JANUARY 22, 2025 | S. BURLINGTON, VT

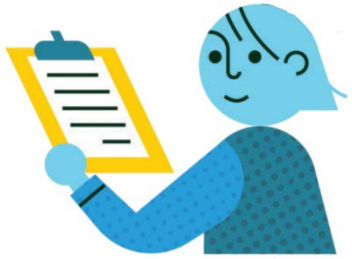
ISO New England Regional Update

Vermont System Planning Committee
January 2025 Quarterly Meeting

Sarah Adams

STATE POLICY ADVISOR

Today's Updates



- Resources & Events
- Markets Update
  - Monthly Market Highlights
- Operations Update
  - Winter 2024/2025 Outlook
- System Planning Update
  - Longer-Term Transmission Planning
  - FERC Order 881: Managing Transmission Line Ratings
  - Planning Procedure 12: Procedure for Distributed Energy Resource Data Collection
  - ISO Generator Interconnection Study Queue Snapshot

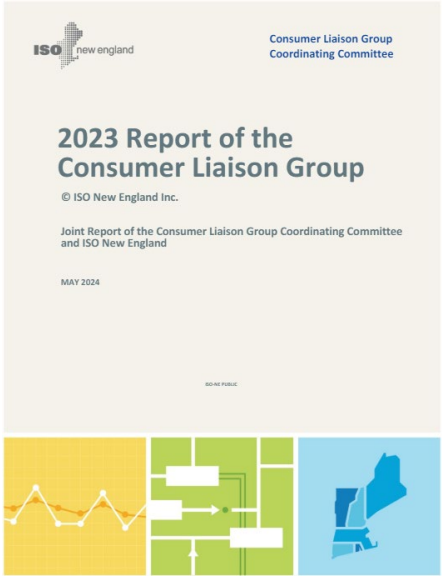
RESOURCES & EVENTS

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 14 members who represent various stakeholder groups
- Quarterly meetings are free and open to the public, with in-person and virtual options to participate

Anticipated 2025 CLG Meeting Dates and Locations:

- Thursday, March 27 – Rhode Island
- Wednesday, June 4 – Massachusetts
- Wednesday, September 24 – New Hampshire
- Wednesday, December 3 – Boston, MA



2023 CLG Annual Report

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

ISO-NE Announces 2025 Training Schedule

ISO has announced its 2025 schedule for training events

- A full course description and registration link for each training class will be provided via email notice approximately eight to ten weeks before the class
- The information will also be posted to the calendar on ISO's web site

Anticipated 2025 Trainings:

ISO 101: We are ISO New England

February 25, 2025 | May 20, 2025 | October 28, 2025

A dynamic one-day course designed to provide an overview of ISO New England and its role

New England's Wholesale Energy Markets (NEWEM)

May 21-22, 2025 | October 29- 30, 2025

A comprehensive exploration of New England's energy markets with this two-day course

Navigating the Dynamics of New England's Wholesale Energy Markets (NavEM)

September 23-25, 2025

A comprehensive three-day course designed to delve into advanced topics in New England's energy markets

CLG Webinar with FERC Office of Public Participation

- On November 14, 2024, the ISO, in coordination with the CLG Coordinating Committee, hosted a webinar with staff from the Federal Energy Regulatory Commission's (FERC's) Office of Public Participation (OPP)
- OPP presenters explained FERC's mission, jurisdiction, relationship to ISO-NE, and how and why to participate in FERC proceedings
- Webinar slides and a video recording have been posted to the CLG webpage

Economic Planning for the Clean Energy Transition Public Webinar

- The presentation and recording of a recent webinar on ISO's Economic Planning for the Clean Energy Transition (EPCET) study are available online
  - EPCET explored the operational, engineering, and economic challenges the region must address to support the New England states' commitment to reduce carbon emissions over the next several decades
  - The final report, fact sheet, and related materials can be found on the Economic Studies page on the ISO-NE website
- The webinar provided an overview of the study and was designed for a non-technical audience

