

Energy Efficient Homes: Easy Steps to Improving Your Home's Energy Efficiency¹

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Quick Facts

- 40% or more of a typical Florida home's energy use is the heating, ventilation and air-conditioning (HVAC) system, the largest portion of which is devoted to cooling. Your home's percentage of energy use (and resulting utility costs) may be higher or lower depending on the many factors that will affect the efficiency of your HVAC system—attic and wall insulation levels, shading of the home by trees and neighboring structures, quality and sealing of the windows and doors, integrity of the ductwork, and, of course, how the system is used.
- 21–25%, then, of your home's energy use come from all over the house—your other home appliances (washer, dryer, oven, etc.), electronics, and other “plug loads.”
- 13–17% of your home's energy use is in heating water. Overall household demand for hot water, age and quality of the water heater, and insulation of the hot water piping will all contribute to your home's percentile in this category.
- 22% of the average Florida home's energy use is attributed to lighting (11%) and refrigeration (11%).

The amount of energy savings that can be achieved in any home depends on the current condition of the home and its equipment, the amount of capital available for efficiency upgrades, and the occupants' behavior. In most homes, tremendous energy savings can be achieved given enough capital investment and the right outlook on the project.

Where Do I Start?

At no cost, gains in efficiency can be achieved through behavior change, even if you have no experience or skills in home improvement. With this in mind, the first step in any endeavor towards efficiency is to evaluate your current energy use and identify opportunities for improvement. Refer to your utility bills and record the amount of energy you use each month, then make a list of what this energy is being used for in your home (cooling and lighting, for

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example). Several free tools are available on the Internet to help you with this task, such as the customizable home energy calculator listed at the top of Table 1. Just identifying your home's main energy users is a powerful tool to help choose among opportunities to improve efficiency. Table 1 lists some easy changes that can help you reduce your households energy use and improve efficiency now.

These are just a few of many things that you can do to create a comfortable living environment for the home that uses energy more wisely. After making simple habit changes to cut your energy use, you'll be ready to consider other options that may require some financial investment up front, but that pay you back in the long run.

What are some low-cost measures I can take?

If you have reduced your home's energy demand by turning off lights when you leave a room but find that you are still using a lot of energy for lighting, replace your light bulbs with low-wattage options such as compact fluorescent lamps, also known as CFLs. (Note that “lamp” is the lighting industry's word for “bulb.”) If you find that you have difficulty remembering to adjust your thermostat when you are away from home, install a programmable thermostat, which adjusts temperatures automatically to your preset levels during daytime hours. While these changes require modest monetary investments, they are cost-effective if used to address issues in either your home's structure or occupant behavior. Take a look at the suggestions in Table 2 to see if any may be helpful for your home and, as always, remember that there may be other options specific to your home that could help you save even more energy and reduce your utility bills.

In terms of energy efficiency, how can I make my home investment dollars go even further?

The final step is making the leap to upgrades and investments in high-efficiency systems. To achieve significant gains in energy efficiency, eventually you will need to invest additional money up-front,

although there may be incentive programs to help you meet the expense. Upgrading portions of your home's structure, envelope, mechanical systems, and appliances to more energy efficient models or standards are where you're most likely to get the quickest payback in reducing your energy bills. Table 3 lists some of these options for you.

Understand that the magnitude of efficiency gains achieved will vary from home to home. If in doubt about which, if any, of these are most appropriate for your situation, contact your utility provider and ask about scheduling an energy audit of your home. In addition, ask your utility company about any incentives or rebates they offer to help make your home more energy efficient. You can also search the ENERGY STAR® website for offers and rebates from ENERGY STAR® partners as well as DSIRE—the Database of State [and Federal] Incentives for Renewables & Efficiency.

Summing It All Up

We have just given you an overview of steps that you can take to reduce your home's energy demand, improve its efficiency, and reduce your energy bill. Remember, when considering energy efficiency in your home, always consider occupant energy use behavior in the home first, before adding any upgrades—even the most efficient home and all of its features can be used wastefully. In addition, larger upgrades such as a new air conditioning unit will be most cost-effective and better matched to your needs after you've taken steps to reduce your home's energy demand, including its cooling load, as much as possible.

