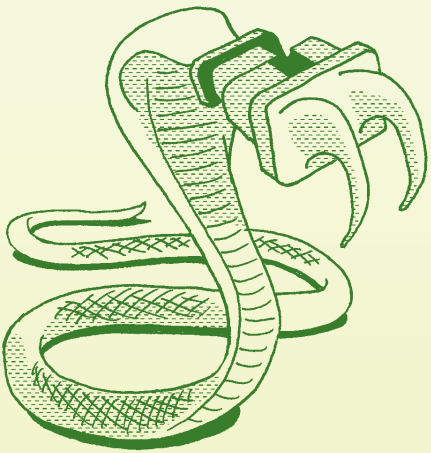
Take the bite out of your energy bill

SMART ENERGY MADE EASY



a Tendril Publication

Table of Contents

Learn about the

Three Cs of Energy:

Consumption

Find out what is consuming energy in your home. We'll take a look at heating and cooling, home efficiency, appliances, lighting and more.

Cost

Uncover the mystery of your utility bill. We'll show you how to make sense of kilowatts, peak, off-peak, etc.

Conservation

Learn how to cut back on your energy usage to save money and help the environment.

Energy Quiz:[1]

Let's start by finding out what you know.

1. What uses more energy, washing your clothes in hot water or leaving your refrigerator open 24 hours a day?

2. Warm climates such as Arizona use more or less electricity than the national average?

3. What uses more watts of electricity when turned on, a microwave oven or a hair dryer?

4. How much money do you save per month running an air-conditioning unit with a 13 SEER (Seasonal Energy Efficiency Ratio) rating for 10 hours a day compared with running a unit with an 8 SEER rating?

   a) About $10 b) About $20 c) About $55

5. Does it take more electricity to run a 0.5 horsepower evaporative cooler and a ceiling fan 16 hours a day or an efficient 3-ton, 13 SEER air-conditioner 10 hours a day?

6. Which uses more electricity, a 1-horsepower pool filter running 10 hours a day or the average spa heater?

7. How much more does it cost to dry a load of clothes during "on-peak" hours with a local utility compared with "off-peak" on their time-of-use plans?

8. How much of an average monthly utility bill is for lighting?

   a) 5-10% b) 10-15% c) 15-20% d) 20-25%

9. How much money can Energy Star® appliances save in a year?

   a) $5-$25 b) $25-$50 c) $50-$75 d) $75-$100

10. What uses more energy, a shower or a bath?

1. Energy costs keep rising. Conservation efforts expand. And yet we are still...GORGING ON POWER, Arizona Republic, April 13 2008, Ryan Randazzo. Sources: Department of Energy, SRP, APS and Republic research.

The holidays are in December.
Spend more money on gifts and less on energy by upgrading to LED lights, putting the lights on a timer, and taking them down before mid-June.

Answers

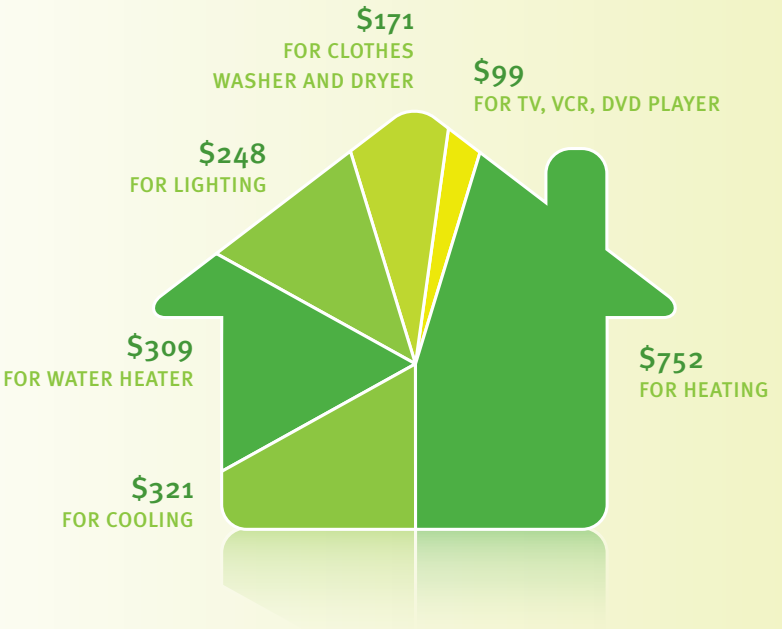
1. Washing in hot water.
2. When energy use is averaged across the year, Arizonans use 20 percent more electricity per month, according to the Department of Energy (DOE). Winter consumption for APS and SRP customers is close to the national annual average of 920 kilowatt-hours a month, but residential averages of 1,400 to 1,600 kilowatt-hours for the warmest six months of the year bring up the Arizona average.
3. The 1,200 to 1,800 watts needed for a hair dryer beat even most large microwaves' 1,100-watt needs, the DOE says.
4. C.
5. The air-conditioner uses more.
6. The spa heater.
7. Double to triple the cost per kilowatt-hour, depending on the month and the utility.
8. C.
9. D.
10. A typical bath uses 30 gallons of hot water, while a shower only uses 10 gallons of hot water and thus requires less energy.

