

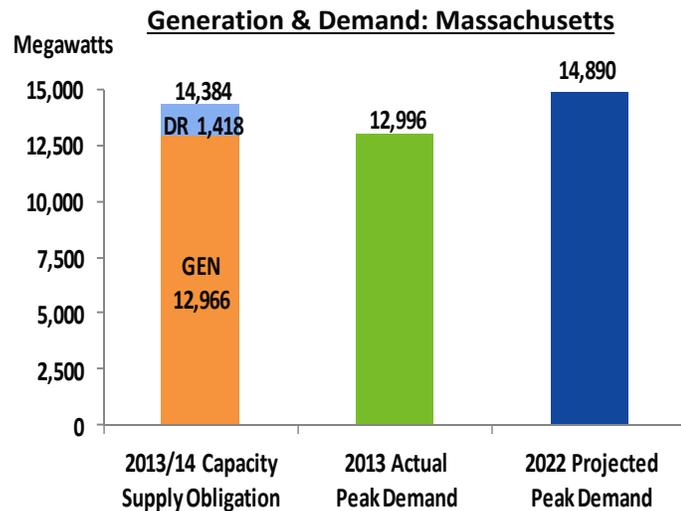
The New England electric grid is an 8,500-mile high-voltage transmission system that connects electric utilities, publicly-owned electric companies, power generators, suppliers, alternative resources and end users in the six-state wholesale electricity marketplace. This is a brief profile of the electric grid and wholesale markets serving Massachusetts based on information from New England's regional system planning process and wholesale market reports.

Introduction

With 6.5 million residents, Massachusetts represents approximately 45% of the population in New England and 46% of the region's total electricity consumption. The Greater Boston area, which includes the North Shore, represents about half of the state's electricity use. The state relies on both in-state resources and imports of power over the region's transmission system to serve electricity customers. Transmission, generation, and demand resources are used to ensure that the reliability of the system is maintained. ●●●

Growth in Demand

In the 2013 Regional System Plan, ISO New England (ISO) forecasted the state's overall electricity demand to grow at a rate of 1.2% annually over the next decade. The ISO forecasts the state's peak demand to grow 1.5% annually over the next decade. Overall electricity and peak-demand growth in Massachusetts are slightly above the rate projected for the region.



Energy Efficiency

In 2014, the ISO released its third annual energy-efficiency (EE) forecast to estimate the long-term effects of state-sponsored EE programs for the period from 2018 through 2023. For Massachusetts and the region as a whole, the EE forecast shows lower annual growth in *peak demand* and flat annual *energy use* compared to modest rates of growth under the traditional forecasts. ●●●

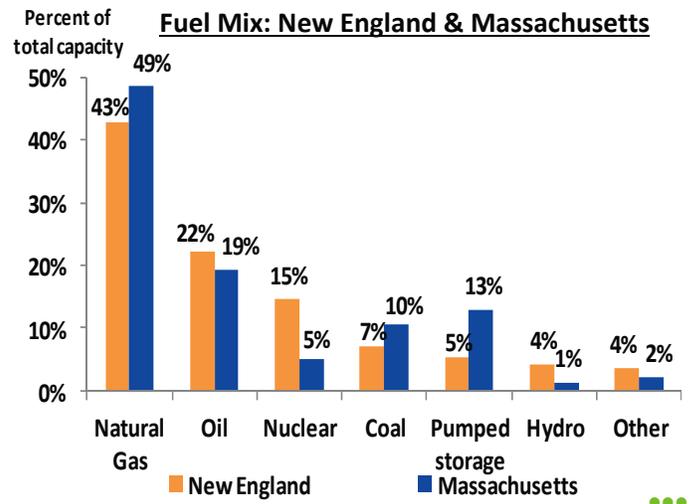
Generating Resources

The total capacity of existing generating plants in Massachusetts is approximately 13,150 MW. This is 41% of the total for New England. About 13,000 MW in Massachusetts cleared in the FCM with obligations to be available from June 1, 2013 to May 31, 2014. In Massachusetts, generators are owned and operated by private generation companies and municipal utilities.

Generator availability has increased systemwide in New England since the start of competitive markets; however, resource performance during stressed system conditions is a growing problem. The ISO's pay-for-performance proposal is designed to reward good-performing resources and shift capacity payments away from poor-performing resources. ●●●

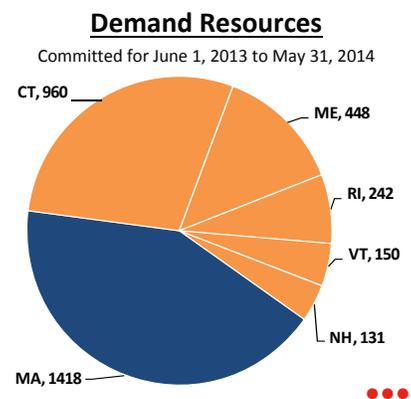
Fuel Mix

Natural gas is the primary fuel for nearly half of the existing generating capacity in the state. Oil and coal collectively represent almost a third of the state's capacity, however plants such as Salem Harbor and Brayton Point have announced they plan to retire in 2014 and 2017, respectively.



Demand Resources

New England has about 3,350 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.



Proposals for New 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. At the start of 2014, over 2,000 MW of proposals in Massachusetts were active in the queue (primarily natural-gas-fired generation and wind power). This represents over 40% of the proposals in New England. Historically, not all of the proposals in the queue have been developed, but proposals in the queue are an indication of the potential for new resources.

