

20 Steps Toward Greening Your Home

Making your home energy efficient

1. Conduct an energy audit:

- The first step to taking a whole-house energy efficiency approach is to find out which parts of your house use the most energy. A home energy audit will pinpoint those areas and suggest the most effective measures for cutting your energy costs. You can conduct a simple home energy audit yourself, contact your local utility, or call an independent energy auditor for a more comprehensive examination.
 - For more information about home energy audits, including free tools and calculators, visit the following sites:
 - www.energysavers.gov
 - www.natresnet.org

2. Assess the condition of your building envelope for points of heat loss and gain, upgrade/repair as needed:

- Insulation: Checking your home's insulation is one of the fastest and most cost-effective ways to use a whole-house approach to reduce energy waste and make the most of your energy dollars. A good insulating system includes a combination of products and construction techniques that protect a home from outside hot or cold temperatures, protect it against air leaks, and control moisture.
- For more information refer to the following websites:
 - <http://www1.eere.energy.gov/consumer/tips/insulation.html>
- Air leaks: Warm air leaking into your home during the summer and out of your home during the winter can waste a lot of your energy dollars. One of the quickest dollar-saving tasks you can do is caulk, seal, and weatherstrip all seams, cracks, and openings to the outside. You can save on your heating and cooling bill by reducing the air leaks in your home.
 - For more information refer to the following websites:
 - http://www1.eere.energy.gov/consumer/tips/air_leaks.html
- Windows: If your windows are old and leaky, it may be time to replace them with more energy-efficient models or boost their efficiency with weatherstripping and storm windows. Windows can account for 10% to 25% of your cooling/heating bill. During the summer, your air conditioner must work harder to cool hot air from sunny windows. Install [ENERGY STAR](#) windows and use shades and/or curtains to give your air conditioner and energy bill a break. In warmer climates, look into low-e windows, which can cut the cooling load by 10% to 15%.
 - For more information refer to the following websites:
 - <http://www1.eere.energy.gov/consumer/tips/windows.html>

3. Use efficient heating and cooling:

- Heating and cooling your home uses more energy and drains more energy dollars than any other system in your home, typically accounting for 43% of your utility bill. What's more, heating and cooling systems in the United States together emit 150 million tons of carbon dioxide into the atmosphere each year, adding to global climate change. They also generate about 12% of the nation's sulfur dioxide and 4% of the nitrogen oxides, the chief ingredients in acid rain.

By combining proper equipment maintenance and upgrades with appropriate insulation, air sealing, and thermostat settings, you can cut your energy use for heating and cooling, and reduce environmental emissions, from 20% to 50%.

- Select energy-efficient products when you buy new heating and cooling equipment. For furnaces, look for high Annual Fuel Utilization Efficiency (AFUE) ratings. The national minimum is 78% AFUE, but there are [ENERGY STAR](#) models on the market that exceed 90% AFUE.

For air conditioners, look for a high Seasonal Energy Efficiency Ratio (SEER). The current minimum is 13 SEER for central air conditioners. ENERGY STAR models are 14 SEER or more

- For more information and tips regarding heating and cooling efficiency consider visiting the following sites:
 - http://www1.eere.energy.gov/consumer/tips/heating_cooling.html

4. Use efficient water heating systems:

- Water heating is the third largest energy expense in your home. It typically accounts for about 12% of your utility bill. There are four ways to cut your water heating bills: use less hot water, turn down the thermostat on your water heater, insulate your water heater, or buy a new, more efficient model.
- When purchasing a new water heater, look for the ENERGY STAR and EnergyGuide labels.. While an energy-efficient water heater may cost more initially than a standard water heater, the energy savings will continue during the lifetime of the appliance.
- For more tips and information refer to the following sites:
 - http://www1.eere.energy.gov/consumer/tips/water_heating.html

5. Use efficient lighting:

- Making improvements to your lighting is one of the fastest ways to cut your energy bills. An average household dedicates 11% of its energy budget to lighting. Using new lighting technologies can reduce lighting energy use in your home by 50% to 75%. Advances in lighting controls offer further energy savings by reducing the amount of time lights are on but not being used.
- Use linear fluorescent tubes and energy efficient compact fluorescent light bulbs (CFLs) in fixtures throughout your home to provide high-quality and high-efficiency lighting.
- Look for Energy Star qualified compact fluorescents and fixtures.
- Turn the lights off and use daylight when possible.

- Use/install controls such as timers and photo cells save electricity by turning lights off when not in use. Dimmers save electricity when used to lower light levels. Be sure to select products that are compatible with CFL bulbs; not all products work with CFLs.

