



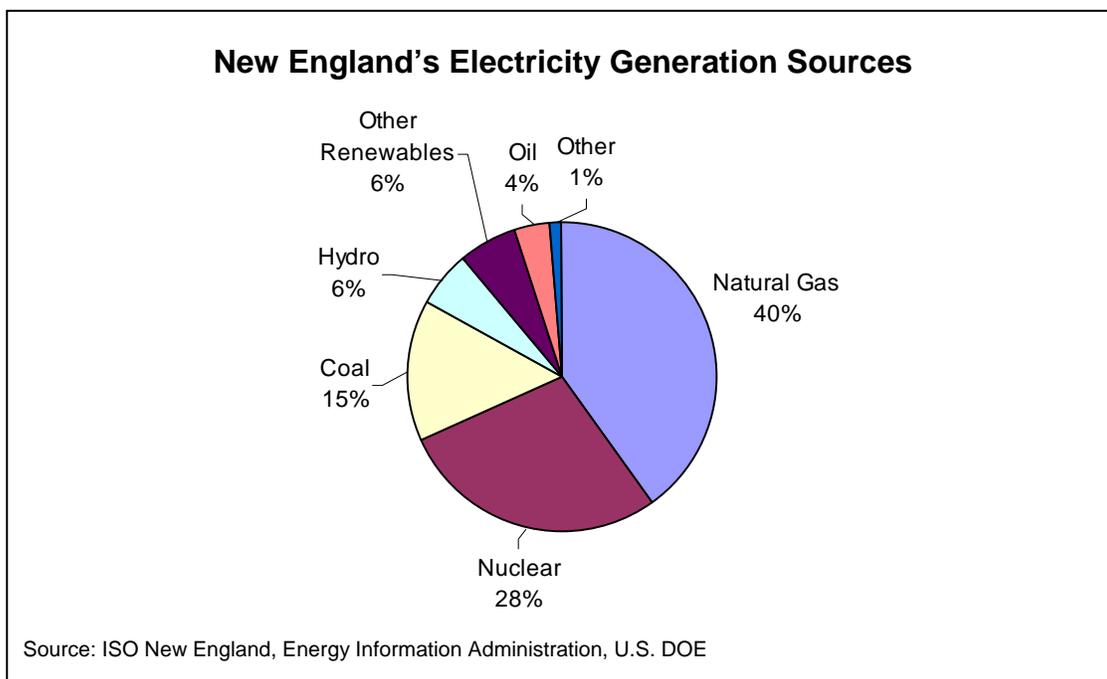
## Key Misconceptions about Electricity Generation

A recent survey on energy issues sponsored by the New England Energy Alliance found that New Englanders have significant misconceptions about the technologies, fuels, and costs of electricity generation. Three misconceptions in particular, if left unaddressed, could incorrectly skew public policy and influence private investment decisions involving electricity supply infrastructure and programs to minimize energy demand.

### Natural gas not oil is the predominant fuel used for electricity generation

A significant majority of New Englanders believe that oil-fired generating facilities produce the largest percentage of electricity in the region. Imported oil, however, generates just 4% of the region's electricity – a significant reduction from the early 1970s when it was used to produce 70% of the region's electricity.

Natural gas is currently the predominant fuel used to generate electricity. Almost all of the generating plants built in New England over the past decade have been natural gas-fired because of their low capital costs, fuel supply availability, high efficiency and low-carbon emitting operations. According to ISO New England, about 40% of the region's electricity is produced by natural gas. The region's increasing dependency on natural gas should be a growing concern because a diversified fuel mix provides the greatest hedge against supply interruptions. Interestingly, the majority of oil used for electricity generation is needed to back-up natural gas-fired generating plants during times when natural gas demand exceeds pipeline capacity and/or supply availability.



## **Nuclear not wind generating facilities produce the lowest cost electricity**

The majority of New Englanders believe that wind generating facilities produce the cheapest electricity. A much needed and desired energy source, wind generation currently comprises less than 1% of the region's electricity supply.

According to the American Wind Energy Association, the cost of electricity from wind energy varies widely depending upon the wind speed at a given project site. Importantly, however, advanced technologies are now enabling wind generating facilities to produce electricity that is cost competitive with other fuels.

Wind facilities have no fuel costs, but they do have maintenance and substantial capital development costs that must be recovered over periods of intermittent operation (the vagaries of Mother Nature).