MARKETS UPDATE

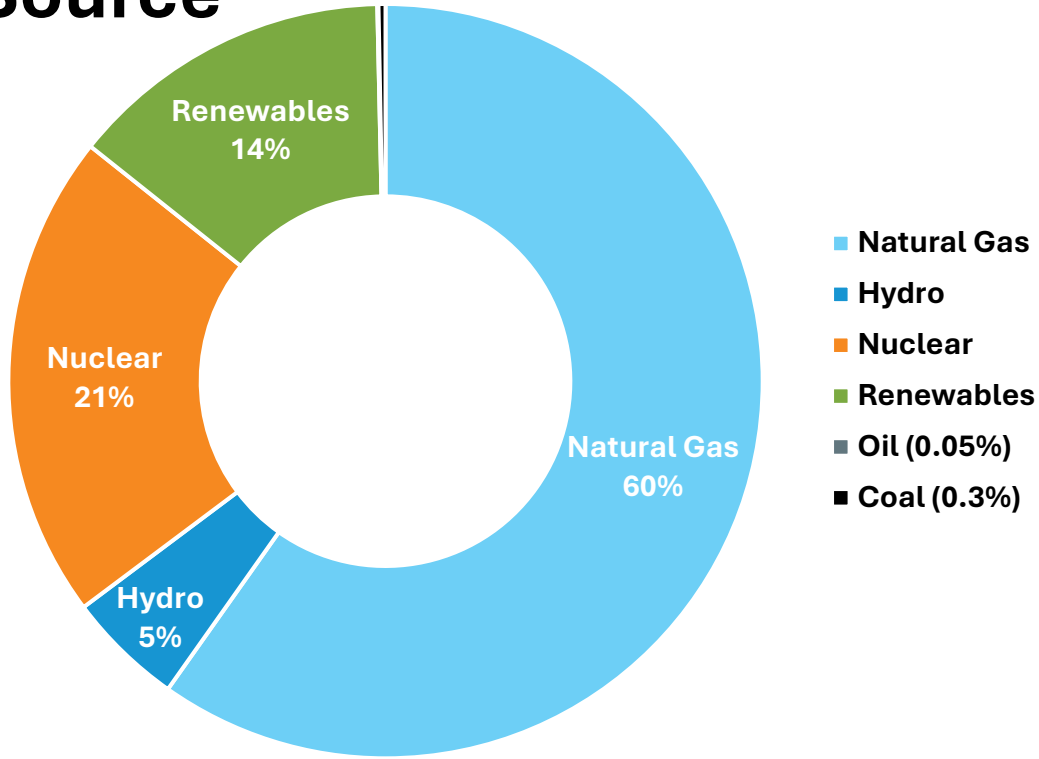
Monthly Markets Highlights

Monthly Wholesale Electricity Prices and Demand in New England, November 2024

November 2024 and Percent Change from November 2023 and October 2024	November 2024	November 2023	October 2024
Average Real-Time Electricity Price ($/megawatt-hour)	$40.23	8.7%	15.5%
Average Natural Gas Price ($/MMBtu)	$2.26	-34.5%	26.3%
Peak Demand	15,816 MW	-8.5%	7.3%
Total Electricity Use	8,848 GWh	-3.6%	3.7%
Weather-Normalized Use*	9,067 GWh	0.1%	6.1%

*Weather-normalized demand indicates how much electricity would have been consumed if the weather had been the same as the average weather over the last 20 years.

November 2024 Generation in New England, by Source



Source: 2024 Net Energy and Peak Load by Source

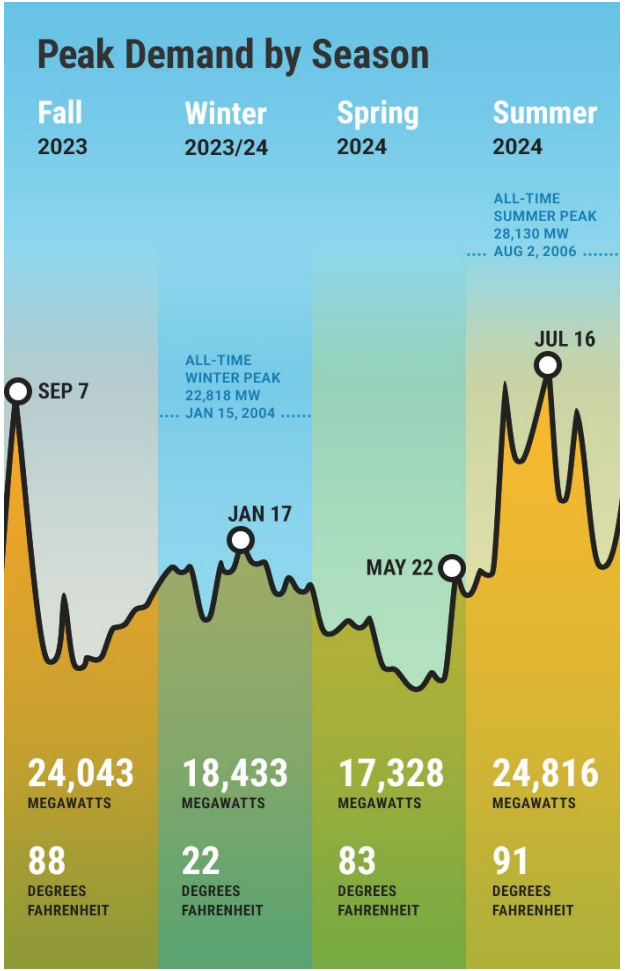
OPERATIONS UPDATE

ISO New England 2024/2025 Winter Outlook and Preparations

ISO New England 2024/2025 Winter Outlook and Preparations

- New England's winter peak demand period runs from December through February
- **Weather** is the largest driver of energy use and resource availability in New England
- The ISO utilizes a **rolling 21-day energy supply forecast** to provide an early warning to the region should energy supplies become constrained

