



Connecticut

2011-12 State 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 Connecticut based on information from New England's regional system planning process and wholesale market reports.

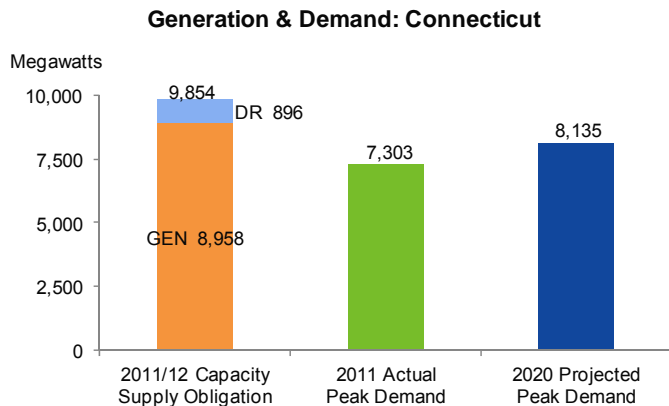
Introduction

Connecticut represents about 25% of the population in New England and 25% of the region's total electricity consumption. Southwest Connecticut represents 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 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 state's overall electricity demand to grow at a rate of 1% annually over the next decade—below the 1.1% rate projected for New England. The ISO forecasted the state's peak (summer) demand to grow 1.3% annually over the next decade—below the 1.4% rate projected for the region.



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 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).

Connecticut has been proactive in developing programs and initiatives to promote EE and reduce the growth in electricity use, especially peak demand. ●●●

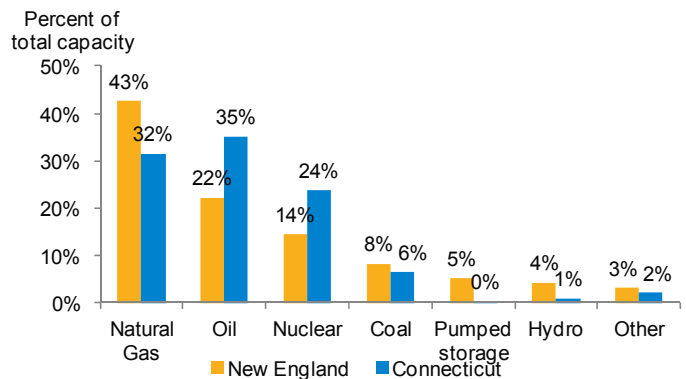
Generating Resources

The total capacity of existing generating plants located in Connecticut is about 8,900 megawatts (MW). This is 28% of the total capacity in New England. About 8,900 MW in Connecticut cleared in the FCM with obligations to be available from June 1, 2011–May 31, 2012. Generator availability has increased systemwide in New England since the start of competitive markets, from 81% in 1999 to 88% in 2010. At any given time, however, 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 Connecticut, generators are owned and operated either by private generation companies or municipal utilities. ●●●

Fuel Mix

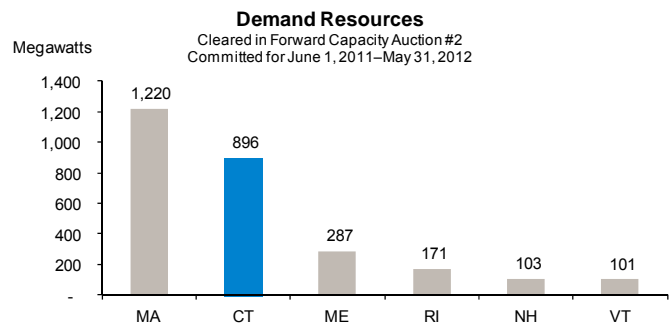
Natural gas and oil are the primary fuels for more than 60% of the existing generating capacity in New England and Connecticut. ●●●

Fuel Mix: New England and Connecticut



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 energy efficiency (EE). DR is growing with efforts to more fully integrate it into the wholesale electricity markets. Connecticut has about 900 MW of DR with obligations in the FCM—equivalent to 12% of the state's peak demand. ●●●



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 1,550 MW of *new* generation resources from Connecticut, representing 43% of the new generation cleared in New England, and
- More than 630 MW of *new* DR from Connecticut, representing 23% of the new DR cleared in New England.

The ISO will conduct the sixth auction (FCA-6) in April 2012, for resources needed in the 2015–2016 timeframe.

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.

Approximately 1,200 MW of proposals in Connecticut have entered the ISO queue (primarily natural-gas-fired generation) as of December 2011. This represents 25% of the proposals in New England. Historically, not all of the proposals in the queue have been developed, but it is an indication of the potential for new resources.

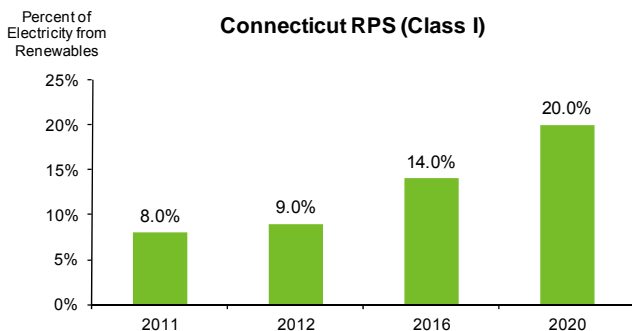
Approximately 80% of the older oil-fired generation in New England is located in Connecticut and Massachusetts and faces pressure to retire from economic and environmental factors. ●●●

Renewable Resources

To meet Connecticut'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.

Connecticut has established three classes of renewable resources. Class-I renewable resources include certain types of solar, wind, biomass, hydro, landfill gas, and fuel cells.

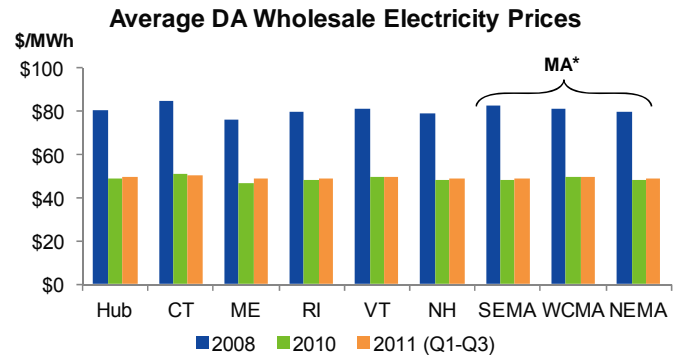
The Class-I RPS increases to 20% in 2020, although the state is reevaluating the RPS as part of the state's integrated resource plan. ●●●



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

CL&P and National Grid are developing transmission projects, known as the New England East–West Solution (NEEWS), to address reliability needs in Connecticut, Massachusetts and Rhode Island. The first project, the Greater Springfield Reliability Project, is under construction in Massachusetts and Connecticut, and CL&P and National Grid are expected to submit siting applications for additional NEEWS projects in 2011. ISO is studying long-term needs in southwest and central Connecticut and in greater Hartford. 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. ●●●

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, or www.isonewswire.com CT Dept. of Energy & Environmental Protection: www.ct.gov/deep