SenterNovem

Smart Metering:
A driver for creating energy efficiency for households

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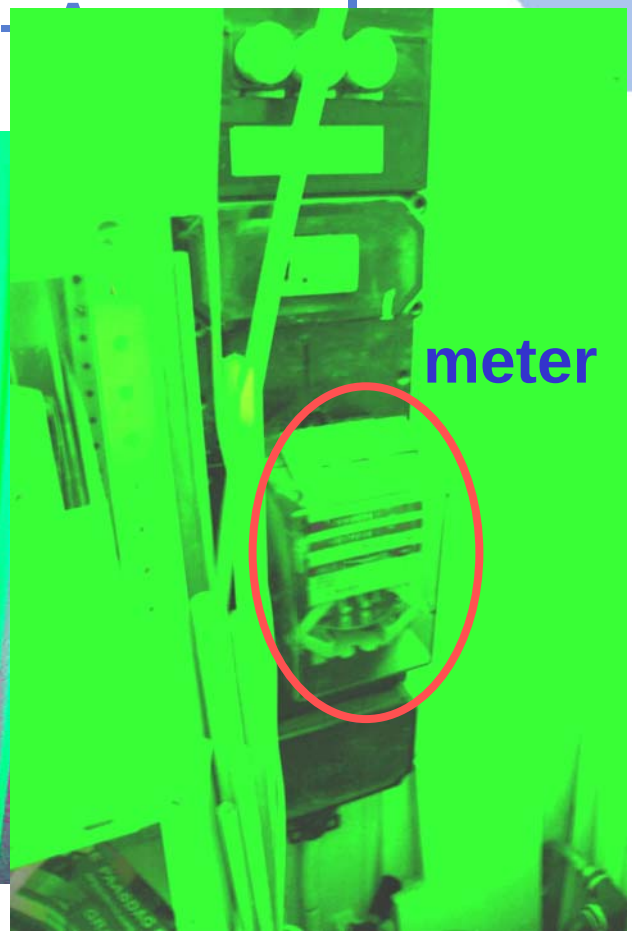
Smart Metering in the Netherlands – A blueprint for European roll-out?

Why smart meters for consumers? - A



Key questions

Is the consumer interested in a smart meter?

NO

Is the consumer interested in energy savings?

may be (increasing), yes

Is the consumer interested in saving money?

YES

Outline

- Relation with ESD
- Dutch meter market
- Feedback: smart meter as a driver for energy efficiency
- Feedback and energy savings
- ESMA project

Relation with Energy Service Directive

- Smart meters mandatory? Article 13(1) ESD:

Member States shall ensure that, in so far it is

–technically possible,

–financially reasonable and

–proportionate in relation to the potential energy savings

final customers … are provided with competitively priced individual meters that accurately reflect the final customer's actual energy consumption and that provide information onactual time of use.

- Relation with billing frequency (Article 13(2) ESD):

Billing on the basis of actual consumption shall be performed frequently enough to enable customers to regulate their own energy consumption.

Proposal in NL: 6 times per year.

