



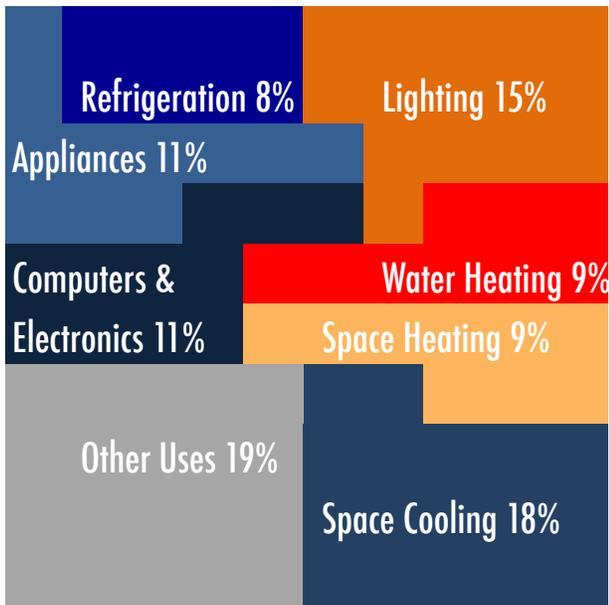
Did you know?

Regular light bulbs give off 10% light and 90% heat, while compact fluorescent light bulbs give off 90% light and 10% heat

Behavior Change:

The process of persuading people how to perform a desired action.

Residential Household Energy Usage Areas:



Based on data from annual energy usage areas for U.S. residential housing, EIA, 2009, Annual Energy Outlook Survey.

About Us:

EMWS focuses on training building and facility users how to use less energy by linking their behavior at home and work, assessing strengths and weaknesses of their behavior(s), training, and by reinforcing training with communications.

To learn more about EMWS visit our website

(www.emwsolutions.com)

or email Dr. Scot Holliday at

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References:

- DOE EERE Energy Savers www.energysavers.gov
- Flex Your Power www.fypower.org
- LBNL <http://standby.lbl.gov/summary-table.html>
- PG&E Energy Saving Tips www.pge.com/myhome/saveenergymoney/savingstips
- Saving Electricity <http://michaelbluejay.com/electricity>

Behavior Change for Residential Energy Saving



East Meets West Solutions, LLC (EMWS)

\$15 annual cost of leaving 1 tv set-top box in stand-by mode, e.g. cable box

25% potential reduction in heating and cooling costs through optimum insulation

\$0 cost of most behavior change actions for conserving energy

Purpose:

The purpose of this tip sheet is to engage readers and help them understand no-cost and low-cost actions they can take to reduce their home energy usage, resulting in lower utility costs.

Energy usage within homes can be reduced by 20% or more by changing the way people interact with and manage the following energy consumption areas:

- Heating and Air Conditioning
- Water
- Refrigeration
- Appliances
- Computers and Electronics
- Lighting
- Home Envelope

This tip sheet indicates potential energy savings through behavior change and a few tips on how to achieve these savings.

Calculations are based on an annual household home energy cost of \$2,500, 11.5¢ per. kWh and data from EIA, 2009, Annual Energy Outlook Survey.

This tip sheet uses 1 continuous hour of hair dryer usage as a unit of measure. Additionally, for each tip area the cost of energy in US dollars (\$) and kilowatt hours (kWh) usage are indicated.



One hour of hairdryer usage is the same cost as 10 hours of computer usage, 7 hours of LCD TV usage, or 1.1 hours of toaster oven usage.

1 hour hairdryer usage = 1500 watts = 1.5 kWh
In 2010 in the U.S. 1.5 kWh costs 17 cents, based on the price of 11.5 ¢ per kWh

Heating and Air Conditioning

The heating and cooling of air account for 27% of home energy usage. This is equivalent to 3,910 ⚡ hairdryer hours, 5,864 kWh, or \$675.