One Goal Lies at the Heart of ISO New England's Mission: *Reliability*



ISO's Pre-Winter Energy Analysis

- ISO-NE calculates **available capacity** by assessing expected contributions from all resources (including imports) while accounting for unplanned resource outages
- Available capacity is compared to anticipated demand under both normal weather conditions and periods of colder than normal temperatures to determine if region has the capacity needed to meet **consumer demand** and **maintain required operating reserves**
- This year, ISO also used the **Probabilistic Energy Adequacy Tool** to determine whether resources would be available to provide energy under extreme weather scenarios

2024/2025 Results	The capacity analyses and energy assessments show the region is **well-positioned** heading into the winter

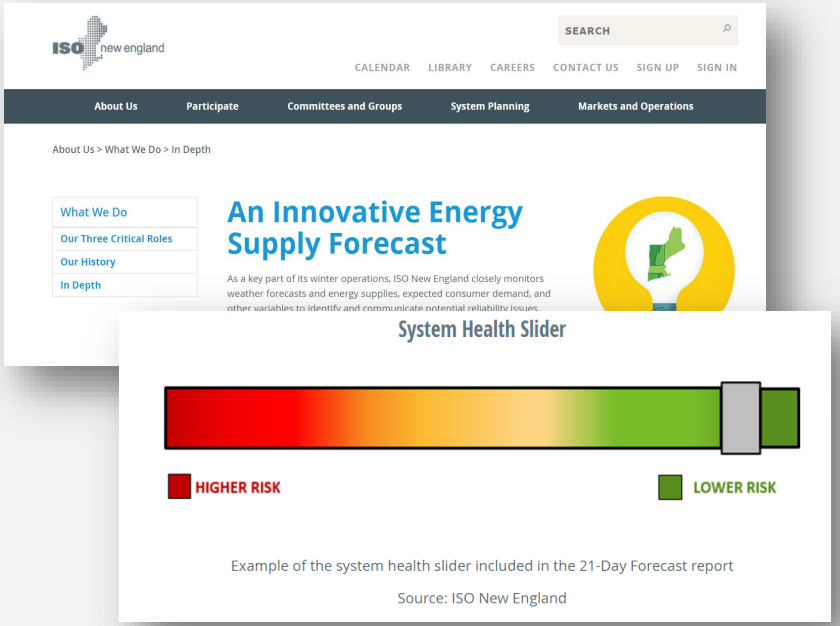
Learn more about ISO-NE's PEAT and the 2024/2025 Winter Outlook
https://www.iso-ne.com/static-assets/documents/100017/npc-2024-11-07-new-england-winter-outlook.pdf

Key Takeaways

2024/2025 Winter Outlook

- **Adequate electric supplies expected under mild and moderate weather**, which in New England is quite cold
- The ISO's winter outlook again identifies potential reliability concerns based on a range of weather conditions
  - The ISO has operating procedures to manage an energy shortfall, but our winter outlook is not explicitly forecasting the need for those actions
- ISO New England anticipates demand for electricity will peak at **20,308 megawatts (MW)** during average winter weather conditions of 10°F, and **21,089 MW** if temperatures reach below average conditions of 5°F
  - Last winter's demand peaked at 18,299 MW on January 17, 2024, when temperatures averaged 20°F
- National Oceanic and Atmospheric Administration (NOAA) is projecting **average to above average temperatures in New England**, though a warmer than average season does not eliminate the threat of prolonged stretches of cold weather

For Background on How to Read the OP-21 Report:

