



Overview of ISO New England System Planning

New England Restructuring Roundtable

Robert Ethier

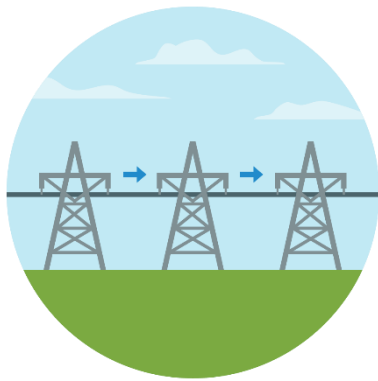
VICE PRESIDENT, SYSTEM PLANNING



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

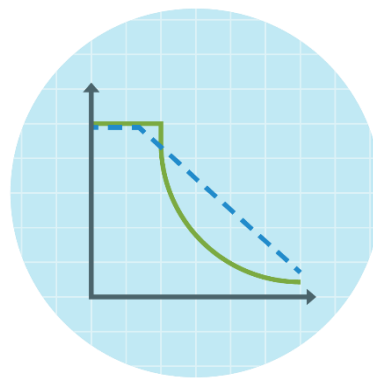
Grid Operation

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



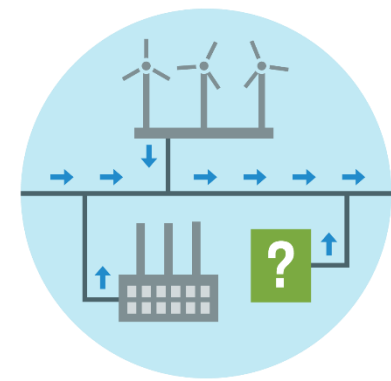
Market Administration

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



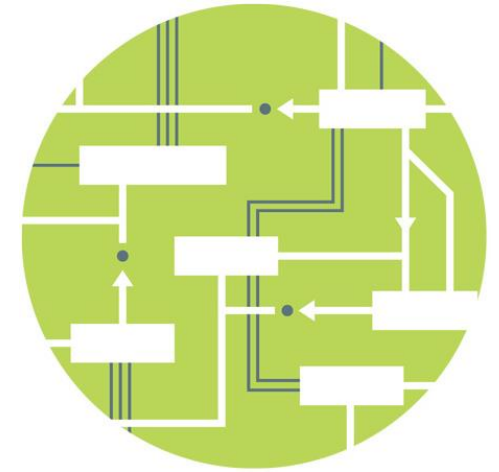
Power System Planning

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



Regional Transmission Planning

ISO New England can select new projects to address *three* categories of transmission system needs:



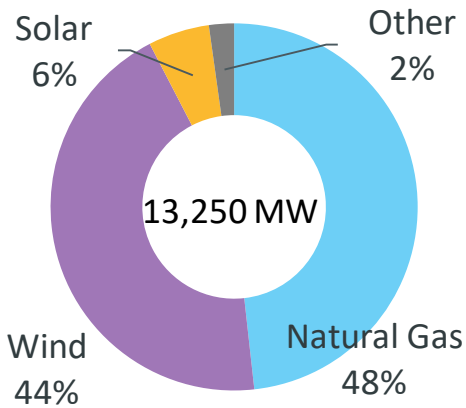
- 1) Reliability projects:** maintain the ability to deliver bulk power considering load growth, generator retirements, and other future changes
- 2) Market Efficiency projects:** reduce energy costs by increasing the ability to obtain power from cheaper sources
- 3) Public Policy projects:** expand the transmission system as needed for the successful implementation of public policy



The ISO Generator Interconnection Queue Provides a Snapshot of Resource Proposals