6. Use Energy Star rated appliances:

- Appliances account for about 17% of your household's energy consumption, with refrigerators, clothes washers, and clothes dryers at the top of the consumption list. Spending a little more now on a more energy efficient model will save far more than the added purchase cost over the lifespan of the appliance – i.e. less energy consumed = significant utility savings for you, reduced power plant emissions, and reduced carbon footprint.
- When you shop for a new appliance, look for the [ENERGY STAR](#) label. ENERGY STAR products usually exceed minimum federal standards by a substantial amount.
- For more information refer to the following websites:
 - <http://www.energystar.gov/>
 - http://www.energysavers.gov/your_home/appliances/index.cfm/mytopic=10030
 - http://www1.eere.energy.gov/consumer/tips/shopping_guide.html

7. Use Renewable Energy:

- You have many options for using renewable energy at home—from solar-powered outdoor lights to buying renewable energy from your utility to solar water heating or even producing solar electricity at home with photovoltaic (PV) cells.
- If you heat water with electricity, have high electric rates, and have an unshaded, south-facing location (such as a roof) on your property, consider installing an ENERGY STAR qualified solar water heater. The solar units are environmentally friendly and can now be installed on your roof to blend with the architecture of your house.
- Contact your local utility to find out about their renewable energy programs. The additional monthly cost can be as little as \$3/month to you. However, as more and more people contribute, the savings to the environment becomes profound.
- For more information refer to the following websites:
 - http://www1.eere.energy.gov/consumer/tips/renewable_energy.html
 - <http://www.nabcep.org/installer-locator> (to locate certified photovoltaic installation contractors in your area)
 - Green Choice rates at APS - http://www.aps.com/main/green/choice/choice_7.html?source=hme
 - Earthwise program at SRP - <http://www.srpnet.com/environment/earthwise/home.aspx>

Water conservation at home

8. **Install water conserving fixtures** (faucets, aerators, showerheads, toilets) that meet EPA (Energy Policy Act) WaterSense Efficiency Standards. On an annual basis, the water deficit in the United States is currently estimated at about 3,700 billion gallons. In other words, Americans extract 3,700 billion gallons per year more than they return to the natural water system to recharge aquifers and other water sources.
 - Ask your local vendor or visit <http://www.epa.gov/watersense> for more information.

9. **Maintain your plumbing and irrigation systems** – i.e. actively search for and repair areas requiring maintenance such as leaking faucets, water closets, broken sprinkler system lines, cap unused drip system heads, etc.
10. **Use water efficient landscaping:** According to the U.S. Geological Survey, of the 26 billion gallons of water consumed daily in the United States, approximately 7.8 billion gallons, or 30 percent, are devoted to outdoor uses. The majority of this is used for landscaping. In fact, it is estimated that the typical suburban lawn alone consumes 10,000 gallons of water above and beyond rainwater each year. As such, utilizing water efficient landscaping and irrigation is one of the most crucial steps a homeowner can take towards conservation. Consider the following fundamentals of water wise landscaping:
- Group plants according to their water needs.
 - Use native and low-water-use plant species.
 - Limit turf areas to those needed for practical uses.
 - Use efficient irrigation systems such as drip irrigation.
 - Schedule irrigation wisely such as during the cool morning hours in order to minimize evaporation. Also consider adjusting it to match your plants seasonal needs.
 - Make sure soil is healthy.
 - Remember to mulch.
 - Look to the following sources for more information regarding water efficient landscaping:
 - http://www.epa.gov/WaterSense/docs/water-efficient_landscaping_508.pdf
 - <http://www.wateruseitwisely.com/region/arizona/index.php>
 - <http://www.phoenix.gov/waterservices/wrc/home/outdoor/index.html>
 - http://www.azwater.gov/AzDWR/StatewidePlanning/Conservation2/Residential/Residential_Home2.htm
11. **Change wasteful habits** – There are many simple and FREE measures we can all take to reduce water usage around the house. Here are a few things to keep in mind:
- Do not let the water run while shaving or brushing teeth.
 - Take short showers (under 5 minutes) instead of tub baths. Turn off the water while soaping or shampooing.
 - Wash only full loads of laundry or use the appropriate water level or load size selection on the washing machine.
 - Add food wastes to your compost pile instead of using the garbage disposal.
 - Scrape dishes (instead of rinsing) before you put them in the dishwasher and wash only full loads.
 - Never use the toilet as a waste basket.
 - Keep drinking water in the refrigerator instead of waiting for the tap water to cool (during warmer months)
 - For many other simple but effective water conserving tips refer to the following sites:
 - <http://www.azwater.gov/AzDWR/StatewidePlanning/Conservation2/documents/documents/eparesidents508.pdf>
 - <http://www.wateruseitwisely.com/100-ways-to-conserve/index.php>
 - http://www.azwater.gov/azdwr/StatewidePlanning/Conservation2/Residential/documents/Conservation_tips.pdf
 - <http://www.phoenix.gov/waterservices/wrc/home/index.html>
12. **Recapture graywater** to augment your landscape irrigation needs.
- Graywater - Any washwater that has been used in the home, except water from toilets, is called graywater . Dish, shower, sink, and laundry water comprise 50-80% of residential "waste" water. This may be reused for other purposes, especially landscape irrigation.

