

ECO Innovation Showcase

6th February 2019

#ECOinnovation



Introduction

Andrej Miller, BEIS

Jon Saltmarsh, SICE



Energy Company Obligation Innovation Showcase

Introduction from BEIS

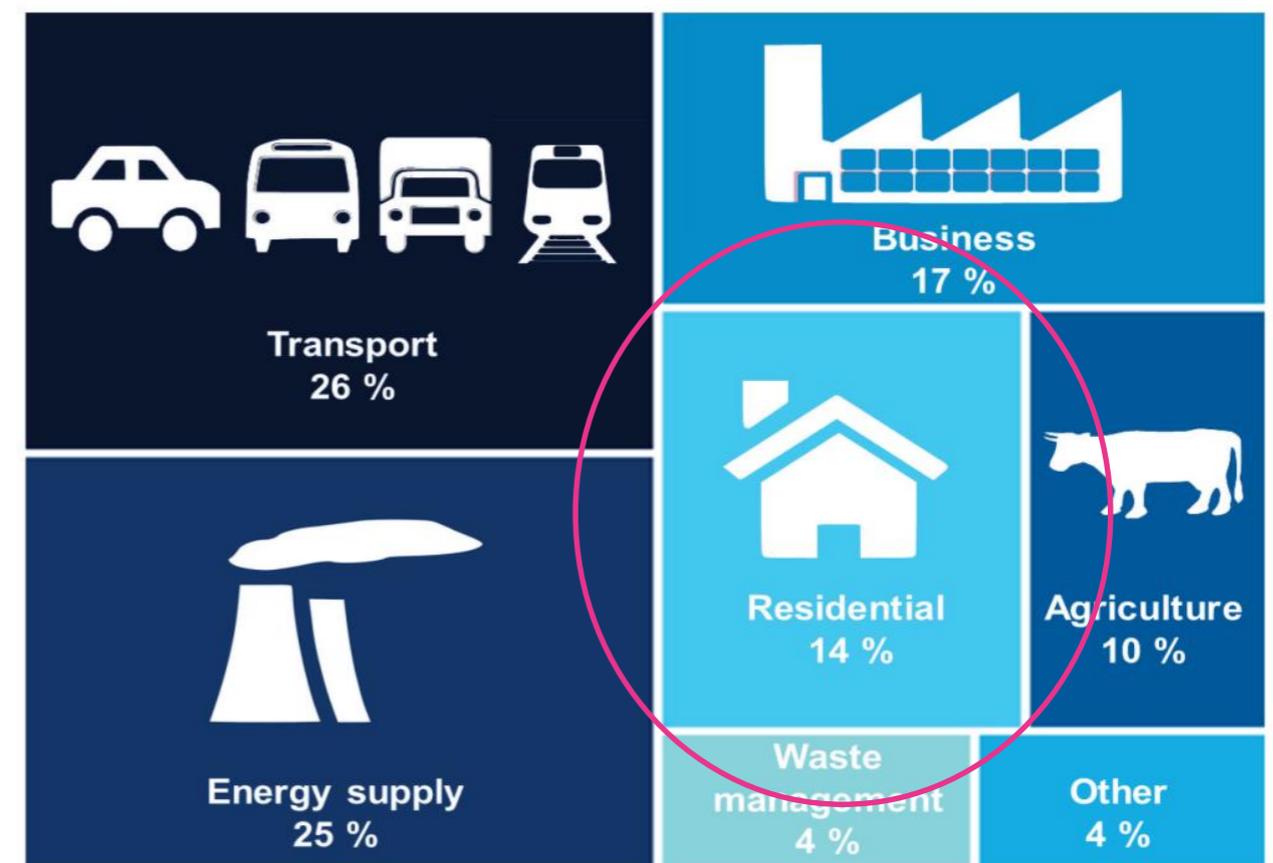
**Jon Saltmarsh – Head of Built Environment
Technology and Systems**

