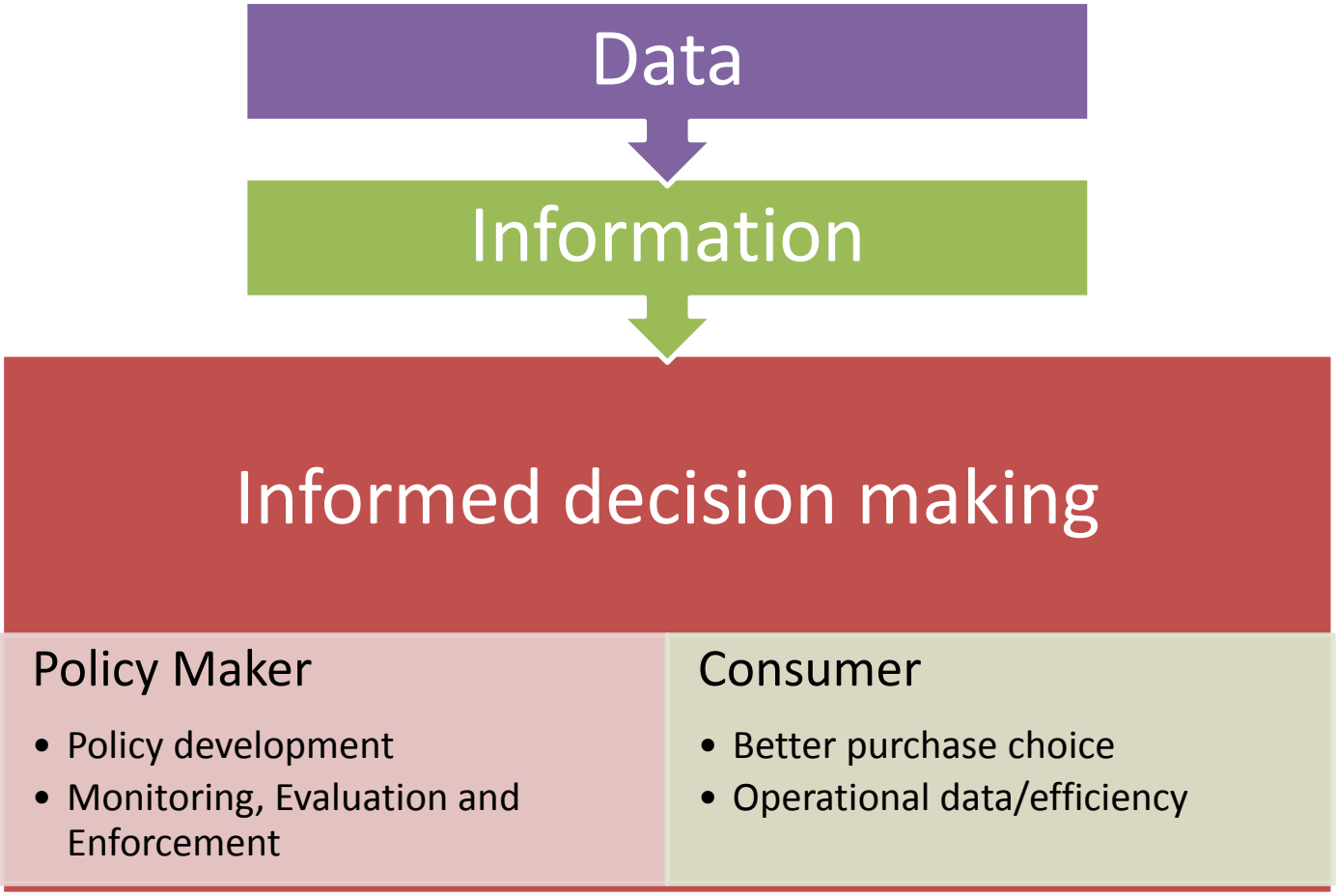
IEA Implementing Agreement
Energy Efficient End-Use Equipment

