Sources of Energy

Reliable sources of energy are critical for the economic stability of communities and quality of life for all residents. New Hampshire generates electricity from a wide range of sources including hydroelectric dams, natural gas, and the Seabrook Nuclear Station. Most of this is exported to a regional pool of electricity that serves New England.

Numerous factors affect the generation, distribution, and cost of energy. While municipalities do not have significant influence over the mix of energy available to them through energy providers, at the household or business level, energy efficient appliances and alternative sources of energy – such as solar or wind – can reduce energy demand on the grid, consumption, and long term cost. As a result, individuals and communities also reduce greenhouse gas emissions and impacts to local air quality while contributing to state renewable energy goals.

Energy Cost

A total of over $5.8 billion was spent on energy in the state in 2012 in the transportation (50%), residential (26%), commercial (17%), and industrial (8%) sectors. Approximately 65% of dollars spend on energy leave the state to pay for imported fuels (Source: VEIC, 2013).

Heating, electricity, and transportation energy costs represent a substantial portion of household budgets and can be a significant burden for low-income households in the region. In 2010, the average households spend an estimated $2,816 on residential energy. New Hampshire households at or below the poverty line incur energy costs as great as 30-60% of their total income (Source: Fisher, Sheehan & Colton, 2014).

Energy Efficiency

Improved energy efficiency practices and alternative energy technology enable more municipalities, businesses, and homeowners to reduce their energy costs and the environmental impacts associated with burning non-renewable fuels. Many municipalities in the region have reduced their energy bills by switching to more efficient infrastructure such as street lighting and wastewater treatment equipment. Investing in on-site energy generation and efficiency has resulted in a rapid return on investment for many local businesses. These efforts are supported by several federal and state assistance programs.

Improving energy efficiency and reducing energy consumption can be achieved in all sectors, at a range of scales, and is necessary to reducing greenhouse gas emissions. Within the transportation sector, there is significant opportunity to reduce energy consumption through public transportation and fuel efficient vehicles.

As of 2013, there were 70 LEED certified residential buildings in the state. The region has taken progressive steps with regard to increasing efficiency and reducing fossil fuel consumption. Within the region, there are a number of green buildings and 7 LEED certified buildings. Durham was the first municipality in the nation to adopt the 2012 International Energy Conservation code and the University of New Hampshire was the first university to use land fill gas as its primary fuel source.

Energy efficiency will become increasingly important as the region grows and develops, and as warmer summer temperatures increase demand for air conditioning.

GHG Reduction

Reducing greenhouse gas (GHG) emissions is strategy to mitigate the severity of future climate change and is a critical component of protecting air quality and human health. Emissions of carbon dioxide and other GHGs directly affect regional concentrations of ground level ozone, one of the leading drivers of asthma.

Within the state, a total of 25.34 million metric tons of carbon dioxide were emitted in 2012. This is projected to increase to 42.95 million metric tons per year by 2050 (Source: NH DES, 2009).

Planning for Sustainability

Distributed or decentralized energy distribution systems are one model that can increase resiliency by reducing dependency and load burden on conventional systems through regionally interconnected, small energy generators. Such a model may reduce the impacts associated with supply and distribution for households, businesses, and communities.

Long term planning and design considerations for homes and buildings as well as infrastructure facilities and systems should aim to reduce fossil fuel consumption. Communities and individuals may realize energy savings by investing in alternative energy sources now.
New Hampshire is a member of the Regional Greenhouse Gas Initiative (RGGI), a model effort to reduce greenhouse gases at the regional level. New England states lead the country in effective planning and programs to reduce carbon emissions. Efforts like RGGI promote innovations that open new business opportunities and revenue while reducing environmental impacts.
Energy Efficiency: Findings & Trends

**Transportation**

$2.9$ Billion
Dollars spent on transportation fuels in 2012 in New Hampshire that left the state

*Energy Information Administration, 2012*

**Trends**

- Increase in fuel efficiency standards for light-duty vehicles
- Increase in fuel prices
- Increase in number of vehicle miles traveled (VMT)

9,926 average miles driven per capita in New Hampshire in 2010

*Federal Highway Administration, 2013*

Public transportation can result in a wide range of regional and community benefits:

- Traffic congestion
- Vehicle miles traveled
- Energy cost for individuals
- Public health

**Renewable Energy**

541 kw potential electricity provided by photovoltaic solar panels in the region

As of June 2014, the Open PV Project had logged 72 photovoltaic installations throughout the Strafford region with a range of capacity:

- 1-7 kw residential panels
- 29 kw generated for municipal buildings in Durham
- 140 kw capacity panels at Favorite Foods in Somersworth

Communities in the region with solar, wind, and biomass energy tax exemptions:

- Barrington: x x
- Durham: x
- Farmington: x x x
- New Durham: x
- Newmarket: x x x
- Northwood: x x
- Rochester: x
- Wakefield: x x x

*NH OEP*

**Energy Efficiency**

Impacts of achieving the maximum, cost-effective energy efficiency improvement to buildings statewide:

- 210% Return on investment
- $195 million Annual savings to business owners
- $2.9 billion Total savings from reduced energy use
- 2,300 In-state jobs created
- $160 million Added to GDP annually

*VEIC, 2013*

Statewide Survey Results

- Strongly Oppose: 2
- Strongly Support: 4
- Don’t Know: 3

Support for higher energy standards for new buildings

Support for expanding incentives for home energy efficiency improvements

*Granite State Future Survey, 2011*