Andrej Miller – Head of Supplier Obligations

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



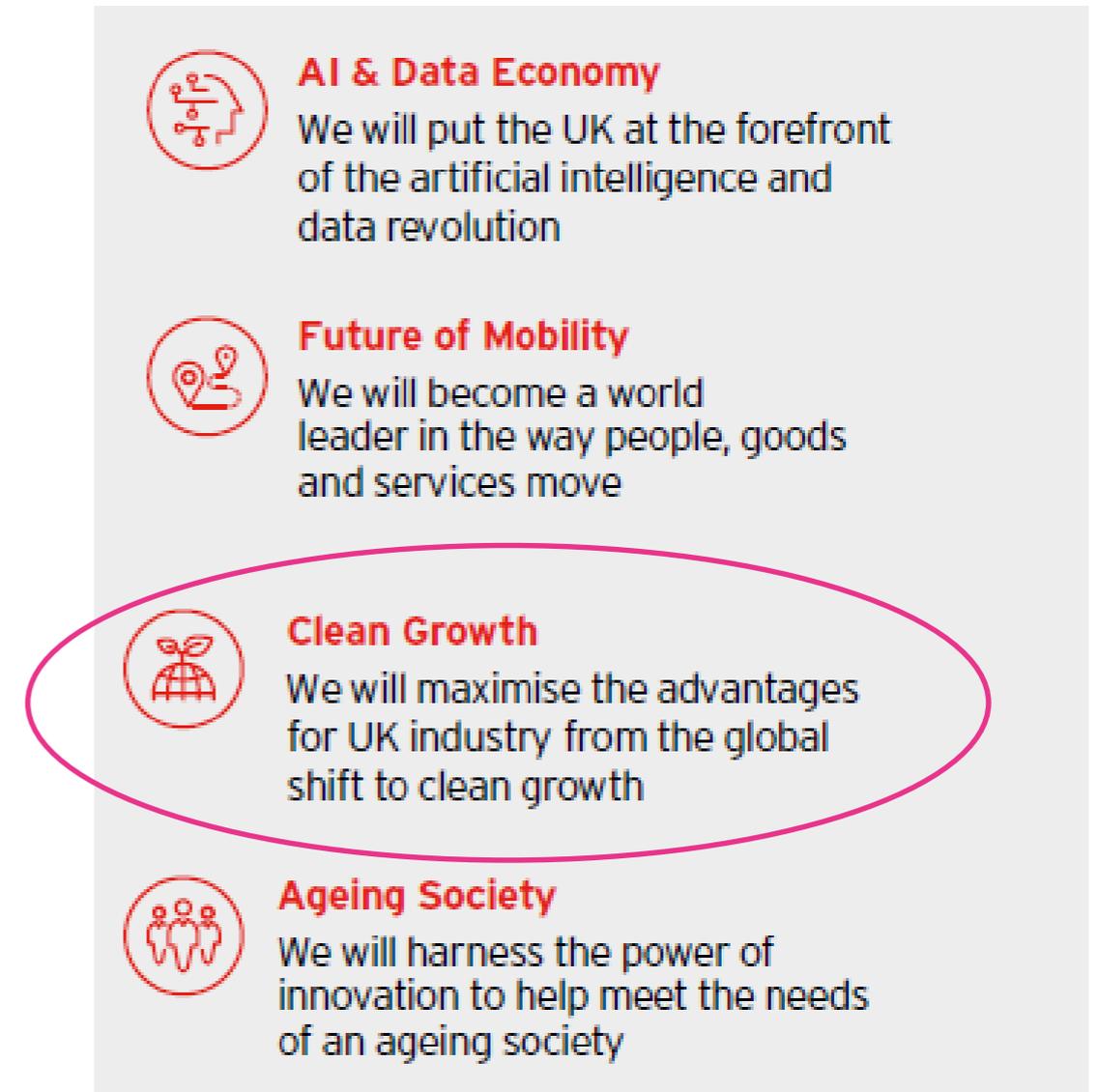
Department for
Business, Energy
& Industrial Strategy

