

A Review of Energy Reduction Competitions: What Have We Learned?¹

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Competition is found in all societies, and it is found in many areas of society: for example, biology and ecology, economics, business, politics, sports, education, and lotteries. Not surprisingly, competition has become an increasingly popular strategy to engage individuals in energy and resource conservation; however, there has not been an objective, independent review of existing competition programs focusing on the reduction of energy use. This report attempts to address this shortcoming.

This report reviews a representative selection of completed and ongoing energy reduction competitions and uses the lessons learned to provide best practice guidance on the design, implementation, and evaluation of future programs. We address four key research questions:

- How effective have been competitions at changing behavior and reducing energy?
- How long do energy savings persist after the end of the competition?
- Under what circumstances are competitions more or less effective?
- What are common best practices for the design, implementation and evaluation of energy and resource conservation competitions?

The primary target audiences for this report are electric and natural gas utilities seeking to broaden their portfolio of behavior-based interventions, as well as potential designers, implementers and evaluators of energy reduction competitions. Our intention is to improve the effectiveness of competitions and to suggest when competition may or may not be an effective strategy to save energy over the long term. Many of the lessons from this report should also be relevant to students, practitioners and policymakers seeking to engage individuals and groups in energy and resource conservation.

¹ This paper was prepared for the California Institute for Energy and Environment and the California Public Utilities Commission. The report is available at: <http://uc-ciece.org/behavior-decision-making/1/lbrsearch>.

Findings

1. Based on our review of the competitions in this report, we believe that competitions have been effective at changing behavior and reducing energy use, although we don't know how long the energy savings or practices (habits) will persist.
2. The competition programs used different channels to communicate with participants. All programs had websites, which were a central, or even primary means of communicating with participants. Almost all programs also used some form of e-mail communication with participants, in-person communication strategies, informational flyers or poster, events, newsletters and social media. While communication channels are instrumental in the competitions, the behavior change strategies appeared to be more critical in ensuring successful outcomes
3. The most common behavior change strategies were local messengers, comparative feedback, social diffusion, competition, imagery, financial incentives and rewards, descriptive norms, commitments and goal setting.
4. Because the competitions used different metrics and designs, mostly without any experimental design, it is difficult to identify the most effective competitions or even the best practices for the design and implementation of these competitions. But we provide some general lessons learned as well as specific lessons learned about behavior change strategies and by program type.

Conclusions

For competitions to be effective, it is imperative that resources are committed for the long term, so that a competition program can endure. By keeping a program stable in the community for several years, one is able to build critical relationships, trust and consistency in program delivery, leading to enhanced program credibility and program accomplishments. At the same time, resources need to be committed for the design and implementation of rigorous evaluations of competitions. As federal, regional, state and local governments and non-profits move towards aggressively pursuing energy savings, we expect that more energy reduction competitions will be needed to provide these additional energy resources. We hope that this report can stimulate more thinking about competitions as well as more funding for the design, implementation and evaluation of energy reduction competitions.