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The effect of information nudges on energy saving: Observations from a randomized field experiment in Finland

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Study objectives and background

- **The aim of this study is to examine whether**
  - Energy saving tips,
  - Online energy service platform providing electricity consumption information and peer comparisons (i.e. social norm)

  influence household electricity consumption
- **The effectiveness is examined with a randomized field experiment**
- **Information was administered via monthly e-mail newsletters and an online energy service platform**
- **Study area: Porvoo, Finland**

Study contribution

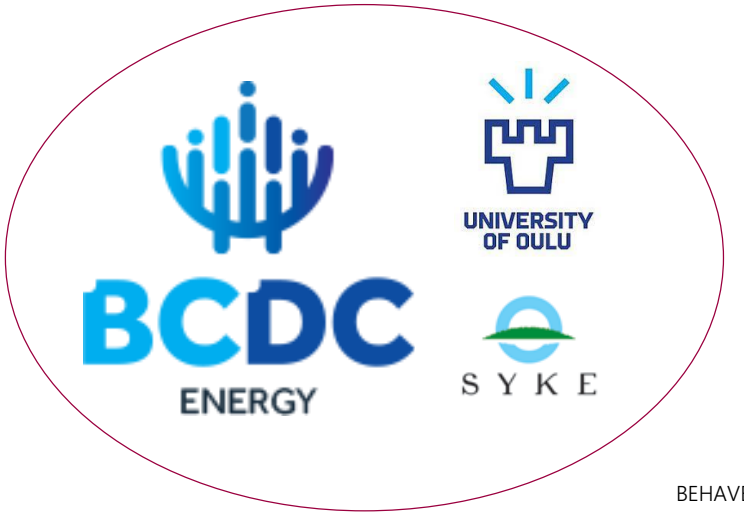
- **Successful experiments have shown the potential of information steering to induce electricity saving (see e.g., Allcott 2011, Aydin et al. 2018) → Still, evidence on the impacts of general energy saving tips is mixed (Buckley 2020)**
- **We lack knowledge on the topic in the distinct Nordic climate conditions with high seasonal variation in the energy consumption (see study from Kažukauskas et al. 2020 for Sweden)**
    - No randomized field experiments on information nudges on energy use have been conducted in Finland before
- **This study allows for analyzing the effect of information nudges between users and non-users of an online energy service platform**