Remember to contact your utility company to see if they are offering rebates and/or loans if you are upgrading your home. If purchasing an existing home, realize that some energy improvements such as upgrading the home's central air conditioner and water heater can be included in an “energy improvement” mortgage; if purchasing a new energy efficient home, ask your mortgage lender about an energy efficient mortgage—be sure to ask your builder, too, for further guidance.

Whatever your situation, now that you have the information, take the helm and make it happen!

References and Resources

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Table 1. No cost changes that can increase energy efficiency

Home Energy Savers Energy Advisor calculator at (http://hes.lbl.gov/)	Evaluate your energy use, familiarize yourself with the main energy users in your home, and find simple solutions to energy savings.
Thermostat Setting	Set thermostat to 78°F or higher in the summer and 68°F or lower in the winter.
Ceiling Fan	After setting your air conditioner to a higher temperature in the summer and your heating system to a lower temperature in the winter, use ceiling fans to increase comfort level—make sure they're properly installed, well-balanced, and running clockwise in the winter and counter-clockwise in the summer. Turn off fans when you leave a room.
Lighting	Turn off lights when you leave a room, or when you know the room will be vacant for more than 15 minutes.
Extra Refrigerator	Empty, unplug, and recycle your second refrigerator if it is seldom used. Contact your local waste management/recycling program for details.
Dishwasher	Use the air-dry setting or let dishes air-dry by propping the door open slightly after the final rinse cycle. Do not do this, however, if high humidity is a problem in your home. Run full loads only.
Refrigerator	Check seals on refrigerator and freezer doors. To do this, place a dollar bill in the door as you close it. If it does not hold firmly, the seal is worn and needs to be replaced. Clean refrigerator cooling coils, accessible on the back or underneath the refrigerator—refer to owner's manual for instructions.
Clothes Washer/Dryer	Wash only full loads of laundry and use the cold water wash and rinse cycle when possible. Clean the dryer filter/lint trap after each load. Clean the dryer exhaust run to prevent lint buildup. When possible, use clotheslines or drying racks instead of your dryer.
Standby Power	Unplug any appliances or electronics that have a standby mode or that have lights that remain on when they are not in use. Energy used for standby mode accounts for over 5% of total U.S. residential energy consumption.

Table 2. Low cost changes that can increase energy efficiency.

Lighting	Replace as many of your light bulbs as possible with the appropriate fluorescents—for example, 14-watt compact fluorescents in place of 60-watt standard incandescents can save you up to \$30 a year per bulb.
Air Conditioning Maintenance	Keep your system at peak performance. Check air filters every month and clean or replace regularly as needed. Arrange for professional maintenance on a yearly/seasonal basis to ensure proper efficiency.
Thermostat	Install a programmable thermostat. Program it to turn off or adjust for overnight and when you are not at home. Potential savings: up to \$150/year.
Weatherize	Caulk, seal, or apply weather stripping around all windows and exterior doors. Areas where plumbing, ductwork, and electrical wiring penetrate exterior walls, floors, or ceilings should also be insulated according to applicable building code.

Table 3. Energy efficiency changes that require more significant financial investment. †

Attic Insulation	Upgrade your Florida home's attic insulation to R-30. If you have recessed lighting, be sure to follow all safety recommendations for insulation installation.
Windows	Consider replacing older, single pane, or jalousie windows with energy-efficient ones designed specifically for the Southern climate and your regions weather patterns.
HVAC	If the existing HVAC system is 10 or more years old, consider replacing with an energy efficient system.
Duct Leak Repair	Hire a contractor to evaluate ductwork and seal leaks that occur between ductwork junctions, around air handler cabinets, and other trouble spots.
Water Heater	If the unit is 10 or more years old, consider replacing with an energy-efficient water heater/hot water system.
Refrigerator	If the unit is 10 or more years old, consider replacing with an energy-efficient refrigerator.
Clothes Washer	Consider replacing an older clothes washer with an energy-efficient model.

†Structural changes of any kind often require a building permit and a post-installation inspection. Check with your contractor/your local government authority before proceeding with your project.