

Nuclear Energy in Massachusetts

July 2009

Sources of Massachusetts' Electricity

Nuclear	13.8%
Coal	25.4%
Oil	4.9%
Gas	50.7%
Hydro	0.4%
Other	4.9%



Source: U.S. Energy Information Administration (EIA), 2008



Nuclear Power Plants in the State

			2008	2006-2008
	City	Capacity (MW)	Generation (MWh)	3-year Average Capacity Factor (%)
Pilgrim	Plymouth	685	5,868,639	93.4

Source: EIA

Clean Air and Economic Benefits

Economic Growth and Emission-Free Electricity

Massachusetts has experienced an average growth in gross state product of 1.8 percent per year over the past five years. To keep Massachusetts' economy growing, the state will need new sources of power. At the same time, parts of Massachusetts must deal with poor air quality. Emission-free sources, like nuclear power plants, supply safe, reliable and affordable power to meet the state's economic growth without polluting the air.

Status of the State's Air Quality

All Massachusetts counties in nonattainment for the U.S. Environmental Protection Agency's new eight-hour ozone standard make up the Boston-Lawrence-Worcester area. Ozone contributes to smog, which can lead to asthma attacks and respiratory impairment in young children and the elderly. Pilgrim supplies emission-free power to the Boston area and helps improve the air quality.

SUITE 400
1776 I STREET, NW
WASHINGTON, DC
20006-3708
202.739.8000
www.nei.org

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Nuclear Energy Prevents Emissions

Generating electricity with nuclear energy prevents the emission of pollutants like sulfur dioxide (SO₂) and nitrogen oxides (NO_x) and greenhouse gases like CO₂ associated with burning fossil fuels. The Pilgrim plant avoided the emission of 7,800 tons of SO₂, 1,700 tons of NO_x and 3.4 million metric tons of CO₂ in the year 2008 (*Source: NEI/EPA*). Emissions of SO₂ lead to the formation of acid rain. NO_x is a key precursor of both ground-level ozone and smog. Greenhouse gases like CO₂ contribute to global warming.

For perspective, the 1,700 tons of NO_x avoided by Pilgrim is the amount of NO_x released in a year by 87,000 passenger cars. There are 3.3 million cars registered in the state of Massachusetts.

Potential Uprates at Nuclear Plants

With additional capital investment, more emission-free power can be generated at most existing nuclear power plants. This process of increasing power output capacity is called an “uprate.” According to an analysis performed for the U.S. Department of Energy, an uprate at Pilgrim could supply 12 percent more electricity and avoid annual emissions of 930 tons of SO₂, 300 tons of NO_x and 360,000 metric tons of CO₂.

New Nuclear Plants

The U.S. Energy Information Administration predicts that demand for energy will grow 21 percent by the year 2030. To meet this growing electricity demand in a manner that is cost effective and protects our air quality, energy companies are planning to build nuclear power plants to provide affordable electricity to consumers and prevent greenhouse gases.

Economic Growth & Job Creation

Nuclear energy is one of the few bright spots in the U.S. economy because it creates more high-paying jobs than other sources of electricity and helps stimulate the economy. On average, a nuclear power plant creates 1,400-1,800 high-paying jobs during construction, with peak employment estimated as high as 2,400 jobs during that period, and yields 400-700 jobs during the operation of the plant. Additionally, the average nuclear plant generates approximately \$430 million a year in total output for the local community and nearly \$40 million per year in total labor income.

This fact sheet is available at www.nei.org, where it is updated periodically.