

# Demand-Side Management Technology Workshop: Advances in Water Heating

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# ***Staying Out of Hot Water***

***Dr. Katherine Johnson, Johnson Consulting Group***

# Other Energy Efficient Water Heating Tips

- Reduce your hot water use
- Lower your water heating temperature
- Insulate your water heater tank
- Insulate hot water pipes
- Install heat traps on a water heater tank
- Install a timer and use off-peak power for an electric water heater
- Install a drain-water heat recovery system.

# Water Heaters and “Hard Water”

- Hard water also affects the performance of household appliances.
  - A one-year study measured the energy consumption of six gas and electric residential water heaters in use for 5 to 15 years in Las Cruces, New Mexico.
  - Half of each group used the area's untreated hard water exclusively. The other half used softened water exclusively.
  - Results showed that water heaters using only hard water **consumed considerably** more energy than those using only softened water.
  - The group using only softened water contained scale buildup weighing from 1.09 pounds to 4.27 pounds compared to the group using only hard water contained scale buildup weighing from 3.86 pounds to almost 40 pounds.
- An Ohio State University study showed that the use of softened water in certain household tasks lessened the time necessary to complete the tasks, permitted ease of cleaning, and contributed to savings in the amount of household cleaning products used.
- Scale increases the likelihood of the water heating elements burning out

Source: Quinning, Texas A&M 1999

# Tips for Dealing with Hard Water

- Install a water softener in the plumbing so minerals are removed from the water before the water enters the water heater. If the softener is installed as a whole house system, it will stop problems in all of the fixtures, not just the water heater. Water softeners require regular maintenance.
- Drain and flush the water heater tank on a regular basis-every six months.
  - Water heater must be turned off. A hose is screwed onto the water outlet and an inlet is opened at the top of the tank to let in air. This allows tank to drain.
  - After the water is gone, the tank must be flushed out, sometimes several times, until the water runs clear again.
  - Clear water indicates that the mineral deposits have been flushed out. The tank must then be refilled, turned on, and the air bled out of the pipes. If the tank is old or not regularly maintained, all that action may rupture the tank. A tank rupture is usually cause for buying a new water heater.
- Replace the water heater more frequently than if it was maintained with regular flushing.

# FAQs

## **Should I use a timer on my hot water heater to save energy?**

A timer on a conventional electric water heater can save 5-12% on your hot water bill. The water in the tank remains hot for up to eight hours or more while the water heater is not in operation, depending on the insulation and age of the unit. However, hot water is still available for household use until it is completely consumed. It is best to set the timer during hours when hot water use is lowest, typically during the work day or at night. Adjusting the timer may be necessary if households experience a shortage of hot water.



# Some FAQs

**Why don't you offer rebates for tankless/on-demand water heaters?**



The majority of tankless water heater use occurs at peak use times, i.e., prior to and after the daily work commute. Wide use of tankless/on-demand water heaters may strain electric power grids while they're handling the biggest loads of the day.

# Additional Resources for Information

- **Electric storage water heaters:** Manufacturers' websites
- **Overall information:** U.S. Department of Energy – appliance rebates nationwide and basic product information
- **Heat pump water heaters: ENERGY STAR website:**  
[www.energystar.gov/index.cfm?fuseaction=find\\_a\\_product.showProductGroup&pgw\\_code=WSE](http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=WSE)
- **Solar Water Heaters: ENERGY STAR website:**  
[www.energystar.gov/index.cfm?fuseaction=find\\_a\\_product.showProductGroup&pgw\\_code=WHH](http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=WHH)
- **Touchstone Energy:** [www.togetherwesave.com](http://www.togetherwesave.com)
- **Consumer Guide to Home Energy Savings: Condensed Online Version,**  
**American Council for an Energy-Efficient Economy**  
[www.aceee.org/consumerguide/waterheating](http://www.aceee.org/consumerguide/waterheating)



# Question & Answer Session