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:



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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>



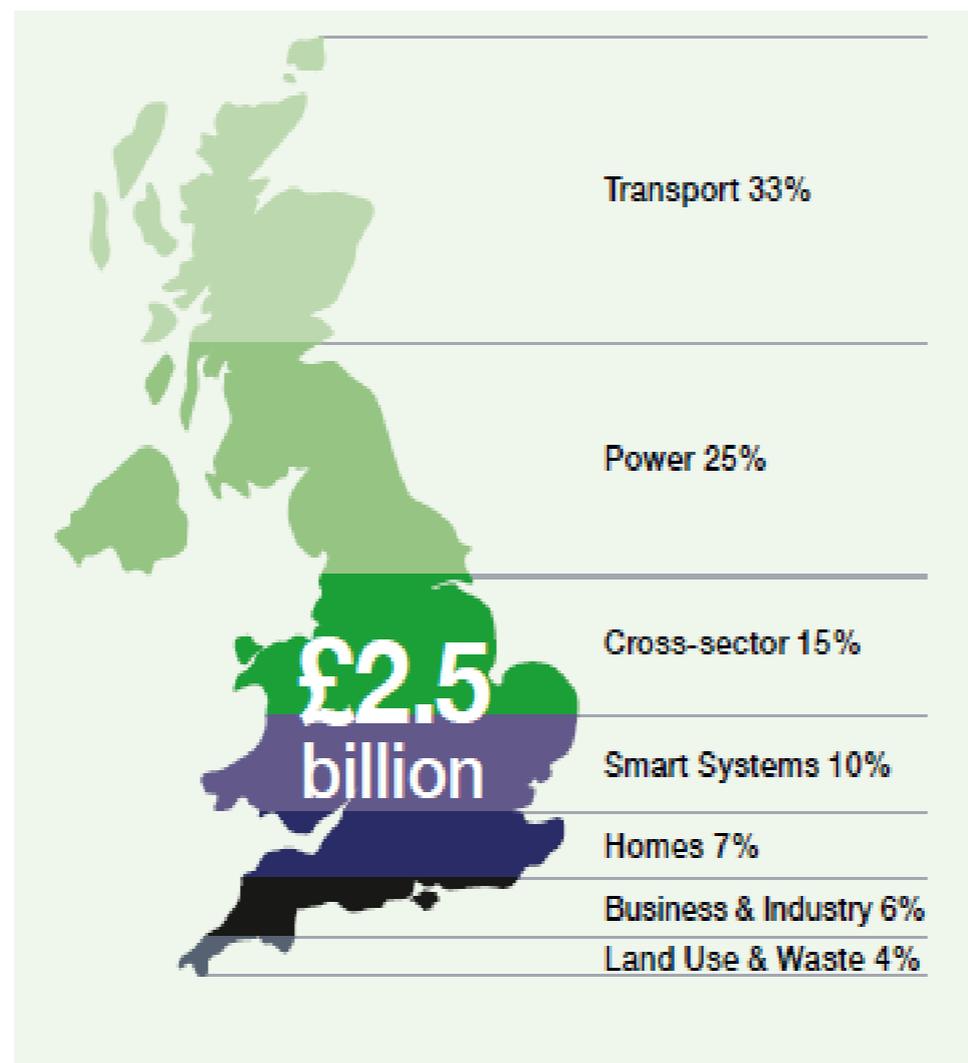
Department for
Business, Energy
& Industrial Strategy

And the key to our long term strategy is innovation



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

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.

