Creating the Energy for Change

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Horizon Digital Economy Research
Horizon

- Established in 2009
- £40 million investment by Research Councils UK (RCUK), The University of Nottingham and 100+ academic and industrial partners
  - Research Hub (Horizon Digital Economy Research Institute)
  - Doctoral Training Centre
- RCUK Digital Economy programme
  - Future technological opportunities & challenges in:
    - Creative Industries
    - Transport
    - Energy
Creating the Energy for Change

- £1 million funding through RCUK Energy programme
- Research partners
  - University of Southampton
  - Centre for Sustainable Energy
- Advisory panel
  - Wilson Energy
  - Arup
  - Department of Energy and Climate Change
  - eSight
  - Siemens (Metering, Communications and Services)
  - ZEDFactory
- Demonstrators
  - Antenna, Nottingham
  - University of Cambridge Computer Lab
  - ALCE building on Innovation Park
Creating the Energy for Change

- Energy supply: 39%
- Business: 17%
- Industrial process: 25%
- Transport: 16%
- Domestic: 3%
Creating the Energy for Change

- Energy supply
- Business
- Industrial process
- Transport
- Domestic

16%
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- Roles of technology for transforming energy demand in the workplace
  1. Replacing: more efficient processes and equipment
  2. Managing: Building Management Systems
  3. Streamlining: automation

- Significant proportion of energy consumption (and waste) results from human behaviour
2.1 Groups

- Social Drinkers
- P.M.
- OB
- Infrastructure/Developers
- TFS
- CS
- MRL
- ME

- UG

- All occupants
- My side of the building
Employee Comparison

Friday, Jan 1 – Thursday, Jan 21
90th percentile: 195 kW
50th percentile: 450 kW

YOU: 330 kW

Hourly Usage profile for employee X

Where consumption is highest on a typical Thursday

Morning:
- Very High: 12
- High: 10

Afternoon:
- Very High: 10
- High: 9

Questions:
- What is it measuring?
- What's the group's responsibility?
- Comparison between people?
- Need a baseline:
  - Lights, fridge
- What's the basis for comparison?
- Kind of work, subjectivity?
- Energy use assumptions:
  - Map to devices

Note:
- Cleaner plugged hovers mat my desk?
- When would you do anything about it?
Creating the Energy for Change

• Technology can influence behaviour
  – Increase awareness of scale/implications of energy use
    • Communal feedback to support inter-group competitions
    • Personal feedback to enable streamlining and review
  – Increase ability to become involved in managing the workplace
    • Lobbying systems: creating attractive propositions
    • Staff as sensors: extension to building management systems
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- Commencing Q4 2012
- Engagement opportunities
  - Data collection (state of the art review: sustainability and staff)
  - Dissemination events (early access to outputs)
    - Technology
    - Policy
    - Research
  - Related spin-off studies and research projects

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