

# Energy Efficient Homes: Appliances and Electronics<sup>1</sup>

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## Quick Facts

- The average annual energy cost of a home in the U.S. in 2014 was about \$2,200 (U.S. DOE, 2014a), and as of 2017 electricity prices have risen by three percent (Statista, 2017), which could translate to as much as \$66–75 more per year. Appliances are a major part of home energy use.
- Approximately 13 percent of your average annual energy cost goes to operating your refrigerator, dishwasher, and washing machine (i.e., clothes washer) (ENERGY STAR®, n.d.).
- “Overall, ENERGY STAR®-labeled office products use about half the electricity of standard equipment” (U.S. DOE, 2014a).
- Appliances and electronics account for approximately 20 percent of your home energy bill (U.S. DOE, 2014b).
- Some utility companies have buy-back programs for old appliances.

## Introduction

When shopping for appliances, remember there are actually three prices involved: the one everyone thinks of (the purchase price); one for repairs and maintenance; and one just as important—the operating cost. Operating cost of the appliance will depend on the cost of fuel (kilowatt-hour,

cubic foot, therm, etc.) in your location, how much you use it, the way you use it, and its overall energy efficiency. Operating cost shows up on your monthly utility bill for the life of the appliance. The refrigerator, for example, lasts approximately 11 years, and the washing machine averages about 10 years. You will need to consider how any given appliance will affect your utility usage.

Naturally, you want your total expenditure to be as low as possible! But remember to think long term: an energy-efficient appliance may have a higher purchase price, but your operating costs could be significantly lower, and often, the maintenance/repair costs on a new appliance can be lower, too. Check consumer advocacy print and Internet sources for information such as repair history and maintenance needs.

## What should I look for when seeking an energy-efficient appliance or electronic device?

There are two key elements that you need to look for when you shop for an energy-efficient appliance or electronic device: the ENERGY STAR® logo and the EnergyGuide label.

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## What is the ENERGY STAR® logo?

ENERGY STAR® is the name of a joint program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) that aims to assist in money savings and environmental protection by promoting energy-efficient products and practices. Highly specific minimum standards and testing procedures of each type of product set the bar for meeting strict energy-efficiency guidelines set by the EPA and DOE. If a product meets or exceeds the minimum standards, the product earns the ENERGY STAR® and can then be promoted as such (Figure 1).



Figure 1. Sample ENERGY STAR® logo for certified products.  
Credits: Energy Star®

## DO ALL TYPES OF APPLIANCES AND ELECTRONICS HAVE ENERGY STAR® GUIDELINES OR SPECIFICATIONS?

Currently, the following six major appliance types have ENERGY STAR® guidelines to meet certification requirements:

- Washing machines
- Clothes dryers
- Dehumidifiers
- Dishwashers
- Refrigerators
- Freezers
- Air purifiers (cleaners)

Categories of electronics that offer ENERGY STAR® certified products include:

- Audio/video devices
- Digital media players
- Set-up boxes and cable boxes
- Signage displays
- Slates and tablets

- Telephones
- Televisions

Categories of office equipment that offer ENERGY STAR® certified products include:

- Computers
- Data center storage
- Enterprise servers
- Monitors
- Imaging equipment
- Small network equipment
- Large network equipment
- Uninterruptible power supplies
- Voice over Internet Protocol (VoIP) phones

Note that the EPA has a designated category for ENERGY STAR® Most Efficient 2018 (Figure 2). This label recognizes products that deliver cutting-edge energy efficiency along with the latest in technological innovation. The year included on the label designates that the device/appliance meets the criteria for the year indicated. If interested, learn more about this label at [http://www.energystar.gov/index.cfm?c=partners.most\\_efficient\\_criteria](http://www.energystar.gov/index.cfm?c=partners.most_efficient_criteria).

However, manufacturers of these and many other appliance types must provide potential buyers pertinent information regarding a given product's energy consumption on the standardized EnergyGuide label.



Figure 2. Sample ENERGY STAR® Most Efficient logo for use on qualified products.  
Credits: Energy Star®

## What is the EnergyGuide label?

The EnergyGuide label (Figures 3 and 4) is a bright yellow tag that the Federal Trade Commission (FTC) developed to help consumers more easily compare energy efficiency among similar products.

Note that the EnergyGuide label in Figure 4 reflects updated energy testing procedures and is different from those you may have seen in the past. Previous labels (Figure 3) feature the numbers in black while these “transitional”

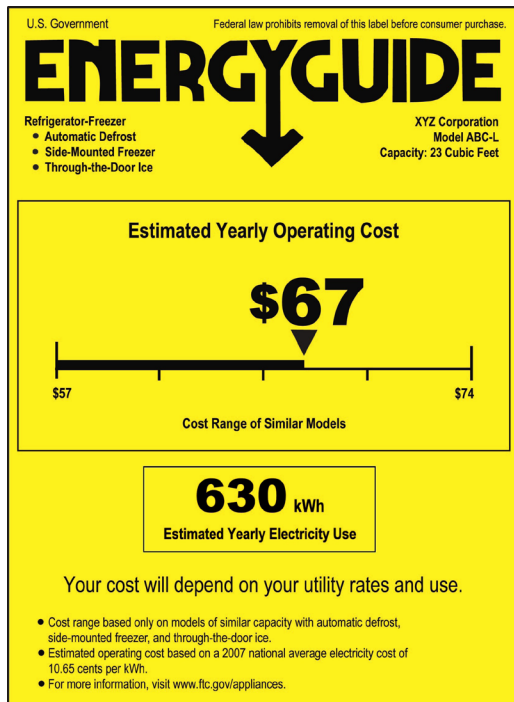


Figure 3. Sample EnergyGuide label.  
Credits: Federal Trade Commission

new labels feature bright yellow numbers and were required on new washing machines manufactured beginning March 7, 2015. So, before comparing the features of different products, make sure you are comparing models tested to the same energy-efficiency measures so you can make a more accurate comparison. The FTC has more information about reading the label at <http://www.consumer.ftc.gov/articles/0072-shopping-home-appliances-use-energyguide-label>.