To get started check with your local municipality and governmental agencies for information about permits and requirements. Refer to the following sites in Arizona:

- <http://www.azdeq.gov/>
- <http://ag.arizona.edu/AZWATER/arroyo/071rain.html>

13. **Use rainwater harvesting systems:** Rainwater catchment — or “harvesting” — is an ancient practice now enjoying a revival as an alternate water supply. The practice involves collecting rainwater from a roof or other surface before it reaches the ground and storing it for future use. Here are a few links with information on how to get started:

- <http://www.arcsa.org/>
-

Reduce material consumption

“Reduce” refers to lessening the amount of items or resources that are consumed, using only the amount that is needed, and looking for alternatives that will lessen our use. Materials are a key factor determining the environmental performance of many products and services. The less material you use, the less material that needs to be extracted, processed, transformed and finally managed as a waste.

14. **Reduce material consumption around the house** – reduce paper by using both sides or grabbing a piece of scrap (junk-mail envelope, etc.) when you don’t need a fresh sheet (e.g. for a grocery list), Reduce laundry loads (saves soap, water, and power), buy food products that support minimal packaging, use long lasting light bulbs (CFLs), use recycled products (reduces consumption of new resources), use products made to last, use rechargeable batteries, and reusable food/drink containers where possible (avoid disposable food containers),

Reuse

“Reuse” means extending the 'life' or repurposing an item rather than discarding or throwing it away. Here are a few great examples of how you can help the environment by reusing materials around the house:

15. **Composting** - Yard trimmings and food residuals together constitute 26 percent of the U.S. municipal solid waste stream. That's a lot of waste to send to landfills when it could become useful and environmentally beneficial compost instead! Composting offers the obvious benefits of resource efficiency and creating a useful product from organic waste that would otherwise have been landfilled. Check out <http://www.epa.gov/waste/conserve/rrr/composting/questions.htm> for more information.
16. **Reuse miscellaneous items around the house:** There are a multitude of ways you can reduce waste by reusing common everyday items from around your home. Here are a few examples:
- Plastic grocery bags can be used to line garbage cans in the office or bathroom or to discard pet waste from litter boxes or dog walks.
 - Old blankets, comforters, sleeping bags - Keep one in your trunk, in case you need it (either for warmth or wrapping fragile items) so you will always have one on hand.
 - Old shower curtains can be used as a drop cloth for painting or as a protective cover for plants or equipment.

- Glass jars can be reused as storage containers for anything small, for food, etc.
- Aluminum foil - after use, wash and let dry or use to store food. You can get a few rounds out of foil with a little care.
- Get creative before you throw it away! There are many more reuse ideas out there from art projects to basic household necessities. Look to the following sites for some great ideas:
 - <http://earth911.com/reuse/get-those-reuse-ideas-flowing/>
 - <http://www.recycling-revolution.com/reuse-trash-ideas.html>

Recycle

Recycle means to process old, used items in order that the material can be used to make new products. Examples of things that are often recycled are glass, plastic, newspapers, aluminum cans, used motor oil, and batteries. Here are a few ways you can start recycling items around the home:

17. **Utilize government/municipal recycling programs** – Most cities and neighborhoods have instituted regular recycling programs. Do a quick search on your city government website for local recycling centers and policies or talk to your HOA for information regarding regular pick up in your neighborhood. If there is no at home pick up service, get together with neighbors and start one.
18. **Recycle obsolete electronics** – Household electronics (TVs, computers, cell phones, etc) are known to contain a variety of toxic chemicals which, when dumped in a landfill, can seep into the ground (possibly entering the water supply) or escape into the atmosphere, affecting the health of nearby communities. Fortunately today there are many opportunities available to recycle these electronics. Some programs have negligible fees while others are free and still other even pay you. Try consulting either the product manufacturer or the store where you purchased the item for more information. Look to the following sites for more information:
 - <http://www.epa.gov/osw/conserves/materials/recycling/>
 - <http://www.earth911.org>
 -
19. **Check with material/equipment manufacturers** for take-back recycling programs. Beyond just electronics, as previously stated, manufacturers for many household items (flooring, appliances, etc.) have take back programs for items that have reached the end of their usable life.
20. **Earth911.org** - Last but not least, when in doubt, go to Earth911.org. The home page offers a simple to use search tool for finding recycling venues near you based on the material/item you wish to recycle and your zip code.