Five promising consumer business models to transform low carbon heating and well-being in the home

"a clean, intelligent, energy system that works for people, communities and businesses"

Jonathan Watkins
ETI’s Smart Systems and Heat Programme

“Creating future-proof and economic local heating solutions for the UK”

- Connecting together – the understanding of consumer needs and behaviour with the development and integration of technologies and new business models into...
- Delivering enhanced knowledge amongst industry and public sector
- Resulting in industry and investor confidence to implement from 2020 which enables a UK heat transition

The Energy Systems Catapult will deliver Phase One of the SSH programme as a supplier to the ETI following the transition of the SSH programme team to the Catapult. From 2017 the Catapult will be responsible for delivery of Phase Two of the programme independently of the ETI.
Market will not deliver at scale for residential low carbon

Let us change the way we sell products & services for comfort …

New Businesses Models can help overcome ‘Barriers’
Our starting point: More value in well-being than kWh of heat …

Moving from Cost of Heating to Cost of Wellbeing in the home
New Business Model Architecture

Enabler Owners / Creators

Enablers & / or Model Value Enhancers

Energy Monetisation
Financing Options
Efficiency / Effectiveness
Behaviour Change

Lean Supply Chain
Asset Utilisation
Energy Brokering
Willingness To Pay
Service Bundling

Consumer Business Model Key Component Modules

Policy & Regulation
Technical Standards
Trading Markets
Novel Financing
ICT Platforms
Technology

Opportunity for new B2B models supporting B2C models

Carbon Savings
Rapid Deployment
Local Society Benefit
Energy Security

Engaged Consumers
Economic Benefit
Financially Viable
UK Skills Supply Chain

Foundation Principles & Objectives

Without enablers some business models may have only niche applicability
Enablers can come from private sector in many cases
Card Game enabling building and refining of models from over 50 sub-modules

Output from a session with the three Local Authorities held in March 2016
Key Policy & Market Structure Thinking

Integrators (Accredited Providers)
- Responsible for design & delivery of whole home system, optimising use of heating technology & insulation for best value
- Accountable for CO₂ reduction obligations for their customer / home portfolio
- Fuel poor – minimum well-being outcome
- Consumer protection

Internalising cost of carbon for domestic heating solutions

Rebalancing environmental charges with greater weighting on gas

Auto sector successful with system integrator role (OEMs) and portfolio emissions thresholds

Chart — Average carbon dioxide emissions from new passenger cars

Monitoring of CO₂ emissions from passenger cars – Regulation 443/2009 provided by European Environment Agency (EEA)
## Top Tier Business Models

<table>
<thead>
<tr>
<th>Service/Contract/Technology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home Service Company</strong></td>
<td>Consolidation of utilities, local taxes &amp; other home running costs into a single monthly fixed charge whilst optimising efficiency and convenience. Akin to serviced accommodation but applicable to homeowner, rented and social sectors.</td>
</tr>
<tr>
<td><strong>Home Comfort Contract</strong></td>
<td>Long term contract whereby the supplier undertakes to guarantee and cover all necessary investments for an agreed comfort / temperature level for a fixed monthly price. Electricity retail offer combined.</td>
</tr>
<tr>
<td><strong>Home Moderniser</strong></td>
<td>An aspirational home upgrade &amp; improved occupant well-being through major improvement of insulation, controls, low carbon heating system within a full system approach. Financed via the mortgage and/or cash contribution from the homeowner.</td>
</tr>
<tr>
<td><strong>Neighbourhood Heat &amp; Electricity</strong></td>
<td>A community-scale low carbon heating &amp; power solution option with a strong local identity. Using distributed generation and storage assets run for the community providing heat via local networks or via heat pumps in some homes.</td>
</tr>
<tr>
<td><strong>Urban Renewal</strong></td>
<td>Accelerated regeneration of old, poor quality &amp; lower density housing stock to provide more housing, urban renewal &amp; near zero carbon homes, funded in part from the value created by higher dwelling density &amp; home value / rental enhancements &amp; better use of land.</td>
</tr>
</tbody>
</table>
Simplified Representation of Current State Business Model
Simplified Representation of Home Comfort Contract Business Model

- Utilities: Provider is accredited and will take care of CO₂ reduction responsibility.
- New Service Provider: Provides maintenance and up-keep of equipment.
- Let us improve the environment whilst improving comfort!
- Identifying new services for the customers.
- Data & insights:
- Usage Dashboard + Comfort control:
  - Total comfort: Every room at the right temperature. Everyone is happy!
  - Upgrades as needed and more flexibility and customisation providing added comfort.

