

ENERGY AUDITS

Massachusetts is the hold-out. When the federal Residential Conservation Service law expired in 1990, most states got rid of mandatory home energy audits. But a 1980 state law still requires Massachusetts electric and gas utilities to provide home energy audits to customers on demand, paid for by a surcharge on energy bills.

However, Massachusetts' 1997 restructuring act put the pressure on the state's electric utilities to keep prices low. The free or cheap home energy audit is now under scrutiny to see what it's worth to both customers and utilities.

Even before restructuring began, the Massachusetts Division of Energy Resources (DOER) and a public advisory committee had completed a major review of the program. The goal of the review was to find out if the home energy audit program was effective. Was it educating the residents of Massachusetts? Were they using that new knowledge to actually save energy? The state and utilities needed to see results—actual installations and energy savings—to continue asking utility ratepayers to pay \$160 per audit. And wherever the results fell short, changes had to be examined.

Wanting to Learn More

The state hired Hagler Bailly Consulting Incorporated to work with a public advisory committee. Together,

they created a survey designed to elicit genuine opinions from both audited and unaudited citizens. All were asked about their need for energy conservation services and their opinions about who should offer those services. Those who had been audited in the previous two years were also asked how they felt about the service they received. Both groups were asked if they would pay for an audit and how much. In all, more than 1,500 consumers, nearly 950 of them previously audited, were surveyed by phone. This sample size is large enough to extrapolate results to the rest of the state's 6 million citizens.

The survey found that the largest number of customers—33%—craved knowledge. When asked about their primary reason for taking part in an audit program, 33% said they wanted to learn how energy was used in their home. The next most frequent response, mentioned by 26% of the respondents, was "to save energy," followed by "to save money" from 21% of those surveyed. Only 6% were enticed by the audit's free home improvements—up to \$30 worth of showerheads, pipe insulation and weatherstripping. Also, of those surveyed who had not yet had an audit, 67% were interested in learning more

Consumers Say the Audit...



Figure 1: People liked the energy audit. Most couldn't think of anything they didn't like about it.

about how energy was used in their households and 73% wanted to learn specific ways to save energy. Consumers, whether audited or not, clearly wanted to learn more.

The majority of Massachusetts customers who had gone through an

Consumer Benefits

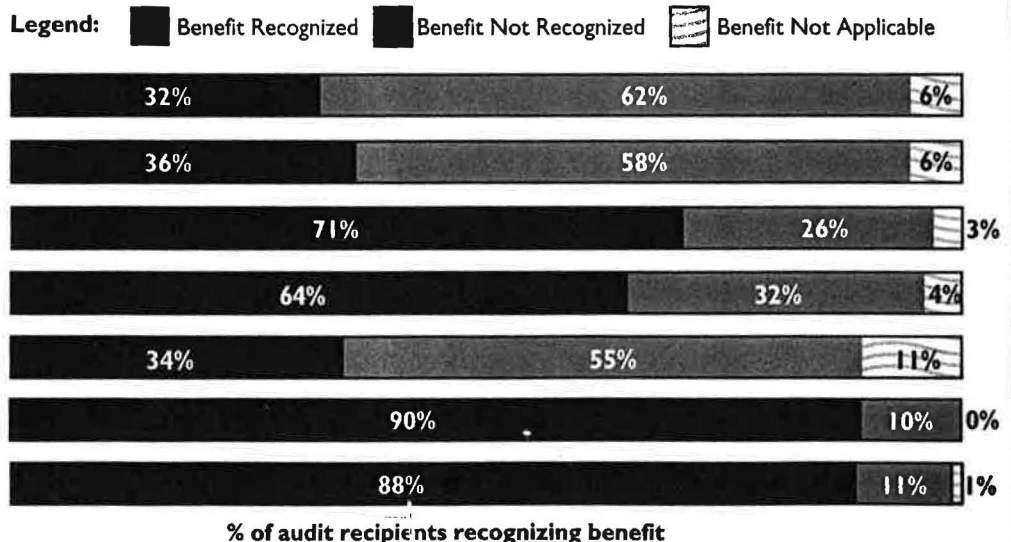


Figure 2: Consumers got a wide variety of benefits from the energy audits. But many did not feel their energy bills had gone down, especially in the summer.