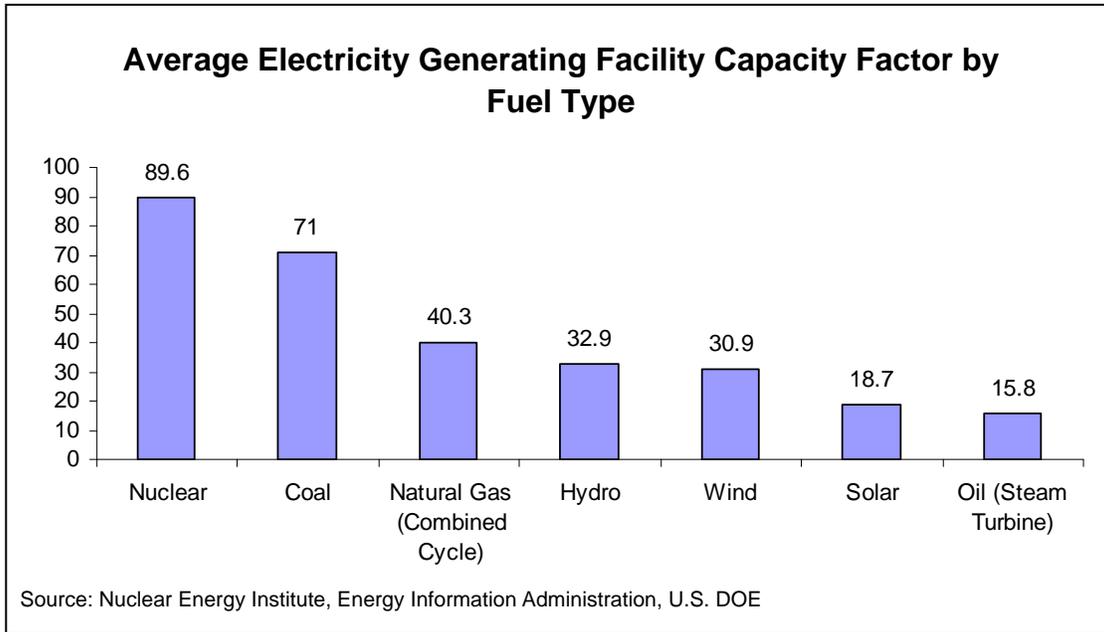
The Nuclear Energy Institute reports that on a per kilowatt-hour basis, nuclear energy generates the cheapest electricity at about 1.76 cents per kWh, followed by coal at 2.47. Electricity generated from natural gas and oil is more expensive at 6.78 and 10.26 cents per kWh respectively. Based on studies by the American Wind Energy Association, state-of-the-art wind plants in high-wind states can generate electricity competitively at about 5 cents per kWh.

Most consumers are also apparently unaware that the price of renewable electricity generation (which includes wind) in New England is made more affordable by state taxpayer assistance including: 1) subsidies from consumer-funded renewable programs legislatively mandated by Massachusetts, Connecticut and Rhode Island, collected through a surcharge on electricity bills; and 2) costs associated with state renewable portfolio standards that require the region's electric utilities to purchase a specified percentage of electricity supply from qualified renewable generation sources – or make an alternative payment collected from ratepayers that is applied towards renewable resource development.

## **Wind is not suitable as a base load source of electricity**

Most New Englanders also incorrectly believe wind generating facilities can be relied upon for 24/7 operations. A wind plant is “fueled” by the wind which blows steadily at times and not at all at other times, often running at less than full capacity.

A generating facility's “capacity factor” is one way of measuring its productivity. It compares the plant's actual production over a given period of time with the amount of electricity the plant would have generated had it run at full capacity. Nuclear power plants – and other large base load power plants – have the highest capacity factors because they run continuously unless idled for maintenance. The American Wind Energy Association references capacity factors of 25 to 40% for wind energy facilities – although off-shore facilities (like the proposed Cape Wind Project) may achieve higher capacity factors.



The need for base load capacity – power plants that operate continuously – has been steadily increasing as the economy and consumer lifestyles require around-the-clock electricity. According to ISO New England, demand for electricity is growing by one percent each year and summer peak by nearly two percent annually. As demand continues to grow, increasing base load generation will be critical.

A major effort to construct more wind generating facilities is essential if the region is to meet its carbon emission reduction target agreed to under the Regional Greenhouse Gas Initiative. In the absence of additional technological breakthroughs, however, wind facilities will be limited to about 30% or less of the region’s generating capacity because of intermittent operational constraints that require back-up supplies and other measures to limit potential impacts on the stability of the electrical grid.

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The annual telephone survey was performed by Opinion Dynamics for the New England Energy Alliance in April 2008 and included 600 registered voters proportionately distributed throughout New England. The margin of error is +/-4%. The complete results are available at [www.newenglandenergyalliance.org](http://www.newenglandenergyalliance.org). For more information contact:

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**The New England Energy Alliance** is a coalition of energy providers and business and trade organizations concerned about future energy supplies.