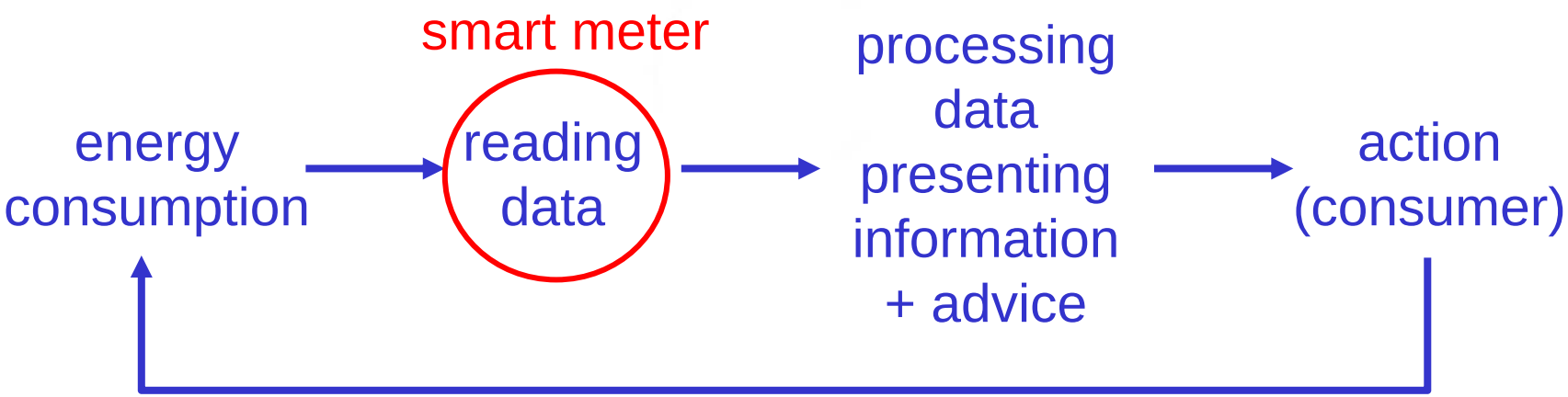
The Dutch meter market

- All small users in the Netherlands will be given a ‘smart’ meter;
- Grid operators will be responsible for roll-out;
- The cost of the physical meter will be regulated;
- Suppliers will be responsible for reading and processing metering data (the so-called suppliers’ model) and will select a recognised metering data company for implementation
- Roll out 2009-2014

Feedback and role of the smart meter

Feedback: information about the results of a process that can be used in modification of a process.

(adapted from Oxford English Dictionary)



Energy savings from feedback

- Smart meters as such do not save energy.
- Feedback (information) is needed to achieve savings.
- Questions:
  - How much savings?
  - Which type of information for which target group?
  - Long term effects?

Presenting information

- Information medium:
  - dedicated display,
  - paper (billing),
  - internet
- Type of information:
  - absolute: kWh, €
  - relative: compared to last month, last year, neighbour
  - advice
- Frequency
- Push versus pull (or: indirect versus direct)

One size fits all?

Different target group: different feedback

- *Lower* educated people:
  - focus on cost savings
  - do not like benchmarking with other consumers
  - focus on own energy use and previous period
  - want to receive feedback through text per email (no graphics).
- *Higher* educated people:
  - focus on cost *and* energy saving
  - focus on own energy use *and* like benchmarking with others
  - want to receive feedback through graphics and internet.

Energy savings from feedback (savings)

- Data on energy savings in practice is scarce, and:
  - People participating in experiments are not average consumers, they were motivated to participate.
  - Be careful when interpreting results from other countries; focus might have been on e.g. peak shaving.
  - Often results are only estimated and not measured.
  - Savings related to baseline or control group?
  - How long did the experiment run?
  - Results mixed with results of other instruments.
- Results vary between 0 % and + 10 %.
- Long term (several years) effects?

Energy savings from feedback (overview)

Type of feedback	Experiment	Savings	Related to
Product display	Display on washing machine, goal setting	20 % on electricity for washing	Baseline
Display with total energy use	Display in hall, comparative feedback	22 % electricity 9 % heating	Baseline
Teletext, internet	Feedback through smileys and goal setting	11 % electricity 25 % gas (heating) 15 % water	Control group
Pre-paid meter	Pre-paid meter and goal setting	4.7 % gas	Control group
Pre-paid meter	Pre-paid meter with display	11 %	Baseline
Energy bill	Monthly bill (actual consumption)	4 %	Control group
Energy bill	Bimonthly bill and historical data	10 %	Baseline

Energy savings from feedback (Dutch experiment)

- Target group: households with lower income (and thus lower electricity consumption: average 2900 kWh/year).
- Feedback: monthly bill based on actual prices for actual consumption.
- Information: quarterly information on energy saving possibilities (not tailored).
- Duration of the experiment: October 2002 – April 2003
- Results:
  - Consumers positive about new bill
  - Savings: 4 %

ESMA: European Smart Metering Alliance

- EU project set up to support harmonised implementation of smart meters.
- Goal: to establish and disseminate experiences and best practices (Application Guide).
- Participating countries: UK, Poland, Denmark, Netherlands, Finland, Portugal, Norway, Latvia, Czech Republic and Spain.
- Partly funded by EU
  (Intelligent Energy Europe programme)

- Open for all organisations involved in smart metering.
- More information: esma@beama.org.uk.

Thank you for your attention!

Any questions, remarks?