

New England Power Grid 2022–2023 Profile

The region's wholesale electricity marketplace is securing reliable electricity at competitive prices and helping usher in a cleaner, greener grid.

ISO new england

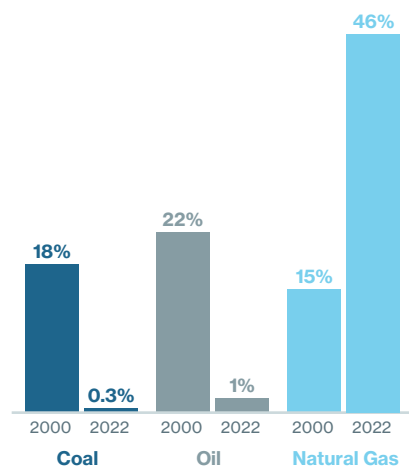
A Major Energy Transformation Is Underway

New England has shifted away from older coal- and oil-fired generation to cleaner burning natural gas.

Most of today's electricity comes from lower-emitting energy resources.

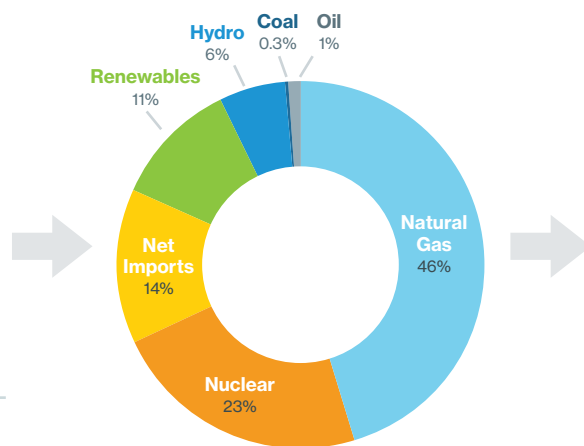
The region is transitioning to large-scale clean and renewable energy.

YESTERDAY VS. TODAY



The amount of electricity produced by generators in New England and imported from other regions to satisfy all residential, commercial, and industrial customer demand in New England. This is called Net Energy for Load (NEL).

2022 ENERGY RESOURCES



LOOKING TO THE FUTURE



Wind power dominates new resource proposals: nearly 16,000 MW



Solar power is growing rapidly: ISO-NE forecasts nearly 12,000 MW within a decade



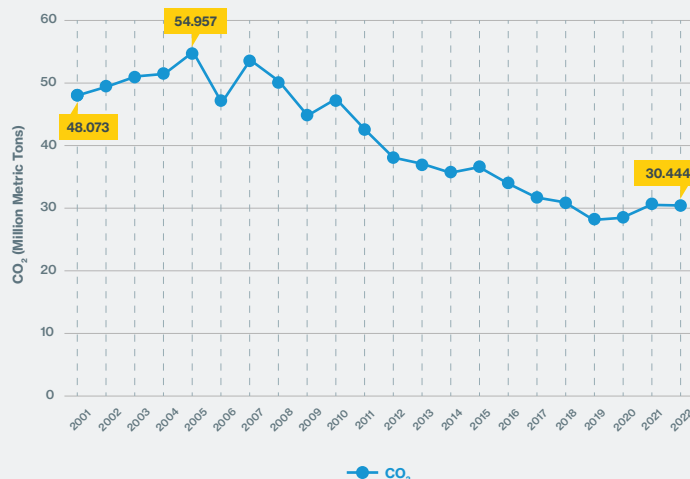
Battery storage technologies are emerging at the customer and grid level: more than 11,000 MW proposed



New transmission proposals would provide access to additional clean or renewable energy in New England or Eastern Canada

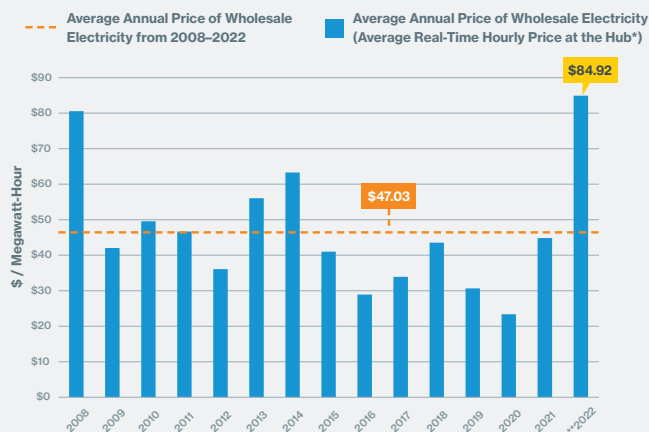
Emissions Over Time

CO₂ emissions declined with shift from coal and oil to natural gas generation



Wholesale Prices Over Time

Wholesale electricity prices are higher in years when natural gas prices are high