Overview of information communication technology (ICT) enabled opportunities

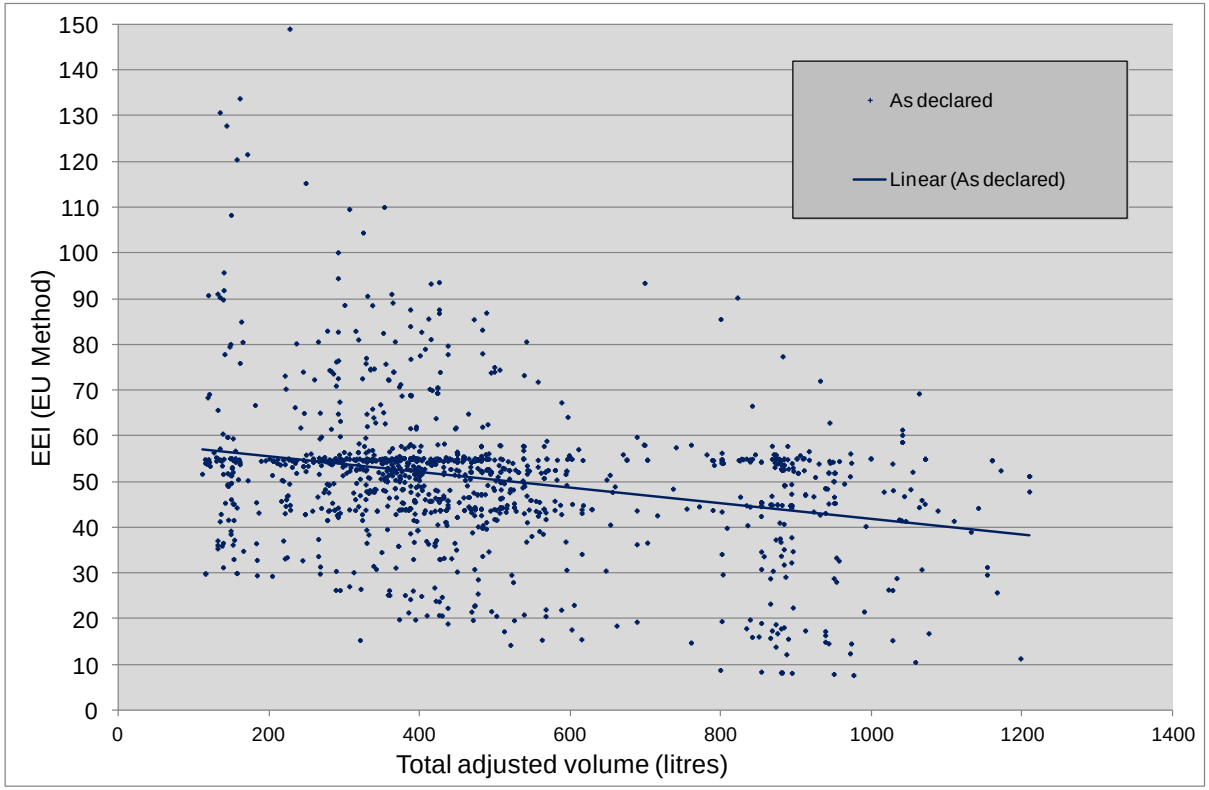
IEA Paris, Dec 2015

www.iea-4e.org

What does ICT offer us?



Understanding Current Product Availability and Performance



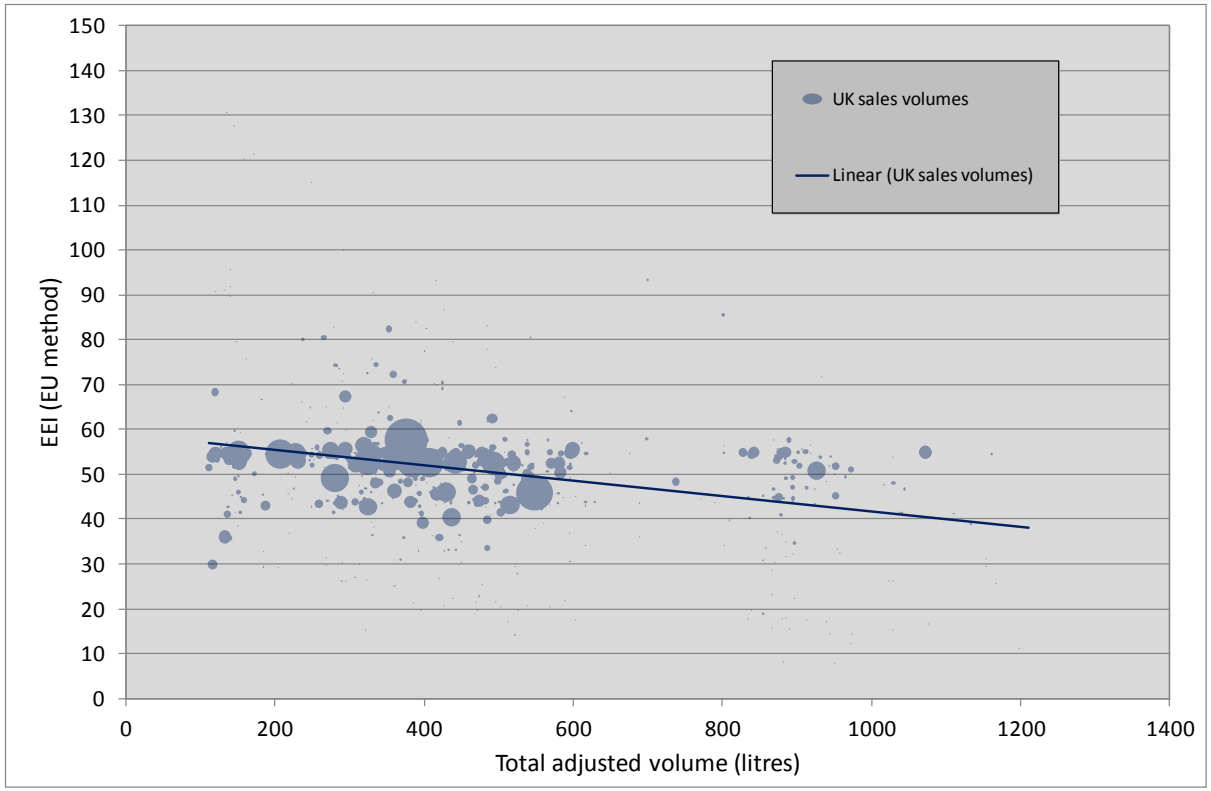
Desired product data

- **Availability**
- **Performance**

- Availability – shop survey, manufacturer/association support, ….
- Performance – label declaration, manufacturer support, …

…. recently enhanced by product registration systems (availability/maintenance)

