

NOV/DEC 2010



Home energy

\$15

Raters at the Roundtable

Battle of the Walls

Peak Reduction

**Combustion
Appliance Testing**

**Taking the
Lead on Lead**



Persuading 5-Million Home Buyers to Invest in Energy Efficiency



DORIS IKLE is founder and chief innovation officer of CMC Energy Services.

Federal and state governments are deploying billions of dollars in an unprecedented push to weatherize America's existing homes in order to save energy and create jobs. However, the programs piloted by the government during the past decade, and more recently by the utilities, do not yet come close to being able to meet these goals. America can no longer afford to measure program ramp-up time in terms of years, nor should the public have to spend thousands of dollars per house to market, administer, and subsidize a shift to the cleanest energy—efficiency—thought to be the cheapest energy available. Self-interest is the most powerful human motivator, yet it has been largely ignored as a tool to persuade households to invest in energy efficiency improvements that cost less than the wasted energy they save.

This article summarizes what CMC Energy Services, a company I founded 33 years ago, has learned about how to persuade buyers of existing homes to invest in energy efficiency—not just for now, while American Recovery and Reinvestment Act money is available—but as an ongoing way to reduce the energy wasted by our aging housing stock. The key is to provide reliable information to potential clients that shows how they can invest in energy

efficiency upgrades, paying for them entirely from the money saved by these upgrades. When given the choice between continuing to pay for wasted energy or making improvements that cost less than the wasted energy, virtually every buyer of an existing home will opt for the improvements.

The Pay from the Savings Group of Improvements

Promoting efficiency may be cheaper for utilities than building new capacity, but does it cost less for homeowners to make energy efficiency improvements than to keep paying for wasted energy? The answer is yes for many, though not all, improvements, based on over 6,000 Home Tune-uP audits performed nationwide by CMC affiliates. The Pay from the Savings Group (PSG) of improvements includes not only the less-expensive upgrades, but also more-expensive ones, such as adding insulation, upgrading windows, and replacing old refrigerators and air conditioners. The items included will differ for each house, depending on a variety of factors. These include the age of the house; the efficiency of the heating and cooling systems; the age and efficiency of the appliances; the type and price of fuel; the location; and the number and lifestyle of the occupants.

When homeowners understand that they will realize a net savings—that is, that they will save more per month in energy than they pay per month for improvements, and there is no down payment required, the implementation rate soars to over 60% for CMC's Home Tune-uP program, based on our records. Furthermore, the improvements that are

included in the PSG are about double the improvements that customers choose based on the payback (usually five years). Thus both the rate of implementation and the improvements implemented increase dramatically with Home Tune-uP. Just how much they increase will depend on energy prices, and on financing. The longer the term of the loan and the lower the interest rate, the more improvements will be included in the PSG. And the higher the price of energy, the more improvements will be included in the PSG.

Identifying the Pay from the Savings Group

How does CMC Energy Services identify the PSG? We do so by

- making a detailed survey of the home to determine which features could be improved, including the envelope and all major energy-using systems;
- identifying the energy efficiency before and after improvements;
- collecting information based on zip code to reflect regional variations in weather, energy prices, and labor costs;
- estimating costs for the improvements; and
- obtaining the terms and interest rate of the loan.

To determine which combination of improvements will maximize energy savings requires estimates that take account of the interrelationships among the improvements in the PSG. These interrelationships reduce the resultant savings and sometimes the cost of the improvements. Indeed, the main reason for the inflated savings estimates that characterize

When given the choice between continuing to pay for wasted energy or making improvements that cost less than the wasted energy, virtually every buyer of an existing home will opt for the improvements.

current software is that the software is based on the assumption that no other improvements will be made. This is hardly appropriate for a whole-house approach.

In order to demonstrate my point, let's look at a test case. In the following example, a contractor has recommended that a homeowner insulate the house and replace the heat pump. If the homeowner follow this recommendation,

- the savings from the new heat pump based on the original heating and cooling loads should be reduced due to the smaller loads resulting from the added insulation;
- the savings from the insulation based on the original inefficient heat pump will be reduced due to the more-efficient new heat pump; and
- the cost of the heat pump may be reduced due to the smaller size required with the lower heating/cooling load.

Using a proprietary equation developed by the author, the Home Tune-uP software recalculates the energy savings and costs, taking account of the improvements included in the PSG. The result is that the energy savings estimates are reduced whenever there is an interrelationship between two or more improvements. The costs may also be reduced, as in the case of the heat pump discussed above.

How Current Audits Discourage Customers from Investing

Car dealers advertise their cars in terms of the cost of the monthly lease. Energy audit reports show the payback—that is, how many years customers must wait to recoup the money they need to invest for each improvement. Thus the more expensive improvements with longer payback times will be missed. Whereas payback, or return on investment, is an appropriate motivation for utilities and investors who want to maximize their profit, after more than 300,000 energy audit clients, CMC has yet to



Steve Luxton discusses the Home Tune-uP report with a customer at the end of the home audit.

find one client who is motivated by return on investment to make efficiency improvements. Yet proponents of energy efficiency continue to believe that a robust return on investment drives the home efficiency market.

