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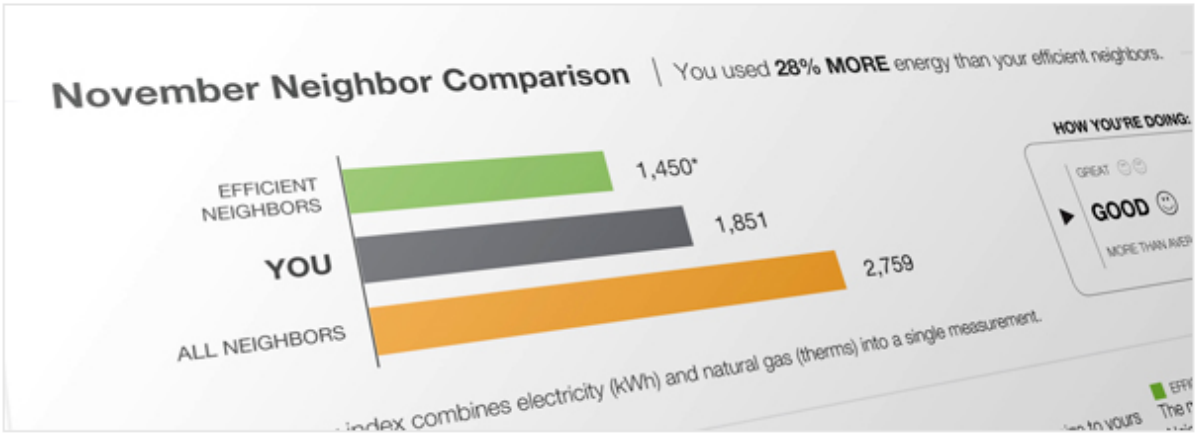
Energy Use: Neighbor vs. Neighbor

In a new take on keeping up with the Joneses, startup Opower is partnering with utilities and applying behavioral psychology to energy conservation



By Ellen Gibson

Would you be tempted to buy a Toyota Prius if your neighbor drove one? A growing body of evidence suggests people are more likely to behave in environmentally friendly ways when they see the people around them doing so. Alex Laskey and Daniel Yates, co-founders of software startup Opower, wanted to see if this theory could be applied to household energy use, where there was almost no visibility into consumption.

In the past 18 months, Arlington (Va.)-based Opower has partnered with 21 utilities to incorporate neighbor comparisons into gas and electric bills. Based on the success of pilot programs in Sacramento and Washington state's Puget Sound area, Opower just added two high-profile clients to its roster in October: National Grid of Waltham, Mass., and Seattle City Light. About 1 million households currently receive the reports, which show them how much energy they are using vs. similar households in their neighborhood. (To establish "comparable neighbors," Opower looks at the square footage of the home, its type of heating system, whether there's a swimming pool, and so on.)

The result: Customers in the program have reduced annual energy usage by an average of 2.8%, or the equivalent of 280 kilowatt-hours per year. In its test with the Sacramento Municipal Utility District, the effect has been biggest in households that were the biggest energy hogs pre-Opower: They've reduced consumption by more than 6% on average.

"The Next Wave of Savings"

Opower's business plan is modeled on the work of psychologist Robert Cialdini, whose textbook *Influence: The Psychology of Persuasion* is a staple of college marketing courses. Most recently

Cialdini ran studies in Arizona hotels to see if, using small placards, he could get guests to reuse their towels instead of having them washed daily. Posting signs that said reusing towels is good for the environment had a small impact on behavior. But when he changed the message to say that the majority of hotel guests reuse their towels, the number of people who did so went up 30%. (This is not just a boon for the environment, Cialdini says. The savings on labor, hot water, and detergent amounts to about 71¢ per room daily.) Cialdini, who is Opower's chief scientist, explains the phenomenon this way: "Simple information about what constitutes a good choice is rapidly, almost primitively, processed."