…enhanced by sales (and price) data

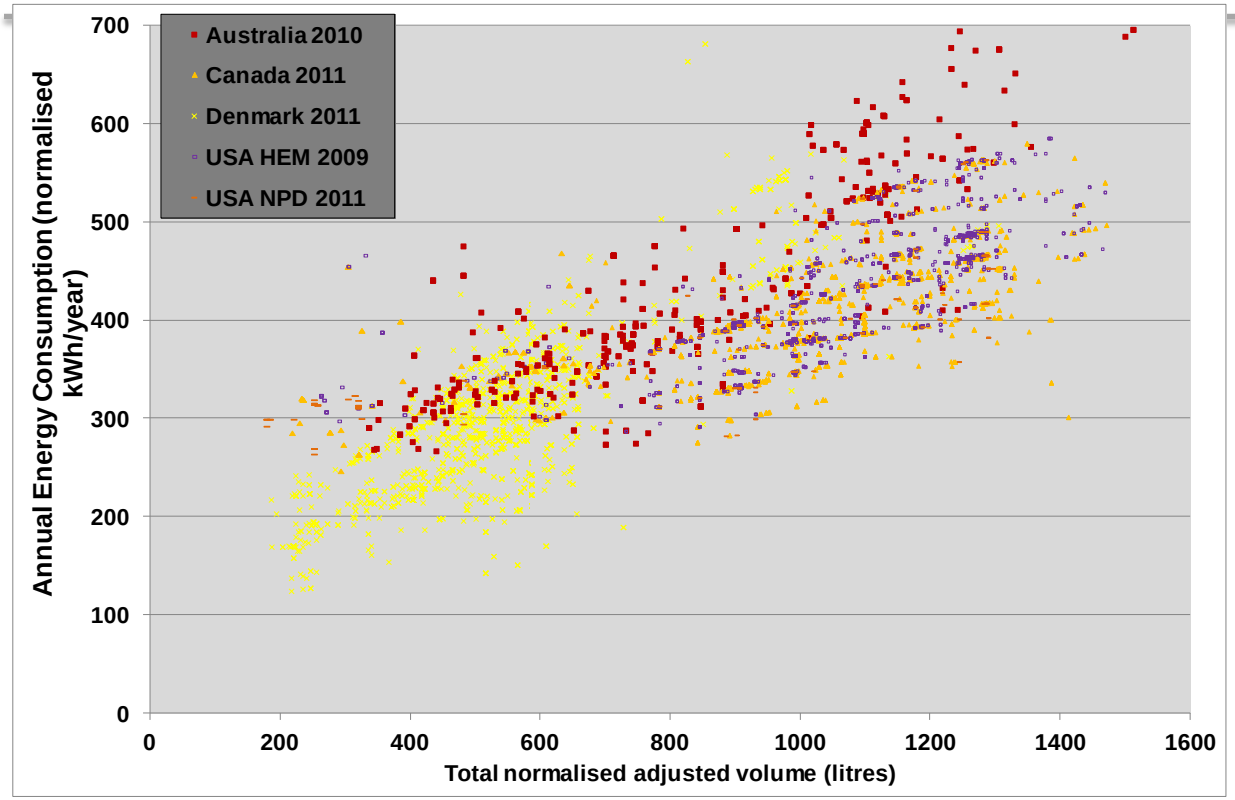


Desired product data

- Performance
- Availability
- **Sales**
- **Price**

- Sales data – commercially sensitive, very challenging (some mandatory)
- Price data – high frequency change – difficult capture/link to performance

