Energy Efficiency Labels

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Energy labels have been required on refrigerators, refrigerator-freezers, freezers, clothes washers, dishwashers, water heaters, furnaces and air conditioners since 1980. The purpose of the labels is to help you make a better informed decision about the amount of energy you can expect an appliance to use during its lifetime.

Ranges and clothes dryers are labeled differently from other appliances because the way they are used has a greater effect than the differences between models and makes. These appliances do not require energy labels because the amount of energy they use is determined more by the user than by the manufacturer. The amount of moisture to be removed from clothing is the factor that most affects the amount of energy needed to dry clothes. How well the pot matches the heating element and the use of lids greatly affect the amount of energy used by the range.

Label Types

There are three types of labels used, based on the type of appliance and how it will be used. Air conditioners have a label that shows the seasonal energy efficiency rating of the model and the range of energy efficiency ratings for similar sized air conditioners (the energy efficiency rating refers to the btu/hr of cooling you can expect per watt of electricity consumed). An expected yearly operating cost, for a certain number of hours per year at various electrical costs, is included.

A furnace will have a general label indicating the efficiency rating of the model and a list of operating suggestions to show how to save energy.

Other appliances have a label showing the expected operating cost of the appliance and the range of operating costs for similar models at the
national average electrical cost. Check the date under the word Energyguide to make sure that you are comparing labels with the same date and energy cost on them. A chart at the bottom of the label shows how much a change in the cost of electricity changes the cost of operating the appliance.

### Comparing Appliances

The energy label lists the most efficient and least efficient appliances, along with the ranking of the appliance to which the label is attached. You may not be able to find the most efficient appliance listed in the local market because some makes and models are only marketed in limited areas. Your dealer may be able to determine what the most efficient model is by checking a directory provided by the Association of Home Appliance Manufacturers, or "The Most Energy Efficient Appliances" published by the American Council for an Energy Efficient Economy.

While operating costs are important in the decision of which appliance to purchase, you must also consider the service that is available and the number of hours of expected operation per year. For example, an air conditioner is only expected to operate about 500 hours per year in North Dakota. If the most efficient air conditioners are appreciably more expensive than a less efficient unit, you may not be able to recover the extra cost in reduced operating costs.
Figure 4. The label for a dishwasher includes the energy required to heat the water for the dishwasher. Since the energy for heating the water is a major portion of the operating cost, a unit which uses less hot water will have a lower expected operating cost.

Understanding the Label

The top of the label contains information about the type of appliance, its size and the manufacturer. Below this is a bar indicating the operating cost or energy efficiency of this appliance, as it compares to others in its class. In the fine print is the estimated national average electrical cost.

Below the efficiency bar is a table that shows what the yearly operating cost is expected to be with various electrical costs. You will need to know your present electrical costs to estimate your annual operating cost. If you do not know your costs, your electric power supplier will be able to furnish this information.

*Note:* The number of hours of use must be considered when you estimate the yearly operating cost of an appliance.

There are also some hidden factors to consider in evaluating appliances. For example, clothes washer labels include the energy required to heat the water along with the energy required to operate the washer. Since front loaders use less water than top loaders, they will show up on the lower end of the energy efficiency scale. Refrigerators with a manual defrost will tend to use less energy than automatic defrost. However, the label does not show that unless the manual defrost refrigerator is regularly defrosted (whenever the frost exceeds 1/8 inch), they will use more energy than an automatic defrost unit.

Table 1. Yearly cost to operate a freezer at a 5 percent inflation rate with an initial electrical cost of 5 cents per kilowatt hour (kWhr).

<table>
<thead>
<tr>
<th>Year</th>
<th>Electricity Cost (c/kwhr)</th>
<th>Annual Cost ($/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.0</td>
<td>91.57</td>
</tr>
<tr>
<td>2</td>
<td>5.25</td>
<td>96.15</td>
</tr>
<tr>
<td>3</td>
<td>5.51</td>
<td>100.9</td>
</tr>
<tr>
<td>4</td>
<td>5.78</td>
<td>106.0</td>
</tr>
<tr>
<td>5</td>
<td>6.07</td>
<td>111.3</td>
</tr>
<tr>
<td>6</td>
<td>6.38</td>
<td>116.87</td>
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<tr>
<td>7</td>
<td>6.70</td>
<td>122.7</td>
</tr>
<tr>
<td>8</td>
<td>7.04</td>
<td>128.85</td>
</tr>
<tr>
<td>9</td>
<td>7.39</td>
<td>135.29</td>
</tr>
<tr>
<td>10</td>
<td>7.76</td>
<td>142.04</td>
</tr>
<tr>
<td>Total for 10 years</td>
<td>$1,151.76</td>
<td></td>
</tr>
</tbody>
</table>

Figure 5. All labels show what the appliance is and the range of sizes of appliances to which the label applies. On this label for a refrigerator-freezer, only models in the 16.5 to 18.4 cubic feet are included in the operating cost range.
NAECA — 1987

The National Appliance Energy Conservation Act (NAECA) of 1987 sets standards for the maximum energy that major appliances can consume and sets design options for others. For example, refrigerators manufactured after January 1, 1990, must average less than 976 kilowatt-hours of energy per year. There is some variation allowed for different designs and sizes.

Room air conditioners must meet specified energy efficiency ratios (EER). On the average this means a total annual electrical consumption of 894 kilowatt-hours or less.

Other appliances have design specifications that must be met. Washers must have a cold rinse setting, dishwashers must have an air dry option and gas dryers and ranges must have electric ignition rather than standing pilot lights.

Techniques to Improve Efficiency

Each appliance has some unique opportunities to improve overall efficiency. Some are genuine energy savings, while others are less clear cut.

Improved spray arms and filtering systems have provided better washing action, with less hot water, in dishwashers. The air dry cycle, on the other hand, with the hot to achieve better energy efficiency. The result is that the warm cycles are considerably cooler than they were in the past. Many purchasers will be surprised by how cool the warm cycles are, even though they do save energy by reducing the amount of hot water used. If the temperature of the water heater is turned up to get the warm water to feel warm, there may not be any savings. CAUTION--If you turn the temperature of the water heater up, there may be an increased risk of burns from the hot water at all hot water faucets and showers.

Automatic controls can reduce the amount of energy used by an appliance by reducing the probability of erroneous human actions. For example, a moisture sensor in the dryer can reduce the amount of overdrying of clothes and save energy, as well as possibly reducing the amount of ironing that may need to be done.

Helping You Put Knowledge To Work

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