



Breakout session #2.1

Citizens' electricity consumption and its drivers

Research presentation from ENABLE.EU

Madeline Werthschulte, University of Münster



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement number 727524.

What drives citizens' energy consumption?

- Implement energy saving policies in four countries

→ Which energy saving policies affect energy consumption and to what extent?


Bulgaria

Germany

Serbia

United Kingdom

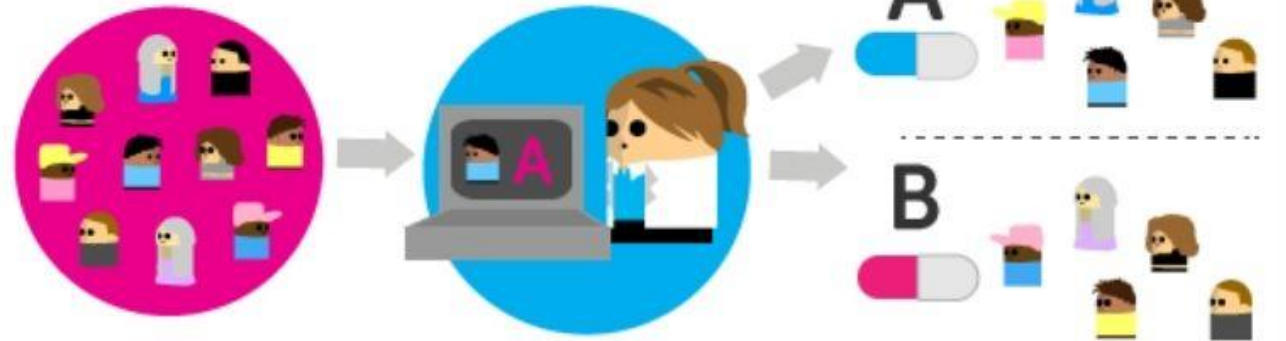
Randomized controlled trials

 **Fundamental problem:** How much energy would have been consumed without policy?

Solution: Randomized controlled trials

- Randomize participants in control and treatment group
- Because of randomization: Control group is a valid comparison group!

HOW RANDOMISATION WORKS



Source: Cancer Research UK

Bulgaria

Serbia

Germany

United
Kingdom

Bulgaria

Serbia

Germany

United
Kingdom

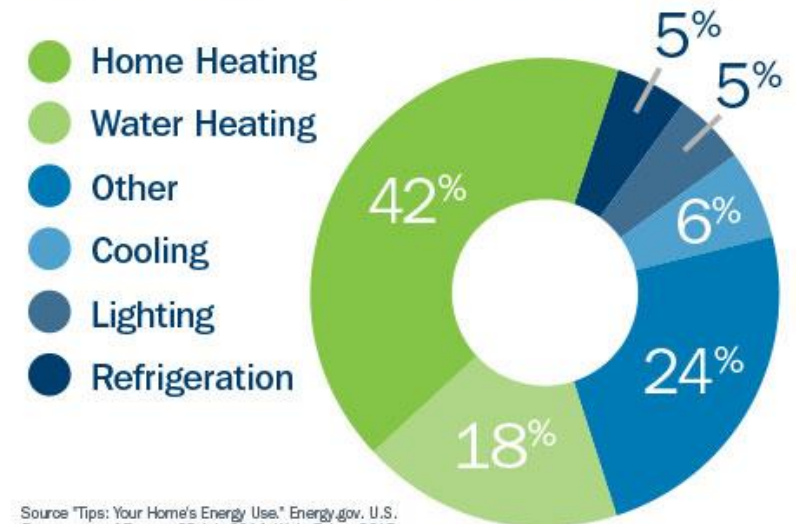


Households are **not aware** of the energy consumed by each appliance

→ What is the **effect of energy cost break-downs** on energy consumption?

- Study with 400+ participants
- Participants report electricity bill and appliance usage
- Treatment group: Cost break-downs by appliance

How Your Utility Bill Breaks Down



Source "Tips: Your Home's Energy Use." Energy.gov, U.S. Department of Energy, 28 July 2014, Web, 5 Jan. 2015.
<<http://energy.gov/energysaver/articles/tips-your-homes-energy-use>>.

Bulgaria

Germany

Serbia

United
Kingdom

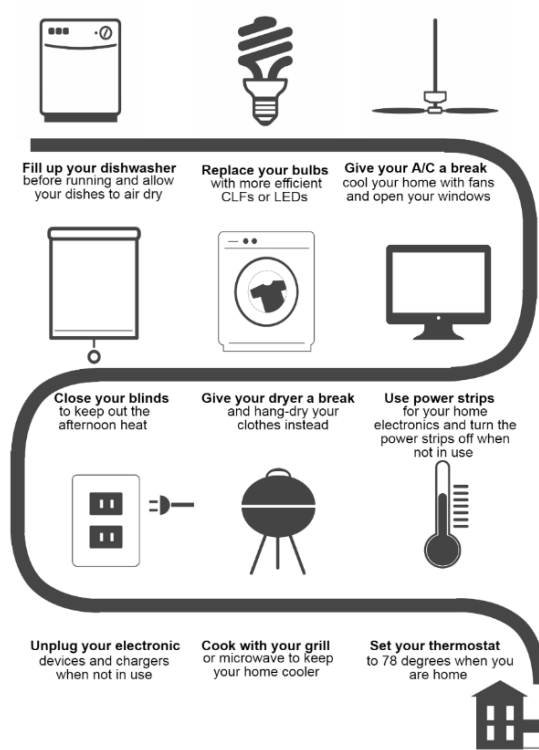


Low level of knowledge on energy saving measures

→ What is the **effect of energy saving instructions** on energy consumption?