* The Hub is a collection of 32 locations in New England used to represent an uncongested price for electric energy.

** 2022 data are subject to adjustments.

Electrification Will Drive Electricity Demand



In New England, demand for electricity peaks in the summer; a smaller peak occurs in the winter. Records: 28,100 MW in summer and 22,800 MW in winter.

While state-sponsored energy-efficiency (EE) and behind-the-meter solar photovoltaic (PV) programs are reducing demand on the grid, the ISO forecasts that both energy usage and peak demand will increase slightly in New England over the next 10 years. The primary factors for this increase are the new electrification forecasts for electric vehicles and air-source heat pumps.

Forecasted annual growth rates for New England through 2031

| | Without EE & PV | With EE & PV |
|----------------------------------|-----------------|--------------|
| PEAK DEMAND (50/50 SUMMER PEAK): | 0.7% | 0.3% |
| OVERALL DEMAND: | 1.8% | 1.4% |

New England has more than **31,000 megawatts (MW)** of installed electricity generating capacity

The power generation resource mix is transitioning from coal, oil, and nuclear power to natural gas and renewable energy.

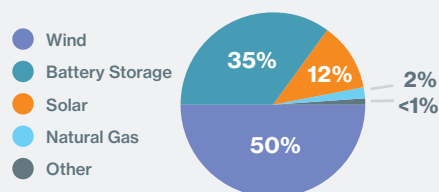
Generation Retirements

Coal- and oil-fired power plants make up almost 20% of the region's electricity generating capacity, but tend to be used only during peak demand periods and are retiring.

- Since 2013, more than 7,000 MW of primarily coal, oil, and nuclear generating capacity have retired or announced retirement as of mid-2020.
- Another 5,000 MW of coal- and oil-fired generators are at risk for retirement in coming years.

Proposed Generation

Developers have proposed nearly 32,000 MW of new generating resources as of January 2023.



About 9,000 miles of high-voltage transmission lines span the six states. The ISO is working with the New England states to evaluate potential future transmission needs to identify, at a high-level, transmission infrastructure necessary to meet the New England states' energy policies, mandates, or legal requirements.

Imported Power

On an annual basis, New England is generally a net importer of electricity via interconnections with neighboring power systems in New York, Quebec, and New Brunswick.

Percentage of net energy from imports

| | | | |
|------|------|------|------|
| 19% | 21% | 16% | 14% |
| 2019 | 2020 | 2021 | 2022 |

Merchant transmission companies, electric utilities, and renewable energy developers are proposing several projects to deliver low- or non-carbon-emitting resources into the New England market, totaling approximately 13,000 MW.

Wind Power

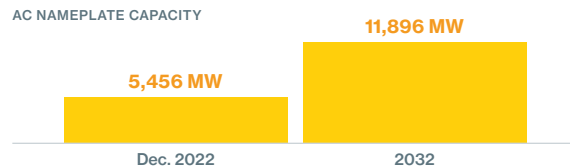
Roughly 1,400 MW of wind power is operational in the region. Developers are proposing nearly 16,000 MW of additional wind power, primarily offshore in southern New England.

Solar Power

State policies are promoting development of behind-the-meter distributed resources, specifically solar PV resources.

ISO-NE Draft 2023 Solar PV Forecast

AC NAMEPLATE CAPACITY



Adding renewable resources will displace fossil-fueled resources and help achieve state policy objectives. This will require fast-responding resources like grid-scale energy storage to help balance the variability of renewables.



About ISO New England

Created in 1997, ISO New England is the independent, not-for-profit corporation responsible for the reliable operation of New England's electric power generation and transmission system, overseeing and ensuring the fair administration of the region's wholesale electricity markets, and managing comprehensive regional electric power planning.