Consumption

So what “sucks” in your home.

Numerous studies have shown that an **energy-efficient house can save up to 40 percent annually** on energy bills compared to homes that do not have an energy conservation plan. Most of this energy is either wasted or not used to its maximum efficiency. But before you buy all new appliances or power down everything in your home, it’s important to understand what it is that actually affects your home energy consumption.

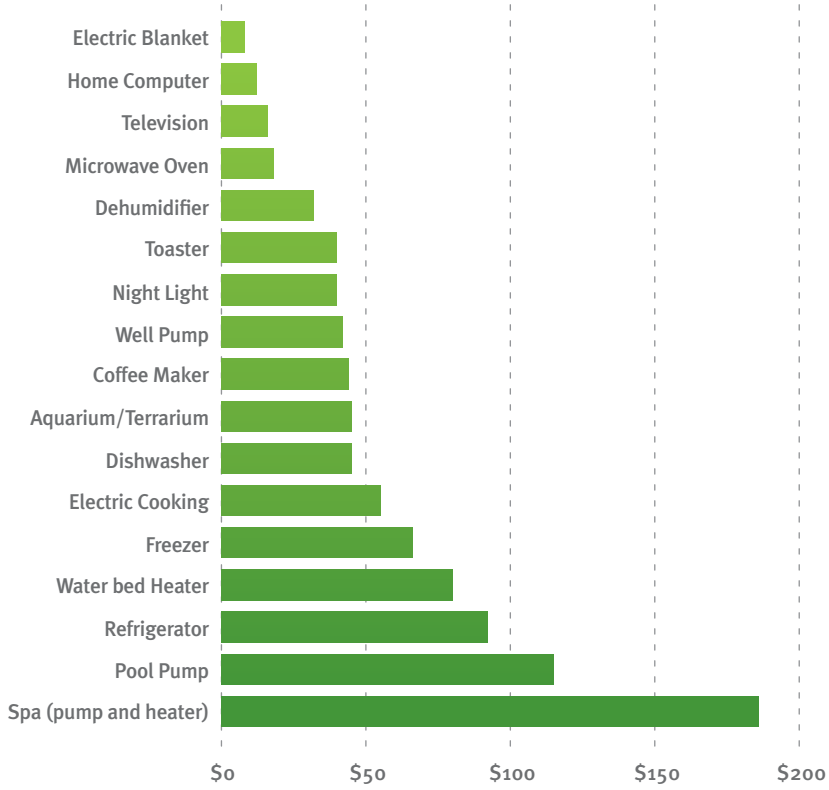
According to Energy Star® (energystar.gov)**, a typical household’s annual utility bill is $1900. The $1900 includes the following:**



Don't drown in pool costs.

You can save up to 75% on your bill by reducing the run time of your pool and spa pump and upgrading to a new one. 60% of your bill will be reduced just by running it intermittently.

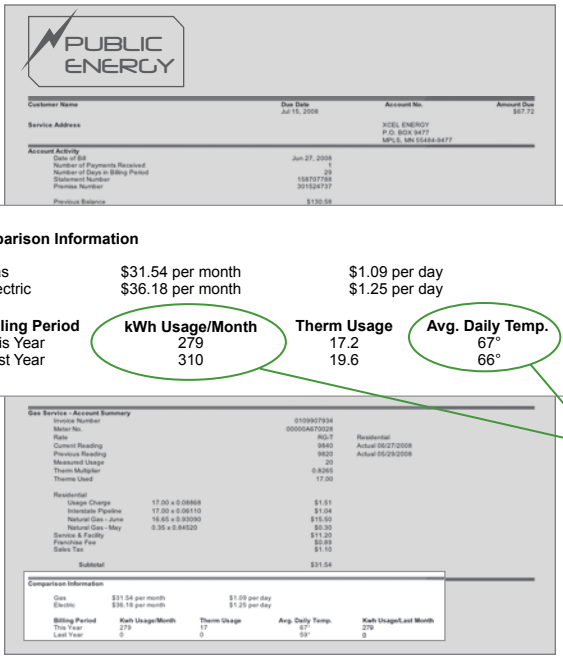
Annual cost per year for common household appliances:[2]



2. Source: Department of Energy

Cost

Crack the code.



