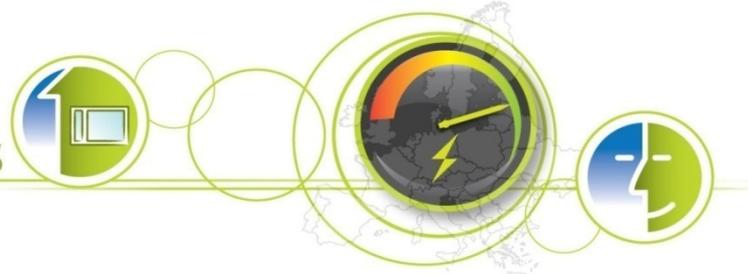# Innovative smart metering services – creating new business models around consumer engagement

Lauri Penttinen

Central Finland Energy Agency

KESKI-SUOMEN
ENERGIATOIMISTO
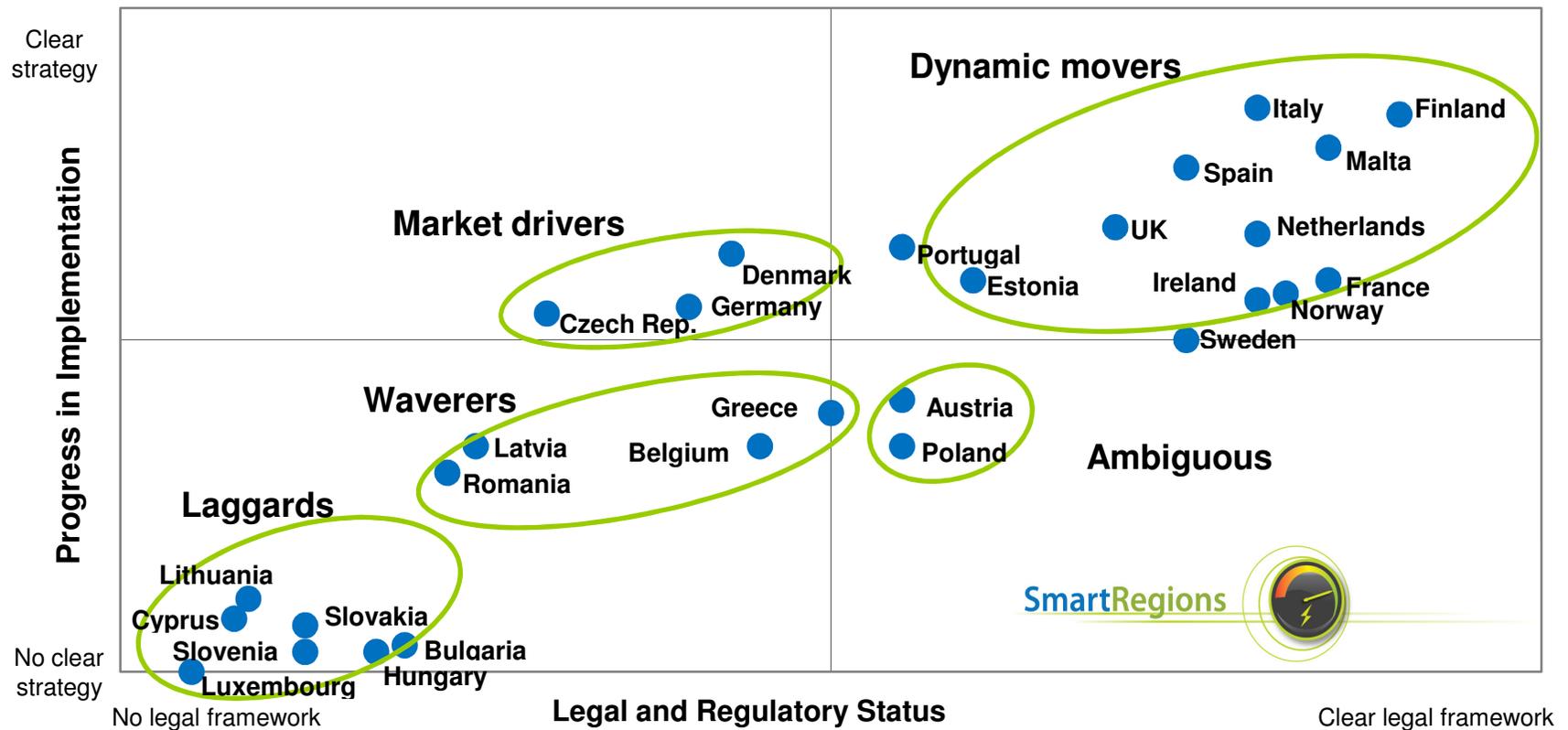Central Finland Energy Agency

