Smart use as the missing link in district energy development: a user-centered approach to system operation and management

Bosse Wikensten
CIT Energy Management AB
bosse.wikensten@cit.chalmers.se
070-57 27 888
SMART USE
the missing link
Background

• How can we motivate users to learn more and adjust habits? It needs to be easy and fun!

• Both electricity and district energy (heating)

• Need for a “Home Energy Management System” (HEMS).

• The HEMS will connect the heating, cooling and power appliances of a home to enable residents to achieve their everyday needs in a more efficient way.

• Focus of this project: to conceptually develop the user interface of the HEMS.

• Concept is very future oriented and visionary – but will have to be realistic enough to be tested and implemented in real life installations that are possible today.
HEMS, important features

• Scheduling Energy in Advance
• Reduction of Energy Use
• Reduction of Peak Demand
• Use of the Right Kind of Energy (electricity or district heating)
• Own Production (“prosumer”)

• Scenario: Large villa with home office, 2040

... and during the project, some key concepts/features were developed....
Key project concepts/features

- Personal Energy Threshold (PET)
- Status unit
- Activity Organizer

- Film: “Next generation Home Energy Management System”
Personal Energy Threshold (PET)

- For electricity as well as district heating
- Electricity:
  - Threshold related to Nordpool spot price
    - High price relates to high demand (and expensive fossil fuel production)
- District heating:
  - A user-defined value value (in this project)
PET
personal energy threshold
Status Unit

• Desire to simply indicate user coming close to or exceeding PET
• Like a clock or barometer, fitting into the home environment
• Not much information... only a trigger to check the Activity Organizer
• Prototype developed and installed in Samsoe, both in private homes and at “Energiakademiet” (the Energy Academy)
Samsoe feedback regarding the Status Unit

- There was a generally positive attitude towards the Status Unit.
- The Status Unit raised awareness and prompted discussions easily.
- The Status Unit did reduce energy, in one case, in the order of 3-9% savings.
- In the current limited prototype it is difficult to set a PET.
Activity Organizer

Focus on the future - open and inclusive platform

Digital user interface

• Organize and schedule energy in advance
  • Time of use
  • Type of use (electricity, district heating etc)
  • Set own Personal Energy Threshold
  • Group devices
• Applicable on various devices/screens
information that enables interaction
Read more about the project

- [http://www.boid.se/project/test-project/](http://www.boid.se/project/test-project/)

Welcome to contact:

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