



## Propane vs. Electricity\*

To understand the difference between propane and electricity, one must first know that propane is a primary energy source and electricity is a secondary energy source. Propane vs. electricity is a contrast between a primary energy source and a secondary energy source. Energy from propane is used directly whereas energy from electricity is used after the electricity is generated from a primary energy source such as natural gas or petroleum. In other words, electricity is subsequently generated through the expenditure of another source of energy. Usable amounts of electricity do not occur naturally whereas usable amounts of propane do.

### Propane Vs. Electricity - Energy Content Comparison

Propane gas is measured and distributed in gallons, pounds and cubic feet and while the measurable units of propane sold adhere to volumes, the usable energy (or energy content) is measured in BTU's. Electricity is measured in kilowatts and is "delivered" in kilowatts. Propane appliances and electric appliances are both labeled in "per hour" efficiency ratings for energy consumption measurement. Propane appliances are listed as BTU/hr rating while electric appliances are listed as kWh (Kilowatt Hours). To understand the true difference between propane and electricity, we must compare propane and electricity in terms of their energy content.

- 1 Gallon of Propane = 27 kWh (Kilowatt Hours) of electricity - This means that one gallon of propane contains the same amount of usable energy as 27 Kilowatt Hours. Or we can say that 27 kWh equals approximately 91,500 BTU.
- A 100 watt light bulb left on for a full day (24 hours) will consume 2.4 kWh. If propane were to power the same light bulb (hypothetically- remember, we're comparing energy content) for 24 hours, it would use .09 gallons of propane.

Fuel costs vary widely by region and sector (industrial, residential, etc) for both propane and electricity. Historically, propane has been considered a better value and more cost effective when compared to electricity.

### Propane Vs. Electricity Cost Comparison

Comparing electricity to propane has long been an interest to energy users and prospective consumers of propane and electricity. So how does one go about comparing the cost of propane to electricity? It all starts with understanding the cost per unit of each fuel and comparing them directly. But for simplification and to avoid an over-analysis of propane and electricity cost comparison, we'll cover it here in an unbiased non-technical manner. The breakdown of propane and electricity "units" are gallons and kilowatts as described above. However, the very best way to understand the cost comparison is to understand how much it costs to power an appliance at the same level for the same amount of time. For example, a 100,000 BTU/hr central furnace running at 100% capacity for 10 hours will cost how much using propane as compared to using electricity in a comparable furnace? However, the numerous types of factors (insulation, AFUE and other efficiency ratings) involved with calculating the true comparison of appliances can make it difficult. Therefore, let's break it down as simply as we can using the given values of propane and electricity:

If one gallon of propane is equal to 27 kWh of electricity, then we can compare the costs of these fuels directly by looking at the price per unit (propane gallons or kilowatt hours) and finding the price difference. This can easily be done by looking at your electric bill and multiplying the price per kWh by 27. The resulting number will be a dollar figure that will be either greater than or less than the price of a gallon of propane. For example, if you are paying 12¢ per kWh, the electrical cost comparison figure to a gallon of propane will be \$3.24 ( $.12 \times 27 = 3.24$ ). Electricity is cheaper than propane if propane is selling for \$3.24 per gallon and propane is cheaper than electricity if it is selling for less than \$3.24 per gallon.

### Environmental Impact of Propane Vs. Electricity

Emissions of all types are under increased scrutiny due to the effect they have on air quality and the environment. The burning of any fossil fuel contributes to air pollution and while some fuels produce higher concentrations of air pollution, propane and LP Gases produce very low levels of air contaminants. Propane fueled appliances, equipment and LP Gas vehicles burn cleaner and produce environmentally friendly emissions. Electricity has zero emissions but the statement, "electricity is 100% efficient" and/or "environmentally friendly" is fairly inaccurate due to its generation and production methods, as outlined below.

Because electricity is a secondary energy source, generated by the use of a primary energy source, it is not exact or correct to say that electricity is the most environmentally friendly fuel available. Many people mistakenly believe this and can be misled without understanding all aspect of electric power generation. In the United States, 49% of all electricity is produced by the burning of coal. If your hybrid-electric car is charged through coal fired electricity generation, the chances of making a positive impact on the environment are minimal. Therefore, the environmental impact of propane powered vehicles vs. electric vehicles can only be accurately compared based solely on the primary energy source of electric power generation.

\*Source: [www.propane101.com](http://www.propane101.com)