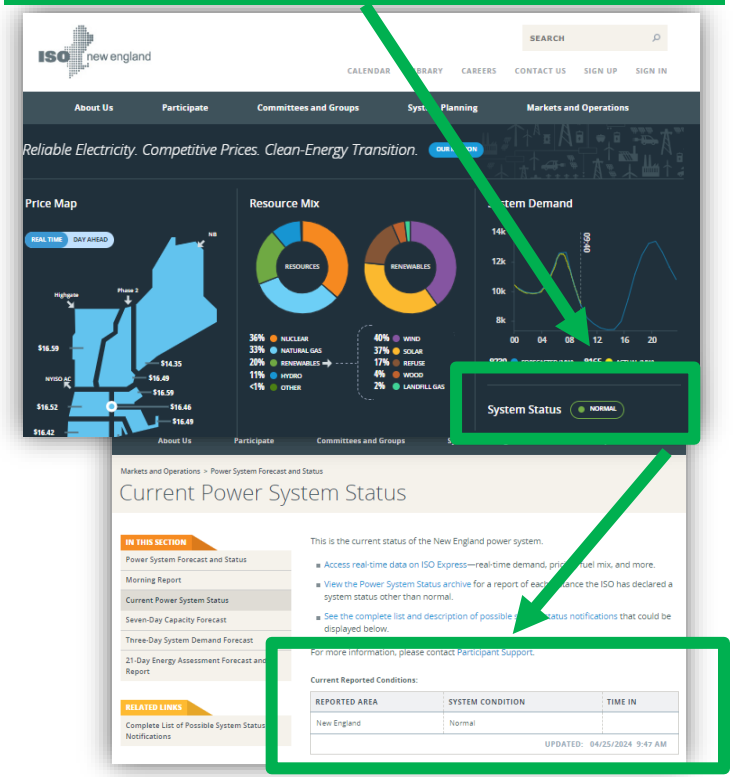


https://www.iso-ne.com/about/what-we-do/21-day-forecast

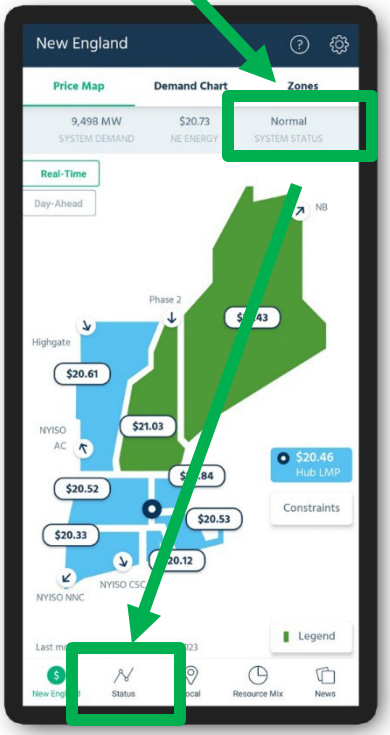
https://isonewswire.com/2022/12/19/iso-ne-rolls-out-enhancements-to-report-on-21-day-energy-supply-forecast/

Two Easy Ways to View Power Systems Conditions:

Website Home Page



ISO to Go Mobile App



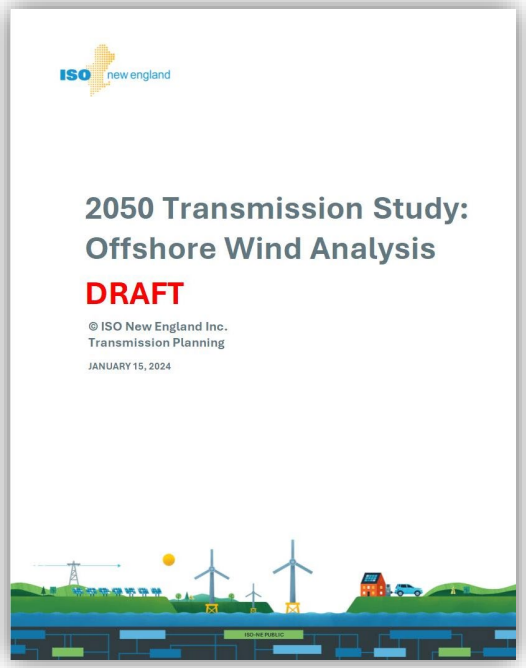
SYSTEM PLANNING UPDATE

Longer-Term Transmission Planning

Longer-Term Transmission Planning

2050 Transmission Study: Offshore Wind Analysis

- In response to a 2020 recommendation from the states, ISO began a **comprehensive long-term regional transmission study** and received **FERC approval** to revise the ISO Tariff to establish a repeatable longer-term study process
- The resulting 2050 Transmission Study was the **first longer-term transmission study** for New England
- Following the study's publication, the ISO responded to stakeholder feedback, and conducted additional analysis in pursuit of two goals:
  1. Offshore Wind Relocation
  2. High-Level Offshore Wind Interconnection Screening



