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The Use of Energy Labels in Two European Countries

Since the energy crisis of the 1970s, and especially since the 1990s, when climate change and energy consumption became strongly linked, North America and Western Europe have focused on saving energy in the building sector. In the United States, the EPA Energy Star appliance and new-home labeling programs have been a success. And the Residential Energy Services Network (RESNET) just signed an agreement with its Canadian counterpart (CRESNET) that will lead to a common Home Energy Rating System (HERS) for North America.

In Belgium, an experiment took place in the fall of 2004. Selected volunteer households chose to have energy assessments done. The homes received labels rating energy efficiency in several areas, and the homeowners were given advice for improvements.

A mandatory energy-labeling program for buildings has been an important part of Danish energy-saving policy since 1997. Since the beginning of 2006, a similar program has been mandatory for all European Union (EU) countries. In the Danish program, all houses are labeled before they are sold, and recommendations are made for improvements in the energy performance of the building.

Two Countries, Two Approaches, Two Responses

We did a study of the two approaches, based on ten interviews in Belgium and ten in Denmark. Interviewees represented a variety of home types and of occupants. We worked out a common interview guide, with questions focused on attitudes toward the energy experts and on what does or does not motivate people to make changes in their homes.

The SEREC study (Sociotechnical Factors Influencing Residential Energy Consumption) is a two-year project of the Institute of Demography of the

University of Louvain (UCL), the Flemish Institute for Technological Research (Vito), and the Danish Building Research Institute (SBI). The Belgian Science Policy Office financed this project in 2004–2005. Engineers from Vito did energy assessments for 40 volunteer households, and 10 of these households were interviewed for our study. The assessments resulted in labels ranging from A+ to E (best to worst) in the categories of building envelope, heating, and domestic hot water.

Denmark's energy-labeling scheme consists of three main ratings for electricity, heat, and water consumption as well as a rating for environmental impact in the form of a figure for CO₂ emissions. The final rating for energy consumption per square meter is referred to as category A, B, or C, and there are five levels under each category, so that A1 represents the best category and C5 the worst.

Our study is not without limitations. Ten interviews in each country is too small a sample to be statistically accurate, especially given that we were comparing countries. And there may be bias involved in comparing a voluntary and a mandatory program. But in spite of these limitations, we hope that the qualitative information that the study provides will help both Europeans and North American home performance professionals to understand what motivates people to spend money on saving energy at home.

Trust

Not surprisingly, the Belgian interviewees, who volunteered for the energy assessments, trusted the energy experts more than did the Danish interviewees. Many Belgian volunteers followed the different stages of the assessment very closely. In the mandatory Danish system, where a

home is labeled before it is sold, the homeowner has no personal contact with the energy expert. This caused the Danish interviewees to feel less trust in the people who conducted the survey. The personal contact with the energy expert makes a big difference.

The technical level of the information provided by the experts may be too complicated or too simple for homeowners. In Belgium, the advisors explain the results orally after taking the measurements and doing the calculations for the label. Homeowners can also read the report, which is given to them the same day. In general, the Belgian interviewees found the oral explanations easier to understand than the written report. In Denmark, on the other hand, some of the interviewees gained no new information from their home's label.

Implementing the Recommendations

In Belgium, the 10 households we interviewed expressed a high level of trust in the energy experts, but only 11% of all the proposed measures had been implemented one year after the assessment. In Denmark, our interviews showed a similar reluctance to act on renovation recommendations. One Danish man was very concerned about the look of his beautiful old house, which is badly insulated and has single-glazed windows and doors. The owner wants badly to reduce his heating costs. He doesn't, however, want new double-glazed windows and doors because he thinks they look ugly.

We found through our interviews in both countries that, if the advice is in keeping with the household's plans for the house, the advice may be followed; if not, it probably won't be. A young Danish couple, for example, bought a small, cheaply built house in order to rebuild it based on their own ideas and over a long period of time. They totally ignored the energy-saving measures recommended in the labeling scheme.

The lack of detailed instructions can also prevent a recommendation from being acted on. Several of the Belgian interviewees were given

recommendations on insulation that were not carried through. We believe that this was because practical knowledge on this topic is almost nonexistent in Belgium and so is the social support for insulating one's house, probably because houses in Belgium are insulated less often than houses in other European countries.

Time pressure may either boost energy-saving renovation work or prevent it. This was clearly the case for an ecologically minded Belgian woman who had just completely renovated her house using natural materials wherever possible. The house had not, however, been insulated, and she rejected the recommendation that she do so because it would involve more time, inconvenience, and "dust." On the other hand, lack of time may be a strong motivator for having all renovations done from the start. One Danish family realized that they needed a new, bigger, and more practical house because they were expecting twins.

In the Danish system, only the measures with a positive return on investment are recommended. In the Belgian assessment, homeowners were provided with the payback time for each recommendation. But investment and payback time was only one consideration among many for the Belgian and Danish homeowners whom we interviewed. One young Belgian couple planned to sell their home after a few years; they wanted to make sure only that their home met the current code, and they limited their investment to replacing broken equipment. Another Belgian couple viewed their house as their home and wanted to make long-term improvements. This same couple had a strong ecological conscience and wanted to protect the environment.

Overall, we found that the few pieces of advice that were implemented were implemented as the result of a unique combination of variables. These variables included aesthetics and taste, convenience and comfort, social support, prior intention, and time or money pressure. The combination of variables appears to have been unique for each of our 20 interviewees.

Finding the Key

Our research did not lead us to conclude that energy labels on buildings are a bad idea. Labels should be seen as one piece of information among others that increase the homeowners' knowledge about their house, and about its possible renovation. We do recommend that labeling program administrators tone down the focus on payback time and focus instead on the cost of investment and on possible energy savings, to let people judge for themselves what renovations are worth undertaking.

The Belgian experience suggests that a labeling system where the expert comes to the house after the new owners have bought it may be preferable to the Danish labeling system, where the future owner gets the information before buying. Buying a house is different from buying appliances, and the Danish interviews show that people do not use the labels to decide which house to buy. Rather, they use the labels to decide what to do with the house once they have bought it.



Labeling

—Kirsten Gram-Hanssen and
Françoise Bartiaux

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For more information:

The full SEREC report, Bartiaux F., G. Vekemans, K. Gram-Hanssen, D. Maes, M. Cantaert, B. Spies, J. Desmedt, 2006, *Socio-technical factors influencing Residential Energy Consumption, SEREC, Final Report*, published by the Belgian Science Policy Office, Brussels, 222 p., is available at www.belspo.be/belspo/home/publ/pub_ostc/CPen/rappCP52_en.pdf.