This interest in consumer psychology is a new paradigm for utilities, which for years were run by engineers and, says Laskey, "without regard to customers." Tim Stout, vice-president of energy efficiency at National Grid, admits that most of the company's efforts toward conservation have been tied to infrastructure and hardware—the installation of insulation or weatherization, rebates for more efficient equipment. "When we look at the remaining potential for efficiency," Stout says, "changing consumer behavior is the next wave of savings that needs to be tapped."

Privately held Opower, which was originally named Positive Energy, was founded by longtime friends Yates (who previously founded educational software company Edusoft, which he sold to Houghton Mifflin Harcourt Publishing) and Laskey (who had been running political campaigns). The two raised $1.5 million in seed capital and then $15 million from venture capitalists last fall. The business is now self-sustaining, they say, with 60 employees.

New Behavior vs. New Devices

Opower isn't the only company exploring this territory. In California, Pacific Gas & Electric (PCG) is rolling out millions of GE SmartMeters, which enable two-way communication between the customer and the utility. The devices are supposed to empower customers to manage their consumption and to prevent power outages, though customers have complained about inaccurate readings. General Electric (GE) is also field-testing these meters with other big utilities, including Exelon (EXC) and American Electric Power (AEP).

Another techie-devised solution that has been on display at green-tech conventions is the home energy-monitoring "dashboard," offered by companies like Agilewaves and Google (GOOG), which provides real-time consumption data. But in Laskey's view, these devices overestimate how much consumers care. "Customers don't want to become energy-efficiency experts," says Laskey, Opower's president. "They just want to be more efficient."

What's in it for the utilities? It helps them meet regulations on energy usage and lower peak demand in supply-constrained areas like California. Stout notes that two of the states National Grid serves, New York and New Hampshire, have executive orders to reduce their carbon footprint. By reducing consumption, utilities can also avoid investments on new power plants and transmission lines. And, says Stout, "It's the best way we have to establish [mutually beneficial] relationships with our customers."

Preventing the Takeback Effect

Partnering with Opower costs utilities $10 per customer a year. That works out to a cost of about 3¢ per kilowatt hour saved. Replacing a washing machine with an Energy Star appliance costs about 21¢ per kilowatt hour saved.

Of course, there may be drawbacks to an approach that relies on behavior change. Ian Ayres, a lawyer, economist, and regular contributor to the Freakonomics blog says: "If the theory is that people just want to conform, you would expect that people who find out they're using less energy than the average person might start using more." This is what's known as the "takeback effect" in behavioral psychology. In a 2008 report, economist Lucas Davis, who was then at the University of Michigan, found that Energy Star appliances give people a license to be wasteful, making them more likely, for example, to throw a single item in the wash.

To prevent households that were already energy misers from moving up toward the mean, Opower came up with a low-tech solution. First, it added a line to the report comparing each household to its "efficient neighbors." Second, Opower added a smiley face alongside a good score. The thinking: People don't want to just save energy; they want to be acknowledged for their efforts.

Marketing Lessons

Another concern is that consumers would become blasé after a while and revert to old habits. But Ayres, who has examined data from the pilot programs independently, says he's detected no sign of a backslide so far. In fact, in Puget Sound, where Ayres had access to daily consumption data, the most dramatic improvements came on Sundays, suggesting that much of these savings are behavioral and not the result of permanent measures like, say, replacing the windows.

This nonetheless worries Todd Starnes, manager of residential energy efficiency at Puget Sound Energy. As a regulated utility, the company has to be able to quantify savings to its overseers. "When someone has installed a new furnace, we know we are going to get X savings and we'll get them for the next 30 years," he says. "With behavior modification, what we don't know yet is whether they'll continue to save or revert back. This is what our regulators keep asking us."

Opower is still in its infancy, but its success in applying behavior research holds lessons for marketers. A recent study in Beijing found that merely labeling menu items as a restaurant's "most popular" immediately bumped up demand for them by 20%. What marketers should avoid, says Cialdini, is a mistake that's made all the time in public-health messaging—highlighting the size of the problem. While well intentioned, pointing out, for instance, the pervasiveness of teen drinking often normalizes that kind of behavior. "The idea," he says, "is to marginalize the undesirable behavior."

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