

Energy Conservation and Efficiency

Definition of Energy Efficiency

Energy efficiency is using energy wisely.

In other words, you want to achieve the same results but you want to use less energy to do it.



For example, you want to keep your food cool, but you want to use less energy to do it. The solution is to use an energy-efficient refrigerator.

Definition of Energy Conservation

Energy conservation is using less energy.

In other words, you want to conserve energy so you change your behavior to use less energy.



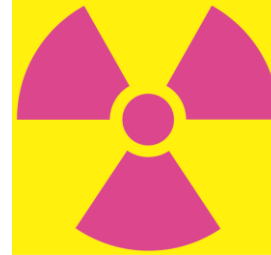
There are lots of things you can do to use less energy. For example, you might turn off machines that you're not using or replace all your light bulbs with more efficient ones.

Why Do We Need to Conserve Energy?

Energy sources have different effects on the environment. Many of these effects are detrimental. If we can use less energy, than we can reduce the negative impact on our environment.



AIR: Using fossil fuels emits toxins and greenhouse gases into the air. Industrial emissions can create polluted air that is harmful for humans to breathe. Polluted air and acid rain is also problematic for plants and animals.



BYPRODUCTS: Using nuclear energy creates radioactive waste that requires safe storage for many years. A small amount of toxic waste is also produced when making photovoltaic cells.



LAND: Drilling for fossil fuels requires a lot of land use and destroys natural habitats. Mining for coal severely impacts landscapes. Large dams and reservoirs impact surrounding land areas.



WATER: Offshore drilling for fossil fuels impacts marine habitats. Mining produces highly acidic liquid that impact water resources. Dams and reservoirs change the ecosystem of rivers.

Conserving Energy: Good Habits

One way to start conserving energy is to establish good habits. Two good habits to get into are unplugging unused electronics and buying devices that are energy efficient.

UNPLUG IT



Many devices in our homes use energy even when they are turned off. We call these devices **energy vampires**. They use only a small amount of energy when they're off—but if you add up all the lost energy—it's about 10% of a household's energy use. To eliminate this energy loss, unplug devices when they are not in use. If you have a lot of devices in the same area, plug them into a power strip and then turn the power strip off.

CHECK THE LABEL



Today's households rely on many different appliances and devices for daily activities such as cooking, cleaning, and entertainment. To conserve energy, choose devices that use the least amount of operating power and standby power. To easily find energy efficient appliances, look for the energy star label. Devices with this label meet strict energy guidelines set the government.

Conserving Energy: Daily Personal Activities

We use energy every day during many different activities.

Here are some specific ways to conserve energy and water during personal activities.

ENTERTAINMENT:

Whether you are using it or not, all that entertainment equipment requires a lot of energy.



- Turn off devices when not in use and unplug them.
- Plug media devices, such as TVs and DVD players, into a power strip. Then, turn off the power strip when the equipment is not in use.

COMMUNICATIONS:

We use a lot of energy to power our communication devices in order to stay in touch with people.



- When a device is fully charged, unplug it.
- Turn off your computer and monitor when not in use.
- Consider getting a laptop as your next computer. Laptops use a lot less energy than desktop machines.
- Use rechargeable batteries for items like cordless phones and mobile devices. It's more cost effective than throwaway batteries.

PERSONAL CARE:

Taking care of personal hygiene requires not only energy but also a lot of water.



- Use a low-flow showerhead.
- Take short showers instead of baths.
- Unplug your hairdryer when you are not using it.
- Put a brick in your toilet tank to conserve water during each flush.
- Turn off the water while you brush your teeth. Turn it on only when you need it.
- Lower the thermostat on the hot water heater and when upgrading, chose an on-demand hot water system.

Conserving Energy: Daily Home Activities

Here are some ways families can conserve energy during household activities. Parents can also adjust energy use within the home itself.

LIGHTING:

Lights enable us to see in the dark, but there are many ways to save energy and still see.



- Use natural light whenever possible.
- Turn lights off when you leave the room.
- Use one light—like a desk lamp—rather than turning on ceiling lights.
- Use timers or motion sensor switches to regulate home lighting and minimize energy loss.
- Replace old light bulbs with energy efficient bulbs such as compact fluorescent light bulbs (CFLs).

FOOD PREPARATION:

We use a lot of energy to keep food cold and to cook it. With a few tweaks to kitchen habits, lots of energy can be saved.



- Use a covered kettle or pan to boil water.
- Make sure your refrigerator door seals tight.
- Keep your refrigerator and freezer cold, but not too cold.
- Turn off kitchen exhaust fans within 20 minutes after cooking.
- Keep range-top burners and reflectors clean to reflect heat better.
- Match your meal size to the oven. Toaster ovens or microwaves should be used for small meals. Use the full-sized oven for big meals.

HEATING AND COOLING:

Being comfortable in our homes requires maintaining an acceptable temperature. You can keep comfortable and still conserve energy.



- Wrap your water heater in an insulation blanket.
- Lower the thermostat on your hot water heater to 120°F.
- Clean or replace filters on furnaces once a month or as needed.
- Select energy-efficient products when you buy new heating and cooling equipment.
- Install and use a programmable thermostat. During winter, set it for a comfortable, but low temperature. During summer, set it for a comfortable, but high temperature.

Conserving Energy: Weekly Activities

Even though these weekly activities occur less often than daily activities, it's important to look for ways to conserve energy while doing them.

Cleaning



- Wash only full loads of dishes and clothes.
- Air dry dishes or clothes instead of using an appliance.
- Start using warm/cold (or cold/cold) cycle instead of hot/hot when washing clothes.
- Clean the lint filter in the dryer after every load to improve air circulation.

Short Range Travel



- Switch to a fuel-efficient car such as a hybrid.
- Carpool whenever possible.
- Walk or ride a bicycle instead of taking a car.
- Drive sensibly. Aggressive driving wastes gasoline.
- Get regular tune-ups for the family car and keep tires fully inflated.

Long Range Travel



- Limit air travel unless it's necessary.
- Take mass transit whenever possible.
- Rather than traveling, use webcams to stay connected with friends and family who live far away.
- Seek out and support local farmers markets – because local food has traveled less to get to you.