



Regional System Plan

2023 OVERVIEW

ISO New England's Regional System Plan (RSP) is a comprehensive look at the 10-year horizon for New England's power grid, including resources, transmission, market efficiencies, and economic and environmental considerations. The RSP helps regional stakeholders assess needs related to grid reliability. Publishing an RSP at least once every three years is one of the ISO's responsibilities as mandated by the Federal Energy Regulatory Commission (FERC). This overview of the 2023 RSP highlights key updates since the 2021 RSP.

State and Federal Initiatives



State policy objectives and federal funding initiatives related to the clean energy transition have a significant impact on power system planning.

- ISO staff **provided technical assistance** to the New England states as they applied for funding related to the **Bipartisan Infrastructure Law of 2021**.
- Prompted by Massachusetts renewable energy laws, construction of the **New England Clean Energy Connect (NECEC)**, a major new transmission line, will bring **1,200 MW of hydropower** from Québec into the region via Maine.
- Maine utility regulators have approved a **major transmission line and wind farm** that will connect Northern Maine to ISO New England and **will provide renewable energy** to Maine and Massachusetts utilities.
- Passage of state legislation continues to increase authorizations for **offshore wind procurements**.

Environmental Regulations



State and federal environmental policies are changing the types of new generators entering the electricity markets, and how existing generators operate.

- Individual **state emission reduction goals** and associated contracting are prompting a **surge of renewable energy** resource development.
- Certain **existing and new regulations** may require additional air pollution control devices, modified or reduced water use and wastewater discharges, or limited operations for existing fossil fuel resources, which **may prompt more generator retirements**.

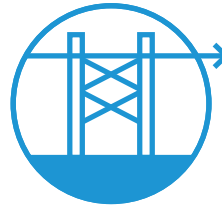
Load Forecasting



Forecast methods related to future electricity consumption, the foundation of the ISO's system planning efforts, are continuously evolving to keep pace with emerging trends.

- The region's annual and peak **energy use will grow significantly** over the next decade, driven by the electrification of heating and transportation.
- As soon as 2031, the region could experience its **annual peak load during a particularly cold winter** instead of the traditional summer peak. By the mid-2030s, winter will likely become the peak season.
- Existing distributed solar power has already shifted summer net peak loads to later in the afternoon, when solar output is lower. As a result, **new distributed solar will play a lesser role** in reducing summer peak demand than it has previously.

Transmission Planning



As part of its responsibility to ensure the power system operates reliably, the ISO is supporting a number of transmission planning efforts.

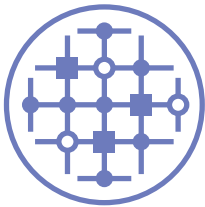
- Recent projects such as the **Greater Boston Upgrades, Boston Area Optimized Solutions, and NH 2029 Upgrades** have addressed potential post-contingency overloads, voltage concerns, and short circuit levels.
- Increases in renewable generation, along with unprecedented load and weather conditions, are creating **power system conditions outside the range of traditional studies**. This may prompt the ISO to limit resources' operations. Inadvertent disconnection of inverter-based distributed energy resources due to transmission faults is of particular concern.
- In collaboration with New York ISO and PJM Interconnection, ISO New England is assessing whether and how to **increase the loss-of-source limit** (currently 1,200 MW). The limit helps prevent problems from cascading across the interconnected regional grids.
- Recent Tariff changes enable studies to assess the reliability of the transmission system beyond the 10-year horizon. The resulting 2050 Transmission Study provides stakeholders with roadmaps for a **smooth clean energy transition**. The next phase of Tariff changes will develop a process to assist states in moving related transmission projects forward.
- Since 2016, **389 asset condition projects** have been undertaken in the region, for a total investment of \$7.7 billion expected through 2030.

Nearly \$12 billion

has been invested in New England's efforts to maintain transmission reliability since 2002, with \$1.5 billion more expected between now and 2027.