…further enhanced by international comparisons

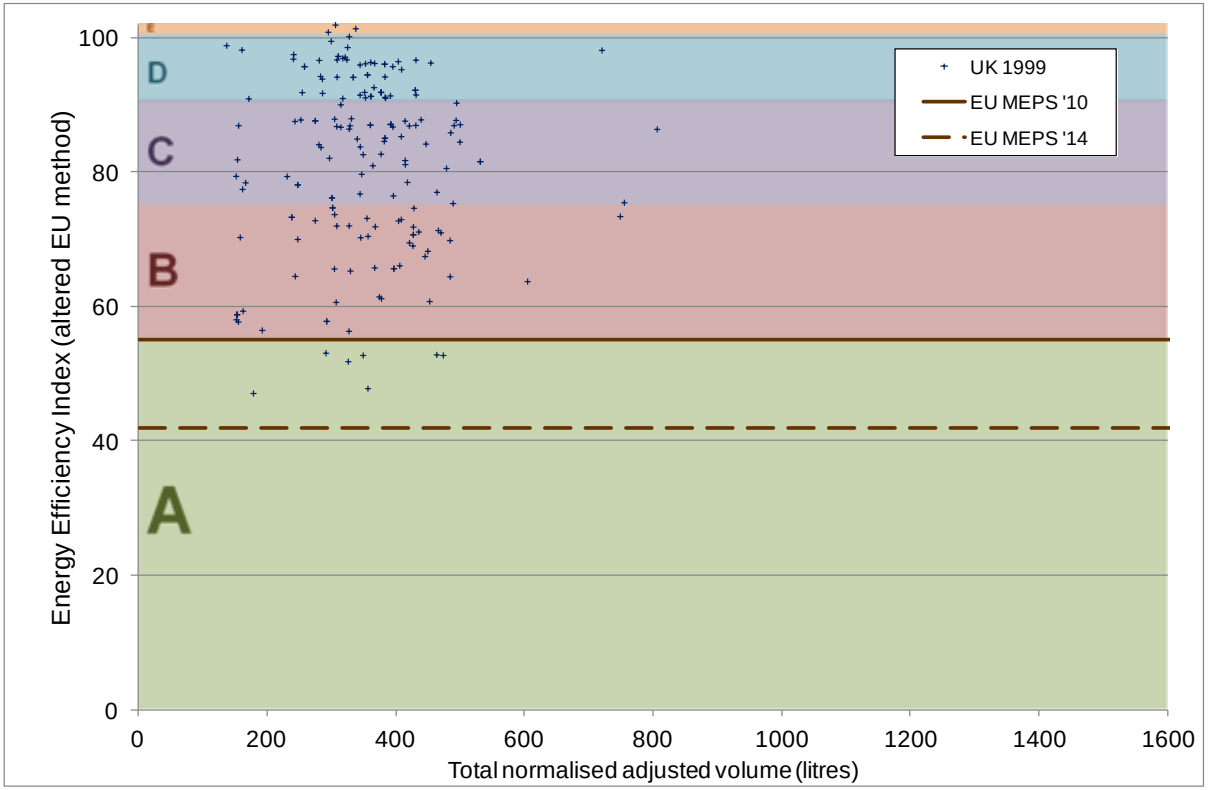


Desired product data

- Performance
- Availability
- Sales
- Price
- **International comparisons**

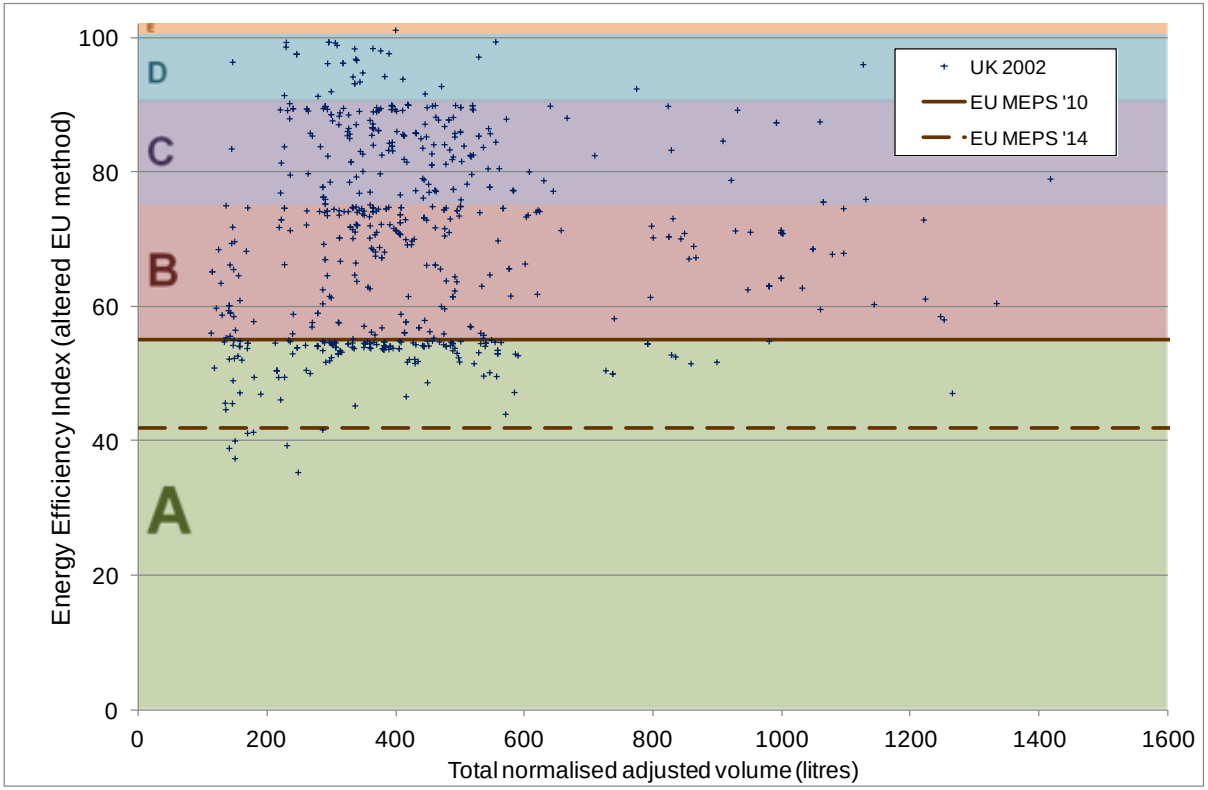
- All national problems compounded by comparability issues (test, regulation, declaration, ….) *and* alignment of timings

