



## FLEXIBLE CONSUMPTION – A CONSUMER PERSPECTIVE

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EcoGrid 2.0 is a research and demonstration project funded by EUDP (Energiteknologisk Udviklings- og Demonstrationsprogram).  
The 9 partners in the project are:





## Why adopt a ‘consumer perspective’?

- Flexibility is an articulation of a system need – *not* a consumer need
- What we study: how do consumers act with the smart grid equipment, and what preferences and interests may motivate them to delegate control to external parties?
- Consumers do not relate to flexibility, but instead use the equipment as means to reach their own goals





## Methods and data

- Fieldwork conducted during fall 2016
- 30+ semi-structured interviews
- 80 hours of observations in households
- Interviews were transcribed and coded
- The result, i.e. the five types of behaviour, are ‘ideal types’. They are ‘constructs’, and any household is likely to display more than one type of behaviour. These behavioural types should not be confused with people ‘out there’
- The mobilization across these five behavioural types may need rather different strategies

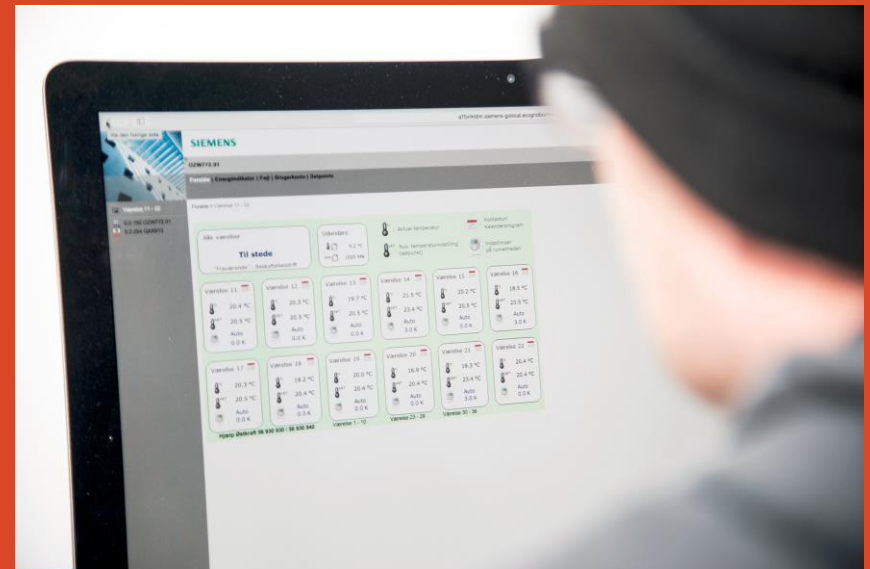




# Behavioral types

## 1. Fitting heat to routines

- The household's heating is adjusted carefully to routines and practices
- Characterized by skilful optimization
- Multiple heat sources, skilful use of functionalities, and possibly limited flexibility potential





# Behavioral types

## 2. Economizing routines

- Savings achieved through simple changes of practices ('rules of thumb')
- Willingness to allow external control
- Interest in savings *and* monitoring appliances/consumption.





## Behavioral types

### 3. Routinized behaviour

- Strongly routinized behaviour – by choice or lacking skills
- Characterized by opposition to change. Participation in EcoGrid is generally ignored
- Difficult to motivate, because of lacking motives. Often a strong opposition to (visible) external control



# Behavioral types



## 4. Experimental behaviour

- Small-scale experiments for the sake of learning about consumption
- Equipment is seen as ‘new toys’ facilitating learning about household practices
- Functionalities (e.g. in website) may be new incentives for participation – and eventually delegating control



# Behavioral types

## 5. Responsible behaviour

- Part of a wider attitude towards responsible behaviour, such as 'organic', 'local' or even 'seasonal'
- Characterized by 'missing' the relation between e.g. temperature intervals or flexibility and a energy system fuelled by renewables
- Ready to make compromises to achieve a 'green future'







# The role of EcoGrid-technicians

- We observed that things that consumers are expected to do are done by EcoGrid-technicians (and support staff)
- Technicians are defining temperature intervals
- Technicians are facilitating small training sessions
- Technicians and support staff are maintaining a 'social contract' between BEOF and consumers (their customers)
- Often technicians (and support staff) are involved in facilitating flexibility in the households





# Situating behaviour in the household

- Consumers always contextualize their answers about electricity- and energy consumption in relation to their own house (exception: responsible behaviour)
- Many consumers live in older houses where energy sources have evolved together with gradual renovations of their houses
- Consumers adjust energy- and electricity consumption to weather conditions: heat from east-facing windows, moving to covered patios, adjusting routines to wind
- Comparing consumption across households is difficult:
  - ”it is not comparable! I need a lot of parameters to compare. What are they using electricity for? Some have a holiday apartment – it takes a lot of electricity. Do they have the same number of square meters? And then they can have a woodburning stove and they can have a masonry stove!”



## General findings

- The consumers use the EcoGrid-equipment in different ways depending on the situation, interests and motives
- Many consumers have limited skills in using computers/navigating on webpages
- Many consumers have several energy sources – only a limited number is controlled by EcoGrid
- Some have a fundamental aversion against external intervention/control in their home: Fear of ‘loosing electricity’ or an intrusion in their private sphere
- Competent calculations of consumption. Such calculations are specific to the configuration of their specific household, comprising distinct energy sources and weather conditions (wind, trees, sun etc.)
- Many consumers still associate EcoGrid 2.0 with variable prices

# E C O G R I D

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