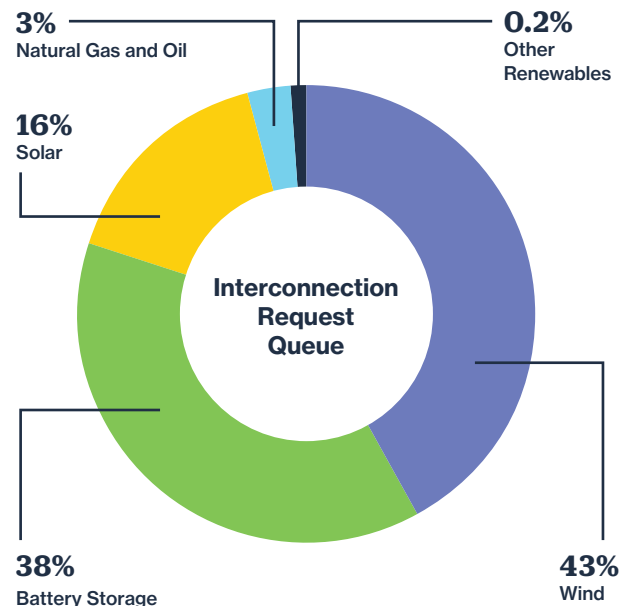
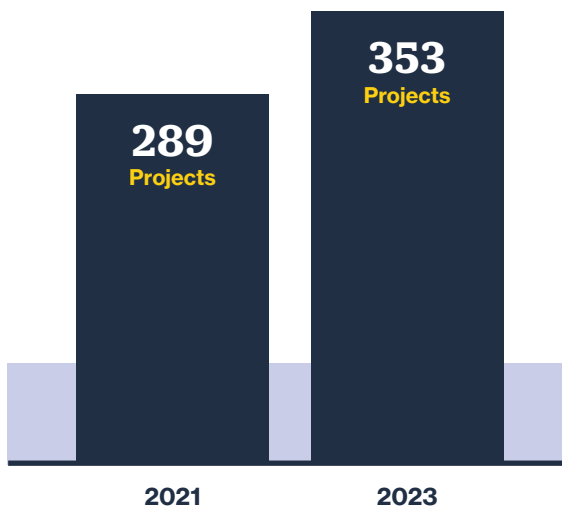
Interconnection



The ISO evaluates the reliability of proposed interconnections to the transmission system. Recent years have seen a dramatic shift in the number and

types of resources proposing to interconnect. Changes to the nature of the interconnection process are also imminent, driven by FERC Order 2023.

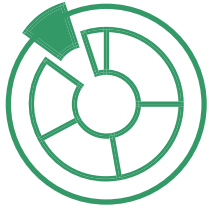
- **Wind and storage** currently make up the largest share of proposals in the Interconnection Request Queue.
- In total, **353 generation projects** are being tracked in the queue, up from 289 two years ago.



Share of proposed capacity, in megawatts, as of June 2023.

- Additional **transmission build-outs** will be required to reliably interconnect proposed large-scale onshore and offshore wind facilities in Maine and Cape Cod.
- **Cluster studies** have allowed the ISO to more efficiently evaluate multiple new resources proposed in Maine and Cape Cod. Clustering also allows resources to share transmission upgrade costs.
- In order to expedite the interconnection process, FERC is **changing the “first-come, first-served” approach** to better incorporate cluster studies.

Resource and Energy Adequacy

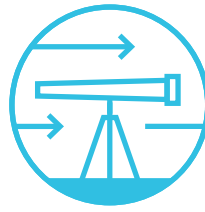


New England's electricity supply is rapidly shifting toward a higher proportion of intermittent resources such as wind and solar power. The ISO must ensure

the resources available to the grid result in a dependable bulk electric system.

- **Sufficient capacity is expected** through the end of the 10-year planning horizon, based on an assessment of resources that have cleared the most recent Forward Capacity Auction, projected renewable resources supported by state contracts, and anticipated growth of solar power and energy efficiency programs.
- The net **Installed Capacity Requirement**, which describes the minimum quantity of resources the region needs in a particular year to meet its resource adequacy planning criterion, **is expected to decrease** in the next few years, **then rise** in line with the electrification of heating and transportation.
- The ISO has initiated the **Resource Capacity Accreditation** project to ensure the region is accurately assessing the reliability contributions of resources in the capacity market.

Economic Studies



The ISO is improving the relevance and detail of its economic studies to identify barriers to reliable and efficient grid operation, and to focus on providing actionable results.

- Results of the recent **Future Grid Reliability Study** indicate that an exclusive reliance on wind, solar, and battery resources would pose **significant reliability challenges**. Targeted dispatchable resources and extended energy storage capability will become increasingly critical as intermittent resources become more prevalent.
- **The interregional exchange of power will become more important** as New England and neighboring regions electrify, decarbonize, and diversify. However, since these regions often experience the same weather conditions, counting on import capability when the grid is most stressed will need to be carefully evaluated.
- The in-progress **Economic Planning for the Clean Energy Transition** pilot study will provide insight into the economic and environmental impacts of transmission congestion over a 10-year planning horizon, as well as the operational, economic, and environmental impacts of various capacity expansion outcomes over a 30-year horizon.

The full 2023 Regional System Plan is available at [iso-ne.com/rsp](https://www.iso-ne.com/rsp)



ISO New England is the not-for-profit corporation responsible for keeping electricity flowing across the six-state New England region: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The company's power system engineers, economists, computer scientists, and other professionals ensure that the region has reliable, competitively priced wholesale electricity today and into the future. The ISO is independent – none of the ISO's board members, officers, or employees has a financial interest in any company doing business in the region's wholesale electricity marketplace. The Federal Energy Regulatory Commission regulates the ISO.