2050 Transmission Study: Offshore Wind Analysis

Longer-Term Transmission Planning Phase II

Looking to the Future

- Accepted by FERC in July 2024, Phase II created a **new process to implement transmission system upgrades** based on longer-term transmission studies
- Upon request by the states, ISO will issue and evaluate requests for proposals (RFPs) to **address needs identified by the states** and provide **technical assistance** to support procurements and efforts to secure federal funding for transmission investments
- Framework mirrors existing competitive solicitation process for public policy, **but in the new process:**
  - NESCOE identifies needs and whether to pursue a solicitation
  - ISO administers single-phase competitive RFP
  - ISO evaluates proposals for viability and financial benefits
  - ISO selects preferred solution if at least one proposal meets the benefit-to-cost ratio threshold
  - NESCOE has the right to terminate the process
- Changes establish a **cost allocation** method for selected proposals that meet the **benefits criteria**:
  - Costs of selected proposals are allocated across all six states based on respective load ratio share, similar to Regional Benefit Upgrades
  - NESCOE may propose an alternative cost allocation method to be filed with FERC
- If there is a solution desirable to one or more states, but the benefit-to-cost threshold is not met, the **supplemental process** allows NESCOE to advance the solution, in which case:
  - Costs up to the transmission facility's benefits are allocated across all six states based on its benefit-to-cost ratio, and
  - Costs in excess of those benefits are allocated to the state(s) that voluntarily agree to assume them

Next Steps: Solving Transmission Needs through a LTTP RFP

- On December 13, 2024, NESCOE issued a letter requesting that ISO issue an RFP to address the following needs by 2035:
  - Increase Surowiec-South interface limit to at least 3,200 MW
  - Increase Maine-New Hampshire interface limit to at least 3,000 MW
  - Accommodate the interconnection of ≥1,200 MW of new onshore wind at or near Pittsfield, ME
- Tentative RFP schedule:

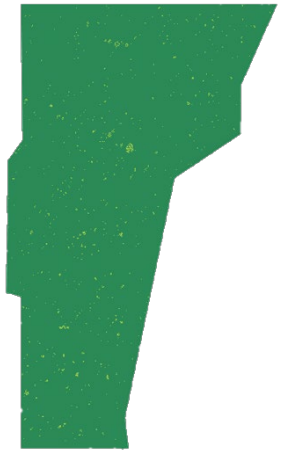
SYSTEM PLANNING UPDATE

FERC Order 881: Managing Transmission Line Ratings

FERC Order 881

Significance to Vermont

- In June 2024, ISO posted the final Vermont (VT) 2033 Needs Assessment*
- Typically, once a non-time-sensitive need (>three years) is identified, the next step is the initiation of a competitive solution process
- The ISO proposed a **pause** in the process due to the following factors:
  - Potential interaction with the Longer-Term Transmission Planning process
  - **Impact of FERC Order 881 implementation**
  - Use of Storage as a Transmission-only Asset (SATOA)
  - Need-by-date for the K32 line (Coolidge – Cold River) thermal violation
    - December 1st, 2032
- ISO still intends to use a competitive solution process to address the K32 need, if the K32 overload remains



*Access to this report is restricted to persons with approval to view Critical Energy Infrastructure Information (CEII).

FERC Order 881

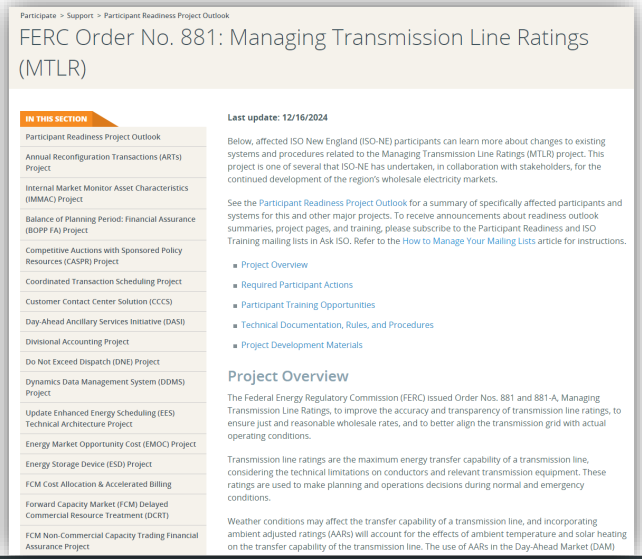
Project Overview

- FERC issued Orders 881 and 881-A, Managing Transmission Line Ratings, in Dec. 2021
- Order Nos. 881 and 881-A establish the following requirements:
  - The use of ambient adjusted ratings (AARs) in the Day-Ahead and Real-Time Market
  - At least four seasonal line ratings for longer-term transmission service requests
  - Unique emergency ratings
  - Electronic updates of ratings data on at least an hourly basis
- The ISO is developing the software and systems changes needed to implement a number of critical initiatives, including Order 881 AAR for Transmission Lines, as summarized in the 2025 Annual Work Plan
- Transmission providers and owners, and any equipment owners that provide ratings per Operating Procedure No. 16 requirements should be mindful of time-bound action items, which may require specific steps or adjustments to changes in ISO-NE systems both before and after the project implementation date
  - **The ISO is developing a request to extend the implementation date, likely to late Q4 of 2025**

