

# ICEP 2021

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The combined effect of  
social norms in promoting  
energy conservation

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# Research background

- Social nudges can be more cost-effective than market-based regulatory instruments (*Allcott and Mullainathan, 2010, and Benartzi et al., 2017*)

For example, Allcott (2011a), shows that non price interventions could decrease energy consumption by 2%. Several other studies show a decrease in energy consumption within the range of 2%-4%.

Yet, existing work on nudges has exclusively evaluated their effectiveness in isolation. Thus, there is little empirical evidence exploring the effectiveness of nudges within the broader context of multiple instruments and objectives.

# Research background

Few examples include:

- Bonan et al., (2020): Descriptive and injunctive feedback when used in combination increase energy conservation.
- Brandon et al., (2019): Both HER+PER when used in isolation reduce peak load electricity consumption. On the other hand, when used in combination almost double their impact on energy conservation.
- Sudarshan, (2017): Households that were provided with only HER reduced consumption, while households that were provided with both price incentives and peer comparison increased consumption relative to the peer comparisons alone treatment group.

# Research outline

In this study, we explore whether nudges succumb to crowd out effects.

More specifically, we test:

- Does HER increase its impact when used in combination with different energy-saving tips?
- Does the provision of different types of energy-saving tips on a regular basis create habituation, dishabituation or habit formation?

# Research design

First, we use energy consumption data on an hourly basis, from a Swedish company (1,100 households).

For the first 4 months the sample splits between:

- control group - receive nothing
- HER group 1 - receive normal HER that include energy saving tips
- HER group 2 – receive normal HER without energy saving tips

After the first 4 months and for the next four months the sample splits between:

Split control group – Super control and control 1

- Super control – receive nothing
- Control 1 – receive energy saving tips on a frequent basis
- HER group 2 – receive normal HER along with energy saving tips on a frequent basis

# Research design

- HERs will be send out on a bi-weekly basis via e-mail in html format
- Saving tips will be sent to consumers on a more frequent basis in an effort for habit formation
- Saving tips are classified in three categories:
  1. Daily consumption
  2. Upgrading house electric appliances
  3. Improving house's energy performance

39 different tips have been identified and the list is being expanding

# Research design - HER

## Three Different ranking modes



Your rank: 1st out of 20 similar neighbors



Your rank: 10th out of 20 similar neighbors



Your rank: 18th out of 20 similar neighbors



Smart services for more sustainable energy usage  
Svårdvägen 3A, 182 33 Danderyd, Sweden  
[www.checkwatt.se](http://www.checkwatt.se)

Home Energy  
Report

Here's how you compare to neighbors



\* Your "Average Neighbors" consist of randomly selected households with common features as yours.  
\* Your "Efficient Neighbors" consist of 20% of the outperformed average neighbors.

Your rank: 18th out of 20 similar neighbors

Great

Good

Moderate

100% more energy than your efficient neighbors

### Is saving energy important to you?

For more than 80% of our customers saving energy is an important value. Even little deeds can have a large impact. Discover our tips to consume less and better.

### Useful tips for maximum savings



#### Dishwasher

Select an energy-efficient dishwasher (category A+, A++ or A+++). The replacement of a class B energy-efficient dishwasher with a class A+ energy-efficient leads to energy savings of up to 21%.



#### Local Heating

To cover the needs of the local heating, prefer inverter air conditioners, which for the same performance it consumes the one-third of the electricity compared to electric heaters.



#### Electric water heater

Choose the capacity of your electric water heater based on your needs. Set the water temperature around 40 - 50 °C and make sure that the electric water heater has reinforced insulation.



#### Light bulbs - Lighting

Choose high energy-efficient light bulbs (class A+, A+ or A++). The replacement of a class B energy-efficient light bulb with a class A+ energy-efficient light bulb leads to energy savings of up to 70%.



#### Electric Cooking Stove

Choose a class A energy-efficient oven. Replacing a class C energy-efficient electric stove with a class A energy-efficient leads to an energy saving of 27%.

You can receive personalized tips by visiting [this link](#).

### 50€ wasted

In the last 6 months, you consumed more compared to your most efficient neighbors.

### 110€ wasted

In the last 12 months, you consumed more compared to your most efficient neighbors.

# Policy objectives and next actions

- If nudges are susceptible to crowd out effects, then earlier studies may overstate the effect of nudges

## Next actions:

1. Informational material to be defined by end of October
2. Define the size of the different groups for having experimental power
3. Disseminate informational material in mid-November
4. Provide results by the end of 2022.



# References

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4. Bonan, J., Cattaneo, C., d'Adda, G. and Tavoni, M., 2020. *The interaction of descriptive and injunctive social norms in promoting energy conservation*. Nature Energy, 5(11), pp.900-909.
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