

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

A Smart Future; panel discussion

“Energy Systems Catapult and the Smart Systems and Heat programme in Wales”

20th September 2015

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Energy Systems Catapult

What are Catapults?

- World leading technology and innovation centres
- Government business innovation intervention

Aims:

- Generate sustainable economic growth
- Transform UK's ability to create new products & services
- Open up global opportunities for the UK

Energy Sector Challenge & Opportunities



Radical change is upon us, the future could be:

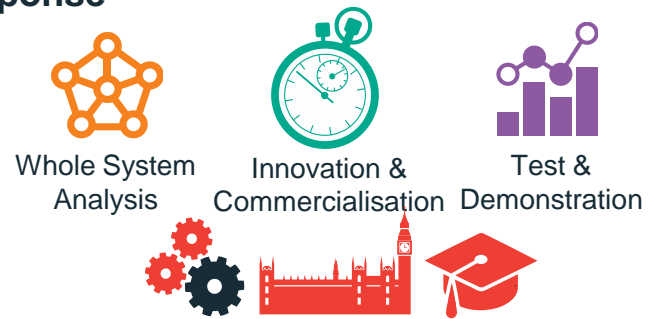
- multi-vector
- whole system
- distributed
- flexible
- smart

up to **£46bn** of UK GDP impact*

up to **£27bn** in efficiency savings*

*Sources: Low Carbon Innovation Coordination Group (LCICG) TINA (Technology Innovation Needs Assessment) Reports, NIC 2016 report "Smart Power"

Our Response



ESC will convene stakeholders and develop and apply **modelling and analytical capabilities** to help the UK make **strategic choices** in collaboration with industry, Gov't and academia

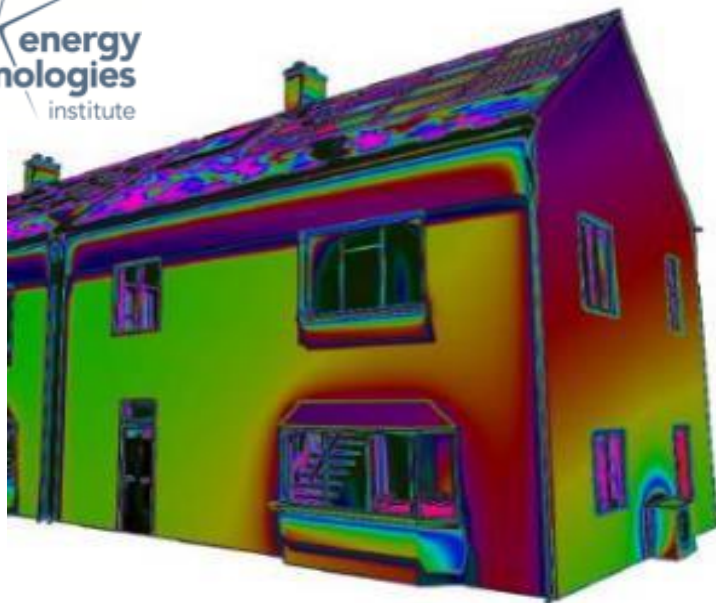
Innovation → Demonstration



Smart Systems & Heat Programme

Delivered by
CATAPULT
Energy Systems

energy
technologies
institute



The Energy Systems Catapult is delivering **Phase 1** of the SSH programme as a supplier to the ETI following transfer in November 2015

The Catapult is responsible for the development & delivery of **Phase 2** independently of the ETI

Three Local Authorities are partners in Phase 1 and Phase 2:

- Bridgend
- Manchester
- Newcastle

ETI members



CATERPILLAR



Rolls-Royce



Department for
Business, Energy
& Industrial Strategy

EPSRC
Power to the people
and the planet

Innovate UK
Innovation for the future

ETI programme associate

HITACHI
Inspire the Next

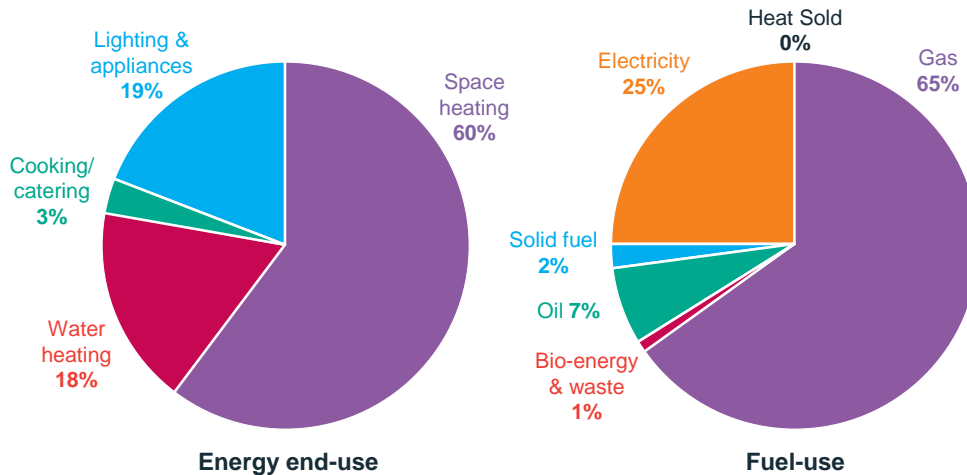
Smart Systems & Heat (SSH) Background

**Decarbonising domestic energy is unavoidable.....
for the UK to meet its' Carbon targets by 2050**

Progress is too slow -

A 50x increase in switching rates to low carbon solutions is required in the next 10 years

The heart of the challenge is heat -
~80% of domestic end use



Take up of low-carbon heating solutions needs to increase by a factor of 50 within 10 years

Less than **20,000 homes per year** are currently switching to low carbon heating.

