



Opower

Leveraging Social Norms to Reduce Household Energy Use

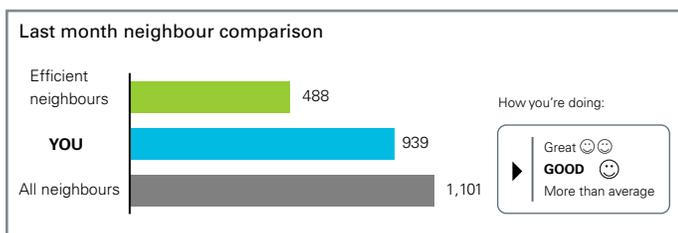
Challenge

Fossil fuel emissions reductions are critical in the fight against climate change. The energy sector has a particularly high carbon footprint, with energy consumption generating 73% of global greenhouse gas emissions.¹ Households represent about 21% of this consumption, and in the US, 63% of the electricity generated to power these homes comes from fossil fuels.² Therefore, households have a significant opportunity to lower their energy consumption, and in turn, reduce emissions.

Many states have enacted environmental policies and energy use standards to regulate their energy industries and lower consumption. In some cases, states reward energy companies that meet their standards with grants and penalize companies with fines for failing to meet the standards. This means that increases in household consumption require energy companies to either build more power plants or pay fines for over-consumption. In response, Opower launched to help energy companies reduce household energy consumption.

Targeted Behavior

Individual households reduce energy consumption.



Example of Opower's Home Energy Report

Behavioral Solution

Opower uses principles from behavioral science, paired with data analytics powered by Cloudera, to design customized energy reports to consumers that result in real behavior change outcomes.

Opower leverages the power of social influences by comparing people to their neighbors. The Home Energy Report (HER) compares consumers' current energy usage with that of similarly-sized households and highlights their most "efficient neighbors." Opower works with utility companies to generate and distribute these reports to consumers on an ongoing monthly or bi-monthly basis. Additionally, the HER shows households how much energy and money they would have saved if they had consumed at the same level as their neighbors.

The HER uses three categories to show consumers how they are doing compared to others: great (open mouth smiley), good (normal smiley face) or more than average (no smiley). Since 2007, over 17 million American households have received an HER report.³

Results

- Households receiving HER's have saved about 11 billion kilowatts of energy since 2007. By comparison, just 1 billion kilowatts are enough to power stadiums for 40,000 World Cup soccer matches.
- On average, the HER saves consumers 1.5%- 2.5% on their energy bills in the first two years.
- Cumulatively, HER's have driven \$2 billion in customer savings.

The Science: Why Social Influences are Effective

Opower uses social influences by [making the desired behavior the perceived norm](#). Humans tend to follow others and do not like deviating from the norm. Research has shown that people may try to copy behaviors from those they admire, signaling that they are part of the “in group.”⁴ People care about what others think and are likely to conform to the “rules” of what is acceptable behavior in their society. These informal rules of are often called social norms.

Making a norm prominent and visible leads people to be more likely to conform.⁵ Social norms can include both descriptive norm information (what people are doing), as well as injunctive norm information (what others expect you to do).⁶ In the case of Opower’s HERs, comparing consumers’ energy use to that of their neighbors conveys the descriptive norm, while the smiley faces convey the injunctive norm, demonstrating the socially “approved” behavior (conserving energy).⁷ Opower introduced the smiley faces to address the “boomerang effect” where customers who were told they were consuming less than others suddenly started consuming more once they saw that the norm was to consume more energy.⁸ The smiley faces counter this effect by adding feedback on whether consumers are doing the socially *right* thing. Those who receive a grinning smiley face are signaled to keep it up and those who don’t are shown that they are missing the mark.

Further research supports this idea that social influences can be utilized to reduce energy consumption. Studies suggest that observability, which is whether others can observe your actions, has an impact on energy usage behavior. In one study conducted with a California utility company, all residents of an apartment complex were told that the complex was starting a program to encourage people to reduce energy during peak times. The utility company informed residents that they could enroll in the program using public signup sheets, which were hung near the shared mailboxes. To study observability, one group remained anonymous by signing up with an assigned code, while the other “observable” group had to provide their name and unit number. The researchers found that residents in the observability condition were nearly three times as likely to sign up for the energy reduction program as residents in the anonymous condition.⁹ Just the fact that that people would see their name on the signup sheet made a big difference and motivated more people to join. This body of work demonstrates that harnessing social influences can be a powerful tool for shifting consumer behavior and can greatly enhance environmental efforts.

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