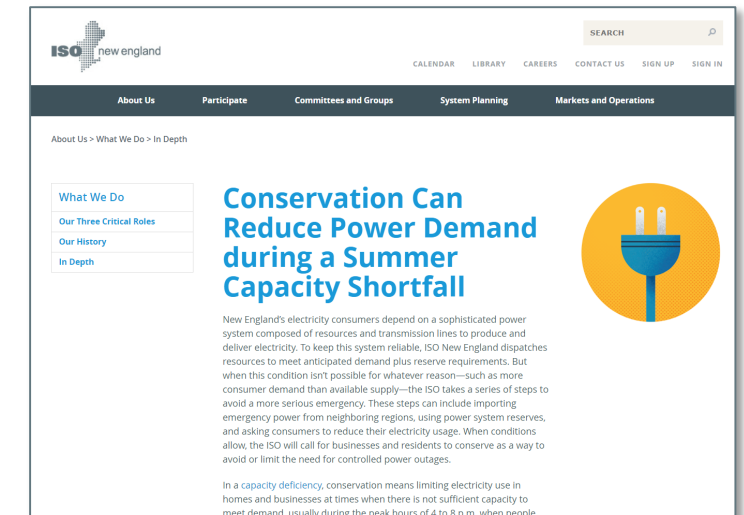
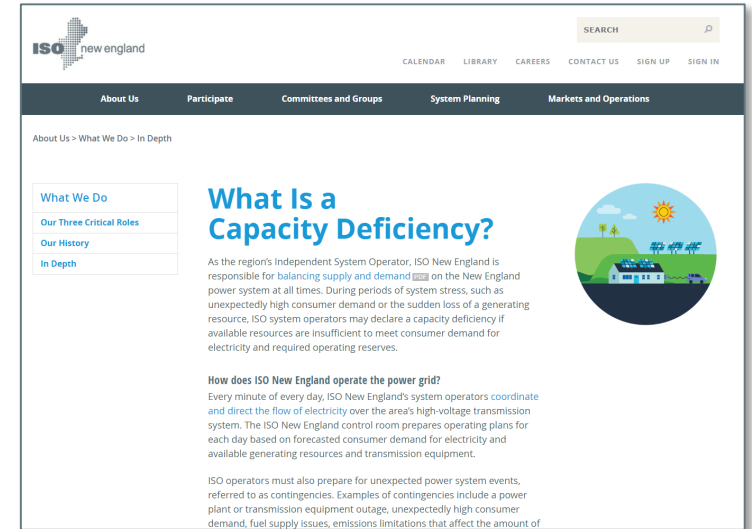
- ISO-NE website: www.iso-ne.com
- Transmission, Markets, and Services Tariff ([Participate > Rules and Procedures](#))
- Market Rule 1 ([Participate > Rules and Procedures > Transmission, Markets, and Services Tariff](#))
- Interconnection Process Guide ([Participate > Applications and Status Changes](#))
- Interconnection Request Tracking Tool (IRTT): <https://irtt.iso-ne.com/>
- Interconnection Request Tracking Tool (IRTT) User Guide: ([Participate > Support > User Guides](#))
- FCM Participation Guide: [Markets and Operations > Markets Data and Information > Forward Capacity Market](#)
- ISO-NE [Glossary and Acronyms](#)

ISO NEW ENGLAND PUBLICATIONS AND RESOURCES



New Website Content for Summer 2023

- ISO New England has launched two new web pages to assist in the event emergency communications are needed:
 - *“What Is a Capacity Deficiency?”*
 - A high-level explainer of a capacity deficiencies and the steps ISO New England will take to manage them
 - *“Conservation Can Reduce Power Demand during a Summer Capacity Shortfall”*
 - An overview of the role of conservation in a capacity deficiency, including tips for consumers to reduce their energy use