Contents

- Policy background

- The smart metering landscape in Europe

- Consumer engagement - how to achieve?

- Smart services and products - who will invest?

- Business models & collaboration

Smart metering - policy background

- EU's 3rd energy package:
    - At least 80 % of the consumers in EU will have a smart meter by 2020, as long as it is economically reasonable and cost-effective

- ESD Article 13 (2006)
    - Individual, accurate and frequent metering and billing, as well as additional feedback (where appropriate)

- EPBD recast (2010)
    - MS shall encourage the introduction of intelligent metering and control&monitoring systems whenever a building is constructed or undergoes major renovation

- Energy Efficiency Directive (2012)
    - Seeks to strengthen and enhance the ESD metering and feedback requirements

The European Smart Metering Landscape

(The updated 2012 edition, published in Metering Europe 2012 Amsterdam)

Clear strategy

Progress in Implementation

Dynamic movers

Italy
Finland
Spain
Malta
UK
Netherlands
Portugal
Estonia
Ireland
France
Norway
Sweden

Market drivers

Denmark
Czech Rep.
Germany

Waverers

Greece
Austria
Latvia
Belgium
Poland
Romania

Ambiguous

Laggards

Lithuania
Cyprus
Slovakia
Slovenia
Bulgaria
Luxembourg
Hungary

No clear strategy

No legal framework

Legal and Regulatory Status

Clear legal framework

SmartRegions

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Smart meters vs. smart consumers

- Smart meters = Smart consumers?
- Smart metering technology
  - has a great potential to achieve cost-efficient energy savings
  - plays an important role in smart grids

- <u>Smart meters are only enabling technology</u> which need to be coupled with innovative end-user services
- → Better energy management through the means of rewards, automation and information

<u>Smart meters + Smart services = Smart consumers</u>

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Consumer engagement - How to achieve?

Who's filling the gap? Regulation?
Market players?

Infrastructure and its functionalities,
regulation, business models

Energy utility

(DSO/Supplier)

?

