Conserving Wisconsin's Water and Energy Resources

A GUIDE FOR GROUNDWATER GUARDIAN COMMUNITIES

Wisconsin has an abundance of water resources-- more than 15,000 lakes, 32,000 miles of perennial flowing streams, and 5.3 million acres of wetlands. In addition, Wisconsin is estimated to have **1.2 quadrillion gallons of groundwater** (that's 1,200,000,000,000,000 gallons). If all that underground water could be evenly spread over the state, it would create a lake 105 feet deep!

With all those water resources available to us, why should Groundwater Guardian communities be concerned about water conservation? One reason is that **you depend on groundwater** for your own drinking water supply-- in fact, 70% of Wisconsin's residents and 95% of Wisconsin's communities do!

A second reason is that **Wisconsin's population keeps growing**. It's estimated that by 2015, Wisconsin will have 400,000 more households than it does today. That's a lot of people who will need water for drinking, bathing, and many other uses around their homes.

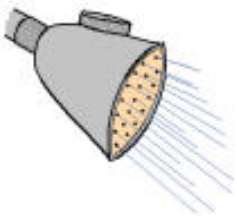
Another very important reason is that **the groundwater supply does not always match demand in time and space.** In fact, Wisconsin is already seeing negative effects in both the quality and quantity of water resources as a result of overuse in some places. Consider these facts:

- In Green Bay's early history, when wells were drilled into the sandstone aquifer, the water pressure was sufficient to raise the water 130 feet into the air above the land surface. In 1990, the water level was 220 feet below the land surface-- a drop of 350 feet in just over 100 years!
- In southeast Wisconsin, groundwater levels are dropping in many monitoring wells at an average rate of seven feet per year.
- In the Fox River valley in eastern Wisconsin, high levels of arsenic have been found in some private wells. Scientists believe that the lowering of the water table caused by increased water demands can create chemical changes that release arsenic.
- In 1997, a study predicted that the Little Plover River in central Wisconsin would see its water level reduced by 40% by 2005 if groundwater pumping levels continued as projected.

So, maybe now you're convinced that water conservation is important. But why conserve energy? Energy use has its own set of concerns about air quality, costs and supplies of fuel, and other issues, but **conserving water and conserving energy often go together**. How?

Read on…

Saving water and energy go together!

 **How can you save water around your home?**	**How will that save energy?** 
Toilet flushing is the largest water use in the typical home. For a family of four, installing 1.6 gallon per flush toilets could save 14,000 gallons of water per year over conventional toilets. 	Using less water in low flush toilets means less energy to pump the water and treat the wastewater. On average, it costs about $5 to treat 1000 gallons of wastewater, and it costs about $2 to deliver 1000 gallons of clean water to your home.
Clothes washing is typically the 2nd largest water use in the home. Conventional washers can be used more efficiently by washing full loads, or using the variable water volume setting if you have to wash a smaller load. ENERGY STAR® qualified clothes washers use 40 percent less water than conventional models. In a household that averages eight loads per week, the savings comes to nearly 8,000 gallons of water a year. That's more water than the average person drinks in a lifetime!	Water heating accounts for about 19% of home energy use. About 90% of the energy used by clothes washers is for heating the hot water used to wash the clothes. Only 10% is used to run the motor that runs the washer. Washing in cold water could save 90% of the energy!  ENERGY STAR® washers use 50% less energy than conventional washers.
About 12% of the water use in your home could be saved by using a low-flow showerhead. Choose one that uses 2.5 gallons/minute (gpm) or less, turn the volume of water down in your shower, or take a shorter shower-- all will reduce water use! 	About 73% of the water used in the shower is hot water. If your showerhead uses 2.5 gpm, you can save about 1.8 gallons of hot water for every minute you reduce your showering.
Saving water around the home clearly saves energy. But did you know that saving energy around the home also saves water? Of the total water use in Wisconsin, 79% is used in power generation-- by far the largest single use of water in the state. For information on more ways to save energy around your home, contact Focus on Energy. 	

Get $pecific about how $aving water and $aving energy go together!

Take a look at the amount of water, energy, and money you could save by taking these simple actions around your home.

Action	Energy saved in million BTU's* per year	Gallons of water saved per year	Dollars saved per year on heating water[c]	Dollars saved per year on private well pumping costs[d]	Dollars saved per year on holding tank pumping[e]
Insulate hot water heater	2.06[a]		$14.95		
Install efficient showerheads	2.89[a]	7,800[b]	$21.01	$1.56	$312.00
Fix hot water leaks	0.22[a]	2,600[b]	$1.62	$0.52	$104.00
Insulate hot & cold water pipes (run less water)	0.41[a]	2,400[b]	$3.00	$0.48	$96.00
Lower water heater temperature to 120 F	1.67[a]		$12.12		
Wash clothes in cold water	2.56[a]		$18.58		
Run only full loads in washing machine and dishwasher	4.74	7,150[b]	$34.37	$1.43	$286.00
Replace a 4 gal/flush toilet with 1.6 gal/flush toilet[f]		8,760		$1.75	$350.40
Totals	**14.55 million BTU/yr**	**28,710 gal/yr**	**$105.65**	**$4.94**	**$1,148.40**

[a] *figures from Rocky Mountain Institute for an average-sized one-family home*

[b] *figures from Wisconsin Rural Water Association for family of two adults and one child*

[c] *using a natural gas hot water heater and gas cost of 72.5 cents/therm*

[d] *based on a penny per 50 gallons of water pumped*

[e] *based on a 2,000 gallon holding tank and $80.00 per pumping charge*

[f] *based on 10 flushes/day*

* BTU *(British Thermal Unit)-the amount of heat it takes to raise the temperature of one pound of water by one degree Fahrenheit*

Water and Energy Conservation Resources for More Information

Focus on Energy
800-762-7077
www.focusonenergy.com

- ***Reducing Appliance Energy Use***
  www.focusonenergy.com/data/common/pageBuilderFiles/Appliances.pdf
- ***Resource Efficient Clothes Washers***
  www.focusonenergy.com/data/common/pageBuilderFiles/clotheswashers0603.pdf
- ***Energy Efficient Water Heaters***
  www.focusonenergy.com/data/common/pageBuilderFiles/water%20heat_478999378.pdf

United States Environmental Protection Agency:
312-353-5787
www.epa.gov

- ***Water on Tap: A Consumer's Guide to the Nation's Drinking Water*** EPA-815-K-97-002, www.epa.gov/ogwdw000/wot/wtrontap.pdf
- ***U.S. Environmental Protection Agency Water Use Efficiency Program***
  www.epa.gov/owm/water-efficiency/index.htm
- ***Using Water Efficiently: Ideas for Residences***(also available in Spanish)
  www.epa.gov/owm/water-efficiency/residence.pdf (….residence_sp.pdf)
- ***Using Water Wisely in the Home***
  www.epa.gov/owm/water-efficiency/waterconservation_final.pdf

Energy Star Programs: www.energystar.gov

Home Energy Magazine: http://homeenergy.org/hewebsite

United States Department of Energy: 877-337-3463, www.eere.energy.gov

The Water Saver House: www.h2ouse.org

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