

**COMPLETE GUIDE:**



***10 Easy Ways to  
Lower Energy Bills***

Let's face it. Whether we want to save money or save the environment, we would all be happier with lower energy (utility) bills. There are two strategies to lowering your energy usage: changing your behavior and making your home more energy efficient.

Changing your behavior doesn't cost anything. But making your home more energy efficient can be expensive. Yet there are certain things you can do that will lower your costs for the improvements.

In this guide, we discuss the do-it-yourself things you can do but first, let's discuss how to analyze your current bills.

## Analyzing Your Utility Bills

Do you know how much energy your home uses on a daily basis? You may look at your utility bill when it shows up every month, but do you consider what used all that energy? The amount used by your heating and cooling equipment changes based on the conditions outside, but the rest of the appliances in the house operate on a steady basis (with exceptions such as vacations and long-term house guests). These two portions are seasonal consumption and baseline consumption. The baseline includes things like water heating, refrigeration, lighting, entertainment, etc. You can estimate your baseline consumption by looking at a full year's worth of bills. Find the three months with the lowest consumption (summer for gas bills, spring and autumn for electric), and average them out; that is your baseline. You can then subtract that amount from the other months to see your seasonal consumption. Let's look at two examples of electric bills.

### Example 1:

This is a 1700 square foot home, inhabited by a retired woman. Her stove and water heater are both gas-powered. She has mostly incandescent light bulbs. Her attic insulation is rated at R-17, and her duct system is leaking 50%. The usage in her three lowest months averages out to 558kWh, or roughly 18.6 kWh per day. Subtract that from 1601 in July and we see that she used 1043kWh to cool her home that month, or almost an additional 36kWh per day.

12/2/2013	569
10/30/2013	478
10/2/2013	962
9/4/2013	1,275
8/5/2013	1,525
7/3/2013	1,601
6/4/2013	941
5/2/2013	639

4/5/2013	776
3/6/2013	939
2/1/2013	626
1/7/2013	863

**Example 2:**

This is a 1500 square foot home, inhabited by a young woman and her husband. She works from home every day, and conserves energy by keeping the air conditioning set in the high 70s. The water heater is electric and all of the light bulbs are CFL or LED. Her attic insulation is rated at R-4, and her duct system is leaking about 15%. The three lowest month average out to 329kWh per month, or roughly 10kWh per day. Subtracted from the July bill, we see she used 531kWh to cool her home, or 16.6kWh per day.

12/11/2013	479
11/7/2013	314
10/9/2013	377
9/11/2013	801
8/13/2013	689
7/13/2013	860
6/11/2013	350
5/10/2013	324
4/12/2013	472
3/12/2013	572
2/8/2013	494
1/10/2013	730

So what does all this tell us? Both women are at home during the day and using electronics (television for one, computer for the other). The homes are similarly sized. One thing we can take away from this comparison is how baseline consumption adds up, and also how it can be reduced. CFLs and LEDs use 75-80% less energy than incandescent bulbs of similar brightness. A light turned off in an unused room uses 100% less energy than one left on. Conservation is equal parts performance and behavior. Both homes have performance issues in their insulation and duct systems. But one woman was more willing than the other to sacrifice a few degrees of comfort in the interest of conservation.

The main point here is that you can learn a lot about your energy usage from your utility bills. Analyzing them and learning what is going on in your house on a daily basis is a good first step towards saving energy and money.

Now that you understand how to analyze your utility bills, let's look at ways to reduce the energy consumption.

# 10 Ways to Lower Energy Bills

## Energy Audit

The first step in making your home energy efficient is to have a home energy audit. By completing an energy audit, you know what areas of your home need the most improvement. During the audit, a certified energy auditor completes a whole house air leakage test and duct leakage test. They will also do an inspection of the insulation levels in your attic and walls. Some utility companies have programs in place to offer the home energy audit at no cost. Be sure to check with your local electric company to see if they have any energy audit programs.

## Lighting

There are two things you can do when it comes to lighting. First, you can change your behavior. Keep the lights off in unused rooms or use a dimmer. Use lamps instead of using the main fixture. Installing occupancy sensors is a great way to automate your lighting. Second, by installing CFL or LED bulbs can reduce your lighting usage by 75%. LED bulbs only use 9 watts vs. a standard 65 watt incandescent bulb. The benefits of LED bulbs, besides energy savings, are that they last 20 years and have the same brightness. And they are getting less expensive.