"Information"
- Where and when I consume energy?
- How many €? Environment?
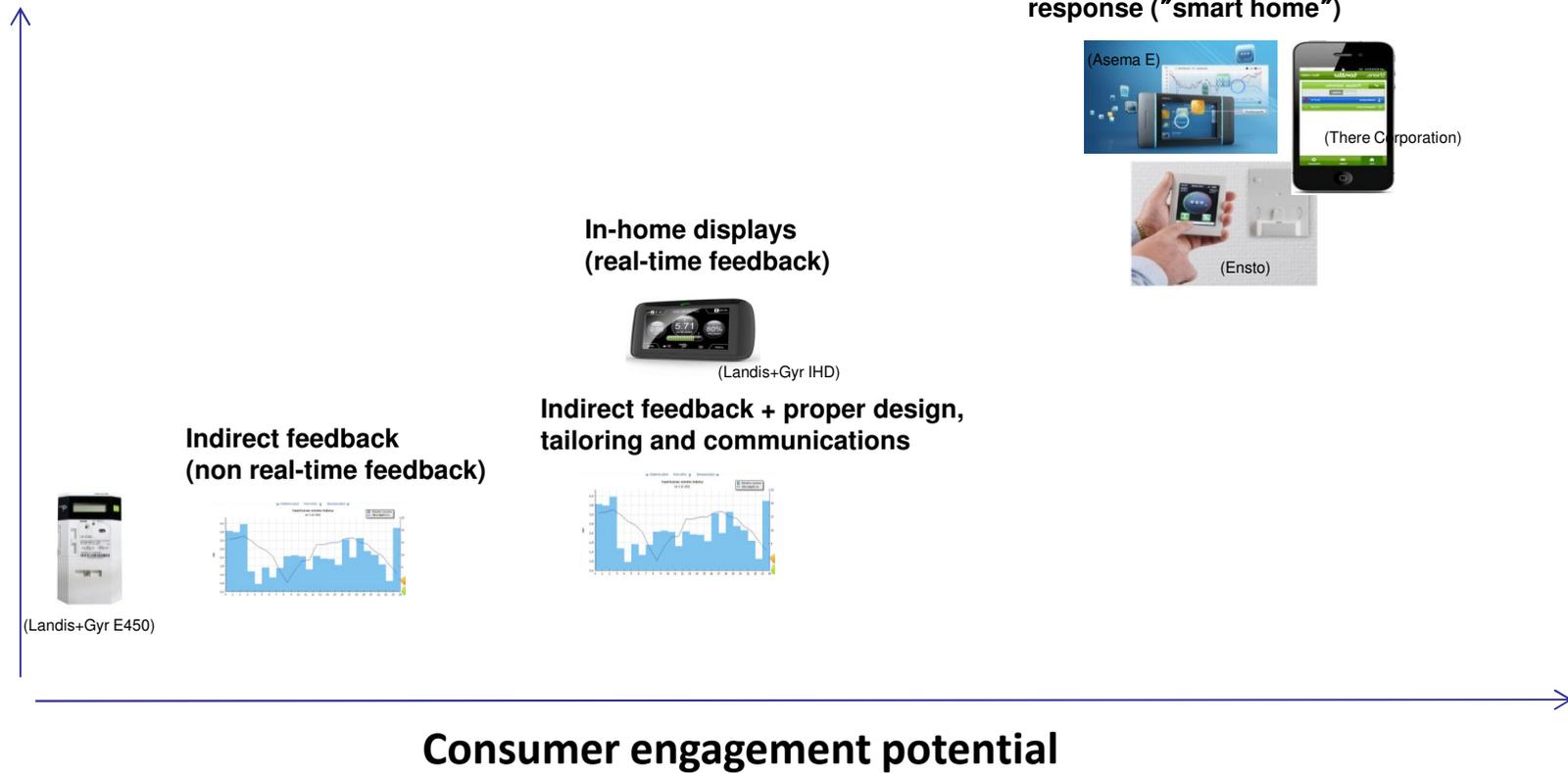
"Means"
- What should I do and how?
- Automation