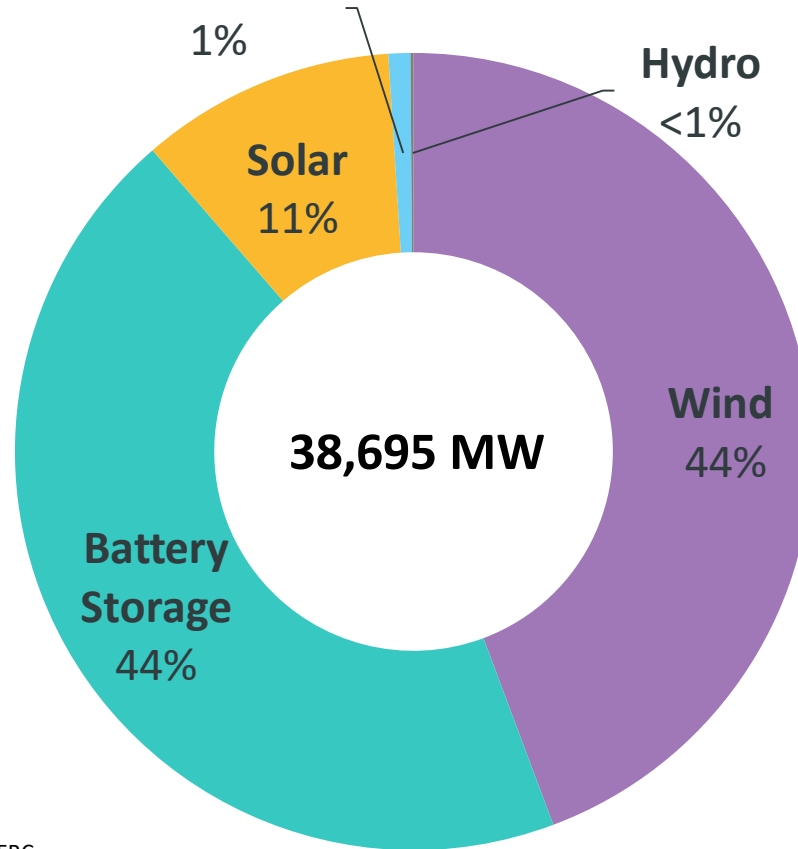
Dramatic shift in proposed resources from natural gas to battery storage and renewables

Then

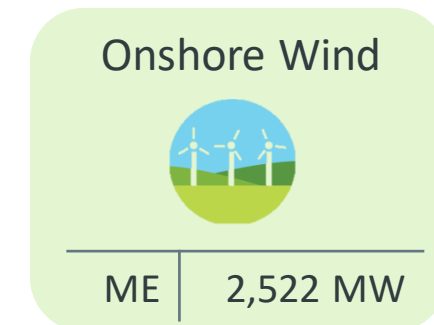
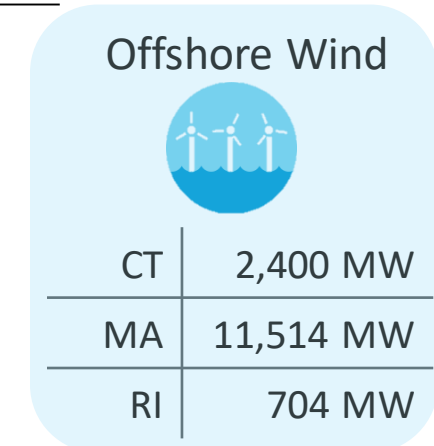


