

New England Power Grid 2020–2021 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

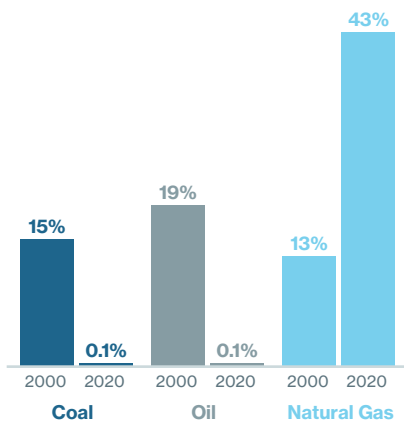
A Major Energy Transformation Is Underway

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

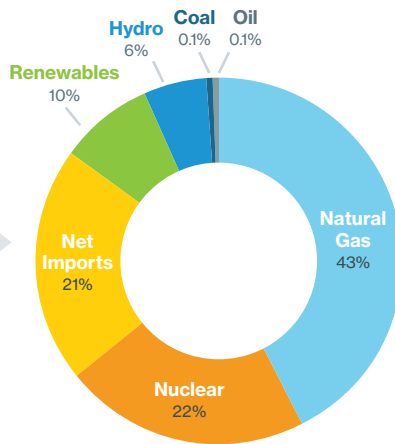
Most of today's electricity comes from lower-emitting energy resources.

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

YESTERDAY VS. TODAY



2020 ENERGY RESOURCES



LOOKING TO THE FUTURE



Wind power dominates new resource proposals: more than 15,000 MW



Solar power is growing rapidly: ISO-NE forecasts close to 8,000 MW within a decade



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



Battery storage technologies are emerging at the customer and grid level: more than 3,600 MW

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).

Major Emissions Reductions

Emissions from regional generators have fallen significantly since 2001.

Carbon Dioxide (CO₂)

major driver of climate change



42%



Nitrogen Oxide (NO_x)

adds to smog



78%



Sulfur Dioxide (SO₂)

with NO_x, leads to acid rain

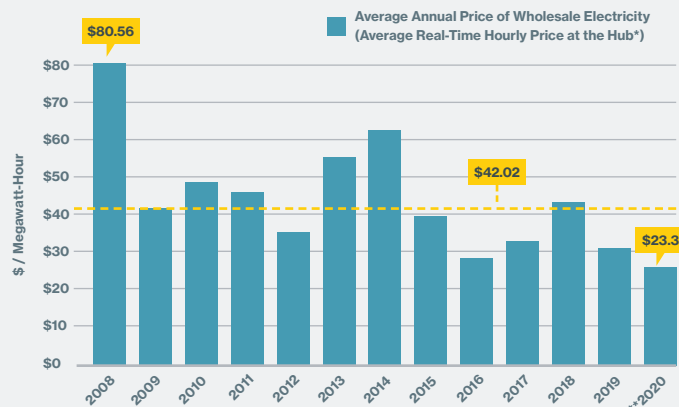


99%



Very Low Wholesale Prices

Average wholesale energy prices have fallen to record low levels, reflecting relatively low natural gas prices.



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

Note: Higher prices in 2013 and 2014 were largely due to spikes in natural gas prices during wintertime fuel-delivery constraints.

** 2020 data are subject to adjustments.

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.

State-sponsored energy-efficiency (EE) and behind-the-meter solar photovoltaic (PV) programs are slowing growth in peak demand, and overall demand growth is flat; states are projected to spend \$10.7 billion on EE between 2021 and 2029.

Forecasted annual growth rates for New England through 2029 →	PEAK DEMAND (50/50 SUMMER PEAK):	0.9%	-0.2%
	OVERALL DEMAND:	1.4%	0.4%
		Without EE & PV	With EE & PV

Demand Resources

In 2020, energy-efficiency projects provided 2,850 MW, and active demand response (load management, distributed generation) provided 400 MW of the region's total capacity needs.

Effective June 1, 2018, demand resources have further opportunities to participate in the wholesale electricity markets.

New England has approximately 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.

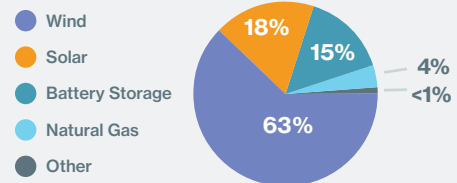
Generation Retirements

Coal- and oil-fired power plants make up roughly 25% 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 by 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 over 24,000 MW of new generating resources as of January 2021.



About 9,000 miles of high-voltage transmission lines span the six states. Transmission projects completed and underway are strengthening the grid and enabling its transformation. Since 2002, more than 800 projects have been put into service; roughly 60 additional projects are anticipated over the next 10 years that will ensure that electricity continues to move reliably and efficiently across the region.

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

17% 2017	17% 2018	19% 2019	21% 2020
-------------	-------------	-------------	-------------

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 3,400 MW.

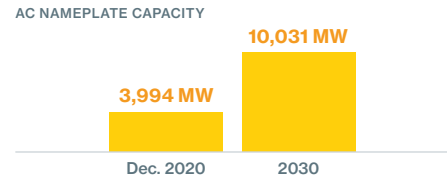
Wind Power

Roughly 1,400 MW of wind power is operational in the region. Developers are proposing over 15,000 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 2021 Solar PV Forecast



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.

