

## Understanding the Basics

A popular term in the energy world right now is energy efficiency. Energy efficiency is simply using less energy to reach the same result. Why would anyone want to do this?

### Let's look at an example:

You want to visit your friend's house down the street. You can ask your parent for a ride in the car or you can ride your bike. Both of these choices will get you to your friend's house, but the energy used is not the same.

**Car:** runs on gasoline, which costs \$3.50 a gallon

**Your bike:** runs on your pedaling, which costs \$0.00.

Even if the exercise from riding your bike caused you to get hungry and thirsty, the cost of a snack wouldn't be as much as the gasoline needed to drive you to your friend's house. This would mean that riding your bike would be more energy efficient because you are using less overall energy.

Many household appliances like refrigerators and television sets use different amounts of energy. By choosing to buy items for your house that are energy efficient, your family can save energy every day. When a family uses less energy, they can save money on their energy bills and help the environment, because the overall amount of energy being used is reduced.

### So how does a person know how much energy an appliance is using and whether that amount is energy efficient?

One great place to start is Energy Star®. Energy Star® is a program created by the U.S. Environmental Protection Agency. Products that are energy efficient are given a special label by Energy Star® that lets a shopper know that the item they are buying is energy efficient. Shoppers can buy an Energy Star® item and know that they will be saving energy compared to items sold without an Energy Star® label.

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### So are all Energy Star® items the same?

No. Each type of item, like a blu-ray player or a dishwasher, has specific requirements that determine whether it will receive an Energy Star® label based on the type of item it is. To further complicate things, even when you look at all the same types of items with an Energy Star® label, some may be more energy efficient than others, so it's always important to look at the Energy Guide when buying a new appliance.

### Let's take a look at an Energy Guide.

U.S. Government Federal law prohibits removal of this label before consumer purchase.

# ENERGYGUIDE

Refrigerator-Freezer  
• Automatic Defrost  
• Side-Mounted Freezer  
• Through-the-Door Ice

XYZ Corporation  
Model ABC-L  
Capacity: 23 Cubic Feet

## Estimated Yearly Operating Cost

**\$67**

\$57 \$74  
Cost Range of Similar Models

**630 kWh**  
Estimated Yearly Electricity Use

Your cost will depend on your utility rates and use.

- Cost range based only on models of similar capacity with automatic defrost, side-mounted freezer, and through-the-door ice.
- Estimated operating cost based on a 2007 national average electricity cost of 10.65 cents per kWh.
- For more information, visit [www.ftc.gov/appliances](http://www.ftc.gov/appliances).

**ENERGY STAR**

- 1 Key features of this appliance model
- 2 Make, model number, and size
- 3 Annual energy cost, placed in comparison to models with similar specifications
- 4 Estimated amount of energy used in a year (based on typical use)
- 5 Energy Star logo appears if appliance model meets efficiency standards

For more great energy resources visit:  
[www.ConsumersEnergy.com/kids](http://www.ConsumersEnergy.com/kids)

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**What appliance is this Energy Guide for? \_\_\_\_\_**

**What is the model number? \_\_\_\_\_**

**How much does it cost to run this appliance for a year? \_\_\_\_\_**

**This guide shows that similar models can cost somewhere between \$57 a year and \$74 a year. How does this model compare to other models?**

\_\_\_\_\_

**What is the estimated amount of electricity per year that this appliance will use? \_\_\_\_\_**

**Is this model an Energy Star® appliance? \_\_\_\_\_**

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## Exploring Energy Star®

Visit the website, [www.energystar.gov](http://www.energystar.gov) to answer the following questions.

When you are done, you can also visit, [www.energystar.gov/kids](http://www.energystar.gov/kids) for fun games and trivia.

**What two reasons are listed for why the Energy Star label was established?**

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**The website lists many items that can earn the Energy Star label. Can you list at least four items?**

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**Which of the following actions can save energy? (There might be more than one correct answer)**

- A. Unplug electronic devices that aren't being used.
- B. Change out your furnace filter.
- C. Cover pots on the stove.
- D. Keep the lights on when you leave the room for just a minute instead of turning them off and back on.
- E. Buy a programmable thermostat.
- F. Completely turn off the heat if you aren't going to be home during the day.