…and further still by time series



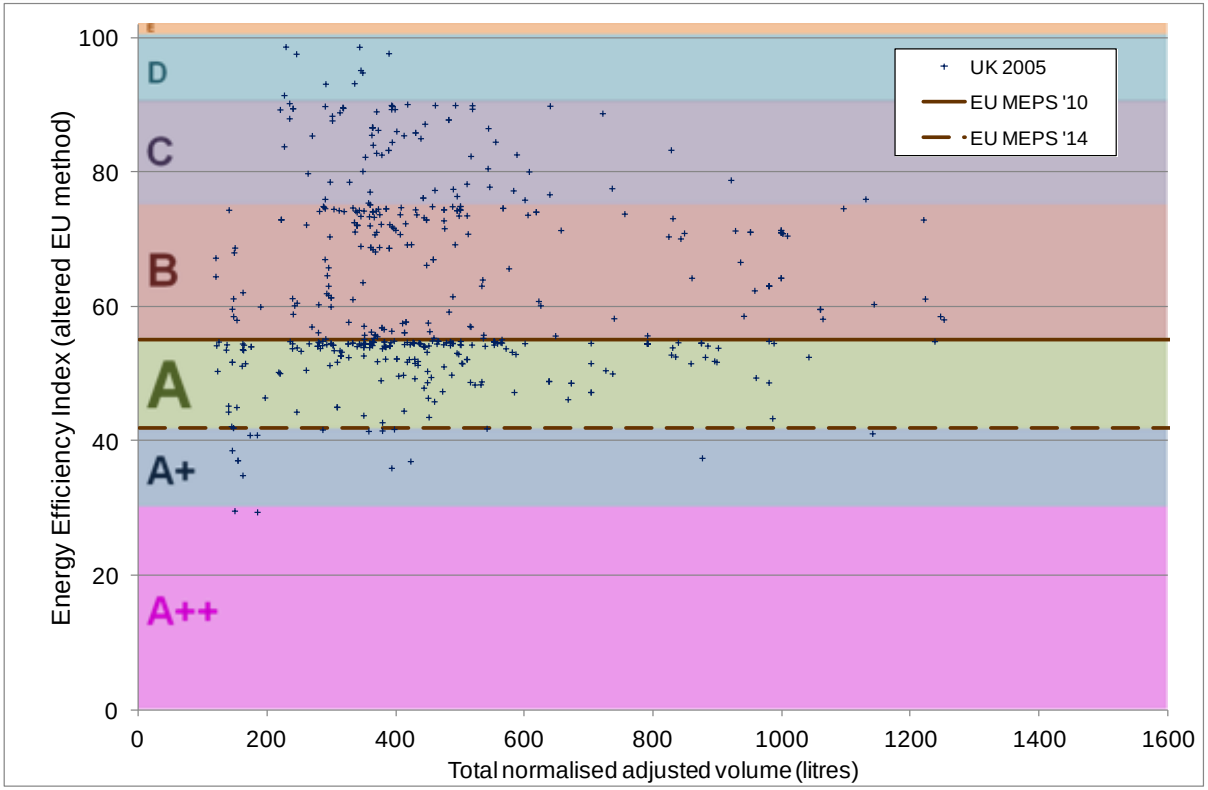
Desired product data

- Performance
- Availability
- Sales
- Price
- International comparisons
- **Time series**



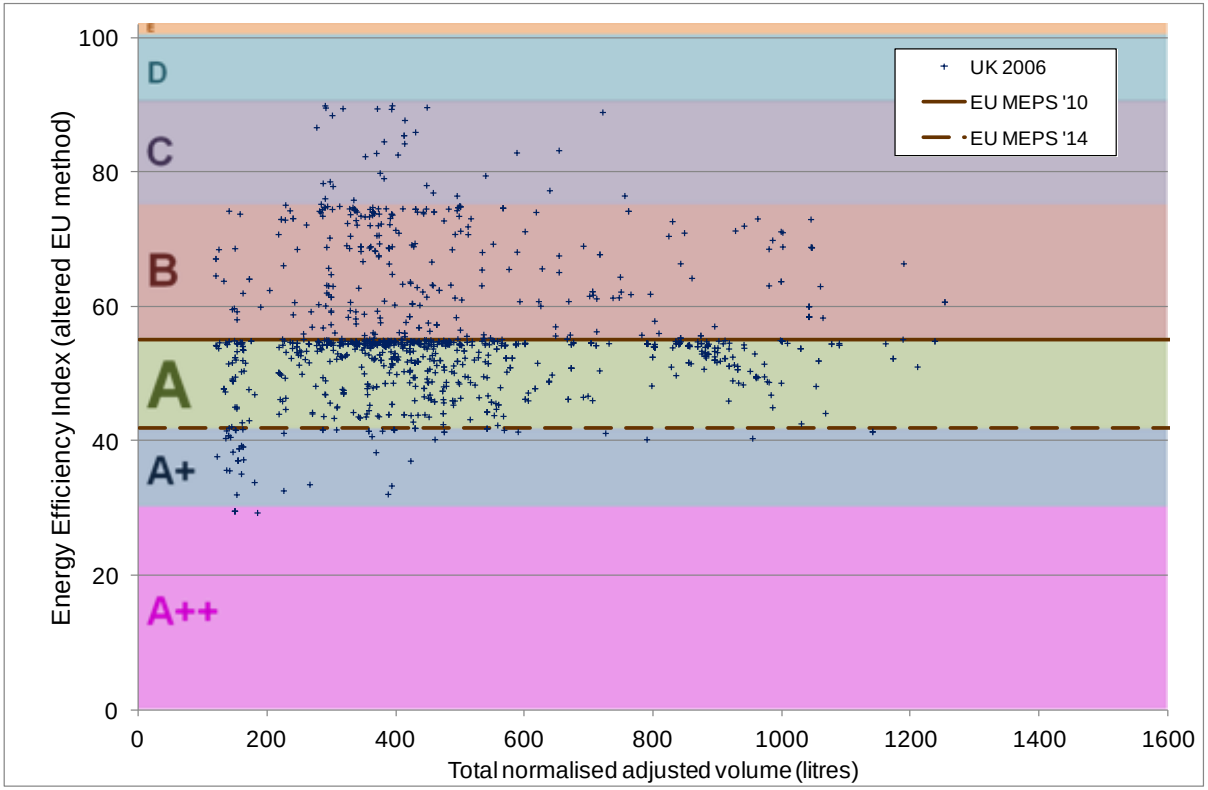
Desired product data

- Performance
- Availability
- Sales
- Price
- International comparisons
- **Time series**