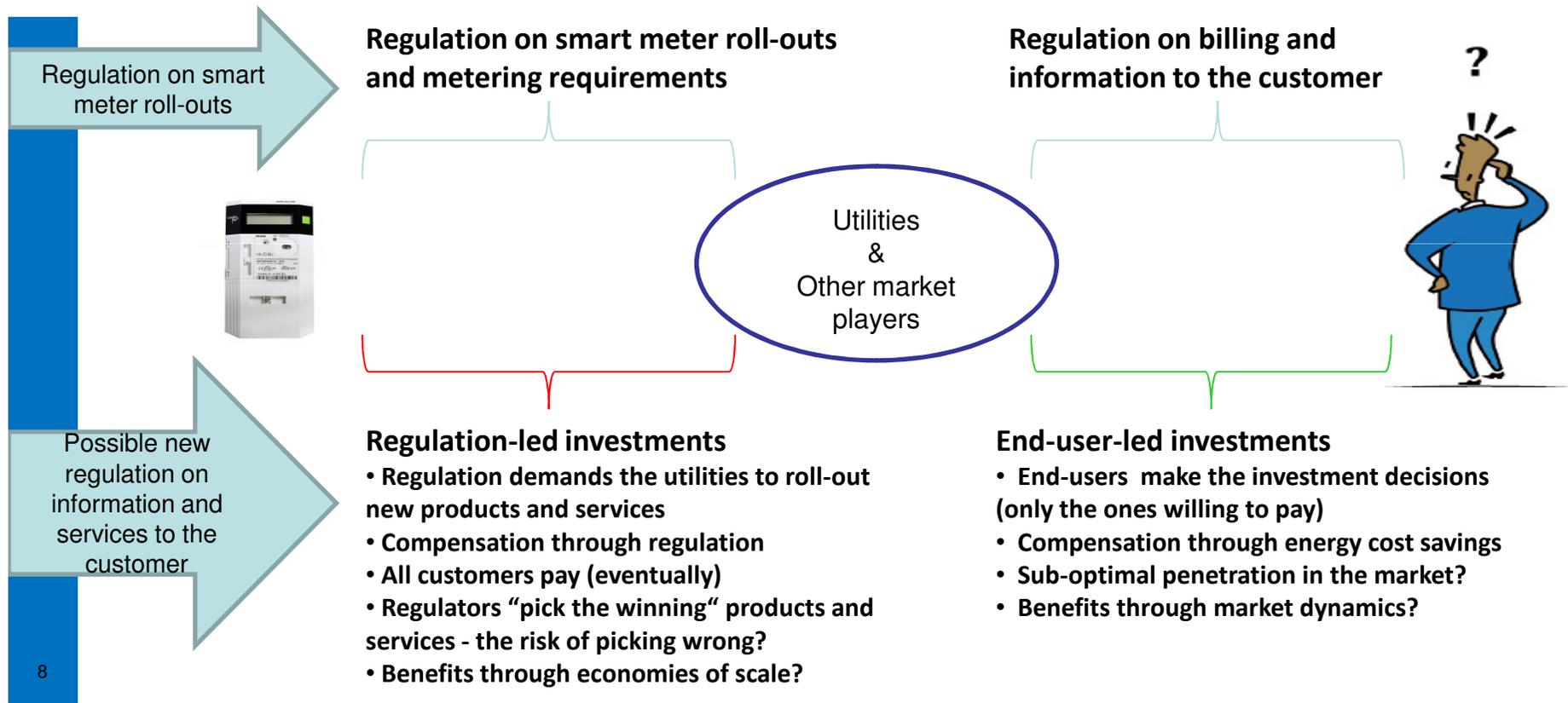**"Motivation"**
- Why should I do something?
- How much can I save?

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Consumer engagement
- How to achieve? (And who pays?)

Additional costs to consumer (vertical axis)

Consumer engagement potential (horizontal axis)

Home energy management and demand response ("smart home")

(Asema E)

(There Corporation)

(Ensto)

In-home displays (real-time feedback)

(Landis+Gyr IHD)

Indirect feedback + proper design, tailoring and communications

Indirect feedback (non real-time feedback)

(Landis+Gyr E450)

New technology and services for consumer engagement - Who will invest?

Regulation on smart meter roll-outs

Possible new regulation on information and services to the customer

Regulation on smart meter roll-outs and metering requirements

Regulation on billing and information to the customer

Utilities & Other market players

Regulation-led investments
- **Regulation demands the utilities to roll-out new products and services**
- **Compensation through regulation**
- **All customers pay (eventually)**
- **Regulators "pick the winning" products and services - the risk of picking wrong?**
- **Benefits through economies of scale?**

End-user-led investments
- **End-users make the investment decisions (only the ones willing to pay)**
- **Compensation through energy cost savings**
- **Sub-optimal penetration in the market?**
- **Benefits through market dynamics?**

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Consumer engagement -
Information value chain and business opportunities

Utility offered Information&feedback services&products

Energy utility

(DSO/Supplier)

Utility offered demand response services&products

Real-time IHDs, HEMs
/Smart home products

"3rd parties"
ESCOs
Demand response
aggregators
"Energy brokers"

