



# New England

## 2011-12 Regional Profile

The New England electric grid is an 8,000-mile high-voltage transmission system that connects electric utilities, publicly-owned electric companies, power generators, suppliers, alternative resources, and end users in the six-state wholesale electricity marketplace. This is a brief profile of the electric grid and wholesale markets serving the region based on information from New England's regional system planning process and wholesale market reports.

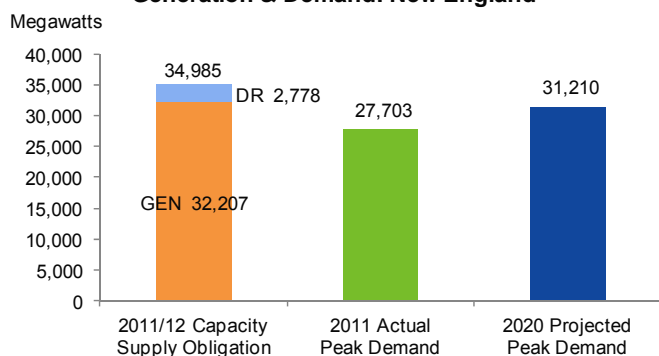
### Introduction

New England relies on both in-region resources and imports of power over the region's transmission system to serve electricity customers. Transmission, generation, and demand resources are being added to ensure that the reliability of the system is maintained. ●●●

### Growth in Demand

In the 2011 Regional System Plan, ISO New England (ISO) forecasted the region's overall electricity demand to grow at a rate of 1.1% annually over the next decade. The ISO forecasted the region's peak (summer) demand to grow 1.4% annually over the next decade. The region's electricity demand peaks in the summer due to the use of air conditioning.

Generation & Demand: New England



New England's 2011 peak demand for electricity, which occurred on July 22, was the second highest on record. New England's overall demand for electricity fell sharply from 2007–2009, primarily due to the recession, then climbed in 2010, but has remained below 2003–2008 levels. The ISO issues a new 10-year forecast each year in April based on updated economic data.

In 2011, the ISO created a methodology for a discrete energy efficiency (EE) forecast to estimate the long-term effects of state-sponsored EE programs. This methodology will look beyond the EE committed three years into the future through the Forward Capacity Market (FCM). ●●●

### Generating Resources

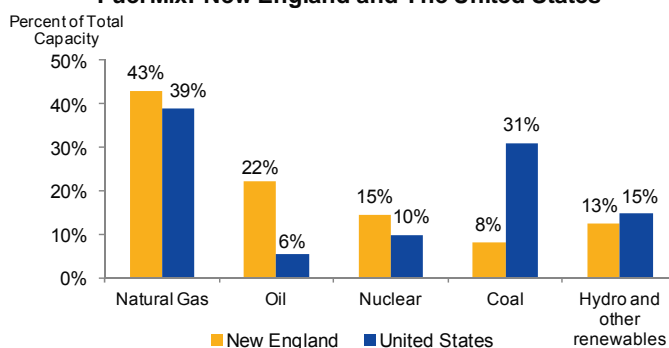
The total capacity of generating plants located in New England is about 32,000 megawatts (MW) based on summer capacity ratings. About 32,000 MW cleared in the FCM with obligations to be available from June 1, 2011–May 31, 2012. Generator availability has increased in New England since the start of competitive markets, from 81% in 1999 to 88% in 2010.

At any given time individual generators may not operate due to planned or unexpected outages, environmental restrictions, or other reasons. Some resources do not operate because their offers to sell electricity in the wholesale market are above the market-clearing price. In New England, generators are owned and operated either by private generation companies or electric, municipal, or consumer-owned utilities. ●●●

### Fuel Mix

New England and U.S. electric generating capacity by fuel type:

Fuel Mix: New England and The United States



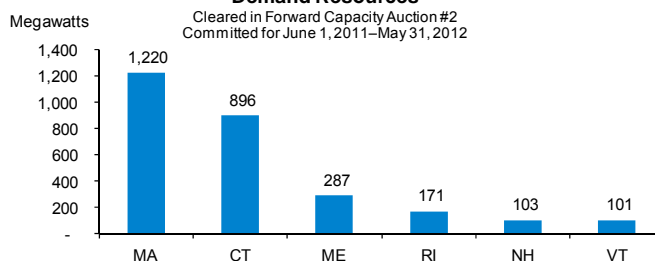
Electric generating capacity and energy production by fuel type:

New England Generators by Fuel Type	% of Total Capacity 2011	% of Electric Energy 2010
Natural gas	43%	46%
Oil	22%	0.4%
Nuclear	15%	30%
Coal	8%	11%
Hydro	4%	6%
Pumped storage	5%	1%
Other renewables (wind, solar, landfill gas, biomass, and misc.)	3%	6%

### Demand Resources

New England has about 2,800 MW of customer-side Demand Resources (DR), that can reduce demand on the power grid through both active measures, such as shifting to on-site distributed resources, and passive measures, such as EE. DR is growing with efforts to more fully integrate it into the wholesale electricity markets. ●●●

Demand Resources



## Proposals for New Resources

In New England, the FCM provides opportunities for existing and new generation (supply), DR, and imports to compete to provide the capacity resources the region needs to meet future reliability requirements.

Resources must qualify, clear (i.e., be selected) in the auction, and then perform when called upon by the ISO to be eligible for capacity payments.

Through a series of annual auctions, ISO has procured resources to meet reliability needs for the five-year period June 1, 2010–May 31, 2015. In this period these auctions cleared more than 3,600 MW of *new* generation resources, and more than 2,700 MW of *new* DR. The ISO will conduct the sixth auction (FCA-6) in April 2012, for resources needed in the 2015–2016 timeframe.

