



Could Your Home Benefit From a Home Energy Upgrade – Part 2

In the last issue of Going Green we looked at several ways to upgrade your heating and cooling systems. In this issue we'll focus on upgrades for the home itself. As I've said here before, the average homeowner could save roughly half of the energy they pay for every year with an upgrade. In addition to energy savings, a properly done upgrade will also improve indoor air quality and increase comfort.

What will probably come as a surprise to most readers is that, for many energy upgrades, the savings can exceed the costs. If a homeowner is refinancing or can establish an equity line, the cost of the upgrades can be spread over 15 to 30 years, eliminating the need to spend cash out of pocket.

Now, conventional wisdom would probably lead you to believe that you'd be better off using cash on hand instead of borrowing money and paying interest. That's because, with the exception of energy upgrades, borrowing money to make a purchase rarely makes good economic sense. In these cases, the most responsible way to make a big purchase is to save until you have enough, right? Right!

In the case of a home energy upgrade, however, borrowing can make sense because of the energy savings as well as the mortgage interest deduction. Thanks to the mortgage interest deduction, the monthly loan costs can be less than the sum of the energy savings plus the deduction, leading to lower monthly total costs.

Examples of home energy upgrades that pencil-out in this way are many. Adding insulation in the ceiling, attic knee walls and floor are several examples. To illustrate how the savings can exceed the costs from the first year forward, let's take a look at an example from a recent energy audit we did.

The cost to upgrade the attic insulation to R-38, the recommended level for our area, was \$731. But, after rebates and tax credits the installed cost was reduced to \$590. The savings, based on today's utility rates, was \$51 per year.

With \$100 down and the rest included in a home refinance at 5% over 30 years, the first year's payments to the bank for the attic insulation upgrade totaled \$32. The mortgage interest deduction (a savings) totaled \$7. After energy savings, the total savings for the first year is \$27 (\$51 energy savings, plus the \$7 deduction, minus the \$32 of loan payments. I should point out that, just in case you think I might have subtracted incorrectly, it's because the numbers in each column are rounded off to the nearest dollar that the savings for the first year are \$27, not \$26.

At any rate, when I pointed out at the beginning of this article that paying interest on a loan for an energy upgrade could actually “pencil out”, it might have been a bit hard to believe, but hopefully this example illustrates that it’s actually a very good idea.

Because energy costs are assumed to rise at 6% per year, the second year savings are even greater, and so on for the life of the loan. The yearly savings, or net cash flows at the end of every year, are shown in the table below. The “cumulative net cash flow” is the accumulated savings at the end of each year and is also shown in the table. Note from the table that, after 30 years, the attic insulation upgrade has saved the homeowner over \$4000. This is just one example of dozens of possible energy upgrades!

Attic Insulation Upgrade – Costs & Savings Summary

Years Into Investment	Cumulative Net Cash Flow	Net Cash Flow	Loan Payment	Energy Savings	Tax Benefits
1	\$27	\$27	(\$32)	\$51	\$7
2	\$57	\$30	(\$32)	\$55	\$7
3	\$91	\$34	(\$32)	\$58	\$7
4	\$128	\$38	(\$32)	\$62	\$7
5	\$170	\$42	(\$32)	\$67	\$7
6	\$217	\$47	(\$32)	\$72	\$7
7	\$269	\$51	(\$32)	\$77	\$7
8	\$325	\$57	(\$32)	\$82	\$6
9	\$387	\$62	(\$32)	\$88	\$6
10	\$456	\$68	(\$32)	\$94	\$6
11	\$530	\$75	(\$32)	\$100	\$6
12	\$612	\$81	(\$32)	\$107	\$6
13	\$701	\$89	(\$32)	\$115	\$6
14	\$797	\$97	(\$32)	\$123	\$5
15	\$902	\$105	(\$32)	\$132	\$5
16	\$1,016	\$114	(\$32)	\$141	\$5
17	\$1,140	\$124	(\$32)	\$151	\$5
18	\$1,274	\$134	(\$32)	\$161	\$4
19	\$1,419	\$145	(\$32)	\$172	\$4
20	\$1,576	\$157	(\$32)	\$184	\$4
21	\$1,745	\$169	(\$32)	\$197	\$4
22	\$1,928	\$183	(\$32)	\$211	\$3
23	\$2,125	\$197	(\$32)	\$226	\$3
24	\$2,338	\$213	(\$32)	\$242	\$3
25	\$2,568	\$230	(\$32)	\$259	\$2
26	\$2,815	\$247	(\$32)	\$277	\$2
27	\$3,081	\$266	(\$32)	\$296	\$2
28	\$3,368	\$287	(\$32)	\$317	\$1
29	\$3,676	\$308	(\$32)	\$339	\$1
30	\$4,008	\$332	(\$32)	\$363	\$0

Yet another way to characterize the benefits of an energy upgrade is to look at it as an investment. In

the case of this attic insulation upgrade, the rate of return is 38%! How does that compare to your stock market returns from last year? How about the interest rate offered by your local bank? In these tough economic times it's comforting to know that investments in energy can not only save you money every month but they can be an excellent way to invest your home's equity as well!

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