## WILL I SEE THE ENERGYGUIDE LABELS ON ALL PRODUCTS THAT USE ENERGY?

No, not all appliances are required to present the EnergyGuide labels. The FTC's Appliance Labeling Rule (implemented in 1980) and now referred to as the "Energy Labeling Rule" requires the placement of the EnergyGuide labels on any new product in the following product lines:

- Boilers
- Central air conditioners
- Washing machines
- Dishwashers
- Furnaces
- Heat pumps
- Pool heaters
- Refrigerators

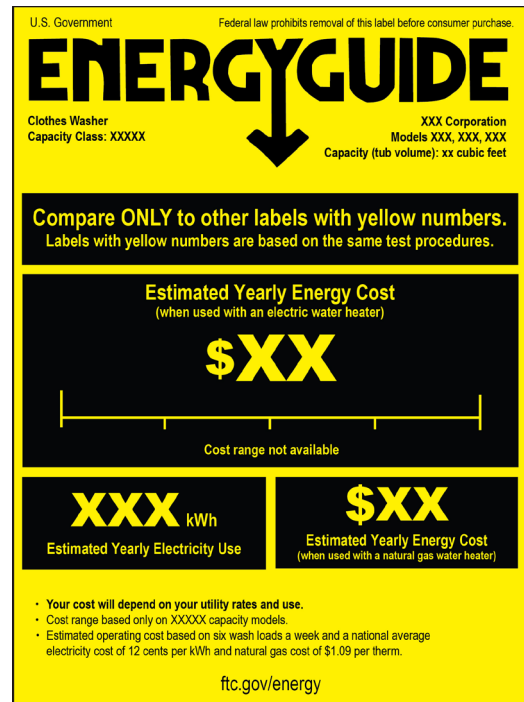


Figure 4. Sample transitional (new) EnergyGuide washing machine label.  
Credits: My Florida Home Energy, Florida Department of Agriculture and Consumer Services

- Refrigerator-freezers and freezers
- Room air conditioners
- Televisions
- Water heaters (some types)

Note that the Energy Labeling Rule also includes labeling for plumbing products and ceiling fans as well as labeling requirements for certain types of light bulbs.

## WHAT WILL THE ENERGYGUIDE LABEL TELL ME?

EnergyGuide labels for most appliances prominently display estimate yearly operating costs in dollars per year. Oftentimes this estimated yearly operating cost is shown within the operating cost range of similar models. However the labels are appliance specific. The FTC has more information about reading the EnergyGuide label at <http://www.consumer.ftc.gov/articles/0072-shopping-home-appliances-use-energyguide-label>.

Remember, EnergyGuide labels will not tell you the best appliance to buy, but they do provide much information to help you in your decision making. The labels also help consumers assess the trade-offs between the energy costs of their appliances and other expenditures.

Make sure you compare similar models with similar capacities. For example, comparing one top-loading washing machine with another top-loader that handles the same-size batch of laundry will help you make a more informed decision than comparing models that lack such similarities.

## Does an appliance with an EnergyGuide label also mean that it is ENERGY STAR® certified?

No, just the display of an EnergyGuide tag does not mean the appliance is ENERGY STAR® certified. Some manufacturers are incorporating the voluntary ENERGY STAR® logo on their certified appliance EnergyGuide labels, but if you don't see the ENERGY STAR® logo on the bright yellow EnergyGuide tag, investigate further—the ENERGY STAR® logo might be on the appliance itself, or perhaps the item has not earned the ENERGY STAR® certification.

## What are some other, more general energy-saving tips for appliances, electronics, and office equipment?

If you want to keep your current appliances performing at their top efficiency, operate them as indicated in the product manuals, always run at full capacity, and follow a regular maintenance schedule. When considering a new appliance or device:

- determine how much energy an item uses by following the instructions on the U.S. Department of Energy's website at <http://energy.gov/energysaver/articles/estimating-appliance-and-home-electronic-energy-use>
- dispose of old appliances and electronics responsibly by contacting your local utility provider, waste management provider, or recycling location for instructions. When possible, work with retailers that partner with EPA's voluntary Responsible Appliance Disposal (RAD) Program (<https://www.epa.gov/rad>), and search the Earth911 website for recycling locations and more information at <http://www.earth911.com/recycling-center-search-guides/>
- see <http://energy.gov/energysaver/articles/tips-home-office-and-electronics> for energy saving tips related to electronics and home office equipment
- review the Consortium for Energy Efficiency's information on the super efficient home appliances (SEHA)

initiative for some products at <http://www.cee1.org/content/cee-program-resources>

- read about energy and/or water savings standards, which are either in place or under consideration, for residential products at <http://www.appliance-standards.org/products#residential>
- check with your local utility company to see if it offers rebates or incentives for the purchase of energy-efficient appliances (a rebate makes that energy-efficient dishwasher or refrigerator an even more attractive buy, and some utility companies even pay you to turn in older working, inefficient models)
- enter your zip code at the ENERGY STAR® website at <http://www.energystar.gov/rebate-finder> to determine if there are any special offers or rebates available from ENERGY STAR® partners
- enter your zip code at the Database of State Incentives for Renewables and Efficiency (DSIRE) website at <http://www.dsireusa.org> to determine if there are any monetary incentives in your area

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