Emerging 3rd party services
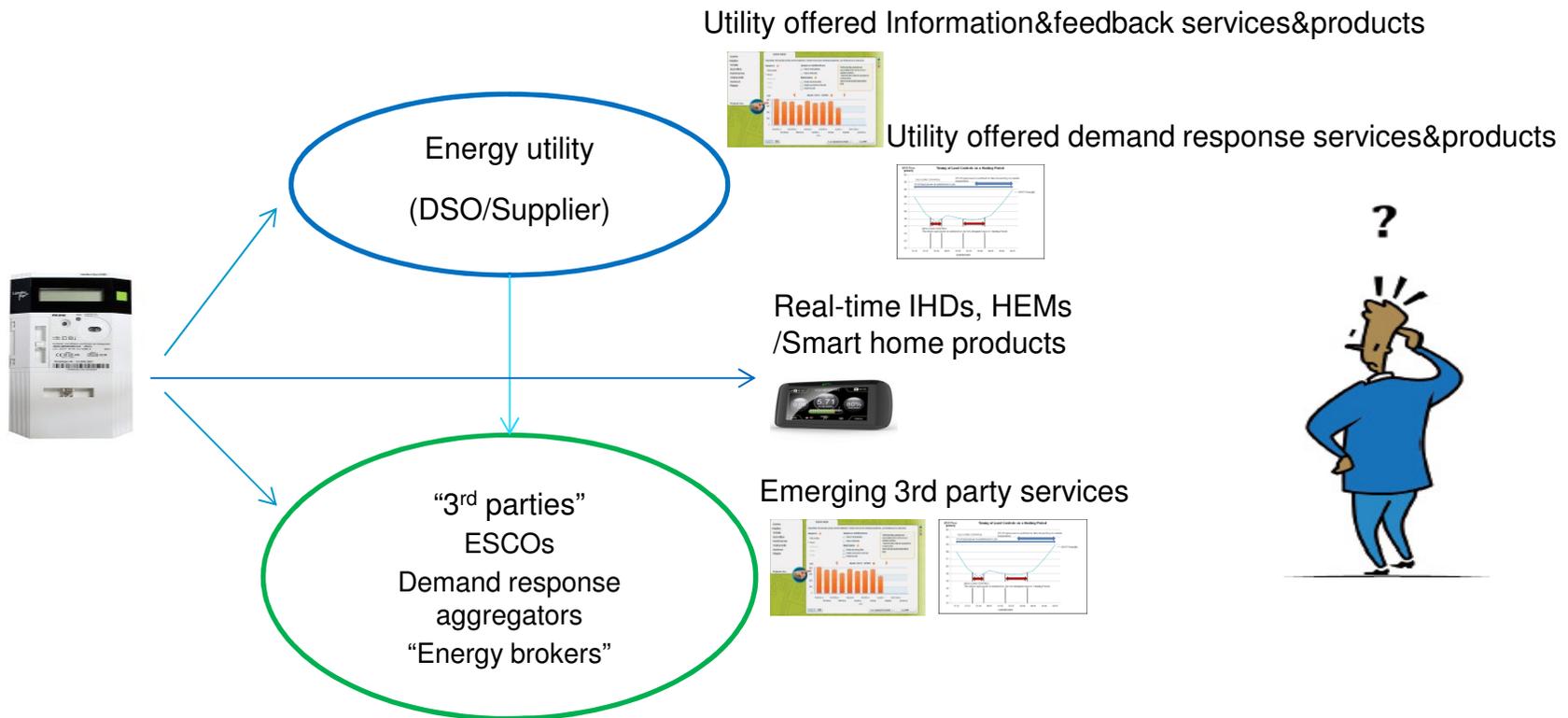
Products & Business models in the market
- The "utility route"

