

Apples to Apples: How to Compare the Cost of Home Heating Fuels

A Precise Comparison of Costs Puts Oilheat Clearly Ahead of Electricity

One way to compare the cost of home heating fuels is to compare their respective costs per million BTU. There are one million BTU in a therm of natural gas. Here's how to calculate the cost of some home heating fuels per million BTU.

Home Heating Oil

According to the U.S. Energy Information Agency (EIA), a gallon of home heating oil generates 138,690 BTU when burned at 100 percent efficiency.* To figure the cost per million BTU, divide 1,000,000 by 138,690, which will yield the number of gallons it will take to generate one million BTU. To calculate the cost, multiply the number of gallons by the cost of a gallon of home heating oil.

For example, if home heating oil costs \$3.50 per gallon, the calculation to figure the cost per million BTU would look like this:

$$(1,000,000/138,690) \times \$3.50 \\ 7.21 \times 3.50 = \$25.24$$

So, if home heating oil costs \$3.50 per gallon, the cost per million BTU is \$25.24.

Electricity

According to the EIA, one kilowatt hour (kWh) of electricity generates 3,412 BTU. To figure the cost per million BTU, divide 1,000,000 by 3,412, which will yield the number of kWh it will take to generate one million BTU. To calculate the cost, multiply the number of kWh by the cost per kWh.

For example, if electricity costs 15 cents per kWh, the calculation to figure the cost per million BTU would look like this:

$$(1,000,000/3,412) \times \$0.15 \\ 293.1 \times .15 = \$43.96$$

So, if electricity costs 15 cents per kWh, the cost per million BTU is \$43.96.

*A word about efficiency: No fuel burns at 100 percent efficiency. Different home heating systems achieve different efficiencies, but it is worth noting that new Oilheat systems are competitive with, if not equivalent to, those fueled by natural gas when it comes to efficiency.

Oilheat Facts

Home heating oil has offered significant savings to consumers when compared to natural gas or electricity over the past three decades.

While oil prices have increased recently at a faster rate than natural gas, history shows that those changes are short-term and that oil could be expected to remain the lower-cost option for residential and business consumers throughout the Northeast.

- *Data released last year by the U.S. Energy Information Administration showed that during the previous five years, heating oil has been less expensive than natural gas in two of those years, more expensive during two of them and about even in one of them.*
- *Only recently has the price differential skewed in favor of natural gas, and natural gas prices are already beginning to trend upward as investors realize that it is undervalued.*
- ***In the Northeast, home heating oil has been the better buy for 16 out of the last 20 years – in Connecticut, heating oil's been the better buy for 18 out of the last 20 years. In Rhode Island, 19 out of the last 21 years.***

Oilheat Prices, Historically

Dollar for Dollar, BTU for BTU, Oilheat has Historically Been the Best Value

- *Over the past 10 years, oil prices have been 6 percent lower than gas.*
- *Over the past 15 years, oil prices have been 15 percent lower than gas.*
- *Over the past 20 years, oil prices have been 16 percent lower than gas.*
 - *In New York City, oil has been less expensive for 9 years out of the last 20, natural gas for 7 out of 20.*
 - *In Pennsylvania: heating oil has been less expensive for 10 years out of the last 20.*
 - *In Connecticut: heating oil has been less expensive for 18 years out of the last 20.*
 - *In Rhode Island: heating oil has been less expensive for 19 out of the last 21 years!*

Switching fuels based on a single year's worth of data is a risky gamble.

It costs money to switch fuels:

- *Heating systems can last as long as 25 years. The money tied up in the existing system is not insignificant.*
- *Removing an existing storage tank can cost as much as \$3,000.*
- *The cost and installation of a new natural gas system can run as high as \$7500.*
- *Switching fuels can easily cost more than \$10,000 in total expenditures – a cost that can take years to amortize before any savings are realized – and if heating oil becomes the lower-cost fuel then the investment is lost.*
- *A much better choice – with a guaranteed return on your investment – is to upgrade an existing home heating system.*
- *New oil heat systems, as well as fuel management devices and electronic controls, can reduce the amount of fuel used to heat a home by as much as 40 percent.*
- *Trained Energy Conservation Technicians, available to all oil heat customers through their local oil dealers, can make specific recommendations about how consumers can reduce the amount of fuel they use and take advantage of incentive programs to upgrade their home heating systems.*

Heating Oil v. Natural Gas

In the long run, heating oil and natural gas prices closely track each other.

Natural gas prices are subject to the same volatility as oil.

- ***From the beginning of 2008 through June 2008, natural gas prices on the New York Mercantile Exchange (NYMEX) increased by nearly 70 percent.***
- ***Although gas prices are lower now, the American Gas Association, a trade association representing more than 200 natural gas providers across the country, recently stated in a market advisory that “consumers may face substantial increases in bills for the 2008-2009 winter heating season, even if the winter is just average in terms of heating degree days.”***
- ***Heading into the home heating season, natural gas utilities around the country are seeking heavy rate increases for their customers because the majority of the product that will be delivered to consumers this winter was purchased earlier this year when prices were considerably higher.***

The fact is, the burden of volatile energy prices extends to natural gas as well, and American consumers will not see any significant energy savings, no matter what fuel they use, until policymakers in Washington enact meaningful commodities market reform.

The United States is Increasingly Reliant on Foreign Sources of Natural Gas

America is Importing More Dry Natural Gas from Canada and LNG from Africa

America's natural gas industry is struggling to meet domestic demand and is increasingly reliant on imported Liquid Natural Gas (LNG) produced by foreign countries.

