Whole House Retrofit Innovation Competition

Welcome and Introduction

Tim Charters – Home Energy Retrofit

Aims of the event:

- To provide information about the competition purpose and timeframe
- An opportunity to put questions to the BEIS team.
- Network and build new relationships between different organisations with an interest in the competition.
- For BEIS to gather information to feed into the project design.

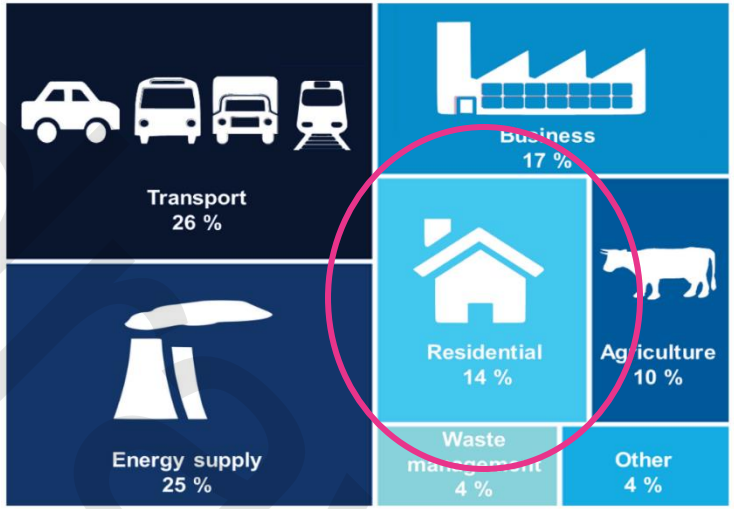
Agenda

14:00 - 14:15	Welcome and Introduction
14:15 - 14:45	Whole House Retrofit – Stakeholder Information
14:45 - 15:00	Q & A

Delivering against the Climate Change Act

- UK **Climate Change Act** sets a decarbonisation target of at least 80% by 2050 - the path to this target is based on 5 year carbon budgets. We are in the 3rd carbon budget, and at almost 40% decarbonisation (against 1990 baseline level).
- Over same period UK GDP has grown by 67%, so growth and emissions can be decoupled.
- Energy use, including transport, accounted for more than 80% of UK greenhouse gas emissions in 2016 – so it's a primary area to target for emission reductions.
- Achieving our targets with current technologies at current costs will be extremely difficult.

Transport becomes the largest emitting sector of UK 2016 greenhouse gas emissions



Industrial Strategy

We will create an economy that boosts productivity and earning power throughout the UK:

We will set Grand Challenges to put the future of the UK at the forefront of the industries of the future:

AI & Data Economy
We will put the UK at the forefront of the artificial intelligence and data revolution

Future of Mobility
We will become a world leader in the way people, goods and services move

Clean Growth
We will maximise the advantages for UK industry from the global shift to clean growth

Ageing Society
We will harness the power of innovation to help meet the needs of an ageing society

Clean Growth Strategy

The **Clean Growth Strategy**, published by BEIS in October 2017

- Sets out government policies and proposals for decarbonising the UK economy through the 2020s;
- These proposals fall into eight areas:

Accelerating clean growth;

Improving Business and Industry Efficiency;

Improving Our Homes

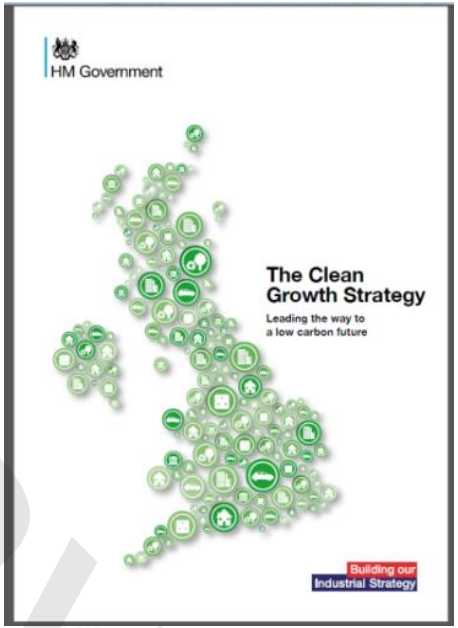
Accelerating the Shift to Low Carbon Transport

