

## Introduction

This document provides a snapshot of Maine’s bulk electric power system. ISO New England conducts comprehensive regional planning for the six-state region, which divides the region into 13 planning subareas. These areas do not strictly adhere to state geographic boundaries; three of these subareas combine to create a picture for Maine. The interconnected nature of the regional bulk electric power system requires subareas and states to be viewed in terms of the system as a whole.

## Overview

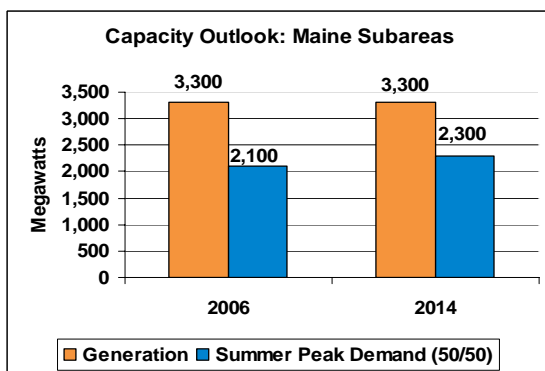
Maine represents 7.5 percent of the total electricity use and summer-peak electricity demand in New England. The western and central portions of Maine account for half of the state’s total electricity use, and the southeastern region accounts for approximately 30 percent of the state’s electricity use.

Until recently, Maine was considered a winter-peaking state; that is, demand for electricity was higher in the winter than the summer. In 2001, Maine became summer-peaking, joining the rest of the New England region in experiencing highest demand in the summer.

Northern Maine, including Aroostook and Washington Counties, falls outside of the ISO’s control area. The transmission system and electric power markets in northern Maine are administered by the Northern Maine Independent System Operator (NMISA).

## Capacity Outlook

Maine has more in-state generating capacity than necessary to meet its consumer demand for power, but the transmission system limits the amount of power that can be exported out of the state.



Almost 50 percent of Maine’s generating capacity is less than 10 years old, and 18 percent is over 30 years old.

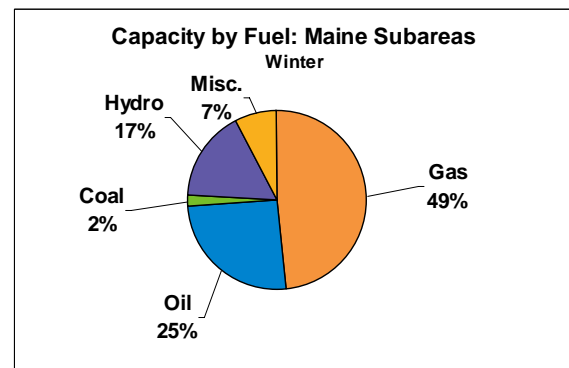
## Growing Demand for Electricity

The ISO projects peak demand for electricity to grow by 1.8 percent annually in the western/central portion of the state, 1.6 percent in southeastern portion of the state, and 0.6 percent in northeastern Maine over the next 10 years. The western/central and southeastern parts of Maine are projected to grow faster per year than the 1.5 percent projected annual rate of growth for New England.

## Fuel Mix

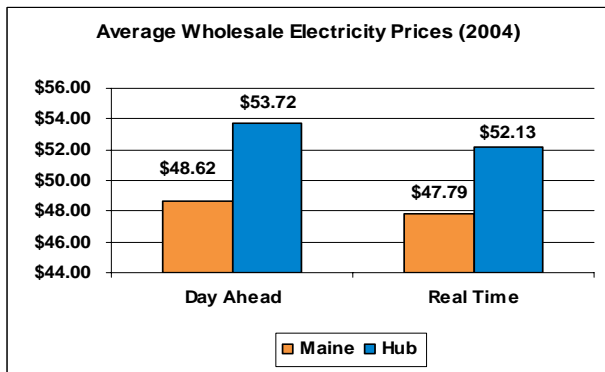
Maine is largely dependent on natural gas and oil for generating electricity in the state. Approximately 49 percent of the generating capacity in Maine uses natural gas as a primary fuel; only 10 percent is dual-fuel capable, i.e., also capable of using oil. Dual-fuel units are often limited by environmental permits that specify the number of hours the generators are allowed to burn oil per year.

Electric power market clearing prices rise and fall with changes in fuel prices. Hence, higher natural gas or oil prices that may be experienced in the winter months could significantly affect Maine’s electricity prices given its high dependence on these fuels for generating power.