Experiment design

Randomized field experiment requires collaboration

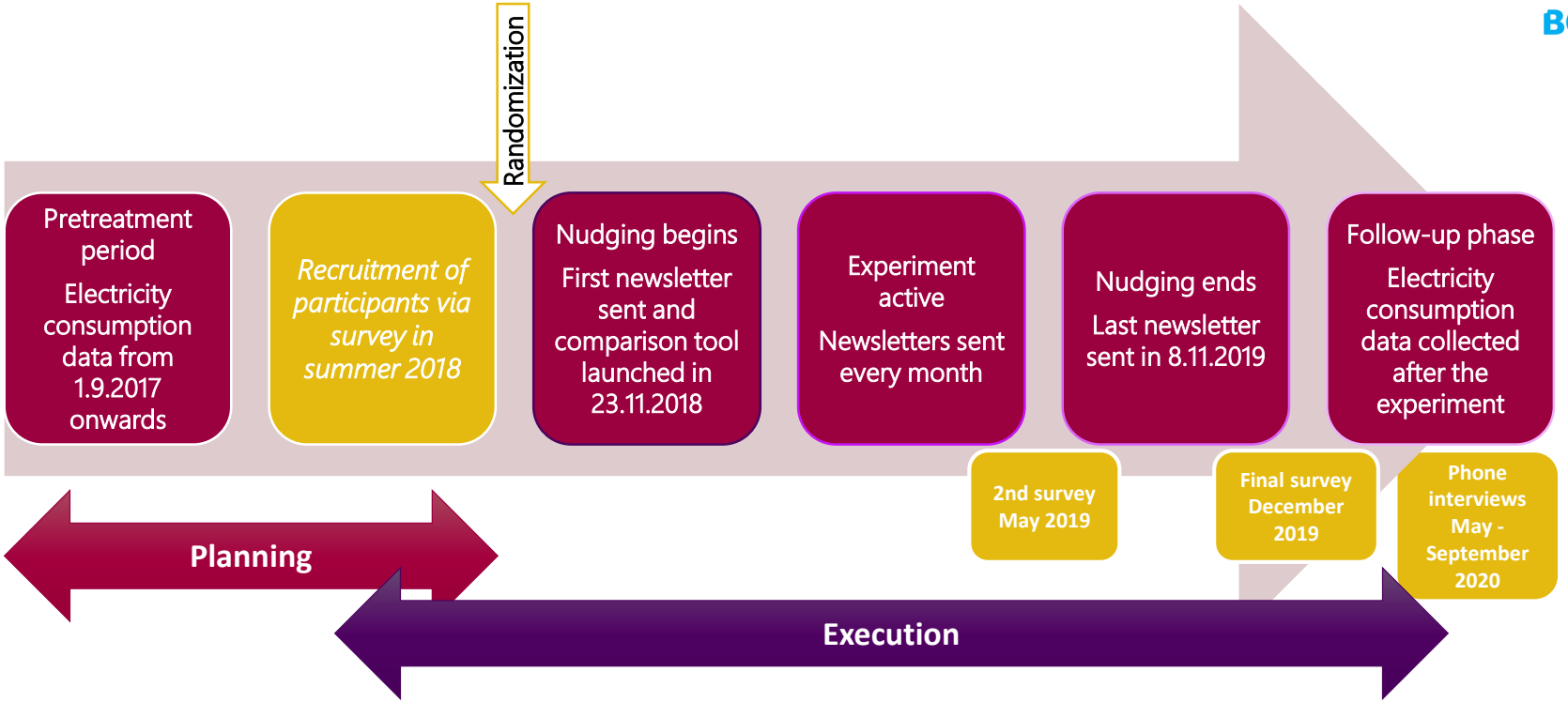
PORVOON ENERGIA
BORGÅ ENERGI

energy authority

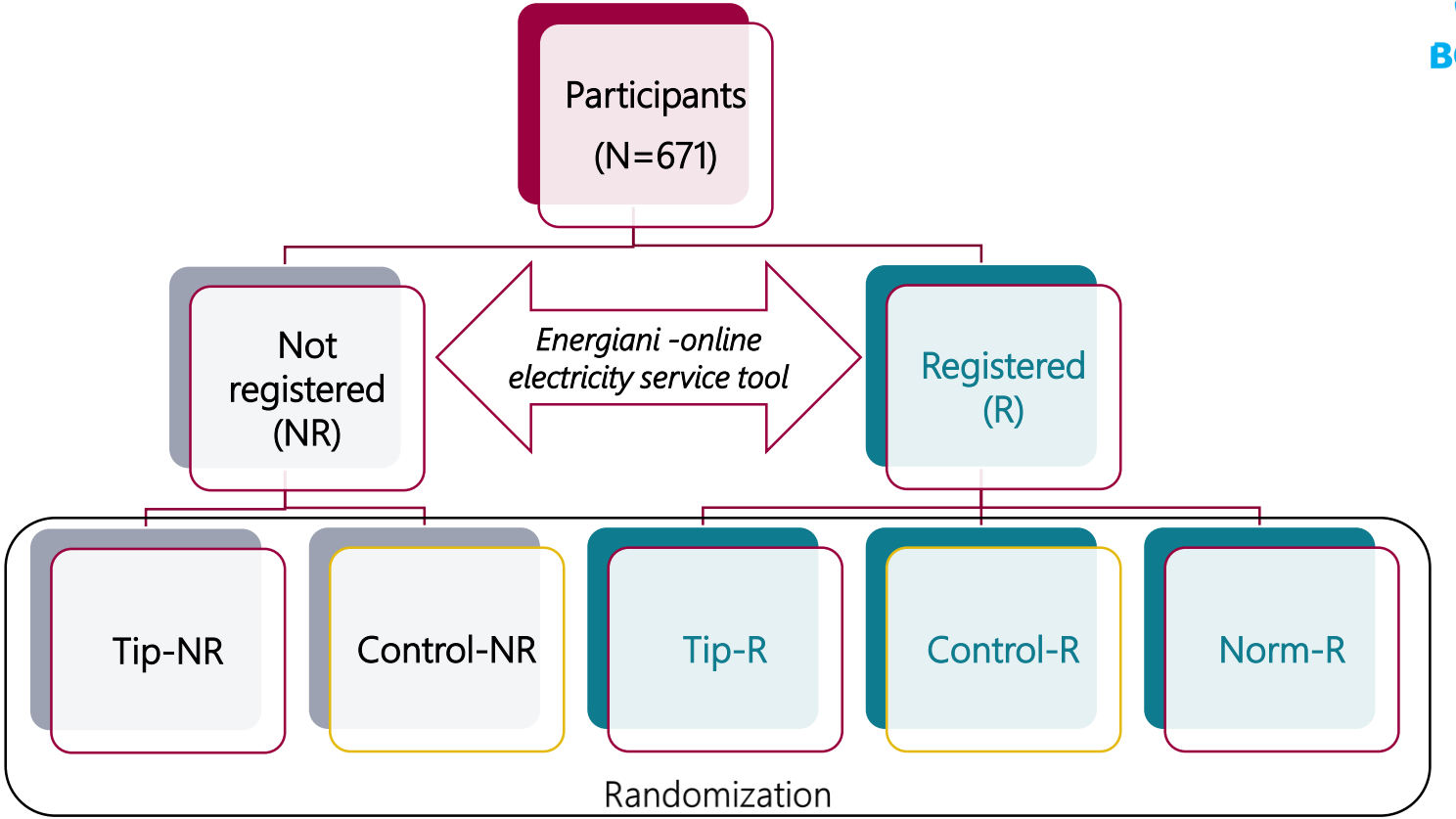


Motiva

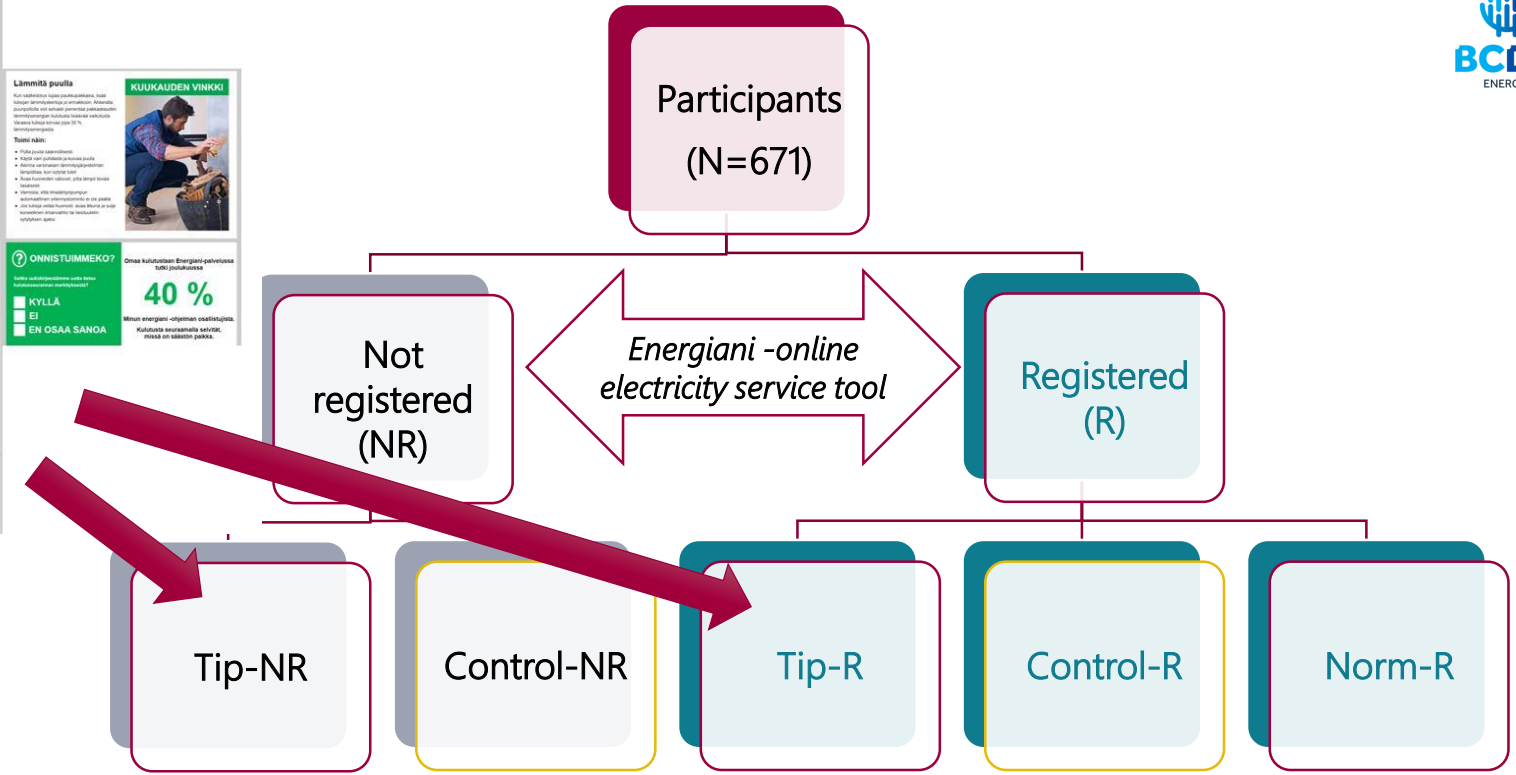
Experiment timeline