Take a look at last month to see how your habits are changing your energy consumption.

Compare your monthly usage with the year before. You can see how the outside temperature affects your heating and cooling, and ultimately your utility bill.

Get more from your utility.

Energy retailers are changing the way they conserve energy – which will ultimately affect you as the consumer. Many utility companies have or are planning to implement "time-of-use" energy pricing. This means that running the dishwasher or cooling your house will cost more during "peak hours," loosely defined as early afternoon until about 8:00 p.m. (it varies by region and utility). Limited energy usage during these times can yield significant monthly savings.

There are also many hidden costs most households may not even realize. **Appliances and electronics that are plugged into the wall but appear "off" may actually still be consuming energy.** You can help reduce this by unplugging any non-essential devices and chargers and always turning off the power to 'always-on' products such as cable boxes.

Top 10 List:

Here are 10 ways you can cut your energy costs and lower your carbon footprint.

1. **Switch off lights** when not in use and change to compact fluorescent bulbs. Compact fluorescent light bulbs save $117 annually and 2,340 lbs of carbon dioxide emissions.

2. **Vent your dryer into your home** during the winter and save $63 each year along with 286 lbs of carbon dioxide.

3. **Turn your water heater down** to 120 degrees and upgrade it to a more efficient system.

4. **Raise your thermostat 5 degrees** in the summer and lower it 3-5 degrees in the winter to save up to 20% annually. Upgrade to a 90% efficient heater and a 13 SEER or higher A/C system.

5. **Unplug electronics**, battery chargers and other equipment when not in use.

6. You can increase the comfort of your home while reducing your heating and cooling needs up to 10% by **investing in proper insulation** and sealing air leaks.

7. **Wash clothes in cold water**. About 90% of the energy use in a clothes washer goes to water heating.

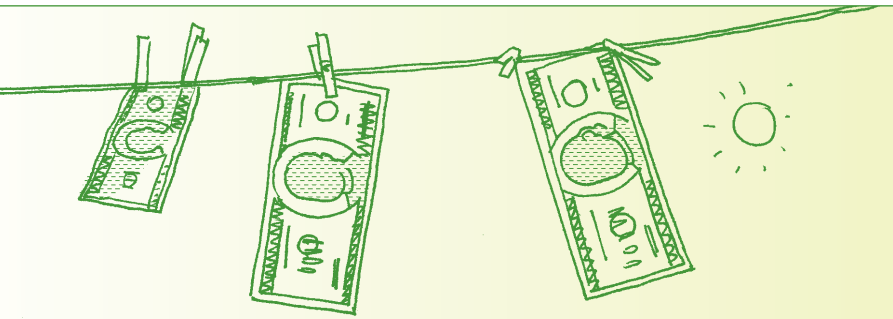
8. **Run your dishwasher and clothes washer only when fully loaded**. Fewer loads reduce energy and water use. Use the air-dry option instead of the heat-dry.

9. **On hot days, close the blinds** on south and west facing windows. On cold days, keep them open.

10. **Install new, high-performance windows** to improve your home's energy performance.

Appliances: Think small.

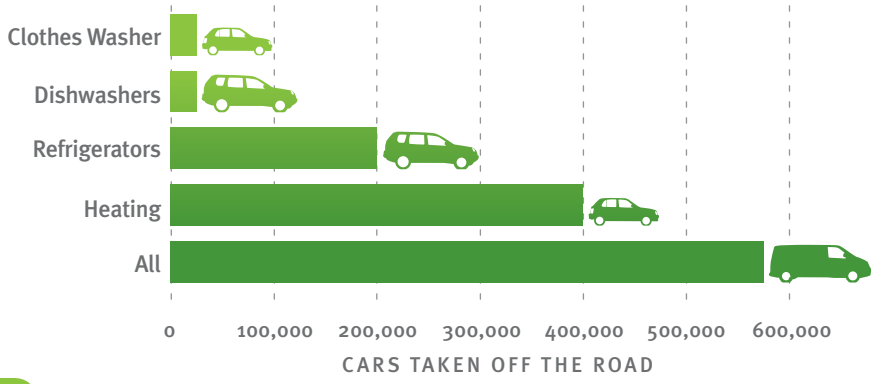
You might be surprised to find out that appliances account for up to 25% of your home's energy consumption, but this can be even higher depending on the frequency and time these appliances are operating. You can reduce this by only running the dishwasher when it's full, air-drying laundry and using smaller appliances like toaster ovens, crock pots or microwaves to cook smaller items.