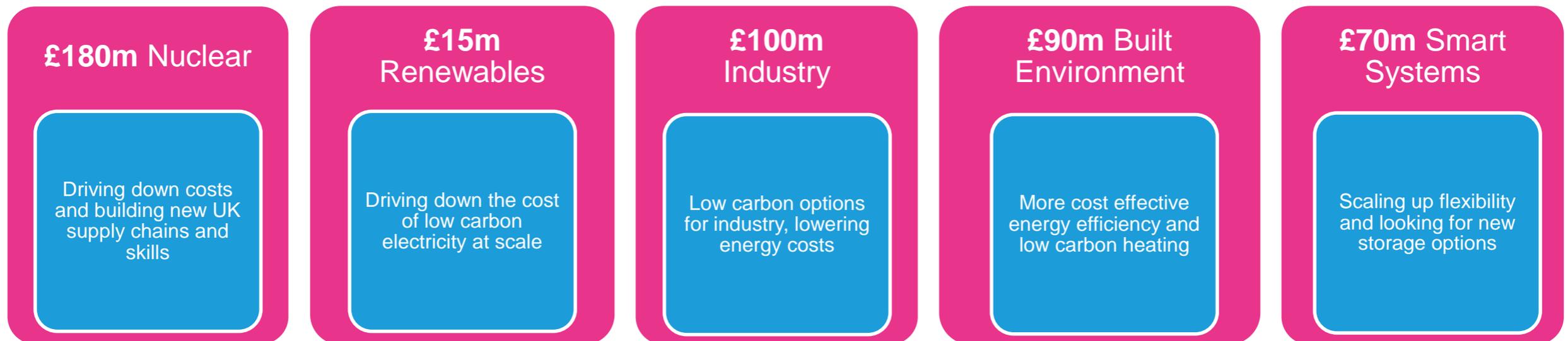


Department for Business, Energy & Industrial Strategy

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.



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



Stimulating innovation in building thermal efficiency

- £10 million call for innovative proposals for thermal efficiency technology
- 12 successful projects shared £7.5 million of grant funding to develop their solutions
- Wide range of technologies including:
 - Development and provision of energy services to customers that reduces the cost and hassle of running a home
 - Develop and pilot a Whole-House approach to retrofit and release toolkit for industry use across the UK
 - A solution to measure, predict and optimise energy consumption in commercial buildings adopting a complete “whole building approach” to drive down costs
 - Retrofit optimisation using data collected from a low cost, smart Thermostatic Radiator Valve

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Overview of ECO Innovation Guidance

Jessica Kissack, Ofgem
Kay Popoola, BEIS



ECO3 Innovation



Jessica Kissack
January 2019

Overview

- **Innovation routes**
- **Ofgem Guidance**
- **Key eligibility criteria**
- **Determining savings**
- **Delivery and application process**
- **Performance monitoring**
- **Safety and Aftercare**

1. Innovation routes

Demonstration actions

- New measure types at TRL 8 or 9 (have previously been tested in a laboratory setting and now require testing at scale in a live environment, or are marketable products that are being sold in the market and may need additional support).

Innovation measures

- Existing measure types but are distinguished from those previously delivered under ECO1 and ECO2 by having, for example, an improved material that can demonstrate improved energy efficiency performance, or an improved installation technique.

Monitored measures

- Existing measures that have modern monitoring technology installed alongside to measure the actual energy efficiency performance of homes that have received energy efficiency measures over time.

2. Ofgem Guidance

This is aimed at obligated suppliers and the supply chain. The document covers the following areas:

- Delivery caps and meeting of obligations
- Eligibility
- Determining ECO Savings
- Applications
- Notification of completed measures
- Monitoring
- Safety and Aftercare

Key considerations for the supply chain have been pulled out in the slides below.

