

Energy use feedback key to unlocking savings, if used wisely

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Using feedback that incorporates goals or incentives and leverages new media and technology appears to be the best way to get people to cut back on their energy use, according to researchers who analyzed dozens of studies on feedback's effectiveness in energy conservation. The research appears in the journal *Psychological Bulletin*, which is published by the American Psychological Association.

"Feedback technologies have become increasingly pervasive in our society, and we know more about how much [energy](#) we use than ever before. As this personalized energy information grows, there is an urgency to ensure that these technologies are used to their full potential," said lead author Beth Karlin, PhD, of the University of California, Irvine. "Although there is much research addressing whether [feedback](#) works, there has been little research into the more nuanced questions of how it works."

Researchers analyzed 42 studies published between 1976 and 2010 that involved a total of 256,536 participants. This meta-analysis reinforced previous findings that feedback is effective in producing energy savings but results varied significantly from study to study so researchers broke down each study's moderating factors (i.e., feedback methods, length of feedback, etc.) to help figure out which types of feedback are most effective.

Results showed that the studies with the least engaging feedback, like summarizing energy usage on a utility bill, were the least effective, while

something more engaging, like home computer software that details energy use in real time, was the most effective in conserving energy use, according to the article.

Having consumers set goals for energy use and giving them feedback on their progress is effective, Karlin said. For example, electric companies that let households set a monthly electricity goal in dollars, kilowatt-hours or [carbon dioxide emissions](#) and then allow them to see how well they're meeting their goals over time are best at getting consumers to lower their electricity use.

The analysis also found that presenting feedback in terms of energy used or potential money saved may not be enough to get people to conserve. A small number of studies did suggest that a combination of feedback with external incentives, like cost savings, could be effective, but there was not enough research to help the researchers understand its effectiveness. "This is a highly promising finding that should be explored further through additional study," Karlin said.

Interestingly, giving feedback on how someone's energy use compares to his or her neighbors, also known as the social comparison method, is not as effective when compared to some other methods, such as allowing consumers to set personal energy use goals.

This is particularly relevant in California where some water companies are using the social comparison method in an effort to drive down water use, according to Karlin.

"One reason that so many companies employ energy reports with social comparisons is that they have been validated in large randomized control trials. However, these results only validate that such reports work better than a control group that receives no report at all. This does not necessarily mean that they are the most effective way of engaging

consumers to save energy. If we want to realize the full potential of feedback, we have to aim for better than 'better than nothing,'" she said.

More information: "The Effects of Feedback on Energy Conservation: A Meta-Analysis," by Beth Karlin, PhD, and Joanne F. Zinger, PhD, University of California, Irvine; Rebecca Ford, PhD, University of Otago, *Psychological Bulletin*, published online Sept. 21, 2015.

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