

# New Hampshire Energy Facts 2006: Energy Conservation and Energy Efficiency

Reducing New Hampshire's overall energy consumption (energy conservation\*) can be the least expensive, least polluting, most cost-effective, most sustainable way to increase our overall energy efficiency\*.

- Energy conservation
  - Using less energy has an additional potential benefit: Energy resources last longer, helping to assure more energy for future generations.
- Energy efficiency
  - By increasing energy efficiency in manufacturing, companies can use less energy, thus reducing energy costs, which may increase economic competitiveness.
  - Improved energy efficiency does not automatically translate into a lower standard of living.

**Overall energy efficiency may be increased by a combination of conservation and efficiency improvements.**

**How can we measure gains in energy efficiency and the benefits they may bring?**

- **Energy Intensity of Production (EIP)\* is one way to measure overall energy efficiency of an economy**, and thus costs of economic output. Numerous variables influence EIP. Some examples are: wages and benefits; a nation's physical size and population density (large nations with low population density tend not to be as efficient overall due to energy required for transportation); climate; proportion of industry vs services. These variables prevent straightforward comparisons. However, comparing EIP can provide a first - approximation estimate of nations' potential economic competitiveness.
- **A lower EIP means greater energy efficiency in producing goods and services.** The chart below suggests that New Hampshire and the US might be able to improve our EIP.

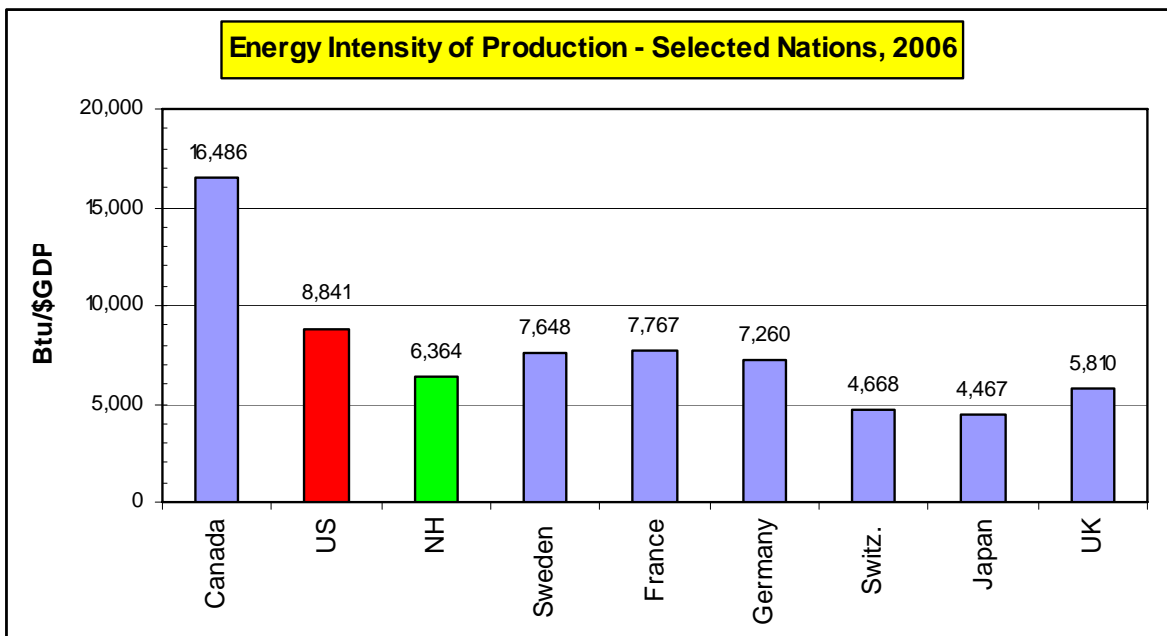
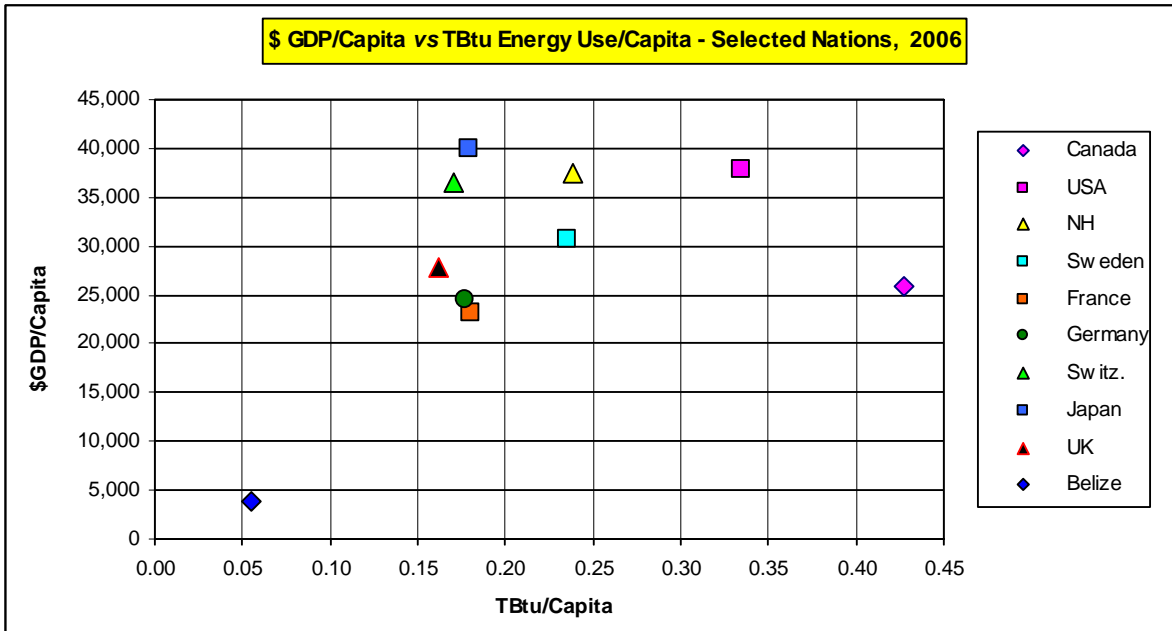