- Utility (DSO/supplier) offered services (driven by regulation)
  - Fulfilling the minimum requirements to offer consumption information and feedback to customers
  - Without nominal extra charge/committment from the customer
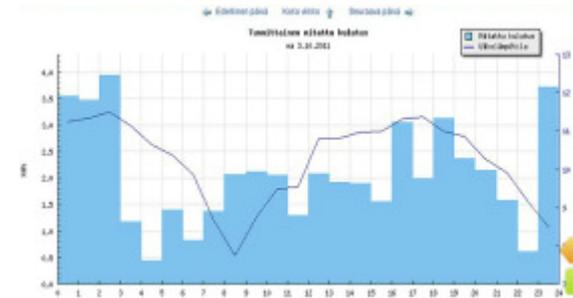 - Industry standards emerging: on-line feedback, in-home displays, informative billing

Helsingin Energia Sävel+ (Ecore Ltd.)
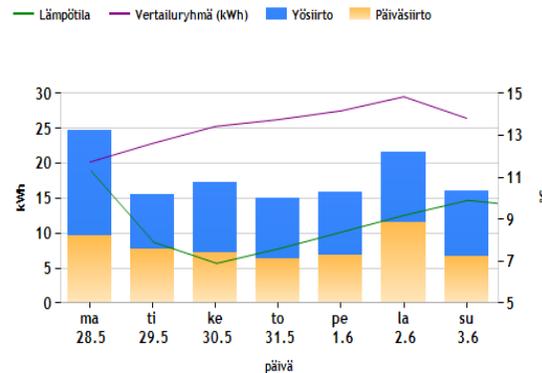
Vattenfall Energy reporting

JSE utility's Energy reporting

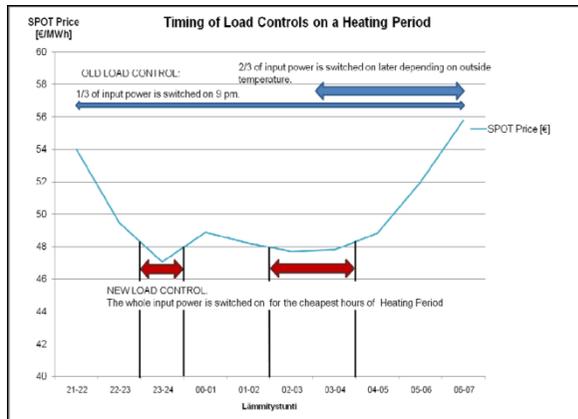# Products & Business models in the market
 - The "utility route", continued

- Utility offered "extra" services and products (driven by business cases)
    - Seeking to make business cases: nominal extra charge/committment needed from the customer
    - E.g. more advanced consumption feedback services, in-house displays and demand response services
    - Suppliers differentiating their products: from energy retailing to energy services

Fortum / GEO
in-home display

Helsingin Energia, Dynamic demand response through modern AMR systems

Fortum Smart heating system

Products & Business models in the market
- The "retail market route"

(There Corporation)

(Asema E)

(Ensto)

- Products sold through retail channels

- HEM / Smart home systems
  - Real-time information
  - HVAC and home appliance controls
  - Dynamic demand response controls (e.g. linked with spot price information)
  - Integrating smart services to enhance consumer engagement

- Smart home appliances - e.g. "white goods"

Conclusions

- From smart meter technology roll-outs to satisfying consumer needs
  - Regulation can significantly boost new services and products, but cannot cover everything (or even shouldn't?)
  - → Innovative market players needed, the missing link between utilities, regulation and consumer engagement!
- The winner: who can provide the most cost-efficient, user-friendly (or automated) solutions to satisfy the differing end-user demands
  - Satisfying energy related needs make enough added value?
- New entrants need partnering: utilities, Telcos, building product and construction companies, AMI vendors...
- Questions remain:
  - How the functionalities of smart metering infrastructure support new smart services and products?
  - Under what conditions the smart meter data and functionalities can be used by different players (to realise the whole potential of the technology)?
  - Who will make the investments to "fill the gap" in consumer engagement? End-users? Utilites? Under what regulation and compensation?

Thank you!

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