June 2017

Now



September 2023

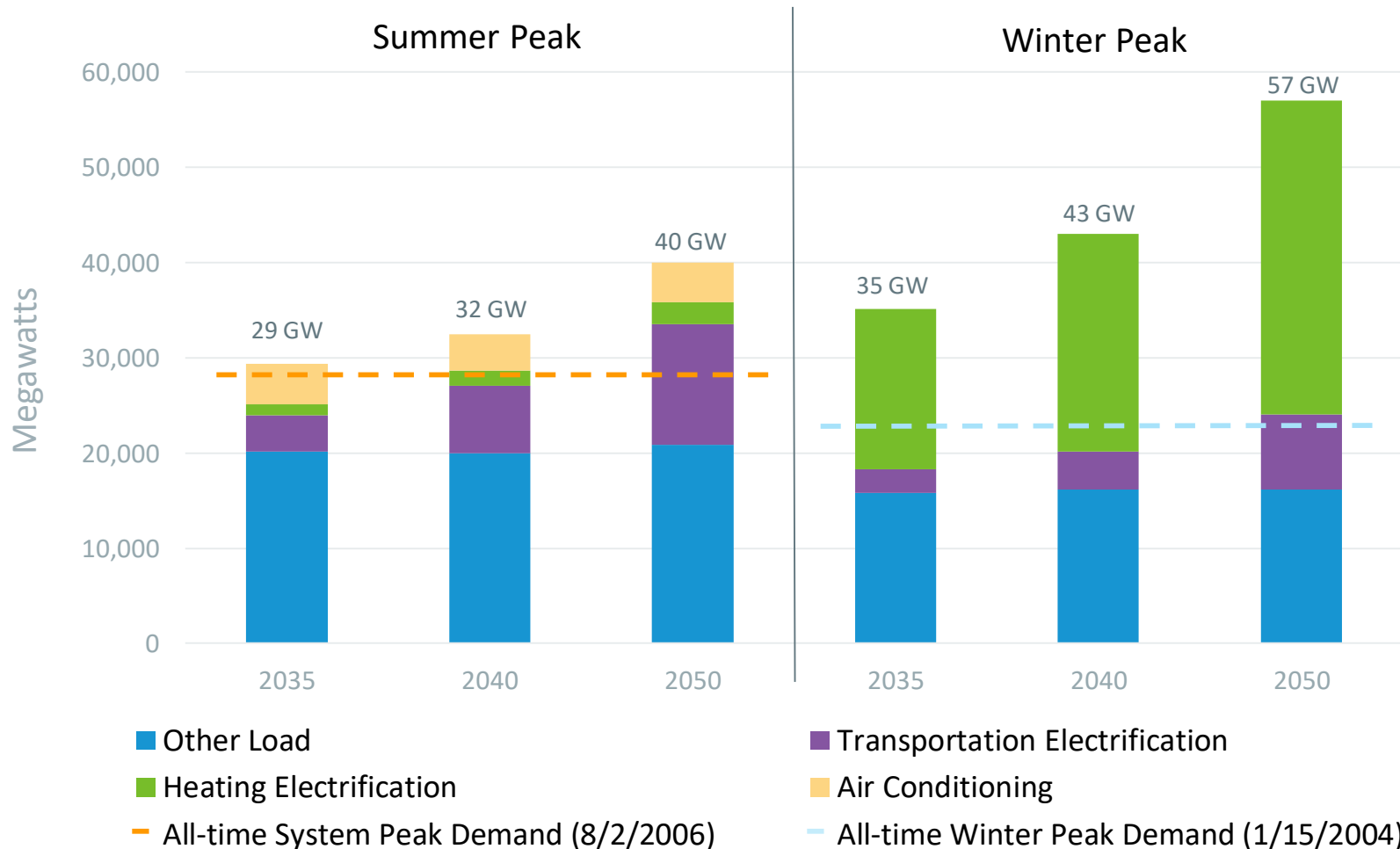


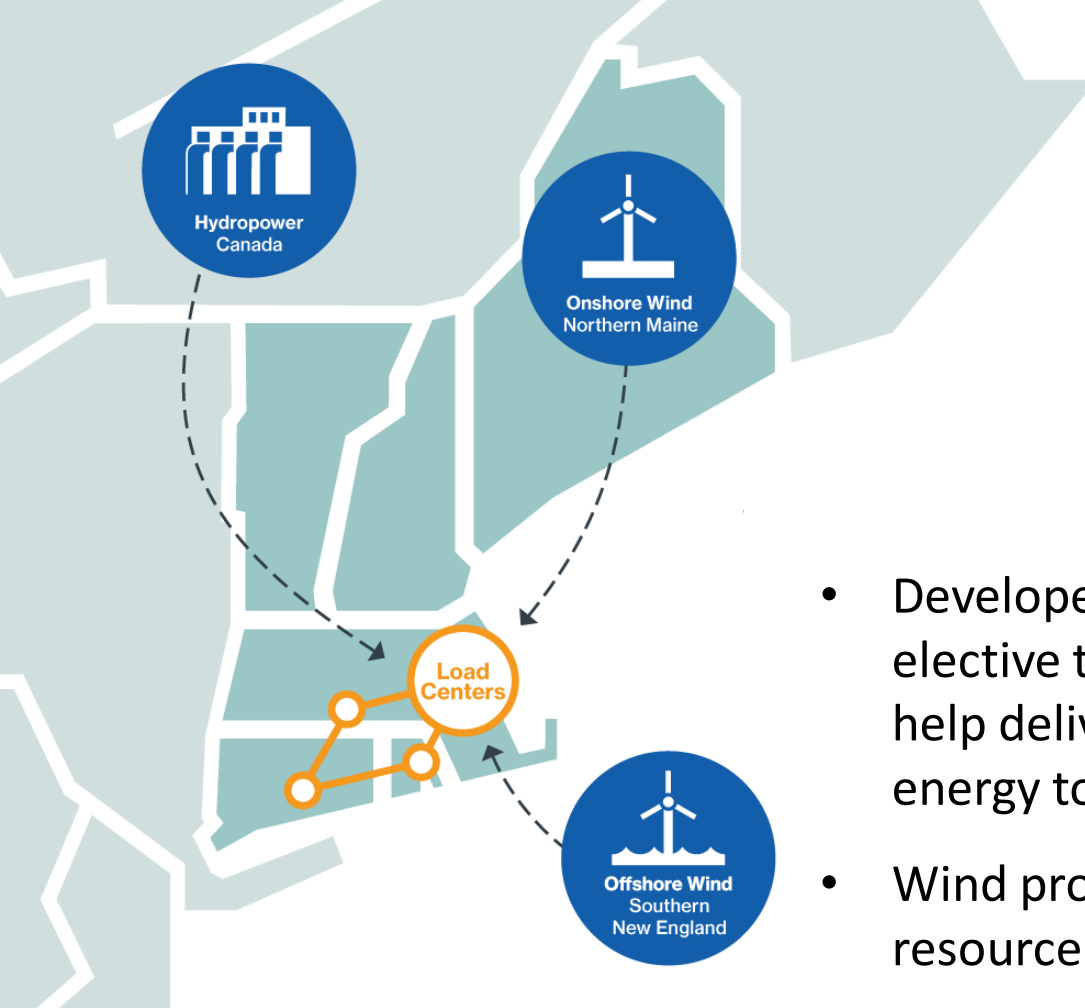
Source: ISO Generator Interconnection Queue, FERC Jurisdictional Proposals; Nameplate Capacity Ratings.



