



# E<sup>3</sup>A: Understanding Energy

## Understanding Energy

Energy Pyramid

Net Metering

Off-Grid Living

Green Building

### Understanding Your Energy Consumption

Sources and Uses

Carbon and Energy

Importance Scale Survey

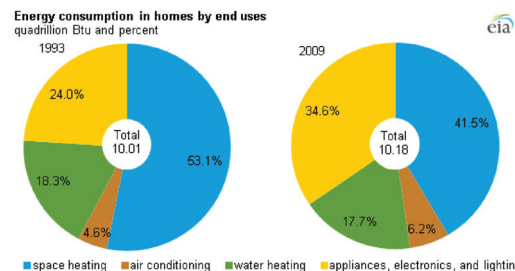
## Understanding your energy consumption and expenses

Understanding current energy consumption and costs is a crucial part of making an informed decision. Use this worksheet to explore the types of energy you currently use and the price you pay.

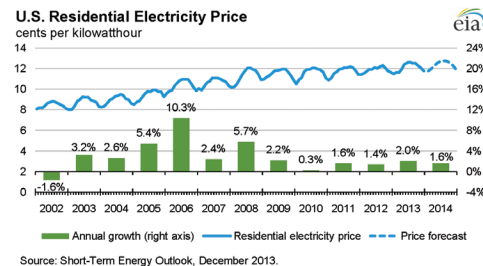
### Electricity

Electricity in the home is primarily used to power lights and appliances (56 percent), condition air (22 percent) and heat water (9 percent). Roughly 39 percent of all U.S. electricity consumption in 2009 was residential. Demand growth has slowed progressively each decade since the 1950s, when demand increased by 9 percent per year. In the 1990s, demand increased annually by just 2.5 percent. From 2000 to 2009, electricity demand growth averaged 0.5 percent per year.

Electricity is used in agriculture for irrigation pumps, indoor and outdoor lighting, grain drying, livestock water systems and powering farm shops. Average consumption in agriculture is difficult to determine because there are many different types of operations. To calculate total consumption and price of electricity, agricultural operators need to pay attention when reviewing statements to whether demand charges have been assessed.



Credit: DOE EIA



Source: Short-Term Energy Outlook, December 2013.

**Table 1. Electricity cost comparisons.**

Electricity cost	United States	West North Central region	Missouri
Cost per kWh, June 2013	\$0.1254	\$0.1222	\$0.1234
Cost per kWh, June 2012	\$0.1206	\$0.1140	\$0.1144

**Table 2. Residential energy consumption comparisons.**

Residential electricity consumption in 2009	United States	West North Central region	Missouri
Average monthly use	908 kWh	964 kWh	1,145 kWh
Average monthly bill	\$104.52	\$91.66	\$97.50

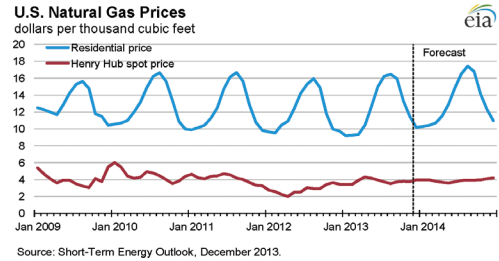
The Energy Information Administration 2011 Short Term Energy Outlook provides some historical context for understanding electricity prices by comparing nominal to real prices over time. Nominal prices are the actual price paid in a given year, which can be adjusted to account for inflation to generate real prices in current dollars. Real prices are generally more useful for evaluating prices.

**Record information about your electricity use here.**

My electrical utility is... \_\_\_\_\_  
My total kilowatt hours per year are... \_\_\_\_\_  
My average kilowatt-hours per month is... \_\_\_\_\_  
My cost in cents per kWh is... \_\_\_\_\_

**Natural gas**

Natural gas is most commonly used for heating. More than half of single-family homes in the United States use natural gas as their primary heating source. Natural gas is typically delivered by a pipeline and not commonly used in agricultural operations. The price of natural gas paid by residential customers varies based on the supplier, type of contract and delivery costs, among other factors. However, EIA data show that the real price has trended upward over time, despite the price of natural gas declining in the past several years.