🏠 x50



To meet carbon targets cost-effectively,
20,000 per week need to be switching by 2025.

The Purpose of SSH

.....is to identify, develop and test solutions, and enable the market to commercialise the solutions in the UK and globally



For large-scale decarbonisation of heat, we need to be atypical of today's consumer market place

Producer Orientated

(e.g. Energy Sector)

Energy sold in technical units

Confusing technical choices

Reactive / distress purchase

High capital cost demands

Bill uncertainty – client takes risk

No assurance of comfort

Varying trust in providers



Consumer Orientated

(e.g. Home improvement, media services)

Sold against desired outcomes

Focus on outcome not technology

Proactive & planned home upgrade

Smoothed financing

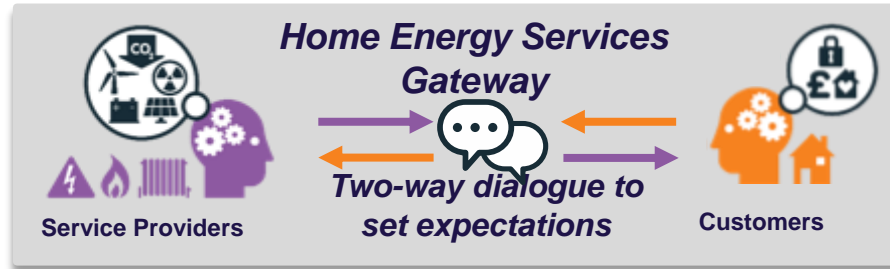
Bill predictability & peace of mind

Comfort assured

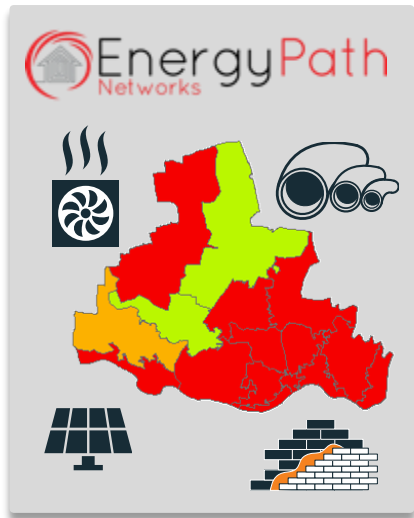
Accredited & trusted providers

Transition to consumer orientated market is essential for adoption of low carbon solutions via new energy services

ESC is creating an ecosystem to make a customer-led energy market really work



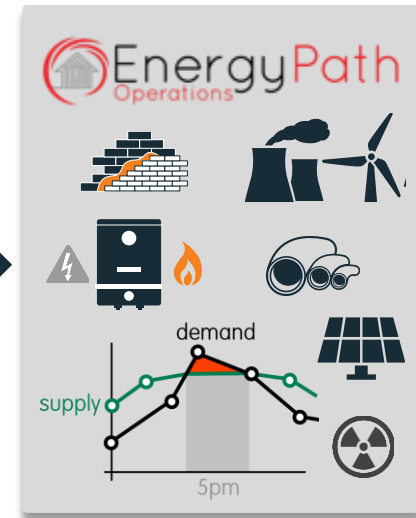
Empowered customers driving the market



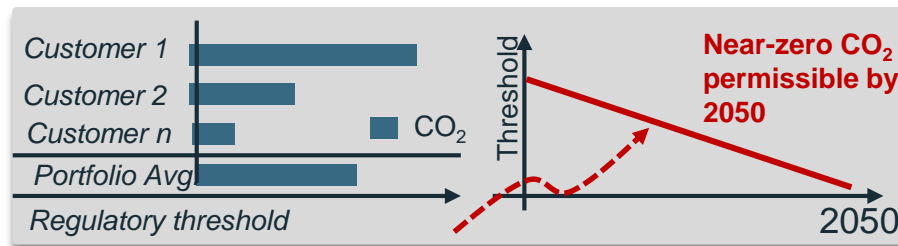
Customer-led local planning



Customer-led supply chain



Stable, technology-agnostic CO₂ policy



SSH aims to deliver value to Wales



Market-tested products and services for consumers



Proven scalable business models to enable consumer engagement and new B2B markets



Accelerating innovation in low-carbon products and services



Evidence on the best integrated solutions for different locations and circumstances



Validation of planning and design tools for Local Authorities, businesses and policy-makers



Inform policy and regulation



Increased investor confidence



Developing supply chains with new skills, and a model for roll out

- Supporting Welsh Government's agenda for low carbon innovation
- Tools to support Local Energy Planning, including Bridgend plan
- Consumer insight from Bridgend to inform Welsh Government plans
- Potential for local partnerships working with WPD, WWU, local supply chain and Universities
- Support to implementation of new business models and Welsh Government infrastructure plans for heat networks and fuel poverty

Thank you

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