FERC Order 881

Resources

- FERC Order No. 881: Managing Transmission Line Ratings (MTLR) Participant Readiness Project Outlook
- FERC Order No. 881: Frequently Asked Questions
- NEPOOL technical committee materials for participants and stakeholders, related FERC documentation
- Participant Training Opportunities
- Technical Documentation, Rules, and Procedures



Participate > Support > Participant Readiness Project Outlook

FERC Order No. 881: Managing Transmission Line Ratings (MTLR)

IN THIS SECTION

- Participant Readiness Project Outlook
- Annual Reconfiguration Transactions (ARTs) Project
- Internal Market Monitor Asset Characteristics (IMMAC) Project
- Balance of Planning Period: Financial Assurance (BOPP FA) Project
- Competitive Auctions with Sponsored Policy Resources (CASPR) Project
- Coordinated Transaction Scheduling Project
- Customer Contact Center Solution (CCCS)
- Day-Ahead Ancillary Services Initiative (DASI)
- Divisional Accounting Project
- Do Not Exceed Dispatch (DNE) Project
- Dynamics Data Management System (DDMS) Project
- Update Enhanced Energy Scheduling (EES) Technical Architecture Project
- Energy Market Opportunity Cost (EMOC) Project
- Energy Storage Device (ESD) Project
- FCM Cost Allocation & Accelerated Billing
- Forward Capacity Market (FCM) Delayed Commercial Resource Treatment (DCRT)
- FCM Non-Commercial Capacity Trading Financial Assurance Project

Last update: 12/16/2024

Below, affected ISO New England (ISO-NE) participants can learn more about changes to existing systems and procedures related to the Managing Transmission Line Ratings (MTLR) project. This project is one of several that ISO-NE has undertaken, in collaboration with stakeholders, for the continued development of the region's wholesale electricity markets.

See the Participant Readiness Project Outlook for a summary of specifically affected participants and systems for this and other major projects. To receive announcements about readiness outlook summaries, project pages, and training, please subscribe to the Participant Readiness and ISO Training mailing lists in Ask ISO. Refer to the How to Manage Your Mailing Lists article for instructions.

- Project Overview
- Required Participant Actions
- Participant Training Opportunities
- Technical Documentation, Rules, and Procedures
- Project Development Materials

Project Overview

The Federal Energy Regulatory Commission (FERC) issued Order Nos. 881 and 881-A, Managing Transmission Line Ratings, to improve the accuracy and transparency of transmission line ratings, to ensure just and reasonable wholesale rates, and to better align the transmission grid with actual operating conditions.

Transmission line ratings are the maximum energy transfer capability of a transmission line, considering the technical limitations on conductors and relevant transmission equipment. These ratings are used to make planning and operations decisions during normal and emergency conditions.

Weather conditions may affect the transfer capability of a transmission line, and incorporating ambient adjusted ratings (AARs) will account for the effects of ambient temperature and solar heating on the transfer capability of the transmission line. The use of AARs in the Day-Ahead Market (DAM)

SYSTEM PLANNING UPDATE

Planning Procedure 12: Procedure for Distributed Energy Resource Data Collection

Planning Procedure 12

Background

- Planning Procedure 12 (PP12) is a data collection process that requires distribution providers and/or transmission owners to submit data on installed Distributed Energy Resources (DER) to ISO New England
  - Because of the large number and cumulative capacity of these resources on New England's power system, ISO New England collects basic data on these facilities (size, physical location, electrical location, type, in-service date, and other characteristics) for use in many applications
  - This data is used as an input to both long- and short-term load forecasts, power system modeling, transmission planning and transmission service studies, operational studies, and the Energy Management System
  - Availability of this data leads to more accuracy in planning and operating the transmission system, as well as more efficient outcomes of these processes
- This data collection procedure replaces a voluntary process and will standardize the format and information provided

Planning Procedure 12

Benefits

- Benefits for data submitters:
  - A consistent data format, with clear expectations of data to be included
  - Clear timelines and a robust data request procedure
  - Better accuracy of system models provided to stakeholders
- Benefits for ISO-NE:
  - Load Forecasting
  - Power System Modeling
  - Transmission Planning
  - Transmission Service Studies
  - Operations Technical Studies
  - Energy Management System (EMS)
- Facility-by-facility data provides the granularity necessary for many processes, and allows ISO-NE to track trends in facility sizes and technology types
- ISO plans to implement a DER storage forecast for CELT 2026
  - New PP12 requirements are expected to improve the overall quality of ISO's data regarding DER interconnections, and DER storage in particular, beginning with the January 2025 data submission

Planning Procedure 12

Data Collection Process

For each installation:

Data to be provided by distribution provider

- Size (kW)
- Fuel Type (PV, wind, gas, etc.)
- In-Service Date
- Location (town/city/ZIP code)
- Feeder ID
- Etc.