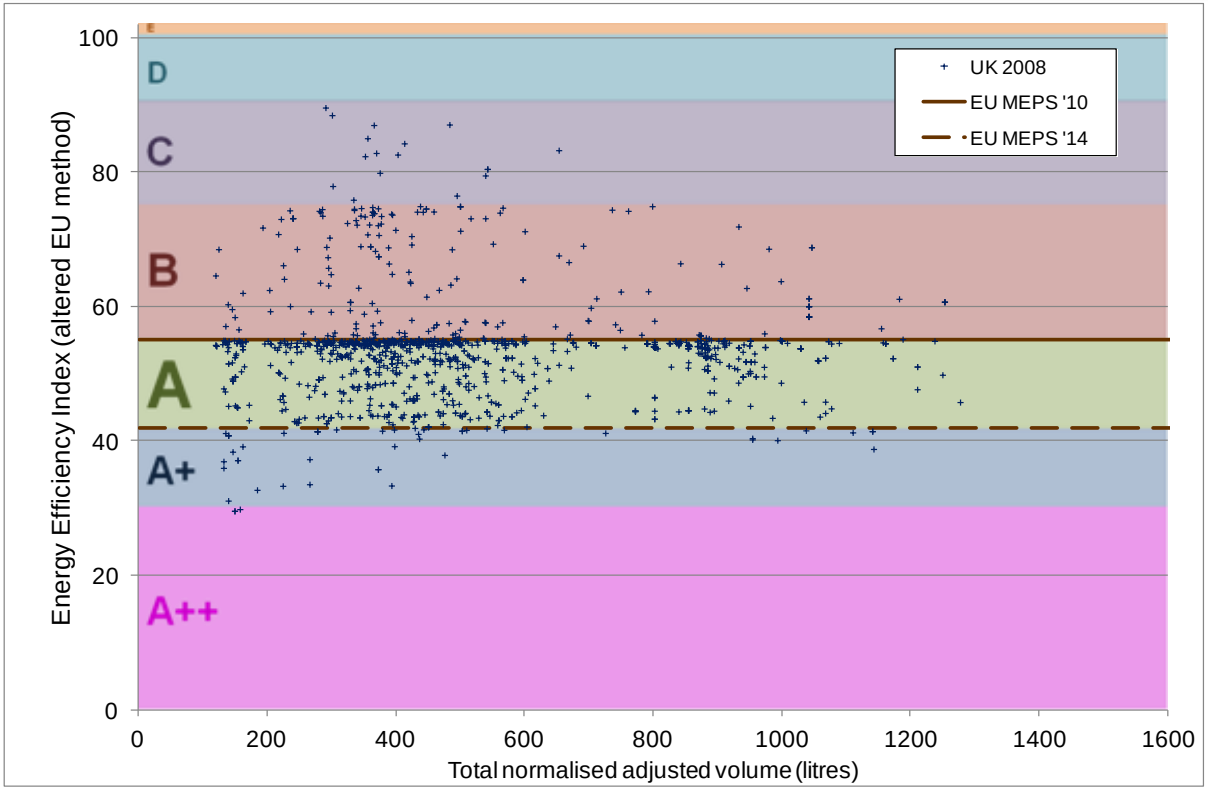
Desired product data

- Performance
- Availability
- Sales
- Price
- International comparisons
- **Time series**