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**Visit the “Take the Pledge” section of the website and look at some simple actions people can do to be more energy efficient. Which of these actions could you do at your house?**

- Replace standard lightbulb with LED lightbulb.
- Have your computer go into sleep mode when you aren't using it.
- Seal air leaks and use draft dodgers.
- Add insulation to your attic.

**What other interesting facts did you learn from [www.energystar.gov](http://www.energystar.gov) and [www.energystar.gov/kids](http://www.energystar.gov/kids)?**

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## Energy Star® in Action

**Pretend that you need to buy a new washing machine for your house. Based on what you've learned, what are some energy related questions you should ask?**

1. \_\_\_\_\_ ?
2. \_\_\_\_\_ ?
3. \_\_\_\_\_ ?

Complete the following assessment for five different washing machines either by visiting a hardware store or using a website that sells washing machines.

Name	Model #	Top Loading or Front Loading (this is a preference, but can impact energy efficiency)	Estimated Yearly Operating Cost with an electric water heater	Estimated Yearly Operating Cost with a natural gas water heater	Estimated Yearly Electricity Use	Purchase Price	Size in Cu. Ft. (this determines how much laundry can fit in the washing machine)	Energy Star? Y or N
			\$	\$	kWH	\$	Cu. Ft	
			\$	\$	kWH	\$	Cu. Ft	
			\$	\$	kWH	\$	Cu. Ft	
			\$	\$	kWH	\$	Cu. Ft	
			\$	\$	kWH	\$	Cu. Ft	

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**1. Which washing machine has the lowest purchase price?**

\_\_\_\_\_

**2. Which washing machine has the lowest yearly electricity use?**

\_\_\_\_\_

**3. Do washing machines cost more to run with an electric water heater or a natural gas water heater? \_\_\_\_\_**

**4. How many of the washing machines had an Energy Star® label?**

\_\_\_\_\_

**5. Does the largest washing machine cost the most? \_\_\_\_\_ Does it use the most electricity? \_\_\_\_\_**

**6. What are some reasons to buy a large washing machine? A small washing machine?**

\_\_\_\_\_

**7. Looking at the cost of using the washing machines with a natural gas water heater, how much money will you save per year if you buy the washing machine with the lowest yearly operating cost compared to the washing machine with the highest yearly operating cost?**

Highest Estimated Yearly Operating Cost with a natural gas water heater (A) \$ \_\_\_\_\_

Lowest Estimated Yearly Operating Cost with a natural gas water heater (B) \$ \_\_\_\_\_

= \$ \_\_\_\_\_ in savings per year

**8. Most people use a washing machine for seven years. Based on the savings per year, how much will you probably save over the lifetime of the washing machine?**

(Answer from Question 7) \* 7 years = \$ \_\_\_\_\_ total savings

## Advanced

### 9. Are the energy savings worth it?

This is not always an easy question to answer because it depends on several factors.

To begin, compare the prices of Washing Machine A and Washing Machine B from Question 7.

Washing Machine A \$ \_\_\_\_\_      Washing Machine B  
\$ \_\_\_\_\_

If Washing Machine A costs more, you will know that Washing Machine B is a better deal because Washing Machine B also saves you energy costs.

If Washing Machine B costs more, you will need to do a little more math.

Washing Machine B \$ \_\_\_\_\_ - Washing Machine A  
\$ \_\_\_\_\_ = \$ \_\_\_\_\_ more you paid for Washing Machine B.

Compare the amount more you paid for Washing Machine B  
\$ \_\_\_\_\_ to the  
total savings you had from Question 8 \$ \_\_\_\_\_.

If the extra cost of Washing Machine B is more than the total savings you had from Question 8, you might decide it's not worth the extra purchase price. However, other factors might influence your decision like additional features, the style you are looking for, or the space the washing machine takes up in your home.

If the extra cost of Washing Machine B is less than the total savings you had from Question 8, you would likely decide it is worth the extra cost.