## Insulation

Insulation is a vital part of making your home energy efficient. By having the proper amount of insulation in your attic and exterior walls, you substantially slow the heat transfer. In other words, you keep the warm air outside in the summer and the warm air inside in the winter. Although insulation levels in your walls are difficult to detect without an infrared camera, you can easily inspect the insulation level in your attic.

All you need to do measure the depth from the attic floor (the sheet rock) to the top of the insulation. If you have loose fiberglass, you need to have about 14 inches. For cellulose, you need to have about 12 inches. These are recommended levels in the south region and may be higher in northern states. But keep in mind, these recommendations is for new insulation. If the insulation is several years old, it gets degraded quite a bit. If you are unsure, you can always have an insulation contractor come out and get a free estimate. They can let you know how much needs to be added. Adding loose fiberglass or cellulose yourself is pretty easy. You can rent a machine from any home improvement store and you and a friend can knock it out in a weekend.

## **Ducts**

One of the most common issues in a home is high duct leakage. On average, duct leak about 40%. That means that all that conditioned air you are paying good money for, 40% of it is leaking into areas outside your home such as your attic or crawlspace. Why would you want to be pumping conditioned air into spaces that you do not live?

There are some things you can do to seal your duct work yourself. You basically want to seal all the elbows, joints, and connections within the entire duct system.

Just a tidbit, I would highly recommend an energy audit so you can get a duct leakage test. The test will pinpoint exactly where the leakage is located within your duct system. You can seal the ducts yourself but I would highly recommend hiring an HVAC contractor. The reason is because they know exactly what to do in a much more efficient way. And if you choose a good contractor, they will test it after the seal is complete to ensure the leakage is reduced.

## **Air Sealing**

When you are heating and cooling your home, you are pumping that conditioned air inside your home. The last thing you want that air to do is leak outside your home. There are common leakage areas in a typical home that you can seal yourself with a little foam (Great Stuff) and caulk.

One common leakage area is the plumbing penetration under your sinks. The hole where the pipe goes through usually has a gap around it. This is where air can travel inside and outside your home. Just take some Great Stuff and fill in the gap. (Tip: the foam expands so start off with a small amount and slowly add more as needed. Also, wear old clothing when using Great Stuff. It will not come off if you get it on your clothes.)

Another leakage area is around your exterior doors. If you can see sunlight when your door is closed, then you need new weather stripping. You can buy good weather stripping from any home improvement store like Home Depot or Lowes.

## **HVAC Maintenance**

This is one way that is easy, inexpensive, and most overlooked. Think about it. You get oil changes on your vehicle, right? Mostly because you paid a lot of money for it and don't want your engine to burn out. It's the same with your HVAC unit. It cost thousands of dollars to replace. Why wouldn't you keep up your maintenance on it? Here are three things to do to ensure the life of your HVAC unit.

Sign up for an annual maintenance plan. A typical plan includes two visits per year for a thorough cleaning and inspection.

Change your filter monthly. By changing your filter on a regular basis, you will prevent unwanted debris from entering your HVAC unit. (Tip: change your filter each time you pay your electric bill)

Finally, I would get a full tune-up once every five years. This is like getting a tune-up on your vehicle when you hit the 100,000 mile mark. It's much more thorough than your regular maintenance visit.

## **Water Heater**

By doing a couple of things to your water heater, not only will you reduce your energy, you will reduce your water consumption.

Lower the temperature. Look at the temperature setting on your water heater. There is no reason to have the temperature set to the highest setting. If you used that temperature in the shower, you would burn your skin.

Install a water heater blanket. If your water heater is in unconditioned space such as your garage or crawlspace, install a water heater blanket. This adds extra insulation to keep the heat inside.

## **Programmable Thermostat**

Get a programmable thermostat. By adjusting the temperatures for when no one is home, you can greatly reduce your heating and cooling usage. If you really want to get techie, you can even buy a smart thermostat such as a Nest or Honeywell's Lyric. Both learn your behavior to automatically adjust the temperatures.

## **Water Conservation**

Also, you can install low-flow water fixtures in your home. You can install low-flow flushing feature on your toilet, aerators on your sink faucets, and low-flow showerheads.

## **Energy Star Appliances**

Although buying new appliances is not quickly actionable, it is something to think about when you are in the market for one. So the next time that washer, dryer, stove, or television breaks, you should look at ones that are Energy Star certified. For more information about Energy Star, click here.

Hopefully these ten things will help you towards your goal of lowering your energy bills. We would be happy to discuss your goals towards an energy efficient home. Check out more energy efficiency tips at our energy blog.