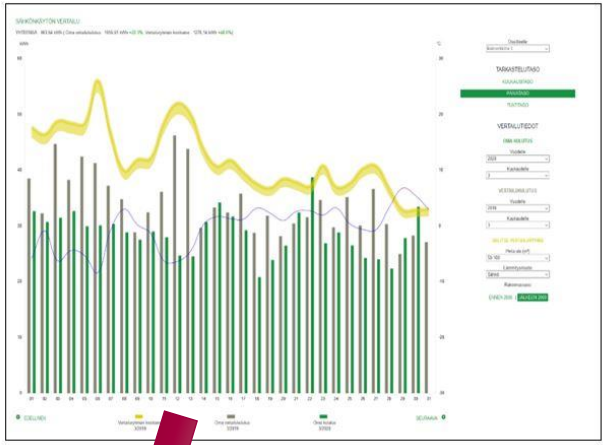
Experiment design



Tip-NR and Tip-R Informational newsletters – Example (1/2019)



Norm-R: Comparison tool in the online energy service platform



+ reduced informational newsletter

Participants (N=671)

Not registered (NR)

Energiani -online electricity service tool

Registered (R)

Tip-NR

Control-NR

Tip-R

Control-R

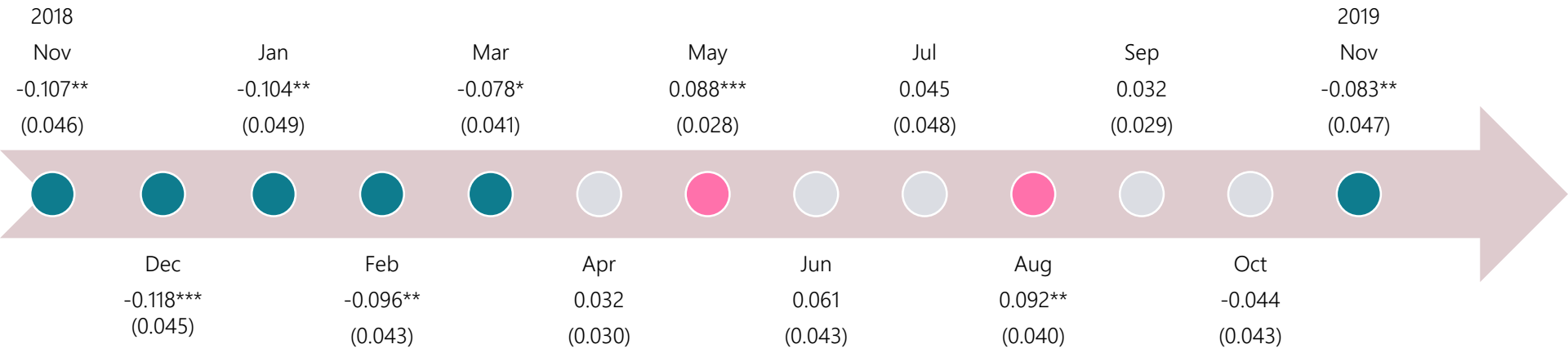
Norm-R

Do energy saving tips and/or peer comparisons reduce electricity consumption?

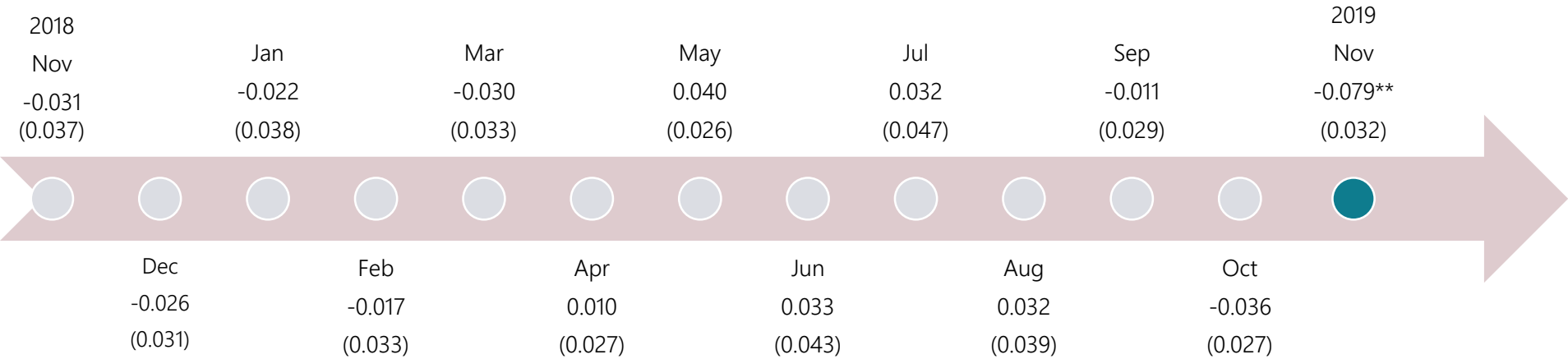
Results (whole year)