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

2050 Transmission Study





Lines represent types of ETUs private developers have proposed in recent years

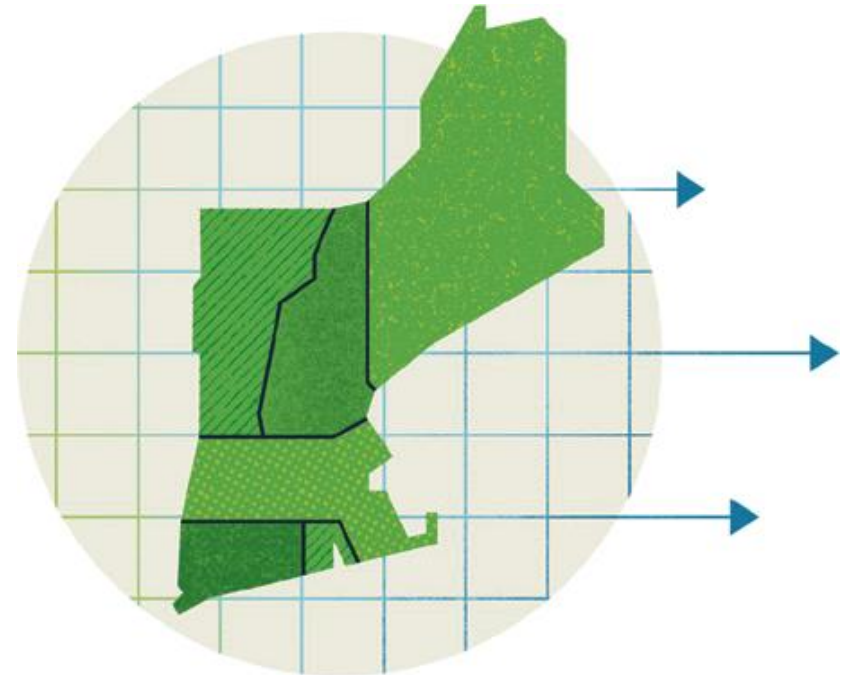
Source: [ISO Interconnection Queue](#) (September 2023)

Developers Are Proposing Large-Scale Transmission Projects to Deliver Clean Energy to Load Centers

- Developers are proposing nine elective transmission upgrades (ETUs) to help deliver over **15,000 MW** of clean energy to New England load centers
- Wind projects make up over **40%** of new resource proposals in the ISO Queue
 - Most are offshore wind proposals in southern New England, but some are onshore wind proposals in northern New England and **would require transmission** to deliver the energy to load centers

Changes to Transmission Planning Processes

- The ISO revised Attachment K to incorporate new transmission planning process designed to look beyond the current 10-year planning horizon
 - Changes filed in [December 2021](#); accepted by FERC in [February 2022](#)
- The 2050 Transmission Study is the first example of this longer-term transmission study
- Next steps include working with the states to develop a process to consider moving **policy-related transmission** projects forward and help determine the associated **cost allocation**;
discussions of the 1200 MW **transfer limit**;
and discussions of **asset condition project** process improvements.