- Monthly bill on one day of the month:

- A More Comfortable Home:
  - Better insulated
  - Sufficient hot water
  - More effective heating

- The company looks after the heating so I don’t have to!
Simplified Representation of Home Moderniser Business Model
A business model for every home
Consumer feedback on Top Tier models

- Positive reaction to the business models – surprising level of engagement

- Fixed bills, paying for outcomes & neighbourhood aspects well received

- Need to develop implementation & communication of each model to address:
  - Lack of trust in energy market players
  - Fear of novelty and ability to deliver business models
  - Provision of contractual safeguards and flexibility
  - Clarity on estimated costs and financial obligations on consumers

- Successful ‘show home’ demonstrators will play a vital role
New models offer new possibilities of supporting the fuel poor

Three key elements of new approach:

1. **Business Models**
   - Financial facilitation
   - Affordability & £ Smoothing
   - Assurance of Good Tariffs
   - Inclusive upgrade & maintenance

2. **Targeted Policy**
   - Redirecting benefits
   - Benefits focussed vs need
   - Housing & Social Care Benefit Linking
   - Mortgage relief linked to refurb level (in rented sector)

3. **Accredited Provider & Integrator**
   - Trusted & accountable care
   - Full home care & system approach
   - Opportunity to channelling payments
   - Energy reduction obligation

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The approach of annualising the cost of well-being (rather than looking at payback periods) demonstrates that the business models may create a viable value proposition for the householder versus the 2020 counterfactual.

Note that the analysis does not attempt to present how any potential annualised value is spread or redistributed across the value chain.

Analysis at very high level.

Assessment of the soft (willingness to pay) benefits, in particular, being quite subjective.

Further consumer insight work is needed.
Home Service Company – Process Map

Key enablers:
- Standardisation
- Approved contractors
- Policy for bundling
- HEMS
- Energy trading

Outcomes from business model
<table>
<thead>
<tr>
<th>Home System</th>
<th>Maintenance</th>
<th>Utility Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Migration to low carbon heating</td>
<td>Included in contract</td>
<td>All utilities provided via fixed monthly bill Single service centre</td>
</tr>
</tbody>
</table>

Where does value come from?

<table>
<thead>
<tr>
<th>Homeowner</th>
<th>Service Provider</th>
<th>Wider UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peace of mind</td>
<td>Monetisation</td>
<td>Commitment to lower CO2</td>
</tr>
<tr>
<td>Less admin hassle</td>
<td>Cost to serve efficiency</td>
<td>Increased competitiveness of energy supply</td>
</tr>
<tr>
<td>Best tariffs</td>
<td>Account size</td>
<td></td>
</tr>
<tr>
<td>Improved control</td>
<td>Working capital use</td>
<td></td>
</tr>
<tr>
<td>Cost effective heating</td>
<td></td>
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Potential roles for the Local Authority in new business models

**Delivery**
- Planning
- Installation Resource
- Billing
- ESCO
- Customer Contact Centres

**Funding / Finance**
- Guarantor
- Finance
- Equipment call-offs
- Funding
- Special Purpose Vehicle

**Engagement**
- Community
- Customers
- Branding
- Provider Register & Selection Support
- Show Home

**Ownership**
- Heat Network
- Assets
- Homes
Making progress towards commercialisation

1. Identify market issues & barriers
2. Develop Business Models to address barriers
3. Wider & deeper validation with key stakeholders, consumers and policy makers
4. Complete business plans for necessary investment & participant engagement
5. Field trial & feedback of business models
6. Planning for launch into wider market

Models are flexible & can be adapted easily using model architecture and card game
The Business Model Development Project has identified promising business model concepts to stimulate new thinking.

A number of project outputs will be made publicly available in early Q1 2017. This includes a summary and main report and the business model game developed for the project.

Further engagement with a wider group of stakeholders is now commencing to be completed at end of Q1 2017.