How do smart meters impact energy consumption of individuals and households?

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Summary of presentation

- Household energy consumption trends
- The behavioural challenge
- Policy framework
- The role of smart meters
- Conclusions
Energy consumption trends

Quality of housing stock

Behaviour of occupants

Number of appliances

- UK houses often have poor insulation
- Energy use is invisible and habitual
- Number of appliances has increased

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The behavioural challenge

- Intervention studies have looked at technical as well as behavioural measures
  - Information, advice, incentives, goal setting, commitment, feedback
- People are more likely to carry out energy efficiency behaviours under certain conditions:
  - Direct benefits
    - People value energy efficiency measures which have direct benefits
  - Visible measures
    - Energy use and savings must be visible and motivating
  - Personalised advice
    - Information is personalised and presented in a clear way
Why smart meters?

- EU Directive on Energy end-use efficiency and energy services
  - Article 13 Metering and informative billing of energy consumption:
    “...customers for electricity, natural gas, district heating and/or cooling and domestic hot water are provided with competitively priced individual meters that accurately reflect the final customer's actual energy consumption and that provide information on actual time of use.”
    i.e. “smart meter”

  - Communicates with the supplier and householder in real-time
  - Allows the provision of accurate bills
  - With an associated in-house display provides direct feedback on energy consumption
  - Enables innovation in new electricity and gas tariffs
UK smart meter trials

- **Energy Demand Research Project (EDRP)**
  - Trial of smart meters, display units and other forms of feedback
  - 40,000 households in 4 different project consortiums
  - £10 million funding from the Government, matched by similar amount from the industry
  - UK Government intends to roll out smart meters to households by 2020
  - In the mean time real-time displays are available free of charge to any household that requests one
  - Initial results do not show eligible energy savings, however, final results still to come out
  - Experience in other countries has shown different results
To answer your question...

- **What is the main policy issue(s) that need to be addressed when discussing smart ICTs for sustainable life-styles?**

- **Key issues to consider:**
  - Do we want to change people’s behaviour? If so, how do we ensure long-term behavioural change?
  - What type of technical innovations will work in terms of getting people to continuously engage with smart devices and change energy consumption?
  - Cultural settings are important
  - Addition of communications technologies to smart metering – perhaps we need to talk with the creator of an iPhone?
Thank you

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