ISO New England has identified over 8,000 MW of older oil- and coal-fired generation that may retire in the coming years due to economic and environmental factors. Almost 45% of this capacity is located in Massachusetts.

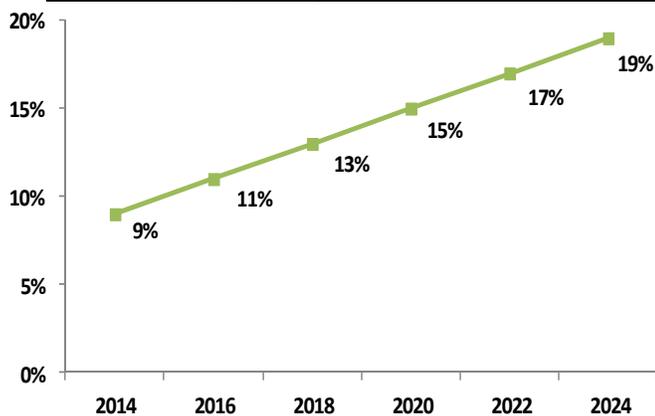
In New England, the FCM provides opportunities for existing and new generation, DR, and imports to compete to provide the capacity resources the region needs to meet future reliability requirements. Resources must qualify, clear (i.e., be selected) in the auction, and then perform when called by the ISO to be eligible for capacity payments. Through a series of annual auctions, ISO has procured resources to meet reliability needs for the eight-year period June 1, 2010 to May 31, 2018. In this period, these auctions cleared more than 2,500 MW of *new* generation resources from Massachusetts, representing approximately 56% of the new generation cleared in New England, and more than 1,800 MW of *new* DR from Massachusetts, representing half of the new DR cleared in New England.

The ISO conducted the eighth auction (FCA-8) in February 2014, for resources needed in the 2017–2018 timeframe. The next capacity auction is scheduled for February 2015.

Renewable Resources

To meet the state's renewable portfolio standard (RPS), utilities and competitive suppliers must obtain specified percentages of the electricity they provide to customers from renewable sources, or make alternative compliance payments. Massachusetts has two classes of renewable resources that include certain types of solar, wind, ocean energy, biomass, hydro, landfill gas, geothermal, and fuel cells. Renewables developed in 1998 or later are Class I; resources developed before 1998 are Class II.

Massachusetts (Class I) Renewable Portfolio Standards

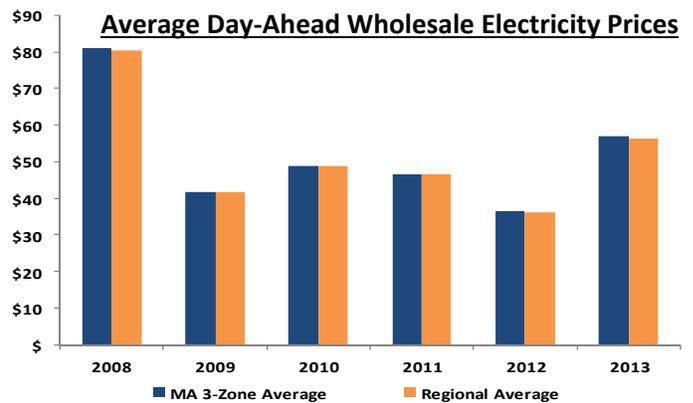


Massachusetts has an alternative energy portfolio standard where suppliers must obtain a certain percentage of electricity from alternative energy systems, such as combined heat and power, flywheel storage or efficient steam technologies.

Massachusetts has global warming goals beyond its RPS, including aggressive solar and distributed generation goals. In 2013, Governor Patrick set a 1,600 MW solar goal by 2020. The ISO estimates Massachusetts has 350 MW (nameplate) of solar installed as of the start of 2014, and is forecasting almost 1,800 MW (nameplate) of solar installed by 2023, which on average, is approximately 140 MW of new solar each year over the next decade.

Wholesale Market Prices

Locational pricing is a key feature of New England's wholesale electricity markets. The ISO administers Day-Ahead and Real-Time Energy Markets and calculates prices for eight zones in New England. Each state is a zone, except for Massachusetts, which has three zones. Wholesale electricity prices are a function of fuel prices. In 2013, the regional average wholesale day-ahead electricity price was approximately \$56/MWh. The average wholesale day-ahead electricity price in New England in 2013 was approximately 50% above 2012, and 15% above 2003, largely because of a spike in fuel costs.



Transmission

Several major transmission projects and studies developed through the ISO's regional system planning process are in various stages of siting and development. Reliability projects in the greater Springfield and Cape Cod areas were completed in 2013. In early 2014, the state Energy Facility Siting Board affirmed the reliability need for the New England East West Solution (NEEWS) Interstate Project. Other projects to strengthen and improve the long-term reliability needs of the transmission system in the Berkshires and on the North Shore are underway. The ISO has also studied the reliability needs and potential solutions for Greater Boston. Changes in the forecast for 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.

About ISO New England

ISO New England is the Independent System Operator 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, 2013 *Regional System Plan*, 2012 *Annual Markets Report*, FCA results, and other public ISO information. ISO New England: www.iso-ne.com, and Massachusetts Departments of Public Utilities and Energy Resources: www.mass.gov.