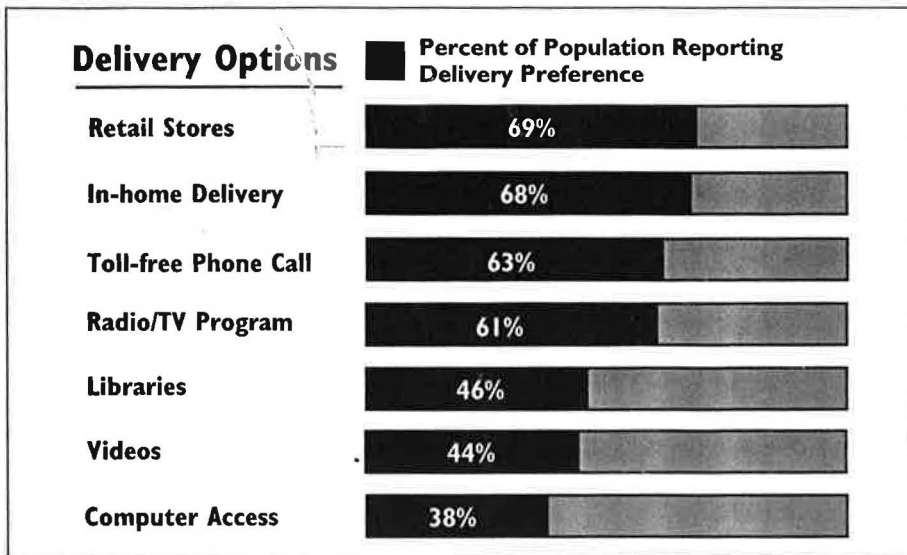


Figure 3. Consumers liked the in-home audits. But even more of them would like audit education and materials to be available at retail stores, and many would accept other delivery mechanisms.

energy audit were overwhelmingly pleased with it. Of those surveyed, 68% indicated that they were very satisfied with the audit and another 27% were somewhat satisfied. Electric heat customers and low- to moderate-income customers were particularly delighted, with satisfaction levels at nearly 98% for both groups.

When considering the delivery of the audit, the highest satisfaction ratings went to the auditors. Seventy-four percent of customers were "very satisfied" with their auditors' knowledge, professionalism, and helpfulness. That's a higher approval rating than the overall audit received. When asked what part of the audit they liked least, 78% of surveyed customers could not name a thing.

Disappointing Answer

Surveys in past years by individual utilities had shown that the audit was popular with the customers it served. Hagler Bailly's survey showed that consumers wanted the information the audit gave them. But when customers were asked what they were doing with their new knowledge, the answer was disappointing.

The survey asked nearly 950 people what they were doing with the auditor's suggestions. Auditors had suggested a total of more than 2,700 conservation measures in their 950 homes, from setback thermostats and weatherstripping

to attic insulation and window replacement. Of these, participants reported having installed 445 measures, following just over 16% of the recommendations. If some people installed more than one measure, far less than 16% of participants installed any measures at all.

Many of the energy-saving measures installed were attributable to added hand-holding or financial assistance, and some others would have been installed with or without the audit. Of the measures installed, utility demand side management (DSM) programs or low-income assistance programs contributed money or assistance to 120. That left 325 measures installed entirely by the participants. These participants, when asked if they would have done the same work even without the audit and related services, answered "yes" for 142 of the measures. Therefore, only 183 measures were installed because customers received an energy audit. Thus, slightly less than 7% of the over 2,700 recommended measures were installed entirely because of the audit program.

Based on the survey (not on monitoring of individual residences), Hagler Bailly concluded that by installing only 16% of the recommended measures (and tending to install the cheaper measures), customers had realized only 10% of potential energy savings from the audit recommendations. This works out to average savings per customer of 4 million Btu per year. For gas customers,

this equals about 40 therms, or about \$33 per year in energy cost savings.

What was happening?

During the phone interview, respondents could recall only 40% of the measures recommended, which suggested that the number of installed measures they could recall was low as well. (However, in past surveys, Hagler Bailly had found that respondents were usually accurate when reporting the number of measures installed.) Surveyors asked what was the main reason for not implementing recommended measures. Of the measures that participants could recall, 28% were seen as "too expensive" and 23% as "not necessary." Fourteen percent were left undone because participants "were too busy," and 10% were vetoed by a landlord.

Predictably, it was the higher-cost measures, such as heating system work, windows, and attic insulation, that respondents tended to consider too expensive. Lower-cost measures, such as insulating pipes and installing clock thermostats, were more often called unnecessary, perhaps because the savings were not enticing enough. Of 263 recommendations to insulate pipes, 83 respondents had done the work (32%). There were 441 recommendations to install clock thermostats, and 69 respondents had installed them (16%). The lower the income level, the more that cost was a barrier. At higher income levels, time and inclination stood in the way.

There was some better news about do-it-yourselfers. Of those participants who purchased their own materials and installed the measures themselves, almost half said they would not have taken those steps had it not been for the audit.

Hidden Benefits

Part of the evaluation involved looking for the less tangible benefits of the program. Specifically, the survey asked whether going through the audit influenced customers to conserve energy in ways other than installing the recommended measures.