3. Key eligibility criteria

| | Demonstration Actions (DA) | Innovation Measures (IM) | Monitored Measures (MM) |
|---|--|--|--|
| | New measure types at Technology Readiness Level (TRL) 8 or 9 | Mainly existing measure types but - better performance, and/or - more cost effective and efficient | Existing measure types with monitoring equipment installed alongside |
| Eligible Households | | | |
| Must meet general eligibility criteria for ECO3? | YES | YES | YES |
| Can also be installed to Social Housing with an EPC of D? | YES | YES | NO |
| Heat generation sources, DHS and repairs | | | |
| Eligible if equipment generates heat wholly or partly from oil? | NO | NO | NO |
| Eligible if equipment generates heat wholly from a non-renewable source (other than oil)? | NO | NO | YES |
| Eligible if a repair? | NO | NO | NO |
| Eligible if a DHS connection? | YES | NO | NO |
| Other requirements | | | |
| Must be 'materially different'? | YES - to any measures delivered under ECO1, ECO2 and ECO3 | YES - to any measures delivered under ECO1, ECO2, and ECO3 (unless innovation measure) | NO |
| Cost savings (Cost savings refer to <u>space heating</u> cost savings. A measure that only achieves <u>hot water</u> cost savings is not eligible.) | Must be reasonably expected to achieve cost savings | Must be capable of achieving cost savings | Must be capable of achieving cost savings |
| Must demonstrate Value for Money? | YES | N/A | N/A |

• (cont'd)

| Demonstration Actions (DA) | Innovation Measures (IM) | Monitored Measures (MM) |
|--|--|--|
| New measure types at Technology Readiness Level (TRL) 8 or 9 | Mainly existing measure types but - better performance, and/or - more cost effective and efficient | Existing measure types with monitoring equipment installed alongside |

| Monitoring | | | |
|---|---|---|---|
| Must include performance monitoring? (monitoring of cost savings achieved) | YES | NO | YES |
| Must be technically and score monitored? | YES - bespoke technical and score monitoring arrangements to be included in application | YES - standard ECO3 technical and score monitoring requirements apply | YES - standard ECO3 technical and score monitoring requirements apply |
| Safety and Aftercare | | | |
| Must provide assurance that the measure is safe and can be installed in a safe way? | YES (for measure and monitoring equipment) | YES (where existing product/installation standards do not apply) | YES (for monitoring equipment only) |
| Aftercare arrangements must be in place? | YES (for measure and monitoring equipment) | N/A (already covered by wider scheme requirements) | YES (for monitoring equipment only) |