Affordability is the primary requirement for investing in energy efficiency, and Home Tune-uP is the only audit report that identifies the specific improvements that are affordable in each home. The customer's choice is simple: either make the improvements and pay for them from the resulting energy savings, or keep paying for the wasted energy. When the customer compares a one-year energy savings to a one-year payment for the energy improvement loan, it becomes obvious that saving money goes hand-in-hand with saving energy.

Expanding Implementation with Public Funds

For low-income households, where reducing energy costs is an important goal, public funds would be used to pay for all PSG improvements, as is the case for current Weatherization Assistance programs. However, the energy savings would be larger, since the

PSG improvements would be determined by the specific attributes of each house, rather than by a spending cap and a list of improvements based on average paybacks. Furthermore, by offering the same program to low-income customers as to other customers, we believe that the cost of marketing to low-income households would be reduced. This is, first, because offering the same program to everyone would remove the stigma of a low-income program, and second, because it would reduce the cost of administering the program, since the software would determine which improvements were appropriate for each home.

Public funds would also be used to support renewables, since their current cost is still too high to qualify for the PSG, and for improvements that benefit the environment more than the home, such as white roofs.

Selling Energy Efficiency Improvements

Smart marketing is as important as a good design to sell a product or service. Here are some of the marketing techniques that have worked for us:

Target home buyers. The best customers for energy efficiency improvements are buyers of existing homes. All home buyers make some improvements, and improvements that pay for themselves will move to the top of the list. This is also the only group that takes a whole-house approach. They are often willing to buy new energy systems and appliances when the existing ones still work.

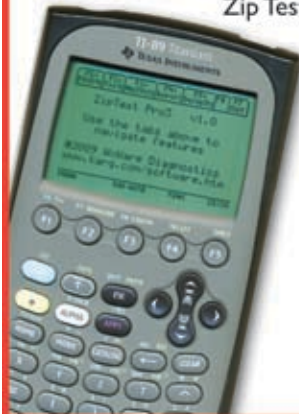
Don't charge for the audit. The energy audit report is the sales tool for the audit. To maximize participation, there should therefore be no charge for the audit. Even a small charge will discourage the majority of potential customers from requesting an audit. The myth that those who don't pay for an audit are less likely to implement the recommendations than those who do pay is not only unproven, it is irrelevant. Far more potential customers are

Zip Test Pro³[™]

Building & Energy Diagnostics Software

from **WxWare Diagnostics**

The tool of choice for energy auditors and evaluators, the new, improved Zip Test Pro³[™] software operates on the Texas Instruments TI-89 Titanium graphing calculator. Zip Test Pro³[™] is unbeatable, inexpensive, easy to use and easy to carry.



- ▶ Includes all the latest changes to ASHRAE 62.2 ventilation standard
- ▶ Determines when air sealing is no longer effective
- ▶ Runs zone pressure diagnostic procedures
- ▶ Helps with combustion safety testing
- ▶ Calculates dwelling energy index values and **much MORE**

WxWare Diagnostics

a division of R.J. Karg Associates
596 Grover Hill Road, Bethel, ME 04217



FOR MORE INFORMATION: www.karg.com/software.htm E-MAIL: ZipTest@karg.com PHONE: 207-824-0025

home performance business

lost by charging for an audit than are attracted by something that's free.

Use home inspectors for audits. Home inspectors make ideal energy inspectors, since home buyers trust them. They represent the customer, and have no conflict of interest. Contractors, on the other hand, sell what they recommend and therefore have a direct financial interest when making the recommendations. Furthermore, home inspectors, who are generalists, have already studied all parts of the house and understand the interactions between the different parts. Contractors who have a specialized skill


will, even if only out of habit, always look first to see whether they can recommend their specialty.

Reduce ramp-up time and cost. During the past two years, the time required to qualify as an energy efficiency inspector has increased from 1 month, to 6 to 12 months. The cost to become equipped and certified has increased from \$1,000 to \$10,000. Indeed, more public and private money appears to be spent on anointing contractors than on fixing homes. By trying to build up a "qualified" inspection force, the existing labor force has been disqualified. Thus the 2,000 energy inspectors trained by CMC who have been delivering thousands of audits nationwide are now excluded from the government-financed workforce. Many who are investing the time and money to become BPI certified, find that the jobs promised are few and far between.

Choose the best financing. To maximize the PSG improvements, the monthly payments must be minimized. Thus the best financing is a long-term low-interest loan, such as the

FHA 30-year streamlined (k) loan. A further consideration is the cost, time, and hassle of obtaining the loan, as well as the risks involved to the buyer and to the bank in case of default. With a loan to be paid from the estimated savings, the estimates must be reliable.

What Works?

The bottom line is to reach as many households as possible and persuade the occupants to invest in energy efficiency improvements that work. The problem is that rather than simplifying the process of persuading the homeowner to adopt cost-effective energy efficiency improvements, government programs have made the process increasingly complicated, slower, more expensive, and less effective. Programs that have already demonstrated success, such as Home Tune-up, should be allowed to compete for government funds. The cost of learning whether the present system can be improved is negligible. The cost of failing to consider alternatives is incalculable. 

>> For more information:

Contact the author at dikle@cmcenergy.com.

For more on CMC Energy Services, go to www.cmcenergy.com.

For a detailed description of CMC's software, see Iklé, Doris, with Stephen Luxton and Carl Schlemmer, *Home Tune-up: Empowering Energy Savings Nationwide*. The book is available for purchase on the CMC web site (see above).