Given the relevance of promoting behavior change to reduce energy consumption, several strands of research have aimed to identify factors that affect energy behaviors and interventions that effectively reduce energy consumption. For example, Abrahamse et al. (2007) used a combination of tailored information about energy use and tailored feedback, in addition to setting an energy-saving goal, to promote direct and indirect energy-saving behaviors and high levels of knowledge regarding energy use. Direct energy-saving behaviors were classified as reducing fuel, gas, and electricity consumption, while indirect behaviors referred to producing, distributing, and disposing goods. After a five-month intervention, the authors found that households in the experimental group reduced their direct energy use by 5.1% and had higher levels of knowledge about energy conservation compared to the control group, which used 0.7% more energy since the beginning of the intervention. No difference between groups was found in indirect behaviors.

**Camfield et al. (2017) study**

Receiving feedback about one’s energy use is important in identifying potential actions to reduce energy consumption. However, it is crucial to understand how consumers use the information provided with their energy bill and whether they are able to translate an energy-saving goal into an action plan. Canfield et al. (2017) specifically studied this problem by running an experiment in which participants were shown hypothetical electricity bills with information related to a household’s historical electricity use, electricity use in relation to their neighbors, and historical electricity use by appliances. Participants were randomly assigned to one of three formats of information representation (i.e., tables, bar graphs, and icon graphs) and were asked questions regarding their energy literacy.

Canfield et al. (2017) showed that tables were the easiest format to understand for consumers when evaluating every type of information related to energy use. Across types of information, historical electricity use elicited the highest intentions and preferences for energy savings regardless of format. Additionally, participants with high energy literacy had a better understanding of energy-related information across all types of information representations. By disentangling the effects of content, format, and individual differences in energy literacy on understanding, preferences, and intentions, Canfield et al. (2017) demonstrated that easy-to-implement communication strategies in energy bills can lead to energy-saving behaviors.

Building on this study, we aimed to test...

Larrick et al. (2015) proposed four principles to facilitate understanding of energy use and educate consumers to promote more informed energy-related decisions. The four principles were abbreviated as CORE: Consumption, objectives, relative, and expansion. First, consumption refers to showing energy use information in consumption terms (e.g., miles per gallon) rather than efficiency terms (e.g., gallons per mile). Second, objectives point to the translation of energy-related information to information that is personally important to the consumers, such as cost minimization or environmental impact reduction. Third, the word relative alludes to the presentation of consumers’ energy use in ways they can easily compare with other reference points, such as other products or consumers. Finally, expand means using expanded scales (e.g., cost of an appliance per 10 years) rather than contracted scales (e.g., cost of the same appliance per day) to reveal cost differences in more meaningful units (e.g., hundreds of dollars instead of cents).

**Email from Hayden Barber about the source of the average utility use data**

Hi all,

Good to hear from you!

I believe that the data was from EIA, perhaps sourced from Statista. I did a bit of quick googling and searching through my notes and can’t find the exact link used for the figures. For the exact citation, you’d want to dig through their data sets to find the year that matches these figures.

 One thing to note is that it might not be a data set from the year in which we conducted the study (2018; wow! Time flies, I can’t believe that was 6 years ago) but probably from a slightly earlier year like 2016 or 2017 which would have been what was available at the time.

 Best,

Hayden

EIA (Energy Information Administration). 2011. International Energy Statistics. Accessed February 12, 2014. http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=90&pid= 44&aid=8 EIA (Energy Information Administration). 2012. U.S. Energy-Related Carbon Dioxide Emissions. Accessed June 10, 2014. http://www.eia.gov/environment/emissions/carbon/

[58] EIA, Residential Energy Consumption Survey (RECS), (2015).

Canfield

To curb the risks of climate change, the Intergovernmental Panel on Climate Change (IPCC 2014) posits that global carbon dioxide emissions from the energy supply sector must be reduced to 90% below 2010 levels between 2040 and 2070. In 2011, the US produced 17% of all carbon dioxide (CO2) emissions worldwide (EIA 2011),

with approximately 14% of that coming from US residential energy consumption alone (EIA 2012). It has been estimated that residential energy consumption could be reduced by approximately 20% in 10 years through energy efficiency and conservation strategies (Dietz et al. 2009; Pacala and Socolow 2004). Unfortunately, consumers face several barriers to saving electricity, including a lack of understanding about which behaviors use the most or the least electricity (Attari et al. 2010; Gardner and Stern 2008; Owens and Driffill 2008).

1. To provide households with feedback about their appliance-specific electricity use, homes may need to be instrumented with appliance-level meters. Lower cost options include estimating appliance use based on consumer-provided information (e.g. Residential Energy Consumption Survey, www.eia.gov/consumption/residential), which may not be as accurate.

california 498 site:www.eia.gov

https://www.eia.gov/state/seds/seds-data-complete.php?sid=US

https://www.eia.gov/consumption/residential/data/2015/

<https://www.eia.gov/consumption/residential/data/2009/>

<https://www.eia.gov/naturalgas/annual/pdf/nga18.pdf>

<https://www.eia.gov/consumption/residential/reports/2009/state_briefs/pdf/ca.pdf>

https://www.eia.gov/state/seds/seds-data-complete.php?sid=US#Consumption

<https://www.eia.gov/state/seds/sep_use/res/pdf/use_res_TX.pdf>

https://www.eia.gov/survey/#eia-457

https://www.eia.gov/state/seds/

<https://www.eia.gov/consumption/residential/data/2009/>

https://www.eia.gov/consumption/residential/data/2015/

https://www.eia.gov/consumption/residential/reports.php

https://www.eia.gov/state/seds/

https://www.eia.gov/state/seds/sep\_use/total/pdf/use\_CA.pdf

A sheet of a graph

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https://www.perplexity.ai/search/trying-to-find-out-the-appropr-gL0JsKSXQ0yJUcb7oW38Mw

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Canfield, C., Bruine de Bruin, W., & Wong-Parodi, G. (2017). Perceptions of electricity-use communications: Effects of information, format, and individual differences. *Journal of Risk Research*, *20*(9), 1132–1153. https://doi.org/10.1080/13669877.2015.1121909

Larrick, R. P., Soll, J. B., & Keeney, R. L. (2015). Designing better energy metrics for consumers. *Behavioral Science & Policy*, *1*(1), 63–75. https://doi.org/10.1353/bsp.2015.0005