PassivSystems

Technology Platform/ISGAN/SENER workshop

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Changing legislation

• **2050 Market drivers**
  • Decarbonisation and move from gas to electricity
  • Increase in intermittent renewable supplies
  • Growth in consumer generated local energy
  • New uses of electricity such as Electric Vehicles, Heat Pumps
  • Encourage new market entrants (ESCO)
Changing business models

Old business model

Unmanaged home

- $2,000 pa.

New business model

Smart Home

- $1,200 grid supplied energy pa.
- $400 efficiency savings pa.
- $800 debt & service payments pa.
Changing generation & storage mix

- Hot water storage
- Solar thermal
- Air source heat pump
- Solar PV
- Li battery storage
Consumer service vision

Portfolio Insight & Management

Consumer Insight

- Electricity Consumption
- Fossil Fuel Heat & Hot Water
- District Heating & Cooling & Hot Water
- Electric Heating & Cooling & Hot Water
- Micro-generation
- Energy Sinks &
- Lifestyle Characteristics
- Building Characteristics

Optimise & Control
A systems approach to smart grid....

PassivEnergy for individual home control
Facilitating tailored consumer “efficiency” propositions
Delivering system integration, energy efficiency, investment ROI, ease of use, comfort, control and smart balancing™

PassivSystems Smart Balancing for grid flexibility
Weather compensated granular data insight ensures individual home energy storage and consumption is managed to maximise smart grid investment ROI

PassivLiving for “peace of mind” managed services
Powered by a sophisticated database monitoring data for portfolios of properties can be grouped by any criteria for insight extraction, performance reporting, alarming and SLA management of service contracts
... with consumer value at its heart

PassivEnergy for individual home control

A complete home energy management platform built on open standards and designed to deliver Smart Balancing
Consumer & grid integration

Home Energy Management & Grid flexibility Platform

Data management & control interface

Wind / Solar PV Monitor → Wind / Solar PV Control

HVAC / Heat Pump Monitor → HVAC / Heat Pump Control

EV / Reserve Storage
Smarter controls - smarter revenue

PassivEnergy Smart Balancing™ Platform

• Delivers greater response capacity with increased latency
• Makes “consumer aware” load control decisions
• Makes visible changing consumer energy profiles e.g. EV, heat pumps
• Will calculate day ahead forecast of “residential "supply and demand"
• Utilises consumers assets to deliver “smart balancing” on grids with a high content of distributed renewable energy sources
• Response to volatile market prices and unplanned network or supply side constraints
• Increases ROI by smoothing annual seasonal peak demand
Report and recommend

Home Reports

Essentials
- Heat lost from home
- Heating system Effectiveness
- Heating Control Effectiveness

Premium
- Heating energy use
- Hot water energy use
- Hot water usage patterns

Personalised, engaging and actionable
Connecting with consumers

How should we connect with consumers?

By fitting into today's world

...... and making it easier
Taking consumers on a journey

A complete home services platform

.... with integrated controls

.. anywhere, anytime
**Smart balancing - value proposition**

**Consumer**

Cheaper electricity, non-invasive, security of supply

- I receive financial reward for making my home grid flexible
- I can store energy in my home and go off grid without it impacting my comfort or lifestyle
- I will be less affected by grid failures
- I can maximise use of my own renewable energy sources
- I can choose to make greater use of energy from green sources

**Energy company**

Solves intermittency, increases ROI on renewables, achieves higher grid utilisation

- Manages energy storage in home allowing excess renewables to be stored when available
- Caps energy demand when renewables in short supply without impacting comfort
- Acts as a virtual power station for Smart Balancing™
- Increases customer stickiness by supporting longer term service contracts
- ESCO reap the benefits of:
  - lower operating costs through more balanced loads
  - greater predictability of energy demand and utilisation of renewables
  - reduced exposure to energy price fluctuation
Thank you

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