The Water-Energy Connection

ENERGY FOR WATER

- It takes at least 520 billion kilowatt-hours (kWh) to move, treat and heat water in the United States – equal to 13 percent of the electricity used in the United States each year.
- Everyday water use – including using water for cooking, cleaning and bathing – results in carbon dioxide emissions due to the fact that fossil fuels are typically used in the process of treating and transporting water to your home. More than 290 million **metric tons** of **carbon dioxide** (CO_2) is released into the atmosphere each year due to water use in the United States. This is the same as the amount produced each year by over 53 million cars.
- Annually, the energy cost to pump, treat, deliver, collect and clean water in the United States is $4 billion. This is around 60 percent of the energy bill in some cities.
- A lot of energy and water is required to produce our food. On an average farm, 90 percent of all the electricity used is for pumping groundwater for **irrigation**.

Saving Water Saves Energy!

Here are a few ways you can help:

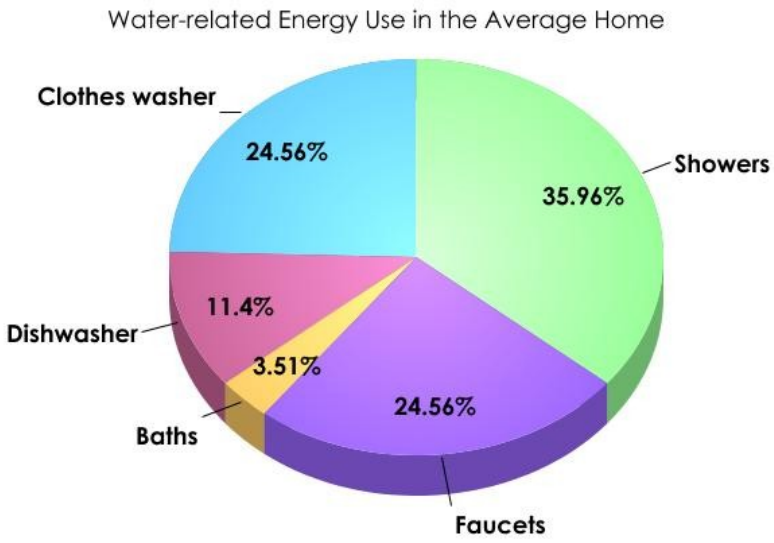
1. Turn off the faucet while you brush your teeth. Energy is required to pump the water to your home.

2. Plant a rain garden or plants that are native to your region in your yard and on your school grounds. By reducing the watering the landscape needs, you'll also save energy.

3. Take shorter showers. It takes a lot of energy – either electricity or natural gas – to heat the water.

4. Wash only full loads of laundry, and set the clothes washer to use cold water, and you'll conserve both water and energy.

- In 2008, WaterSense* labeled toilets, faucets and faucet accessories used in the United States saved more than 9.3 billion gallons of water and 1.25 billion **kilowatt hours** (kWh) of electricity. These devices also saved nearly 1 million metric tons of **carbon dioxide** (CO_2) from being emitted into the atmosphere.



Source: Western Resource Advocates

* WaterSense is a program of the Environmental Protection Agency that seeks to protect the future of our nation's water supply by promoting water efficiency. Learn more at www.epa.gov/watersense.

The Water-Energy Connection

WATER FOR ENERGY

- Most of the electricity in the United States is produced from coal. A typical, 500 megawatt **coal-fired power plant** *withdraws* 12 million gallons of water per hour, or the same amount of water as 100 average homes use in a year. Water that is *withdrawn* is water that is removed from its source. A portion of this water is often returned to its natural source.
- Excluding agriculture, power production accounts for one out of every four gallons of water *consumed* in the United States. Water that is *consumed* is water that is taken from its source to be used and not returned.
- On average, two gallons of water is *consumed* for every kilowatt of electricity used in the United States. This means that 170 gallons are used to run the clothes dryer, 55 gallons are used to run the computer and 73 gallons of water are used to run a TV in a typical American household every month.

Saving Energy Saves Water!

Here are a few ways you can help:

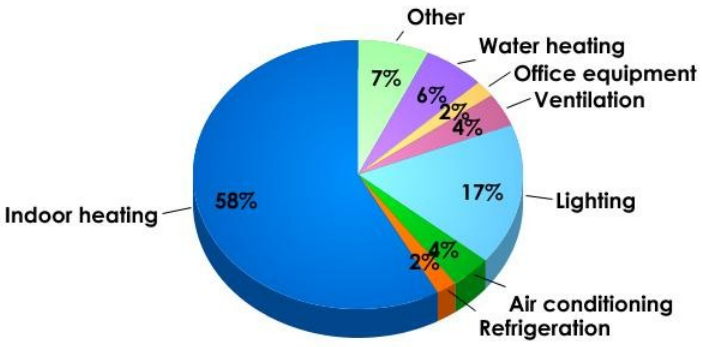
1. Turn off the lights when you leave a room. Water is used to produce the electricity you use at home and at school.

2. Use the car less – walk or ride your bike to school. Water is required to refine and transport the gasoline used in your car.

3. Keep your home thermostat set at 68° in the winter and 78° in the summer. By using the heat and air conditioning less, you'll save energy and the water needed to produce it.

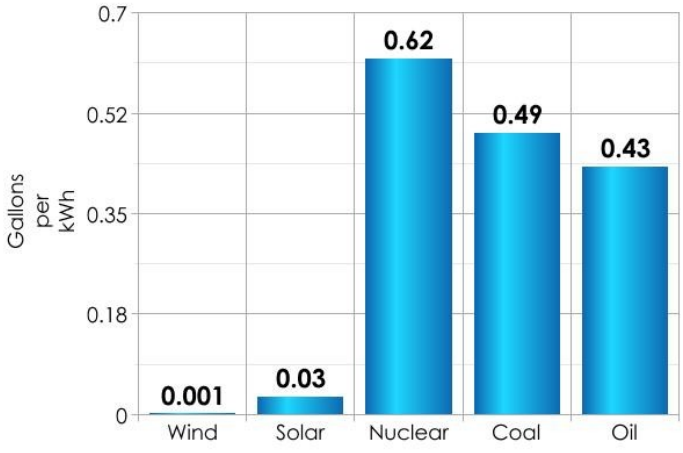
- **Thermoelectric power** generation *consumes* 136 billion gallons of water per day in the United States, enough water to fill over 200,000 olympic-sized swimming pools.
- **Ethanol**, a **biofuel** which is made from corn, requires between seven and 321 gallons of water per gallon of ethanol produced. On average, driving a car which runs on **biofuel** consumes 50 gallons of water for every mile driven.

Energy Use in the Average School



Source: Wisconsin K-12 Energy Education Program

Water Requirements of Different Energy Sources



Source: Paul Gipe, "Wind Energy Comes of Age"

For more information visit EE Week's webpage on The Water-Energy Connection at www.eeweek.org/water_and_energy_wise/connection or River Network's website on the Saving Water, Saving Energy program at www.rivernetwork.org/swse. The facts and statistics listed here are courtesy of River Network.