4. Determining ECO Savings

DA

- 5.2 x supplier spend

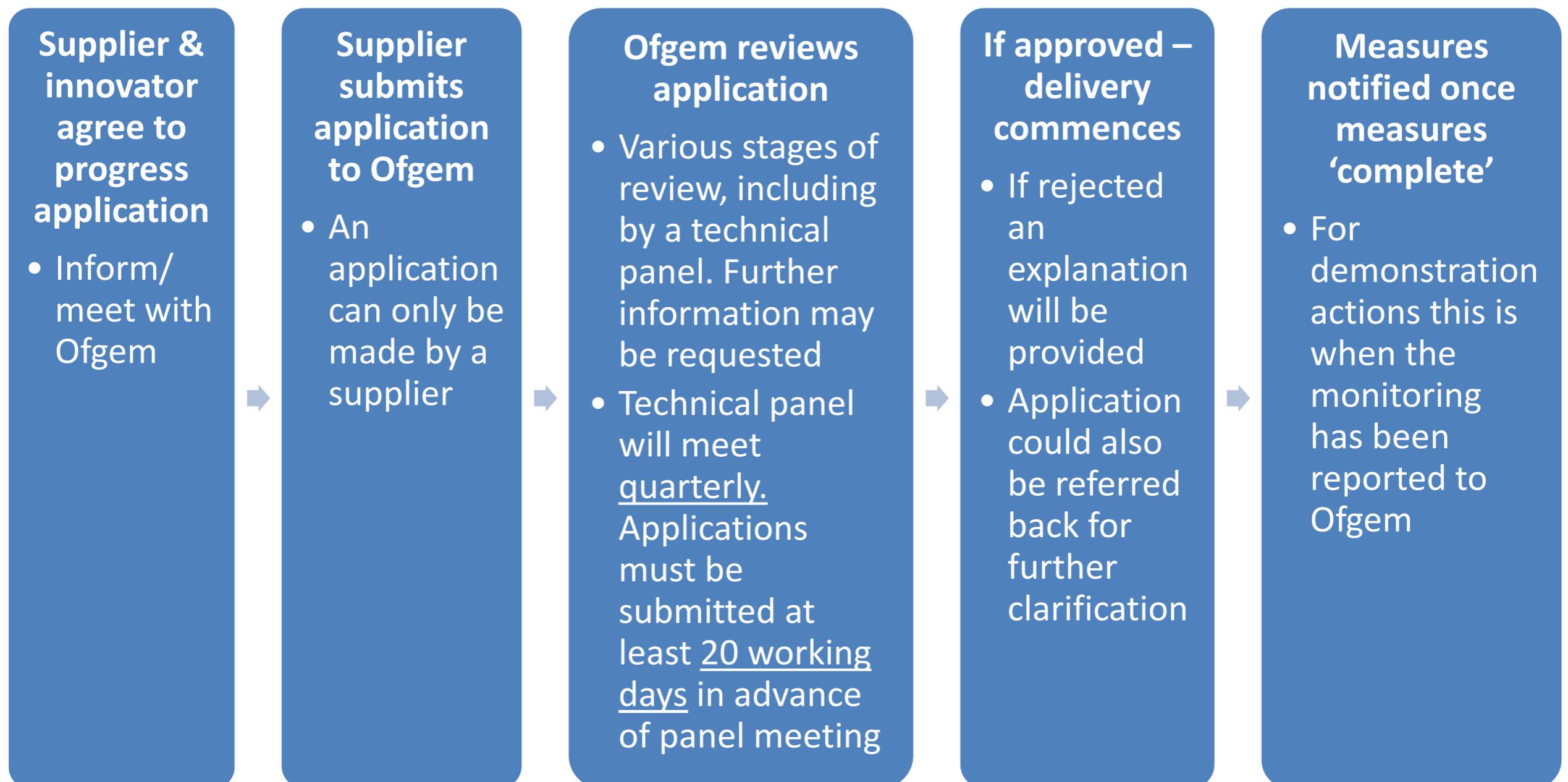
IM

- 25% uplift to deemed score

MM

- Cost savings /
adjustment factor

5. Delivery and application process



6. Performance Monitoring

Demonstration actions and Monitored measures both require performance monitoring of the measures to be conducted.

- Monitoring arrangements will depend on the measure type in question – there is no standard approach.
- The monitoring sample must be representative of the wider population, and the methodology must explain how any bias introduced by parameters outside the scope of the measures being installed is being accounted for.
- The methodology should include a suitable period of monitoring both before and after the installation of the measures, and the description of the methodology should include the justification for the length of the periods and whether they are in the same heating season or span two consecutive seasons.
- Results must be reported to Ofgem once monitoring is complete.

7. Safety and Aftercare

Safety

- Recognition that some innovation measures may not have product and installation standards or certification
- Need to be assured that these are being worked towards, and that the measure can be safely installed in households
- Information about testing, existing certification, and any health and safety checks must be provided as part of the application

Aftercare

- Demonstration actions must have suitable aftercare arrangements in place
- This must include information on who to contact in case of fault; operational manuals; guarantee/warranty information etc

The innovation guidance is available here:

<https://www.ofgem.gov.uk/publications-and-updates/eco3-innovation>

ECO Innovation Routes and SAP

Katy Read, BEIS



ECO Innovation and SAP

February 2019



Widening the market for innovative products

- Any product accepted as a 'Demonstration Action' under innovation in the ECO scheme will be able to be installed in eligible homes.
- Evidence collected through the demonstration action can be used to help ensure these products reach a much wider market.
- This can be achieved through recognition in the Standard Assessment Procedure (SAP).

What is SAP?

- The Standard Assessment Procedure (SAP) is the national methodology for assessing the energy performance of homes
- A SAP assessment results in annual estimates for the home of:
 - the energy demand,
 - the running costs
 - the carbon emissions
- These appear on an energy performance certificate (EPC) certificate.
- It takes into account the energy performance of technologies in the home.
- SAP must be used to demonstrate that **new homes** comply with Building Regulations.
- It is also used for **existing homes** (in a simplified form – ‘RdSAP’) to produce an EPC.