Delivering Clean, Smart, Flexible Power

Enhancing the Benefits and Value of Our Natural Resources

Leading in the Public Sector

Government Leadership in Driving Clean Growth

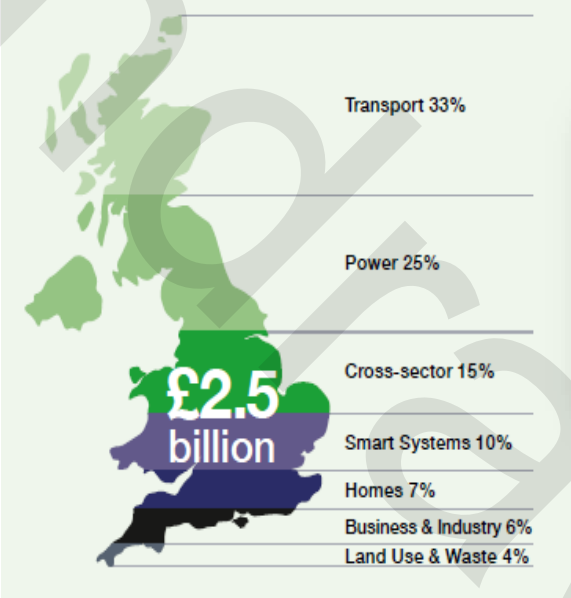


https://www.gov.uk/government/publications/clean-growth-strategy

And the key to our long term strategy is innovation

Over £2.5 billion of Government funding will be invested in low carbon innovation up to 2021, part of the largest increase in public spending on science, research and innovation in over 30 years.

The Strategy sets out, for the first time, where Government funding is targeted



BEIS Energy Innovation Programme

The overall aim of the BEIS Energy Innovation Programme is to accelerate the commercialisation of innovative cheap, clean, and reliable energy technologies by the mid 2020s and 2030s.

- Within each theme the budget is allocated to a mix of development and demonstration projects focused on specific objectives, underpinned by a programme of open, cross-cutting support
- This programme has a steep spend trajectory to 2021, and will be challenging to deliver in the compressed time frame.

£180m Nuclear
Driving down costs and building new UK supply chains and skills

£15m Renewables
Driving down the cost of low carbon electricity at scale

£100m Industry
Low carbon options for industry, lowering energy costs

£90m Built Environment
More cost effective energy efficiency and low carbon heating

£70m Smart Systems
Scaling up flexibility and looking for new storage options

£50m Cross Cutting Supporting disruptive innovations (particularly for SMEs), including using innovative finance.

UK Buildings Mission – CLEAN GROWTH

Clean Growth Mission

- Making sure every new building in Britain is safe, high quality, much more efficient and uses clean heating
- Innovating to make low energy, low carbon buildings cheaper to build
- Driving lower carbon, lower cost and higher quality construction through innovative techniques
- Giving consumers more control over how they use energy through smart technologies
- **RETROFIT** – Halving the cost of renovating existing buildings to a similar standard as new buildings, while increasing quality and safety

Whole house retrofit – What we are looking for

- Demonstrating cost reduction in whole house retrofit through innovation
  - Innovation in the approach to design
  - Innovation in use of product
  - Innovation in process
- Evidence not assertion
- Leverage other funding
  - An innovation programme not a deployment programme
- Take advantage of economies of scale

Whole House Retrofit Innovation Competition

Stakeholder Information

Lisa Groves – Principal Consultant, Ricardo Energy & Environment

Department for Business, Energy & Industrial Strategy

Whole House Retrofit Innovation Competition

£9.4m grant funding to be used to demonstrate a cost reduction trajectory for whole house retrofit.

The key **outputs** of the programme are :

- Demonstration of cost reduction through process innovation
- Evidence of sources of cost reduction
- Approximately 400 homes improved overall (at least 75 per project) and achieving at least a 30 kWh/m2 performance figure as part of an appropriate 'fabric first' approach
- Development of retrofit plans, installation of whole house retrofits, commissioning with residents, and post installation monitoring.