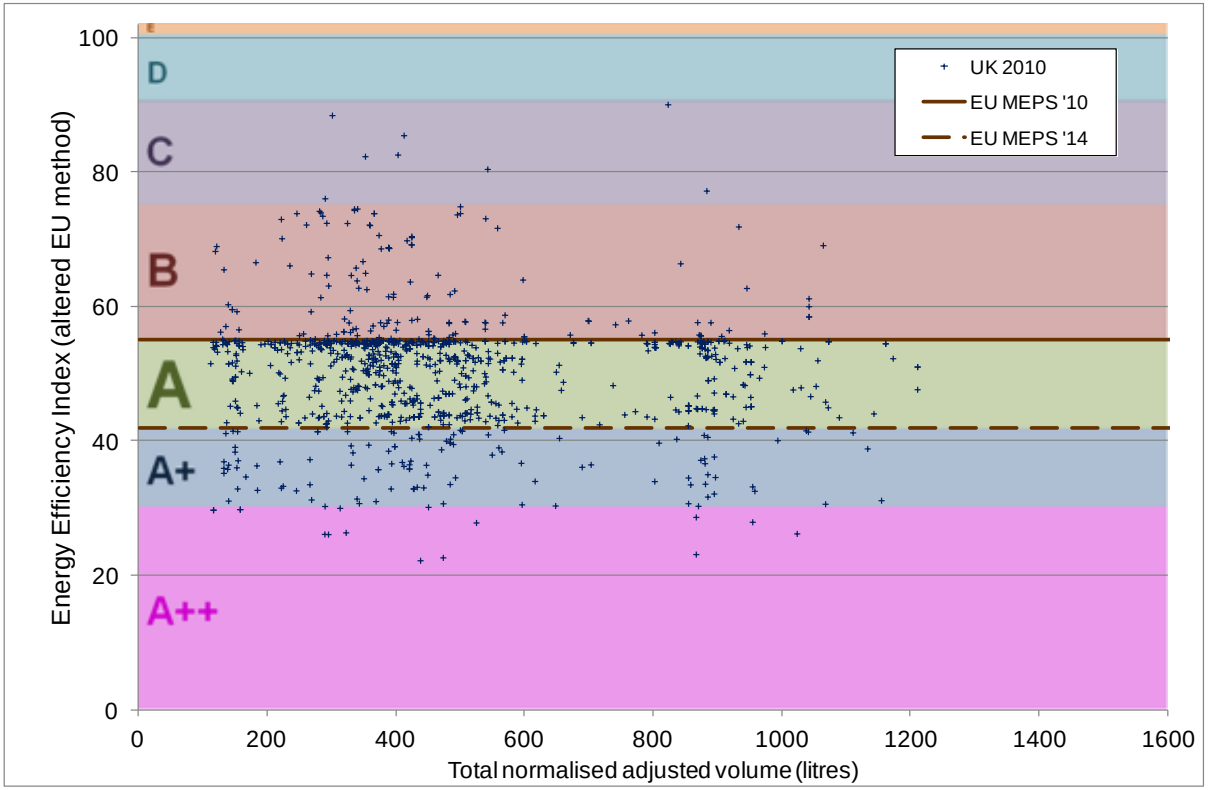
Desired product data

- Performance
- Availability
- Sales
- Price
- International comparisons
- **Time series**



Desired product data

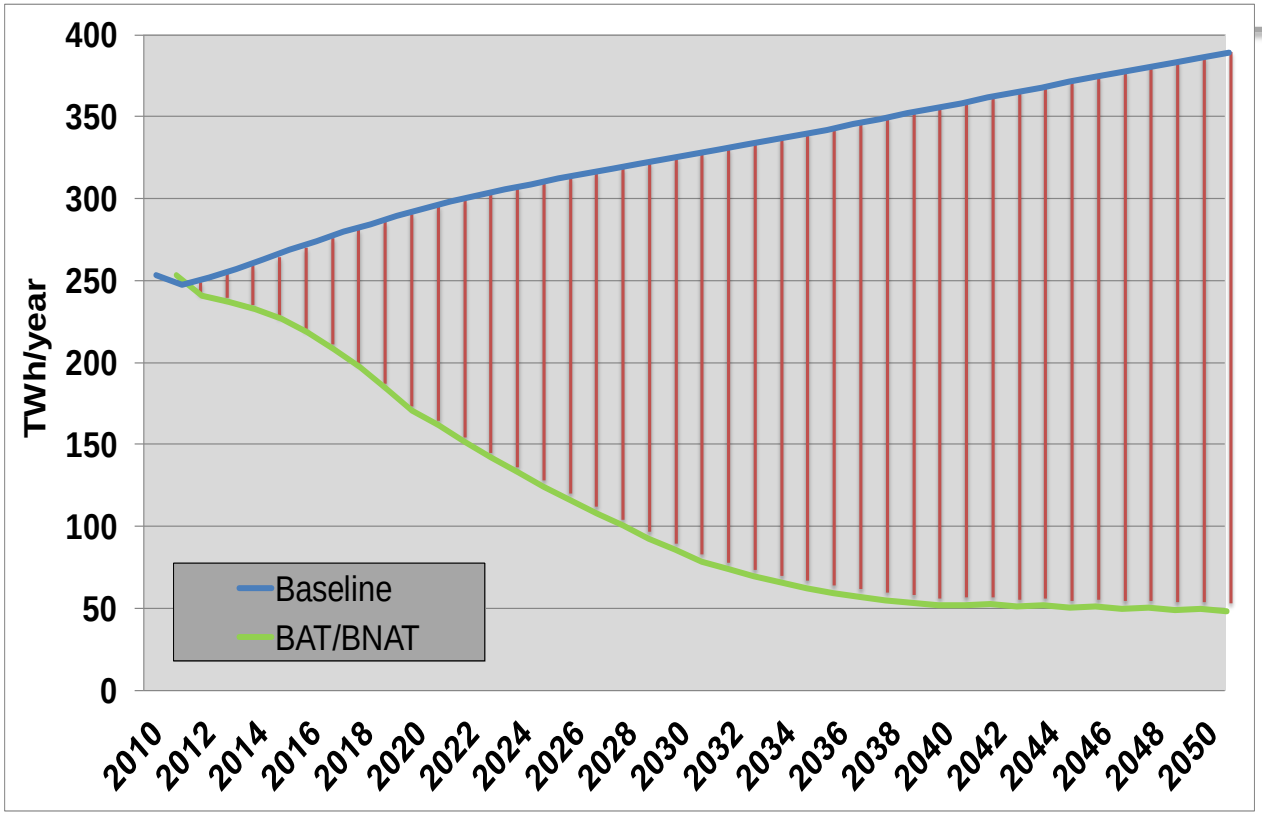
- Performance
- Availability
- Sales
- Price
- International comparisons
- **Time series**



Desired product data

- Performance
- Availability
- Sales
- Price
- International comparisons
- **Time series**