Chart Notes:

1. Dollars are based on year 2000 market exchange rates.
2. Data source: [US DOE EIA's International Energy Annual 2006, Table E 1 g.](#)

**Won't reducing our energy consumption reduce our standard of living?**

- For some people, late 20<sup>th</sup> Century appeals to reduce our energy consumption conjured images of citizens freezing in the dark. Most people would have found any realization of these visions quite unacceptable.
- The chart on the next page suggests that energy efficiency need not lead to deprivation and a reduced standard of living:



**Chart Notes:**

1. Nations farther to the left use less energy per person.
2. Nations closer to the top produce more Gross Domestic Product (measured in dollars) per person; that is, these nations have higher overall productivity.
3. Most nations in the charts were selected for inclusion on the basis of how the US tends to view them when comparing economies and standards of living. Belize, a nation with comparatively low energy use and per-capita GDP, was included in the chart above to facilitate interpretation.

Per - capita GDP is seen by some as a rough indicator of a nation’s average standard of living. Based on this assumption, the chart above suggests that the US could maintain its standard of living and lower its per-capita energy consumption, thereby reducing energy intensity of production as well as cost of living. New Hampshire is ahead of the US as a whole, but there is still room for improvement, as a comparison with nations such as Switzerland and Japan suggests.

**\*DEFINITIONS**

Energy Conservation: To use or manage energy wisely. The goal of energy conservation is a reduction in the amount of energy consumed. Energy efficiency measures are one means to this end. Another, simple means is to reduce energy use through behavioral changes - for example, by walking instead of driving.

Energy Efficiency: Achieving the same desired goal, such as light for reading, while reducing the energy inputs. Such savings may be achieved by substituting technologically more advanced equipment to produce the same level of end-use goods and services with less energy use. Example: A compact fluorescent lamp (cfl) uses only about 25% as much electricity as an incandescent bulb to produce the same amount of light. Implementing more efficient procedures and processes may also improve energy efficiency.

Energy Intensity of Production (EIP): The amount of energy required to produce a given quantity of output. New Hampshire Energy Facts uses Btu per US dollar of Gross Domestic Product (GDP).

**ENERGY CONSERVATION AND EFFICIENCY RESOURCES**

Information on energy conservation and efficiency may be found at:

[http://www.nh.gov/oep/programs/energy/energy\\_conservation\\_tips.htm](http://www.nh.gov/oep/programs/energy/energy_conservation_tips.htm)