- Study with 330 participants
- EPS field operators record monthly energy consumption
- Treatment group: Receive energy saving instructions

WAYS TO SAVE ENERGY SUMMER EDITION



Fill up your dishwasher before running and allow your dishes to air dry

Replace your bulbs with more efficient CFLs or LEDs

Give your A/C a break cool your home with fans and open your windows

Close your blinds to keep out the afternoon heat

Give your dryer a break and hang-dry your clothes instead

Use power strips for your home electronics and turn the power strips off when not in use

Unplug your electronic devices and chargers when not in use

Cook with your grill or microwave to keep your home cooler

Set your thermostat to 78 degrees when you are home

SOUTHERN CALIFORNIA EDISON

For more energy saving tips: sce.com/summer

Bulgaria

Serbia

Germany

United
Kingdom

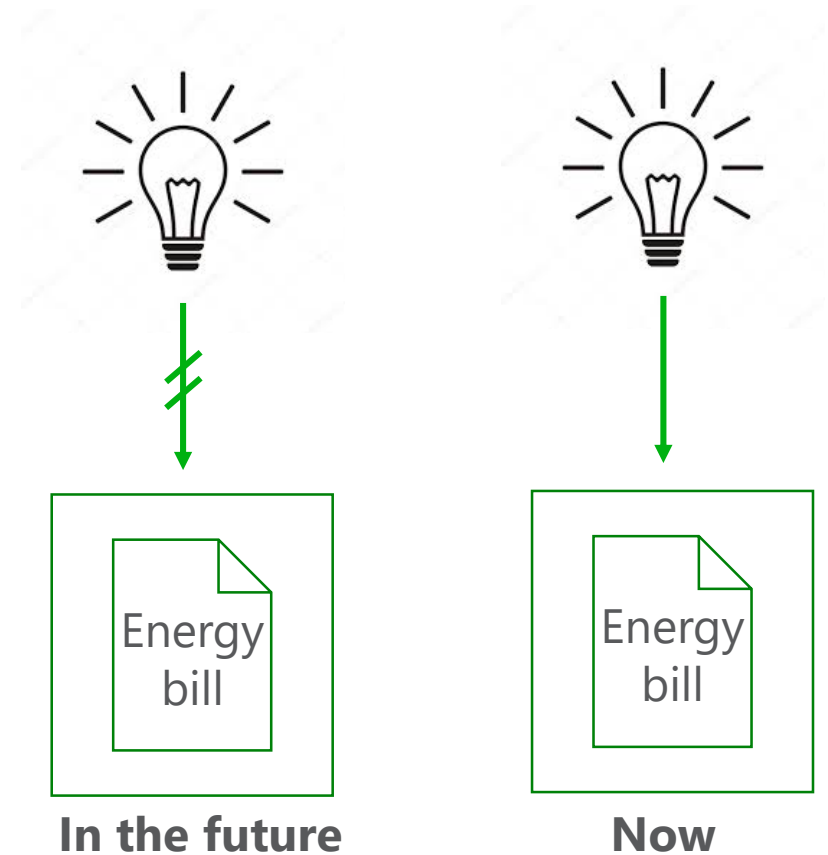
Do we care too little about our energy costs?

 Lag between consumption and payment of energy:

Energy bills are less salient

→ Do we **care less about our energy cost** because we pay in the future?

- Study with 170+ participants
- Participants do tasks + can buy electricity
- Treatment group: Receive bill immediately after consumption → **Higher saliency of costs!**



Bulgaria

Serbia

Germany

United
Kingdom

What is the demanded subsidy for smart meters?



Consumer resistance to smart meter rollout

→ What is the **subsidy level households demand** to adopt smart meters?

- Study with 270+ participants
- Ask for the **minimum amount to be paid** to install a smart meter
- Smart meter is installed if amount smaller than researcher's offer



What can we learn?

1. Neither cost-breaks downs nor energy saving instructions reduce consumption
2. Possible reasons: High share of energy poverty or very low energy prices
3. Energy bill is less important to us because we pay in the future
4. We will need to give money to households to enable the smart meter rollout

What can we do?

1. Target specific appliances with feedback?
2. What is the interaction between energy saving instructions and energy prices?
3. How about changing the billing system? Prepaid metering?
4. In how far is the compensation for smart meter installation sensitive to information?
5. Could self-production reduce consumption?

Thank you

Madeline Werthschulte
werthschulte@uni-muenster.de

