

Making Sense (and Cents) out of Home Energy Efficiency Projects



The average U.S. household spends over \$2,000 a year on energy. Whether you are considering making major energy efficient upgrades to your home or simply plan to buy a new energy efficient appliance, there are a variety of opportunities to lower the cost of your project while saving money on energy costs. Taking advantage of incentives, rebates, and other energy efficiency programs, you can lower your energy costs, improve the comfort of your home, increase the value of your home, and do your part to help the environment.

What energy efficiency projects make the most sense (and cents)?

Identifying potential energy efficiency savings takes a little detective work. Because every home is different, the energy efficiency needs for your home are unique. Therefore, your first step is to identify the projects that are most needed for your home. To do this, you must start with an assessment. You can hire a professional home auditor or you can do the assessment with the help of online resources.

Do-It-Yourself (DIY) Assessments

The DIY [Home Energy Assessment](#) can help you begin the process of identifying areas in your home where improvements are needed. Energy efficiency is an investment that can help you gain a return through a lower energy bill and by increasing the value of your home. With a simple but careful inspection, you can identify areas in your home where you are losing energy. There are a number of on-line tools to help you assess your home's energy efficiency, such as [The Home Energy Yardstick](#) or [Home Energy Saver](#). Your utility company may also have an online tool for you to use.

Professional Home Energy Assessments

If you are uncertain about your ability to conduct an energy assessment yourself, or if you want a more thorough assessment, consider hiring a professional. The [Hiring Guidelines and NC Directory](#) provide tips and resources for hiring a green professional to work on your home. eXtension Home Energy also

offers important tips related to selecting [Home Energy Raters and Auditors](#). To learn more about what takes place during an energy audit or assessment, explore [Understanding Energy Audits](#).

Once your assessment is complete and you have identified the projects that are most needed to make your home more energy efficient, you must prioritize these project. There are a number of things to consider, not the least of which is *How do I get the most bang for my buck?* Its important not only to determine how much you might save by making improvements, but also how much the investment in the improvement will cost. Answering the questions below will give you an idea of the TOTAL cost and potential savings of a project.

How much will the initial investment cost?

To answer this question, you must determine the following:

- Can I do the work myself or will I hire a professional?
- What rebates, offers, incentives, and savings programs can help offset the cost of this retrofit? A great way to save money as you improve your home is to take advantage of energy efficiency tax credits, rebates, and programs offering savings opportunities. There are many ways to [Save Money through Tax Incentives, Rebates, and Programs](#). These resources include federal, state, local, and utility company programs and offers.
- How much money will this likely save me in annual energy usage?
- How long will it take to “break even” on this project? Savings in energy will “pay you back” for an energy efficient measure so your “initial investment” will, at some point, match the amount invested. Some projects will take significantly longer that others to reach the break-even or pay back point. Once you break even, though, the improvement has paid for itself in savings (and likely comfort, too). The savings will

continue, adding value to the project beyond the investment.

- Once complete, how long will this continue to save me money? (Is this a “once and done” project, such as many air sealing projects, or is it something like an appliance, windows, or furnace that will, sometime in the future, need to be replaced?)

Your Budget

Even if you know a project will eventually save you money, some projects may not be reasonable options for your personal budget. If possible, consider tackling some [DIY projects](#) that do not require a large investment. Also, remember that your TOTAL cost needs to be taken into account when making budgetary decisions.

Figuring out the TOTAL SAVINGS and TOTAL COST of a project:

Example 1:

Air Sealing Duct Work – If an air-sealing project is determined to cost you \$100 to complete as a DIY and is estimated to save you \$10/month in energy savings, you will have paid for the project in 10 months and will continue to save \$10 a month on energy costs into the future.

Initial Cost	\$100
Months to Recover Cost	10
Annual Savings	\$120
Amount Saved after 1 Year (savings minus cost)	\$20
Amount Saved after 5 (savings minus cost)	\$500
Amount Saved after 10 (savings minus cost)	\$1,100

Example 2:

Installing 20 Energy Star CFL light bulbs in place of incandescent bulbs – The bulbs will cost about \$56 and will save approximately 83%. Each year you will save approximately 1,358 kWh of electricity and \$153. Over the life of the light bulbs you will save approximately \$954 in electricity costs and \$48 in equipment replacement costs. By choosing ENERGY STAR you will reduce emissions by approximately 2,091 pounds of carbon dioxide annually, which is equivalent to the emissions reduction of not driving your car for 72 days.

Initial Cost	\$56
Months to Recover Cost	4
Annual Savings	\$153
Amount Saved after 1 Year (savings minus cost)	\$97
Amount Saved after 5 (savings minus cost)	\$612
Equipment Life Cycle	7.3 years
Life Cycle Savings in Electricity	\$954
Life Cycle Savings in Equipment Replacement Costs	\$48
Total Savings Over Lifetime of Bulbs	\$1,002

Additional questions to ask yourself when setting priorities for projects:

- Which of these projects will add the most value to my home?
- How long do I plan to own my home?
- I am a renter. What projects make sense for me? (See [Resources for Renters](#))
- Which of these projects will most effectively add to the comfort of my home?
- How handy am I? Is this a DIY project or do I need to hire a professional? Be sure you understand the impact this project will have on the house (See [House as a System](#)) before undertaking a DIY to ensure it is safe to precede. If in doubt, hire a professional.