Get some fresh air.

Hang your clothes outside on a line and save up to $80 and 800 kWh annually.

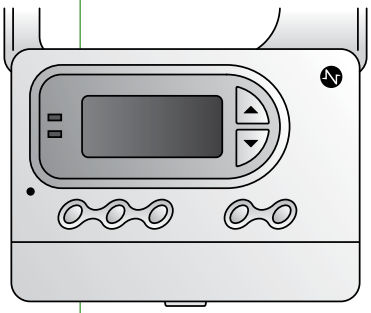
If all Californians replaced the following inefficient appliances with efficient ones. It would be like taking 575,000 cars off the road.[3]



3. Source: Flex Your Power www.fypower.org/res/efficient-appliances/

Heating and Cooling: What are you comfortable with?

A typical U.S. household spends more than $1,600 a year on home utility bills – with close to half of this spent on heating and cooling in many regions. Winter heating can be responsible for as much as 38% of energy consumption. Households that lower their thermostats by 1 degree Fahrenheit (1° F) during the current winter heating season may realize average savings of $15 to $40, or more.

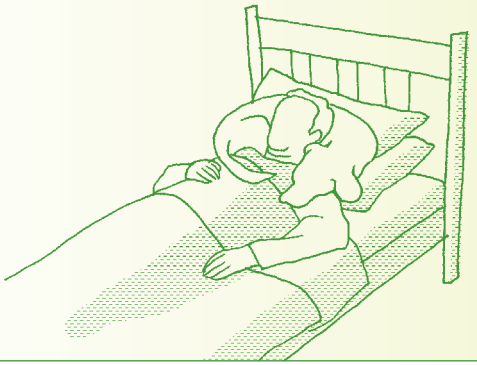


It's a matter of degree

The Tendril Set Point thermostat provides precise control of your heating and cooling with programmable temperatures, time-of-day, peak versus off-peak draws.

PROGRAMMABLE THERMOSTATS

A programmable thermostat is a worthwhile investment, because you can save as much as 10% a year on your heating and cooling bills by simply turning your thermostat back 10% to 15% for 8 hours.

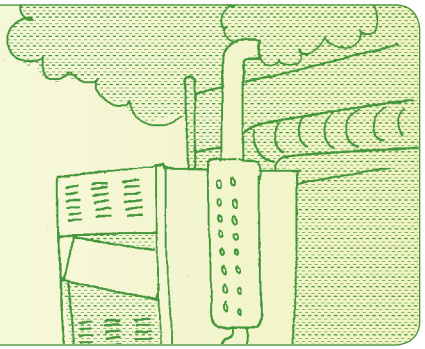


There's always cuddling.
Use an electric mattress pad or other things to stay warm at night and save $186 annually along with 1,150 lbs of carbon dioxide emissions.

HEATING

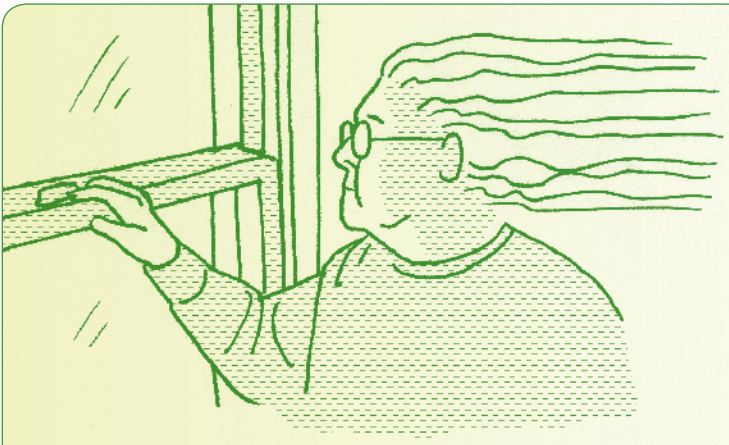
Regular maintenance and investment in Energy Star® HVAC systems and products will result in more long-term savings. When looking for furnaces, appliances have Annual Fuel Utilization Efficiency (AFUE) ratings. The higher the rating, the more energy efficient the product. When looking for air conditioners, look for a high Seasonal Energy Efficiency Ratio (SEER). The current Energy Star minimum is 13, but there are higher rated products available on the market.