Aims & Objectives of the competition

- The **aim** of this innovation competition is to demonstrate cost reduction in the deep retrofitting of buildings through innovative approaches to deployment at scale.
- Each project will be expected to achieve the following **objectives**:
  - Achieve significant energy demand reduction in dwellings by applying a whole house retrofit approach;
  - Implement the whole house retrofit approach to a large number of dwellings;
  - Achieve a significant (5-20%) cost reduction for the approach selected;
  - Deliver a demonstrable cost reduction trajectory for whole house retrofit to achieve 50% reduction by 2030;
  - Provide evidence on the sources of cost reduction from scaling whole house retrofit;
  - Provide evidence on replicability of approach and deliver a road map to deployment;
  - Provide evidence of performance evaluation post retrofit, demonstrating the improvement of health, comfort and well-being of occupants and mitigate any unintended consequences;

Eligibility criteria

- Location: UK
- Maximum grant award: £4.7 million
- Each project must include at least 75 dwellings
- Consortia are eligible to apply
- Each project must be led by a single organisation
- Non-domestic not eligible
- No restrictions on:
  - Dwelling tenure type

Funding criteria – State aid

- The competition will be delivered within the terms of GBER, specifically, Article 25 (Aid for research and development projects)
- Funded activities will fall within ‘Experimental Development’
- Max. aid intensities 25-60% (according to organisation/project type)
- Suppliers will be responsible for demonstrating they comply with the general conditions of GBER and any aid intensity uplift they seek to use.

Scope of the competition

- **Cost reduction** - The project must provide evidence of cost reduction between 5-20% within the delivery of this project.
- Provide evidence of a cost reduction trajectory of 50% by 2030 of the approach taken

- **Energy demand reduction** – Bidders must demonstrate how they will achieve an energy demand target of 30 kWh/m2 which must be part of an appropriate fabric first approach for the building type

- **Process Innovation** – Projects are expected to demonstrate how process innovation can lead to cost reductions

Scope of the competition

- Projects must include in-situ performance measurement pre- and post retrofit
- Projects should plan for actions to improve post-installation thermal performance if it is shown to be significantly below that specified in the design
- BEIS expect to see process related innovations featuring strongly in achieving the ambition of 5-20% cost reduction
- BEIS also expect bidders to ‘learn by doing’ and demonstrate how this will work in practice
- Proposals should also seek to deliver improvements in the health and well-being of occupants

Eligible costs

- Funding can be used for:
  - Staff costs
  - Material costs
  - Equipment costs
  - Travel & subsistence
- Funding cannot be used for:
  - Profit
  - The development of new technologies
  - Protection of IPR
  - To cover interest payments, Hire Purchase agreements, or repay fines
  - Any VAT you are able to recover from HM Revenue & Customs

Skills required

- Due to the nature of the project, we expect bidders to have some or all of the following skills or experience within their teams:
  - In-depth knowledge about home construction and energy technology (e.g. insulation, air tightness, HVAC , air quality, etc.)
  - Understanding of planning process and building regulations
  - Consumer and wider stakeholder engagement
  - Experience at coordinating large-scale projects, in particular in the energy retrofit sector
  - Experience building partnerships between different organisations
  - Access to and experience with using building assessment, technical monitoring tools and robust approaches/methodologies
  - Experience of working in the chosen local area they are bidding for, or demonstratable knowledge of the challenges and circumstances of that area
  - Understanding of the barriers to retrofit and the impact on the mental and physical health of the occupants.
  - Basic financing knowledge
  - Training and education skills (to support building skills for local supply chain)

Monitoring & Evaluation

Portfolio level

SICE Key Performance Indicators (KPIs):

- Indicators which are a clear articulation of the desired policy outcomes
- For example: number of TRLs increased, private sector funding leveraged.

Programme level

Evaluation:

- To understand how initiatives are being delivered and potential improvements *(process / mid-term / formative)*
- To understand what impact as been achieved, for who, and why we have seen this *(Impact, outcome, end-term)*
- To assess whether value for money has been achieved. *(Economic evaluation, Vfm evaluation)*

Project level

Project Level Monitoring:

- Collection of data to understand how a programme/project is being delivered in practice.

Timeframe

June-July 2019

Application window

- Application form & guidance document published (mid June 2019)
- Q & A from potential bidders (deadline end-June 2019)
- Deadline for receipt of applications (8 weeks post launch date)

August – Sept 2019

Awarding Grants

- BEIS officials and sector experts assess applications and notify applicants of the results
- Grant Contracts awarded and milestone schedules agreed

Oct 2019 – Mar 2021

Project Begins

- Resident/stakeholder engagement
- Installation & data monitoring of homes
- Regular monitoring & reporting to BEIS Monitoring Officers
- Milestone grant claims
- Final installation report from participants 31 March 2021
- Final monitoring report 30 September 2021

Questions for stakeholders

- What are the key delivery challenges from your perspective?
- Could any of the outlined criteria be improved upon?
- Would it be beneficial to require all projects to take an area-based approach, which would include mixed tenure types?
  - What challenges would this bring about?