What's the purpose of EPCs?

- Provide information to consumers about energy performance.
- Raise awareness of actions that can be taken to improve energy performance.
- A wide range of government policies have started to rely on these. For example, homes must be a minimum of EPC Band E in order to be newly let as of April 2018.
- They are also likely to be used outside of government, such as for green mortgages.

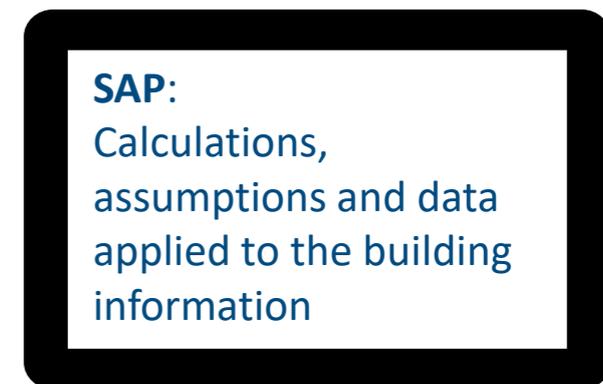


Fabric
Insulation
Heating system
Lighting
Ventilation
Renewables

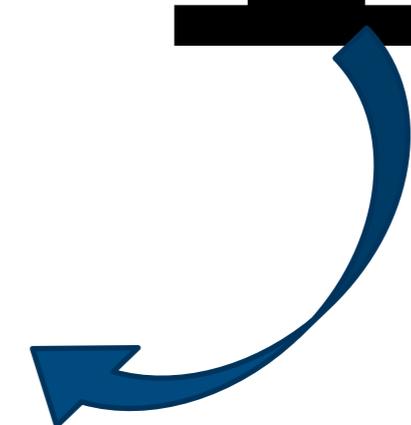
Not appliances or cooking



Energy assessor
submits
information
about the
building into the
SAP model



SAP:
Calculations,
assumptions and data
applied to the building
information



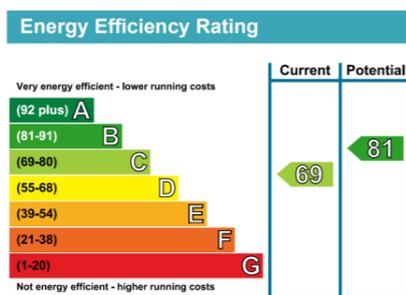
Estimates of
annual energy
demand, primary
energy demand,
costs and carbon
emissions
produced



BEIS policies:

- RHI
- FITS
- Fuel poverty targets
- ECO
- PRS
- Reporting
- CGS targets

EPC generated



Current rating 64



Potential rating 77



Recognising innovative products in SAP

- Your product may be suitable for being recognised in SAP.
- This would mean it is one of the measures that:
 - Housebuilders could choose to help them comply with Buildings Regulations
 - Consumers may choose to help improve their EPC rating
- To do this, manufacturers can submit performance data to the '[Appendix Q Database](#)', which is part of SAP.
- Once accepted, this can feed through to energy assessments. This can help widen the market for your product.

Performance data and evidence



Appendix Q Database



SAP



How?

- The important first step is to ensure the data and evidence you plan to collect through the demonstration action will be sufficient to prove the performance in SAP.
- BRE are BEIS' contractor who maintain and develop SAP. They can advise you on what data you should be collecting.
- Discuss with them before finalising the monitoring arrangements.
- Once you have the evidence, you can then seek to make an application to Appendix Q.
- This process should also enable your product to get a 'deemed score' under ECO and become a standard measure after it has been approved by the Technical Advisory Panel.
- For more information about Appendix Q: <https://www.ncm-pcdb.org.uk/sap/page.jsp?id=18>