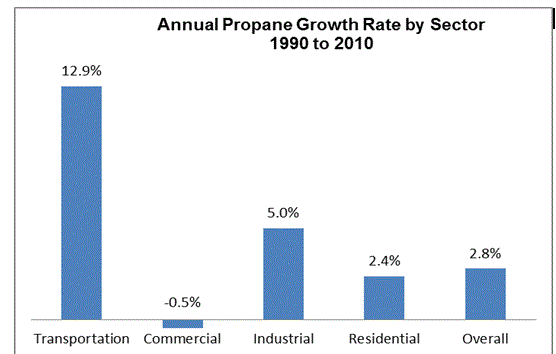
**Record information about your natural gas consumption here.**

My natural gas utility is... \_\_\_\_\_  
My total consumption per year is... \_\_\_\_\_  
My average consumption per month is... \_\_\_\_\_  
My cost per unit is... \_\_\_\_\_

**Propane**

Propane is a liquefied petroleum gas. It occurs naturally, mixed with natural gas and oil, and is separated in the refining process. In the home, it is used for space heating (49 percent), water heating (16 percent) and cooking (6 percent), among other uses — such as clothes drying and gas grills (29 percent). Agricultural operations may use propane in livestock barn heaters or water heating apparatus in dairy barns.

Propane is linked to petroleum extraction and refining, so propane pricing follows petroleum pricing. Like natural gas, the residential price fluctuates due to delivery costs, storage and forward contracting, among other factors. However, like other petroleum products, the price has risen, especially in the past five to seven years.



Source: State Energy Data System (SEDS) Statistics, 1960–2010

**Record information about your propane consumption here.**

My propane supplier is... \_\_\_\_\_  
My total consumption per year is... \_\_\_\_\_  
My average consumption per month is... \_\_\_\_\_  
My cost per unit is... \_\_\_\_\_



## Heating oil

Heating oil is a petroleum-based product that is less common in Missouri, though some homes use heating oil. The Northeast uses more heating oil than any other region in the United States. Prices for heating oil trend with petroleum.

### Record information about your heating oil consumption here.

My heating oil supplier is... \_\_\_\_\_

My total consumption per year is... \_\_\_\_\_

My average consumption per month is... \_\_\_\_\_

My cost per unit is... \_\_\_\_\_

## Transportation fuels

Petroleum is the No. 1 source for transportation fuels in the United States, and personal vehicles account for most of that consumption. Prices for transportation fuels — in real and nominal terms — have risen significantly in recent years.

### Record information about your transportation fuel consumption here.

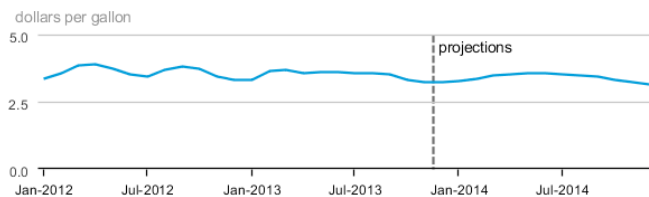
My total gallons of gasoline per year is... \_\_\_\_\_

My average price per gallon of gasoline is... \_\_\_\_\_

My total gallons of diesel fuel per year is... \_\_\_\_\_

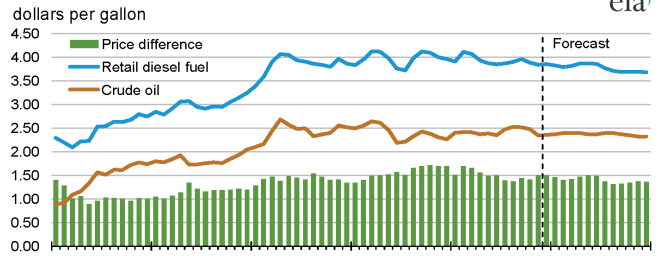
My average price per gallon of diesel fuel is... \_\_\_\_\_

**Gasoline Regular Grade Retail Price Incl Taxes, U.S. Average**



Source: Short-Term Energy Outlook

**U.S. Diesel Fuel and Crude Oil Prices**



Crude oil price is composite refiner acquisition cost. Retail prices include state and federal taxes.

Source: Short-Term Energy Outlook, December 2013.