Each distribution provider is required to submit the best available data for each DER facility connected to its system. This data should be submitted in the format given in **Appendix A of PP12.**

Appendix A includes two tabs, Instructions and Facility Data Format, that outline how to correctly format the data being requested.

For each feeder ID:

Data to be provided by transmission owner

- Corresponding PSS/E bus number
- Corresponding ISO-NE EMS substation name
- Corresponding latitude/longitude of beginning of feeder
- Etc.

Each transmission owner is required to submit data describing the electrical location of each feeder listed in the distribution provider's submission. This data should be submitted in the format given in **Appendix B of PP12.**

Along with the data request, ISO will provide each TO with a copy of the most recent version of the feeder information table in Appendix B as a starting point for their submission(s) - this may include all fields except Substation Latitude/Substation Longitude. Transmission owners will need to add any additional feeders or information not included in the data provided and should review the data completely.

Appendix B includes two tabs, Instructions and Feeder Data Submission Format, that outline how to format the data being requested correctly.

Planning Procedure 12

Timeline

- Data collection will occur three times a year:

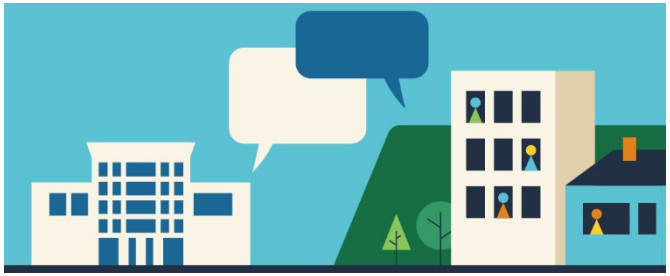
Procedure Step	December Data Collection	April Data Collection	August Data Collection
ISO-NE distributes data request to Distribution Providers and Transmission Owners	December 15	April 15	August 15
Submit all DER interconnected and proposed as of:	December 31	April 30	August 31
Distribution Providers and Transmission Owners respond to ISO-NE data request	January 21	May 21	September 21

- The data should include all Distributed Energy Resources connected to the distribution provider's system on the date listed in the second row of the table, as well as any proposed facilities in the interconnection queue or equivalent list of interconnection requests
- ISO will coordinate with data submitters to address any issues with data quality or formatting, which can be corrected after January 21 for this first round of submissions

Planning Procedure 12

Participant Support

- Following the first DER data collection under PP12, direct discussions between ISO-NE and Distribution Providers will be set up and held on an ad hoc basis
- Discussions on the use of DER data collected through PP12 will be held at the Distributed Generation Forecast working group, Load Forecast Committee, Planning Advisory Committee, or other groups as appropriate
- If you have any questions or need support, please submit a request via Ask ISO (preferred), you can reach out by email at AskISO@iso-ne.com or by phone at (413) 540-4220 or (833) 248-4220
- You can also visit the Participant Support page for more information