- *Domestic production of natural gas has been essentially flat for the last 20 years.*
- *According to the federal Energy Information Administration (EIA), **America's natural gas consumption grew by more than 6 percent from 2006 to 2007**, from 21.6 billion cubic feet to 23 billion cubic feet, and will see similar increases through 2009.*
- *Electricity generators are adding substantial demand both globally and domestically as they switch from coal to natural gas. According to the EIA's Electric Power Monthly, **the amount of electricity generated from natural gas increased by more than 20 percent from 2007 to 2008, and will see a similar increase in 2009.***
- *As a result, the increased demand has been met with imported energy, primarily in the form of Liquid Natural Gas, which produces significantly higher greenhouse gas emissions and, because of its explosive nature, is far more dangerous to handle and transport than traditional dry natural gas.*

Foreign Natural Gas is a Bigger Share of the American Market Today than it was Just a Few Years Ago – and It Will Only Get Bigger.

Natural Gas Co. CEO Says There's Enough Supply to Last 120 Years or More

"From the deserts of west Texas to the plains of Oklahoma on to the mountains of Appalachia, we are demonstrating that America can rely on a steady supply." Chesapeake Energy Corp. CEO Aubrey McClendon, paid advertisement, New York Times Magazine, April 20, 2008

Industry Insiders Say That's Not the Case

Within days of McClendon's claim, industry experts pointed out that dwindling supply tops the list of industry concerns.

- ***"Our view is that the ads clearly overstate the capability of domestic production to keep up with demands in the power sector,"*** Paul Cicio, president of the Industrial Energy Consumers of America, April 25, 2008 *ClimateWire.*
- ***"To leave the impression that it [natural gas] is abundant for everybody is really a myth,"*** Jack Gerard, president and CEO of the American Chemistry Council, April 25, 2008, *ClimateWire.*
- ***"We are going to have to replace 30 percent of our supply a year just to stay even,"*** Lee Fuller, president of the Independent Petroleum Association of America, April 25, 2008, *ClimateWire.*

Natural gas supplies are limited.

If demand increases, that means a greater reliance on foreign sources or higher prices – or both.

The fact is, there's no advantage to natural gas.

Heating Oil and the Environment

**Don't Believe Everything the Natural Gas Industry Tells You.
Oilheat is not a Significant Source of Greenhouse Gas Emissions**

Home heating oil is not a significant source of greenhouse gas emissions, and the evidence documenting this fact is overwhelming and easily available. Recent data from both the U.S. Department of Energy and the U.S. Environmental Protection Agency show that emissions from residential oil burners account for only a tiny fraction of the total emissions from all combustion sources each year.

The chart below illustrates this fact:

Total Emissions (Millions of Tons per Year)

Air Pollutant	Residential Oil Burners (ROB)	All US Combustion Sources	% from ROB
Particulates	0.0012	1.78	0.068
Nitrogen Oxides	0.053	24.1	0.21
Carbon Monoxide	0.015	80.5	0.018
Hydrocarbons	0.0021	9.43	0.022
Sulfur Oxides	0.02 to 0.10	17.4	0.11 to 0.58

Sources:

1. U.S. Environmental Protection Agency, AP-429/98, Jan. 2004
2. U.S. Environmental Protection Agency, EPA-454/R-01-004, National Air Quality and Emissions Trends Report – 1999, March 2001
3. U.S. Department of Energy, DOE/EIA-0214(88), State Energy Data Report-1999 May 2001

When It Comes to the Environment, Heating Oil is As Good or Better than Natural Gas

- *Natural gas is primarily methane, a deadly poison gas that is **23 times more harmful to the environment than CO₂**, the primary greenhouse gas associated with home heating oil.*
- *Liquefied natural gas has a significantly larger greenhouse gas emissions profile than dry gas or home heating oil because of emissions associated with its production and transport.*
- *Liquefied natural gas is **highly explosive and considerably more dangerous** to handle. Heating oil is non-explosive and perfectly safe for consumers to store on site.*

***The Natural Gas Industry Would Like You to Think They are Better.
They are not. Methane is Far More Harmful to the Environment.***

Today's Oilheat is Clean Heat

Thanks to Industry Advancement, Consumers Today Use Far Less Oil Than They Did 30 Years Ago

- Home heating oil has reduced its carbon footprint by 40 percent over the last 30 years.
- No other energy source has succeeded in reducing consumption, becoming more efficient, or marketing a renewable fuel as have heating oil retailers
- Thirty years ago, the average Oilheat consumer used 1,300 gallons of oil per year. Today, that number has been reduced by nearly 50 percent, to 700 gallons per year, thanks to new technology like sidewall venting, indirect water heating and high-efficiency equipment.
- BioHeat, a blend of domestically produced, renewable materials, such as soybean oil, has the highest BTU content of any alternative fuel and is extraordinarily clean-burning.
- Testing conducted by the National Oilheat Research Alliance (NORA) found that a BioHeat blend of 80% low-sulfur heating oil and 20% biodiesel (B20) **reduced sulfur oxide emissions by as much as 80% or more**. Nitrogen oxide emissions were lowered by about 20%. In addition, carbon dioxide emissions can be lowered by 20%.
- If everyone using heating oil used a B5 blend (5% biodiesel/95% heating oil), **400 million gallons of regular heating oil could be conserved**. This would be a big step towards conserving oil and reducing greenhouse gas emissions.