Get with the times.
Replace your out-dated, inefficient HVAC system with an Energy Star rated version. This upgrade will function better while sucking less energy.



COOLING

Air conditioning cost U.S. homeowners more than $15 billion last year and created roughly 140 million tons of carbon dioxide. Solar power attic fans, ceiling fans, and raising your thermostat five degrees can lower your energy usage by up to 20%.



The wind tunnel look isn't in.

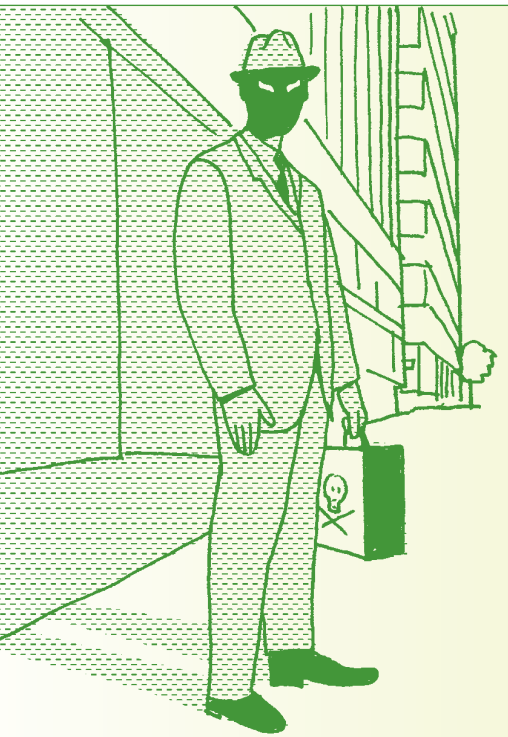
New windows, better insulation, and weatherizing can stop those dreaded drafts, saving $156 annually and lowering your carbon footprint by 1,010 lbs.

INSULATION

Better insulation and shielding your home from the elements – sun in the summer and drafty windows in the winter – will also have a surprising effect on your utility bills.

Lighting: What a switch can do.

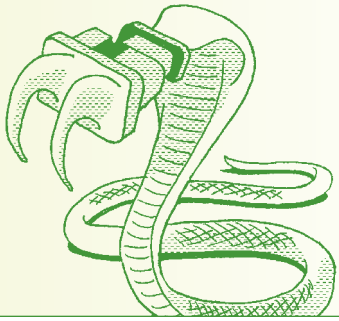
Lighting is one of the easiest and fastest ways to make an immediate impact on your energy costs. There are compact fluorescent light bulbs (CFL's) on the market that cost less, use less energy and last much longer. Turning off bright lights, installing dimmers on lights, or having three-way or low-level task lights will significantly trim your utility bill. Use outdoor lights with a photocell unit or a motion sensor so they will turn on only at night or when someone is present.



The boogeyman has a day job.
Unplug or turnoff night lights during the day. You'll save energy – as the name implies night lights are only needed at night.

Beware of vampire loads.

In the average home, up to 75% of the electricity used to power home electronics is consumed while the products are turned off. Save up to $57 a year along with 1,140lbs of carbon dioxide emissions.



Don’t waste your energy.

Take control of your home. The Tendril Residential Energy Ecosystem (TREE) gives you direct insight into how energy is being consumed across your household. In addition to being able to have a minute-to-minute update of your kilowatt usage and corresponding charges, you can also program your appliances to operate at certain times of the day when energy costs are at their lowest.

TENDRIL

Tendril Networks, Inc. • **www.tendrilinc.com**

Additional Sources: Department of Energy, SRP, APS, Republic, and Flex Your Power
Additional Resources:
www.fypower.org/res/changing-habits.html
www1.eere.energy.gov/consumer/tips/
www.eia.doe.gov/emeu/consumptionbriefs/recs/thermostat_settings/thermostat.html

© 2008 Tendril Networks, Inc.