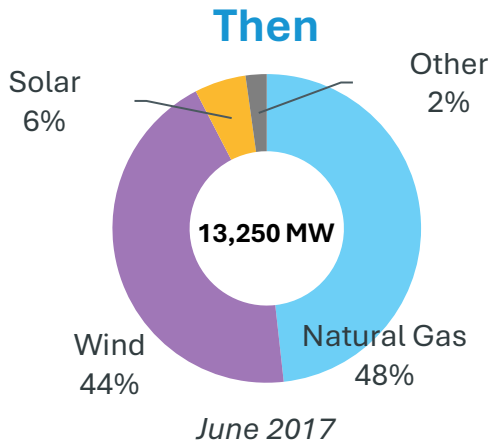


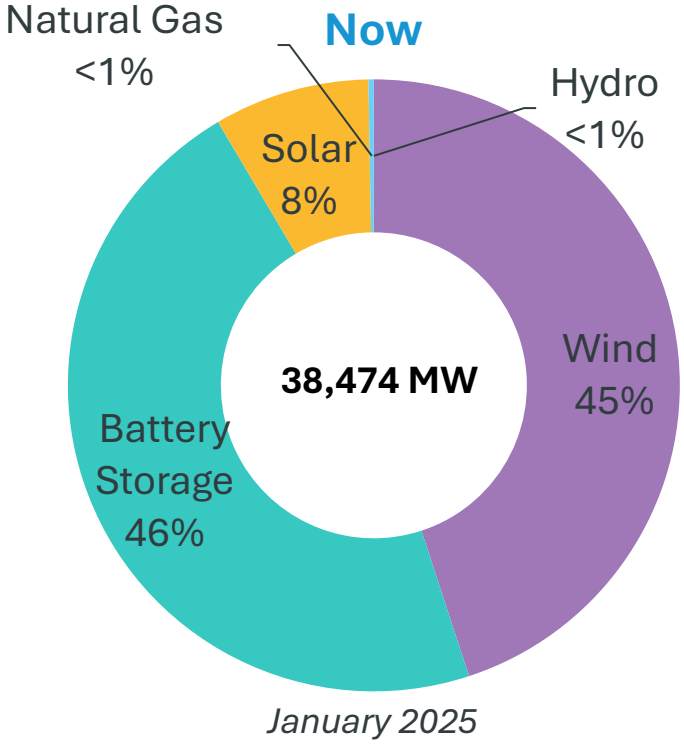
SYSTEM PLANNING UPDATE

ISO Interconnection Request Queue

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.

Offshore Wind

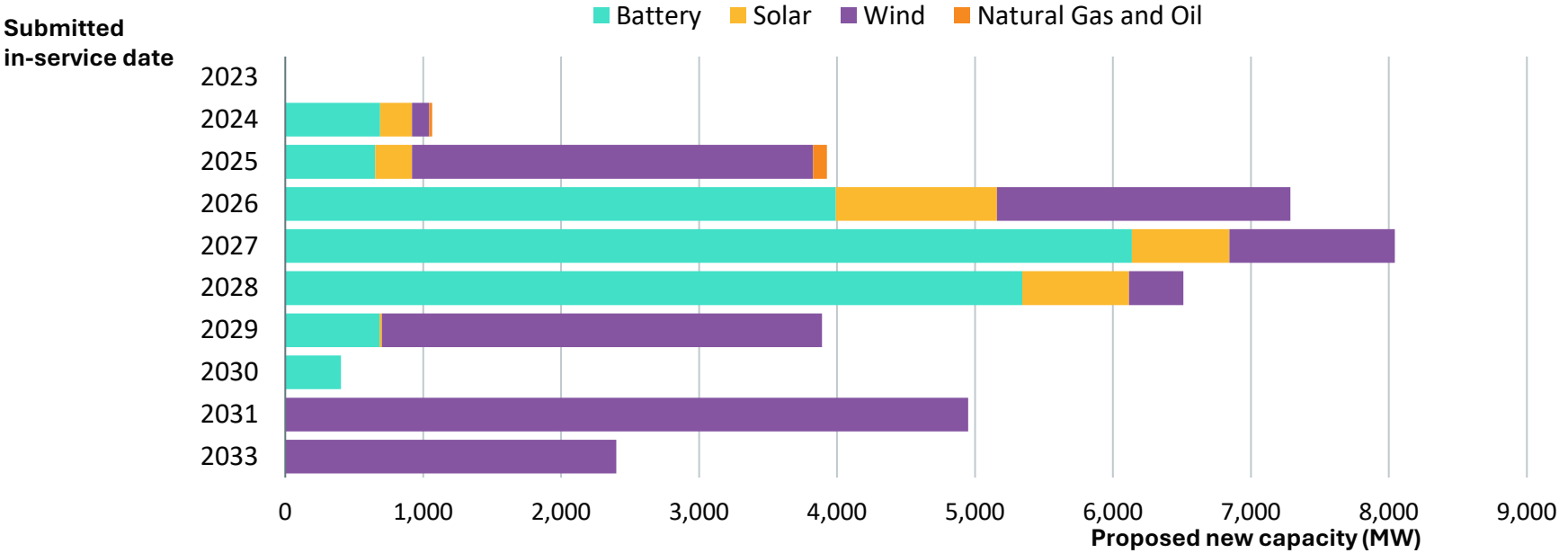
CT	3,750 MW
MA	8,923 MW
RI	1,904 MW

Onshore Wind

ME	2,720 MW

Resources Active in the Interconnection Request Queue

The ISO's Queue reflects more than 200 proposed projects of which over 10,860 MWs have signed interconnection agreements but are not yet commercially operational



Source: ISO Generator Interconnection Queue, FERC Jurisdictional Proposals (updated January 2025)

Questions

About the Presenter

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For More Information

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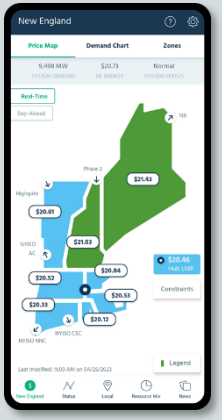

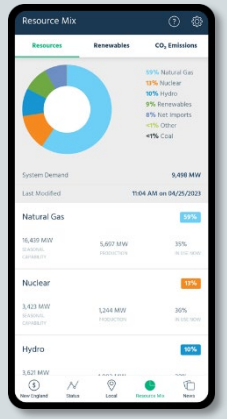

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