A total of 85% said they now "understand what actions to take to save energy in my home" because of the audit (see Figure 1). Also, 70% attributed their new ability to install do-it-yourself measures to the audit, and 49%

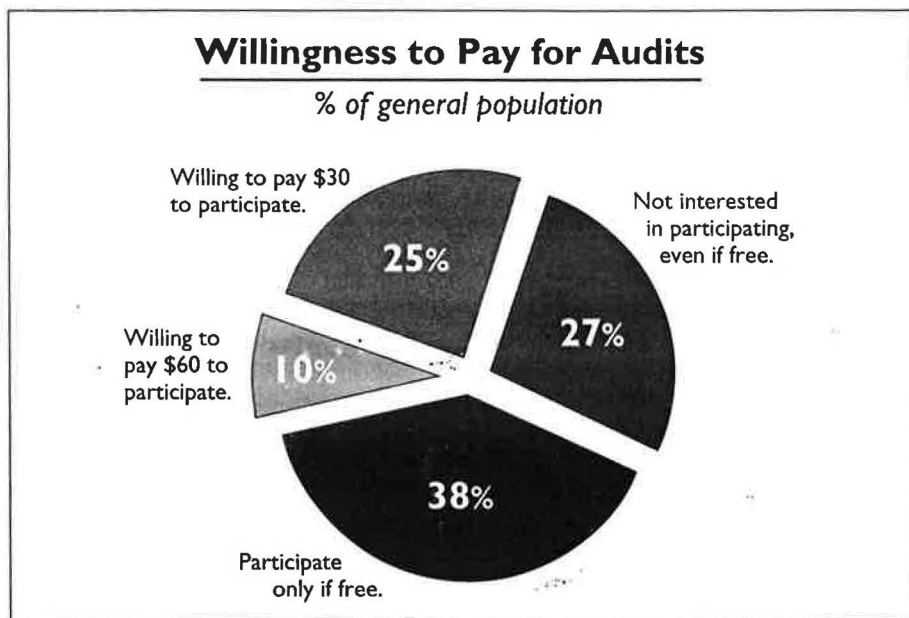


Figure 4. A minority of consumers would be willing to start paying for audits. And very few will pay a significant portion of the \$160 cost.

felt confident talking to contractors or landlords about energy saving measures due to the audit.

However, when asked about specific energy-saving actions they have taken, a large majority said that they would have taken those actions with or without the audit. Only 20% of respondents who turn down their thermostats at night, for example, do so now because of the audit. Of those who repair leaky hot-water faucets, 13% were influenced by the audit. The greatest influence was on those who lowered their water heater thermostats, with 55% attributing this action to the audit.

Ultimately, intangible benefits are hard to pin down. Hagler Bailly noted that the high number of participants who accompanied their auditors through the audit, as well as the high regard that participants had for the auditors and for the audit itself, point to some success in increasing consumer interest in energy conservation.

When asked about several other specific benefits they may have realized due to the audit, 89% of participants cited their own personal satisfaction with helping to conserve energy, and 88% felt they had helped the environment (see Figure 2). Lower energy bills and increased comfort in the winter—likely due to improvements made as part of the audit—were mentioned by well over

60%. It is odd that so many homeowners felt they had helped conserve energy, when only 16% of the recommended measures were installed. Hagler Bailly, recognizing this mystery, wrote, "The benefits... regarding increased comfort, lower energy bills and increased home value should be interpreted with caution... However, the survey results suggest that participants 'perceive' these benefits to be real."

How to Audit the Next Generation

Finally, after determining what the audit had and had not done for audited consumers in Massachusetts, the committee needed to know the general population's opinion on audits. Do people want them or need them? If so, what form should they take, how much should they cost, and how should they be delivered?

Hagler Bailly found that among the state's general population, opinions mirrored those of the previously audited customers. The general public shared the same barriers to implementing potential energy-saving measures: little money, little time, and incomplete ownership.

Between 42% and 55% of the population would be likely to use energy efficiency services, such as how-to infor-

mation, energy efficiency mortgages, and customized audits. Twenty-seven percent would be very likely to participate in a customized audit. In a state with 2.5 million households, this works out to 675,000 homes.

Respondents were then presented with seven possible outlets or delivery methods for audit information, and asked which ones they would be likely to use (see Figure 3). Retail stores came in at the top and in-home delivery was next, followed by phone, radio/TV, libraries, videos, and computers.

When asked who they thought should be responsible for providing these services, more than 50% pointed to utilities. State agencies were chosen as the preferred providers by 19% and fuel oil companies by 11%. Another 20% believed that independent energy service companies should be responsible. (Now that restructuring is under way, competition and advertising will increase. So may consumer awareness of these companies.)

Finally, the survey asked what price the customer would pay (see Figure 4). Of the general population, 35% were willing to pay at least \$30 for an energy audit; 10% would pay as much as \$60. Perhaps more significant, people who were audited already were even more enthusiastic. Fifty percent of them would have paid \$30 for the service; 14% would have paid \$60. Over 50% of all respondents were open to a surcharge on their bills to cover some portion of the cost of the program. This group would be willing to pay at least \$1 per month for the program. Current surcharges in the state vary from 15¢ to 35¢ per month on residential utility bills. Audits cost about \$160 per household, so for ratepayers to cover the cost of an audit in every home every ten years (assuming no inflation), they would have to pay more than \$1.30 per month.

About 60% of Massachusetts homes have never been audited, and there appears to be a market for this service. As the electricity market changes, the audits will change. Hopefully, even more effective audits will be developed in the future.

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