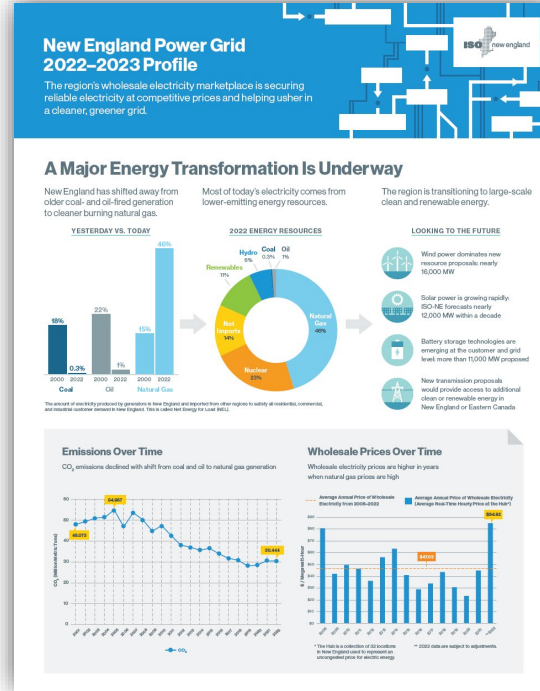


ISO New England Releases Several Publications



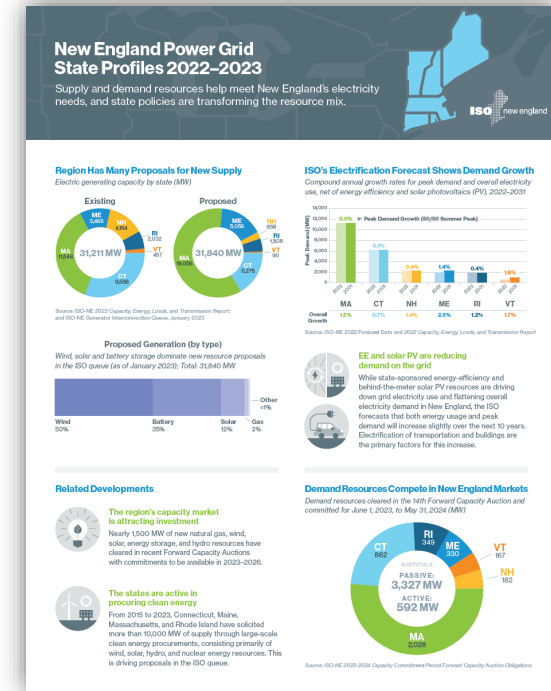
2022 Regional Electricity Outlook

Provides an in-depth look at New England's biggest challenges to power system reliability, the solutions the region is pursuing, and other ISO New England efforts to improve services and performance



New England Power Grid Profile

Provides key grid and market stats on how New England's wholesale electricity markets are securing reliable electricity at competitive prices and helping usher in a cleaner, greener grid



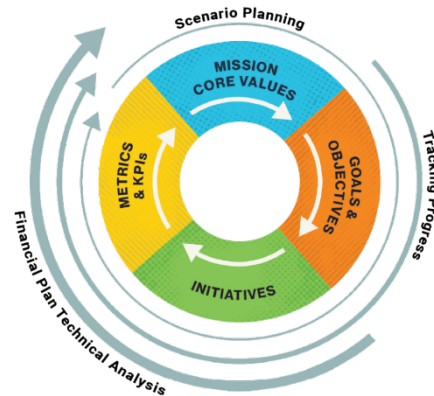
New England State Profiles

Provides state-specific facts and figures relating to supply and demand resources tied into the New England electric grid and state policies transforming the resource mix in the region

ISO New England's Strategic Plan

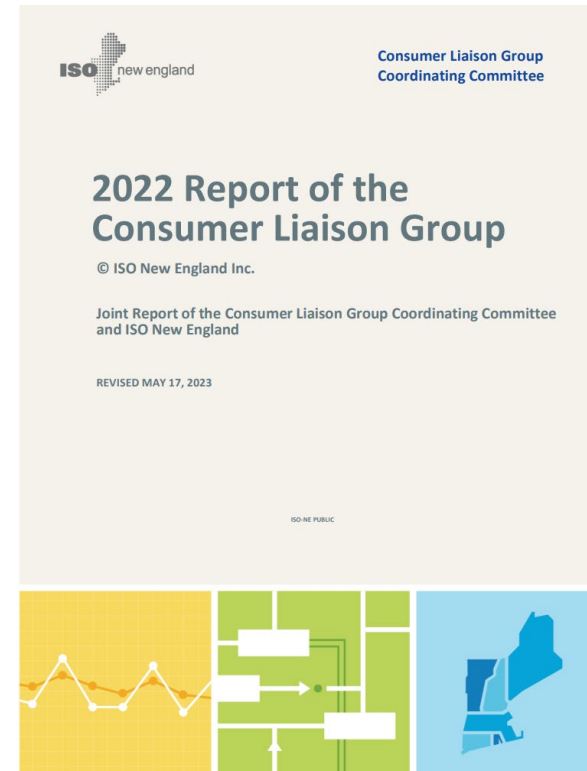


- On **October 26**, the ISO released [Vision in Action: ISO New England's Strategic Plan](#)
- The plan provides insight into how the ISO intends to fulfill its three critical roles during the clean energy transition
- In addition to discussing the ISO's key goals and initiatives, the plan offers perspectives on trends shaping the power industry
- ISO CEO Gordon van Welie presented an overview of the plan at the Nov 1 Open Board Meeting



Consumer Liaison Group Provides a Forum for Consumers to Learn about Regional Electricity Issues

- A forum for sharing information between the ISO and electricity consumers in New England
- The CLG Coordinating Committee consists of 12 members who represent various stakeholder groups
- Quarterly meetings are free and open to the public, with in-person and virtual options to participate
- Upcoming 2023 Meetings
 - Thursday, September 21
 - Wednesday, December 6



2022 CLG Annual Report is posted [here](#)

More information on the CLG is available at: <https://www.iso-ne.com/committees/industry-collaborations/consumer-liaison/>



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www.iso-ne.com/learn

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Log on to ISO Express

[ISO Express](#) provides real-time data on New England's wholesale electricity markets and power system operations



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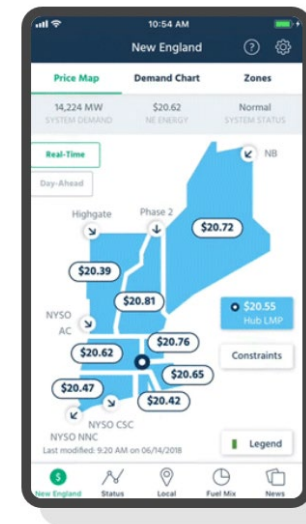


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Download the ISO to Go App

[ISO to Go](#) is a free mobile application that puts real-time wholesale electricity pricing and power grid information in the palm of your hand



Questions