The potential for savings through behavior change is at least 20%. This is equivalent to 782 ⚡ hairdryer hours, 1,172 kWh, or \$135. Here are some ways to save energy for no or low-cost:

- 📺 Set your thermostat 5° higher during hot weather to save about 10% on cooling costs
- 📺 Turn off fans when you leave the room. Remember that fans cool people, not rooms, by creating a wind chill effect
- 📺 Install programmable digital thermostat away from natural cool and hot spots. It can save up to \$100 per year in coastal areas and over \$150 inland and pays for itself in less than 12 months

Water

Water Heating accounts for 9% of home energy usage. This is equivalent to 1,347 ⚡ hairdryer hours, 2,020 kWh, or \$233.

The potential for savings through behavior change is at least 20%. This is equivalent to 269 ⚡ hairdryer hours, 404 kWh, or \$47. Here are some ways to save energy for no or low-cost:

- 💧 Turn your water heater down to 120° or the "Normal"
- 💧 Run the dishwasher only when fully loaded and air-dry dishes on the "energy saver" setting
- 💧 Reduce hot water use by taking shorter showers and using cold water for the rinse cycle in your clothes washer

Refrigeration

Refrigeration accounts for 8% of home energy usage. This is equivalent to 1,716 ⚡ hairdryer hours, 1,144 kWh, or \$198.

The potential for savings through behavior change is at least 20%. This is equivalent to 229 ⚡ hairdryer hours, 343 kWh, or \$40. Here are some ways to save energy for no or low-cost:

- 📺 Adjust the refrigerator temperature settings. Optimum refrigerator range is 37 to 40°F and freezer range is 0 to 5°F
- 📺 If the refrigerator is nearly empty, store water-filled containers inside. The mass of cold items will enable the refrigerator to recover more quickly after the door has been opened

Refrigeration (continued)

- 📺 Keep your refrigerator away from heat sources, such as an oven, a dishwasher and direct sunlight from a window. A 10°F increase in surrounding temperature can result in 20% higher energy consumption

Appliances

Appliances account for 11% of home energy usage. This is equivalent to 1,549 ⚡ hairdryer hours, 2,234 kWh, or \$268.

The potential for savings through behavior change is at least 20%. This is equivalent to 310 ⚡ hairdryer hours, 465 kWh, or \$54. Here are some ways to save energy for no or low-cost:

- 📺 Cook on range-top burners when practical instead of in the oven
- 📺 Use the microwave for reheating and cooking small quantities of food
- 📺 Use cooking time wisely. Turn off the electric range two to three minutes before the task is done and allow the residual heat to finish the job. Cook with a full oven. Prepare dishes together

Computers and Electronics

Computers and Electronics account for 11% of home energy usage (see Appliance section above for costs and kWh).

Here are some ways to save energy for no or low-cost:

- 📺 Unplug electronics, battery chargers and other equipment when not in use. Taken together, these small items can use as much power as your refrigerator.
- 📺 Enable "power management" on all computers and make sure to turn them off at night
- 📺 A laptop computer uses up to 90% less energy than desktop models

Lighting

Lighting accounts for 15% of home energy usage. This is equivalent to 2,215 ⚡ hairdryer hours, 3,323 kWh, or \$383.

The potential for savings through behavior change is at least 20%. This is equivalent to 443 ⚡ hairdryer hours, 665 kWh, or \$77. Here are some ways to save energy for no or low-cost:

- 💡 Turn off the lights when not needed. It is a myth that leaving them on uses less energy than turning them off.
- 💡 Use task lighting where needed. Use up to 50% less in lighting energy
- 💡 Replace standard incandescent light bulbs with CFLs and save 75% off lighting costs

Sealing the Home Envelope

Most U.S. homes should have between R-22 and R-49 insulation in the attic. Insulating ceilings, walls, attics, floors, crawl spaces & basements to recommended standards can reduce heating & cooling costs 5 - 25%.