2050 Transmission Study

A High-Level Study for the Years 2035, 2040, and 2050

- Initial study scope and assumptions developed **in conjunction with the states** and in accordance with a recommendation from NESCOE's October 2022 [New England States Vision Statement](#)
- Aims to **inform the region** of the amount, type, and high-level cost estimates of transmission infrastructure that would be needed to cost-effectively:
 - Incorporate clean-energy and distributed-energy resources and;
 - Meet state energy policy requirements and goals, including economy-wide decarbonization
- Looks **well beyond** the ISO's 10-year horizon for transmission planning and is **not** a plan to build specific projects
- Solution development work will be ongoing throughout 2023 with a draft report anticipated by November 1



The most up-to-date information on the 2050 study is available at the [Planning Advisory Committee](#)

2050 Transmission Study – Preliminary Lessons Learned

Reducing Peak Loads Significantly Reduces Transmission Cost

Generator Sizes and Locations Can Affect Overloads

High-Likelihood Concerns Can Be Prioritized

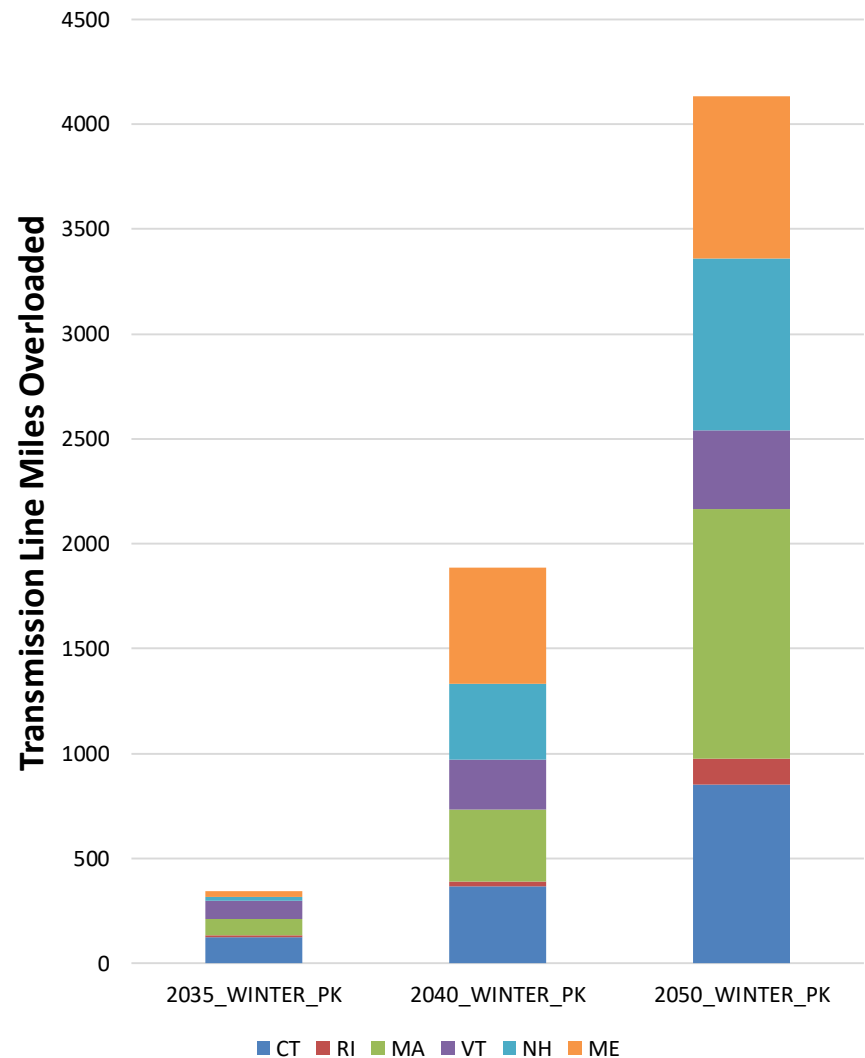
Incremental Upgrades Can Be Made As Opportunities Arise

* **High-likelihood concerns** are those that would appear under a wide variety of conditions, including conditions that do not exactly match those examined in the 2050 Transmission Study. A detailed explanation may be found in the [April 2023 PAC presentation](#) on the 2050 Transmission Study.

2050 Transmission Study

- Preliminary results indicate approximately **4,000 miles, or 50%**, of New England's transmission line mileage could be overloaded by 2050
- Total mileage of transmission overloads can be **decreased by about 35%** by reducing the 2050 winter peak from 57 GW to 51 GW
- Significant **new transmission** will be needed to reliably serve load under the assumptions analyzed in this study
- The final report will detail **multiple roadmaps** for the evolution of certain portions of the transmission system with high-likelihood concerns

Total Transmission Line Miles Overloaded for Winter Evening Peak



Questions