And the potential benefits

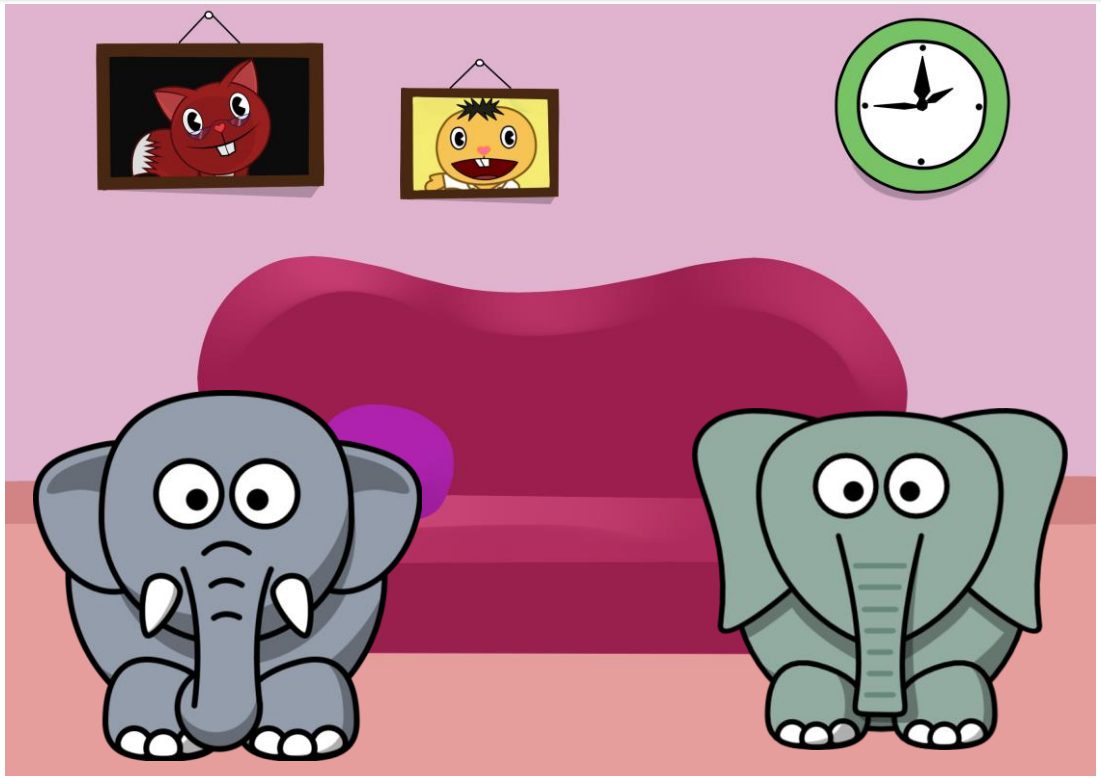


Desired product data

- Performance
- Availability
- Sales
- Price
- International comparisons
- Time series

Technical and macro economic forecasts

Unfortunately elephants are still in the room…



Desired product data
- Performance
- Availability
- Sales
- Price
- International comparisons
- Time series

Technical and macro economic forecasts

The consumer
- **Ownership**
- **Usage/consumption**

- Ownership – how many installed, how many in use, when, … consumer surveys notoriously inaccurate
- Actual usage/consumption – intrusive surveys unrepresentative/expensive

ICT Opportunities: Web scraping

- Registration systems
  - Performance data
- Retailer/aggregator sites
  - Real time availability/price/declared data/*sales volumes*

Desired product data
- **Performance**
- **Availability**
- **Sales**
- **Price**
- **International comparisons**
- **Time series**

Technical and macro economic forecasts

The consumer
- **Ownership**
- **Usage/consumption**

ICT – Smart metering

- Local reporting
  - Overall consumption
  - Appliance use profiles?
- Distance reporting
  - Utility
  - Third party users

Desired product data
- **Performance**
- **Availability**
- **Sales**
- **Price**
- **International comparisons**
- **Time series**

Technical and macro economic forecasts

The consumer
- **Ownership**
- **Usage/consumption**

ICT Opportunities: Appliance/Device level

- Local reporting
  - Overall consumption
  - Appliance use profiles
- Distance reporting
  - Utility
  - Third party users

Desired product data
- **Performance**
- **Availability**
- **Sales**
- **Price**
- **International comparisons**
- **Time series**

Technical and macro economic forecasts

The consumer
- **Ownership**
- **Usage/consumption**

ICT Opportunities: Interconnected consumer

- Better informed consumer
  - QR codes
  - Labelling
  - Smart phones
  - Apps
  - …..

Desired product data
- **Performance**
- **Availability**
- **Sales**
- **Price**
- **International comparisons**
- **Time series**

Technical and macro economic forecasts

The consumer
- **Ownership**
- **Usage/consumption**

ICT Opportunities: ???

- Unclear what the future holds
  - Not *necessarily* a panacea, e.g.
    - Linking in use appliance to original source (and timeseries) data
    - Legality (scrapping?), personal privacy, …
    - Data ≠ information
- Potential remains enormous
  - Access data:
    - Not previously available
    - In near real time
    - For extended periods

Additional relevant presentations at DoE lighting open days….

- energy.gov/sites/prod/files/2015/11/f27/poplawski_energyreporting_portland2015.pdf
- energy.gov/sites/prod/files/2015/11/f27/protzman_energyreporting_portland2015.pdf
- energy.gov/sites/prod/files/2015/11/f27/lawton_reportconsumption_portland2015.pdf