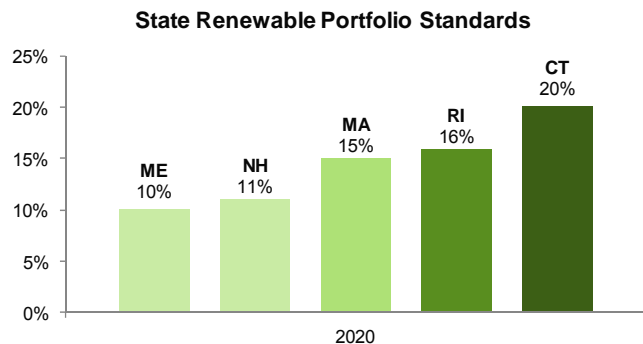
In addition to the wholesale markets, the states may provide incentives for the development of certain resources to achieve their policy goals.

### Connecting New Generating Resources

In order to connect to the grid, a proposed generator must be studied and approved under the ISO's Generator Interconnection Procedures to ensure the project will not adversely impact the reliability of the electric grid. This is known as the "queue" process. There are approximately 5,000 MW of proposals that have entered the queue in New England as of December 2011. Historically, not all of the proposals in the queue have been developed, but it is an indication of the potential for new resources. ●●●

## Renewable Resources

To meet renewable portfolio standards (RPS) adopted by five of the six New England states, utilities and competitive suppliers must obtain specified percentages of the electricity they provide to customers from renewable sources, or make alternative compliance payments. Vermont has a separate program of incentives to promote renewable resources.



In addition to RPS, states are pursuing other initiatives to develop renewable and non-carbon emitting resources.

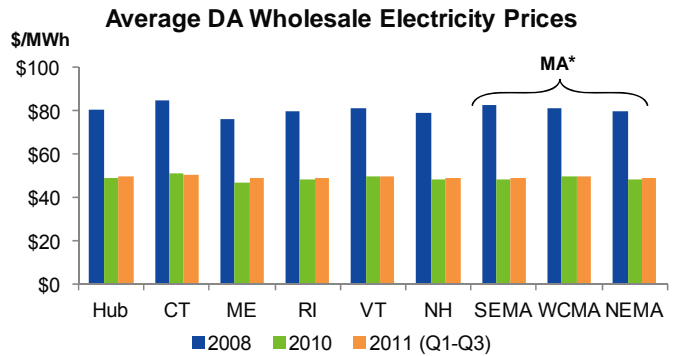
The New England States have identified a vast quantity of untapped renewable resources—more than 10,000 MW of on and off-shore wind power potential—that could enable New England to meet its renewable energy goals and potentially export renewable energy to neighboring regions. The states identified 4,700 MW of renewable generation (primarily wind) that could be developed by 2016 on the basis of responses received in 2011 to a request for information. In July 2011, the New England Governors, by Resolution, expressed interest in the states continuing to explore coordinated procurement of renewable resources.

For more information: [www.nescoc.com](http://www.nescoc.com). ●●●

## Wholesale Market Prices

Locational pricing is a key feature of New England's wholesale electricity markets. The ISO administers Day-Ahead (DA) and Real-Time (RT) Energy Markets and calculates prices for eight zones in New England. Each state is one zone, except for Massachusetts.

Average wholesale prices have dropped with lower demand and fuel prices. Prices remain well below 2008 levels. The cost of out-of-merit generation needed in transmission-constrained areas fell dramatically from \$180 million in 2008 to less than \$4 million in 2010 and 2011 (YTD) largely due to transmission upgrades in Southwest Connecticut and Southeast Massachusetts. ●●●



\* Massachusetts has three zones: Southeastern Mass. (SEMA), Western/Central Mass. (WCMA), and Northeastern Mass./Boston (NEMA/Boston).

## Transmission

Major transmission projects developed through the ISO's regional system planning process have been placed in service throughout New England since 2002 and several more are under construction, in the siting process, or under study. These projects are needed to ensure the reliability of the bulk electric grid. Changes in the forecast of electricity demand or development of market-based responses to system needs can affect the need for transmission projects, and the ISO re-evaluates these needs as part of the planning process.

New England has 13 transmission ties to neighboring power systems that allow electricity trade with New York, New Brunswick, and Hydro Québec. New England is a net importer of electricity and in 2010 the region imported 4% of its electricity over these ties. ●●●

## Strategic Planning Initiative

ISO and stakeholders are evaluating several key risks that will impact the region's power system and wholesale electricity markets. Near-term risks include resource performance and flexibility, and increased reliance on natural gas-fired capacity. Long-term risks include potential retirement of generators, integration of a greater level of variable resources (e.g., wind and solar), and alignment of markets with planning. ●●●

## About ISO New England

ISO New England is the Regional Transmission Organization responsible for ensuring the reliable operation of the New England electric grid, administration of the region's wholesale electricity markets, and administration of the regional Open Access Transmission Tariff, including regional system planning. The ISO is a not-for-profit corporation governed by an independent Board of Directors. The ISO does not own transmission or generation assets and has no financial interest in any companies participating in the region's wholesale electricity markets. ●●●

## Sources and Additional Information

U.S. Census Bureau, *2011 Regional System Plan, 2010 Annual Markets Report*, FCA results, and other public ISO information. ISO New England: [www.iso-ne.com](http://www.iso-ne.com); or [www.isonewswire.com](http://www.isonewswire.com)