	Dependent variable: ln(daily electricity consumption)		
Nudge/treatment	Tip-NR	Tip-R	Norm-R
Average treatment effect (s.e.)	0.013 (0.021)	-0.015 (0.019)	-0.005 (0.016)
Controls			
Household characteristics (hh size, income, education, language, work)	✓	✓	✓
Home characteristics (house type, owner-occupied, floor area, energy use level, house age, location, heating system)	✓	✓	✓
Weather (temperature, rainfall)	✓	✓	✓
Adjusted R^2	0.72	0.75	0.79

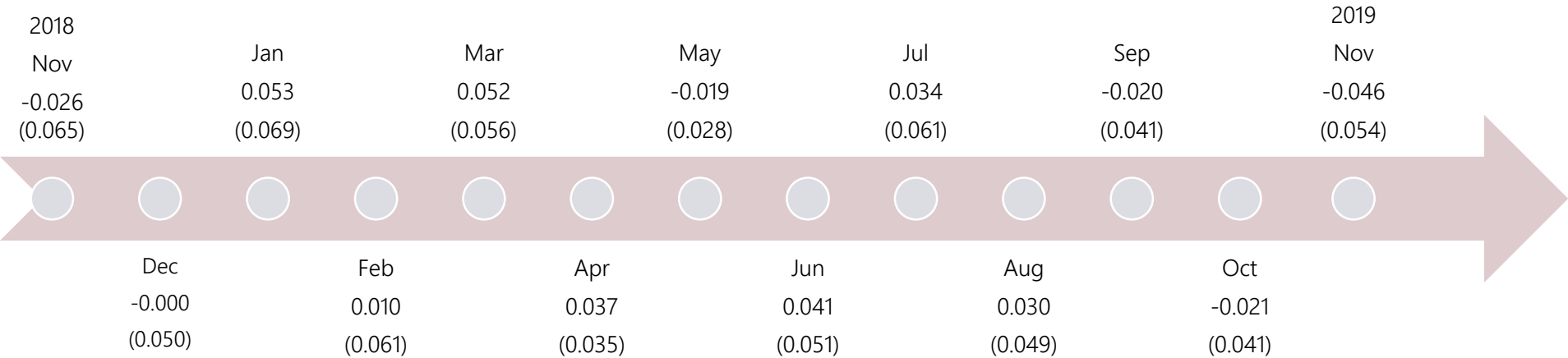
Monthly results: Tip-R



Monthly results: Norm-R



Monthly results: Tip-NR

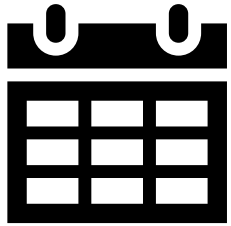


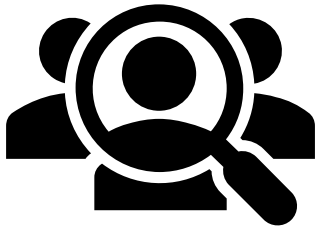
Main findings

- **Detailed energy saving tips decreased household electricity consumption between 8% and 12% among registered households in wintertime**
- **Some weak evidence that social norm combined with detailed energy saving tips decreased consumption**
- **Unregistered group did not respond to the nudges**
    - Activity to read the newsletter was lower among the unregistered group during the whole experiment period

Recommendations for energy advice

- Timing as well as content matter → High consumption season and detailed/tailored energy saving tips increase the effectiveness of monthly energy advice
- Targeting seems to be important → People who are more interested in energy issues respond better
- E-mail can be a cost-efficient and well perceived way to deliver energy advice





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