## Wholesale Market Prices

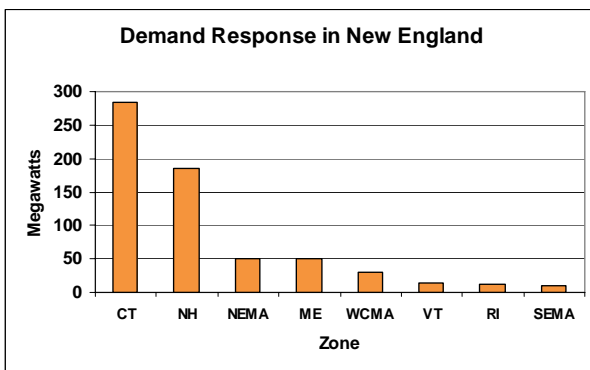
The ISO calculates the wholesale price of electricity for eight zones in New England, including one zone in Maine. Wholesale prices in Maine are generally lower than prices in other areas of New England where transmission constraints exist that limit access to cheaper supplies of power. The hub (see figure) represents a simple average of locational marginal prices at 32 locations on the system.



## Demand Response

Demand response is the reduction or shifting of electricity use in response to either high wholesale electricity prices or reliability problems on the electricity grid. The ISO has price and reliability demand-response programs in which large customers can receive payments for reducing electricity consumption.

Maine has seven demand-response assets comprising 49.5 MW of resources that can respond to dispatch instructions from the ISO.



## Major Transmission Projects

Maine has 1,197 miles of high-voltage transmission lines within its borders. The most significant transmission projects planned will do a great deal to alleviate bottlenecks that keep Maine's surplus generation from moving out of the state to New Brunswick and other parts of New England.

Currently, the New England bulk electric power system is connected to Canada by a single interconnection or "tie" through Maine into New Brunswick. The ME Public Utility Commission issued a Certificate for Public Convenience and Necessity in August 2005 for the Northeast Reliability Interconnect (NRI) project, also known as the Second New Brunswick Tie. For this project, Bangor Hydro Electric Company will build a new transmission line that will address several significant reliability concerns by strengthening the links between Maine and Canada. NRI will add a critical interconnection between two existing bulk power

transmission systems, New England and New Brunswick. The NRI project consists of an 85 mile, 345 kV transmission line running from Orrington, Maine, to the Canadian border near Baileyville. The new line will connect with a 68 mile, 345 kV transmission line to be constructed by New Brunswick Power, which will stretch from the U.S. border to Point Lepreau, New Brunswick. The NRI project will improve operating flexibility in the area and enhance the ability of New England and New Brunswick to exchange capacity and energy. The NRI project will bring significant reliability benefits to the region and, accordingly more than \$90M of the project's \$99.6M cost will be shared among all electricity consumers in New England. The project is expected to be in service in 2007.

Closing the Y-138 line, which as an open line currently does not allow electricity to flow between White Lake and Saco Valley, New Hampshire, would allow increased power transfers between Maine and New Brunswick into the region. The Y-138 line closing project will create a third 115 kV connection between Maine and New Hampshire.

## Reliability Agreements

Reliability agreements provide monthly fixed-cost payments to certain generators for providing reliability services in areas with transmission constraints, voltage problems, a lack of operational reserves, or other reliability problems. These contractual agreements are subject to Federal Energy Regulatory Commission (FERC) approval and are generally paid for by transmission customers in the pricing zone in which the generating units are located.

No generator in Maine currently has a reliability agreement.

## Renewable Portfolio Standards

Renewable Portfolio Standards (RPS) are state-mandated requirements for competitive retail electricity providers to supply a percentage of their energy from various renewable resources and technologies. Maine implemented a constant 30% requirement for renewables in 2000 and has met with the technologies defined by the RPSs. In addition, the Renewable Resource Stakeholder Group was established at the request of the Utilities and Energy Committee at the end of the 2005 session to examine the benefits and costs of renewable generation in Maine and to develop strategies to maximize cost-competitive renewable generation.

## Sources

2005 Regional System Plan, 2004 Annual Markets Report, and other public ISO information.

## For More Information

ISO New England [www.iso-ne.com](http://www.iso-ne.com)

ME Public Utilities Commission

<http://www.state.me.us/mpuc/>

ME Energy Resources Council

<http://www.maineenergyinfo.com/index.html>

NIMSA <http://www.nmisa.com/>