New England’s resource mix is transitioning from coal, oil, and nuclear power to natural gas-fired generation and renewable energy. Natural gas use has grown in New England due to advances in technology and abundant supplies of low-cost gas from nearby shale deposits. Today, it accounts for roughly half of the electricity generated in New England. At the same time, advances in technology and state support for renewable energy have led to significant increases in wind and solar power, and the New England states have plans to add additional supplies of clean energy to the power system in the coming years.

New England’s traditional power system is rapidly becoming a hybrid system where electricity needs will be met by conventional resources and significant amounts of large-scale renewable resources connected to the regional transmission system, in combination with thousands of small resources connected directly to retail customers or local distribution utilities.

Maintaining reliable power system operations becomes more complex with the shift to resources that face constraints on energy production.
Electricity Demand

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 $10.5 billion on EE between 2019 and 2027.

| Forecasted annual growth rates for New England through 2027 | PEAK DEMAND (90/10 SUMMER PEAK): | 0.8% | -0.2% |
| | OVERALL DEMAND: | 0.9% | -0.9% |
| | Without EE & PV | With EE & PV |

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 rapidly.

- Since 2013, more than 5,200 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

Imported Power

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

Percentage of net energy from imports

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<th>16%</th>
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<td>2015</td>
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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.

Proposed Generation

Developers have proposed 20,600 MW of new generating resources as of January 2019.

- Wind
- Natural Gas
- Other

- 15%
- 19%
- 65%

Wind Power

Roughly 1,400 MW of wind power is operational in the region. Developers are proposing nearly 13,500 MW of additional wind power, primarily in northern New England and offshore in southern New England.

Additional transmission will be needed to integrate these large-scale wind resources.

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

Solar Power

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

ISO-NE 2018 Solar PV Forecast

AC NAMEPLATE CAPACITY

- 2,700 MW
- 5,800 MW

JANUARY 2019

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.