

A Randomized Intervention Field Experiment to Reduce Home Energy Use

Greg Walton (PI), Scott Klemmer (PI), Dave Paunesku (RA)

Residential energy waste comprises a major portion of world energy use. Compared to similar efforts at large institutions, efforts to mitigate home energy waste face unique challenges:

- Weak economic incentives: Monthly electricity bills seem inexpensive to many consumers especially when compared to the capital needed to buy energy-saving appliances.
- Inadequate information for wise decision-making: Energy bills do not provide enough detail for consumers to connect specific behaviors to energy expenditures.

Behavioral science suggests several psychological factors that could overcome these factors and help consumers reduce home energy use. This project aims to test the power of these factors to motivate behavior change through a novel blend of information technology and social psychology.

Participating homes will be given access to a web-based energy feedback panel. This panel will use smart meters to provide consumers enough information about their energy use that they can connect specific behaviors to their energy expenditures in real time. The study will vary two key dimensions of the energy feedback panel to test the effects of these dimensions on consumers' motivation to take advantage of the energy feedback and reduce their energy consumption.

The first factor involves sociality. Research shows that people are more motivated for a task when it is a collective one—when they think of themselves as working toward a common goal with supportive others. In one condition, the energy feedback panel will frame energy reduction as a collective goal with people in their community working in different ways to save energy. In the other condition, the energy feedback panel will frame energy reduction as an individual goal. We expect the social condition will result in greater energy savings.

The second factor involves goal-setting. Research shows that people are more apt to change behavior when they have set specific, short-goals for themselves. In one condition, consumers will be encouraged to set specific energy-saving goals for themselves. In the other, they will not. We expect that goal-setting will produce greater energy savings. In addition, the two factors may interact. For instance, the condition where people set specific personal goals and think of themselves as pursuing a common objective with others may produce the greatest energy savings.

With the explosion of information technology, consumers have access to far more information about their energy use today than in the past. Yet little is known about the most effective ways of presenting consumers this information to motivate behavior change. The proposed, theory-based interventions test the impact of key psychological processes on energy use and savings.