The background of the page is a solid orange color with a pattern of stylized, overlapping leaf shapes in a lighter shade of orange. The leaves are scattered across the page, with some larger and more prominent than others. The text is centered in the upper half of the page.

Helpful Information and Tips for Manufacturers and Innovators on Gaining Access to Government Energy Efficiency Schemes

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INTRODUCTION

The [Sustainable Energy Association \(SEA\)](#), with support from [TrustMark](#), [BSI](#) and the [BRE](#), have written this helpful tips paper to support manufacturers and innovators of energy efficiency and low-carbon heating products. The purpose of this work is to highlight challenges in getting innovative products installed under government schemes, and to help provide options for engagement with the key stakeholders involved. There is a particular focus on providing helpful tips regarding engagement with the PAS 2035/2030 standard and the Standard Assessment Procedure (SAP), which are now fundamental requirements of entry into most government-funded schemes.

At present, the market for energy efficiency and low-carbon heating products is supported by the availability of grant funding. Many large-scale retrofit projects are driven by government policy. This means that suppliers of new products and solutions are in an emerging market and are, therefore, reliant on such schemes to demonstrate the benefits of their products at scale and subsequently gain acceptance to the wider market. The schemes offering this funding (including, but not limited to, the [Energy Company Obligation \(ECO\)](#), [Home Upgrade Grant \(HUG\)](#), and [Social Housing Decarbonisation Fund \(SHDF\)](#)) have regulations or rules and standards in place, to ensure that measures and products are installed correctly and do not cause unintended consequences when interacting with other measures. While such controls and protections are obviously necessary, these requirements may pose challenges to innovators, and present barriers to market for the solutions that we will need if we are going to meet our ambitious carbon reduction targets.

We hope to work with the relevant organisations to make improvements to the processes over time, but in the meantime, here is a collection of useful information that may help overcome these barriers.

This document outlines the **challenges** faced by industry to get innovative products into government schemes; the **major stakeholders, systems and**

standards that play a part in the innovation process; who/what they are; and why they are important. The document ends with **several tips and best practice suggestions** to help you get started on your journey.

Be prepared though, there is not a streamlined and well signposted methodology for businesses to utilise to get their products certified and ready for government schemes; industry support is lacking, and the process requires time, cost and effort. More information on this can be found in the SEA's report, ['What Next for Heat and Buildings?'](#).

The Challenges Facing the Industry

- There is a lack of a clear roadmap for the delivery of innovation via the Government's funded schemes, and there is no dedicated resource in the Government to handle the introduction of innovative products.
- Excessive time and resources are required to identify who the key decision makers are, and understand and get through the processes involved when a manufacturer wishes their products to be eligible for installation within the schemes. The access requirements can also differ between schemes.
- Many of the associated steps required for getting products recognised within SAP are not designed with innovation in mind. The infrequent periodic review of SAP means there are long waits for approval into accreditation schemes, as well as for amendments.
- Regulatory bodies are typically slow to make decisions over the inclusion of innovative products within SAP, or changes to existing frameworks.
- Understanding the implications of the installer standards, like PAS 2035/2030, is difficult. They can have significant impact, and yet, are aimed at those delivering energy retrofit projects or installing products, as is the available guidance. Product manufacturers are often asked if they are PAS compliant, despite the standards not being intended for products.

- Given the number of organisations involved in regulating the sector, it is unclear who is responsible for what. The myriad of stakeholders: Ofgem, BSI, Trustmark, BEIS, BRE, etc., can be especially confusing for newcomers into the market.
- The whole ecosystem of subsidised retrofit has generally been configured around deploying single measures at the lowest cost, delivered by traditional craftspeople. New ambitious approaches that deliver high performance and desirable consumer propositions fit for 2050, struggle, as most of the funding is spent supporting incremental improvement of today's measures and developing the skills and systems to reinforce the status quo.
- The current government-funded schemes that require PAS 2035/2030, are for Whole House Retrofit projects, and are aiming to move away from the single measure solutions of the past. The significant issue around using innovative measures, is that while you may be able to demonstrate it is safe to use and will save energy (as claimed and proven) it is less easy to demonstrate what happens when it is used in combination with other measures, which is a key requirement.



KEY STAKEHOLDERS, SYSTEMS AND STANDARDS

BEIS

[The Department for Business, Energy and Industrial Strategy \(BEIS\)](#) is the government department that oversees relevant energy efficiency policies and funding schemes (ECO, HUG, SHDF, etc.). BEIS will ask for feedback through official government consultations and meetings with trade associations, and it is in these opportunities where true change can occur. BEIS is also a great place to go to ask for advice, should you feel stuck in this process.

Please email enquiries@beis.gov.uk

BRE

The [Building Research Establishment](#) (BRE) is a centre of building science, based in the UK, which is owned by the charitable organisation, the BRE Trust. They manage SAP on behalf of the Government and are a key contact for innovators.

The BRE offer services and guidance on how to get your product into SAP.

The BRE also provides:

- o **Innovation Parks**, to showcase and demonstrate innovative products.
- o **Third-party certification**, which involves the checking of manufacturing processes and services, to ensure that they meet international safety, quality and performance standards.

- o **Verifications** from BRE can help provide customers with confidence that a company's claims are credible, through a process of independent assessment and validation of evidence.
- o **Testing**—the BRE provides testing facilities for manufacturers.

BSI

[The British Standards Institution \(BSI\)](#) is a service organisation that produces standards across a wide variety of industry sectors. They facilitate the creation and ongoing development of PAS 2035/2030. They achieve this by establishing a steering group of stakeholders, selected from relevant fields, that agree developments to the document through a consensus process.

Innovate UK

[Innovate UK](#) is the UK's national innovation agency, supporting business-led innovation across all sectors, technologies and UK regions. They help businesses grow through the development and commercialisation of new products, processes and services. It is a non-departmental public body, operating at arm's length from the Government, and provides money and support to organisations to make new products and services.

MCS

[Microgeneration Certification Scheme \(MCS\)](#) certifies, quality assures, and provides consumer protection for microgeneration installations and installers. The scheme focuses on low-carbon technologies, such as solar thermal, heat pumps or biomass. The PAS 2035 standard defers to MCS in the case of the installation of low-carbon heating technologies. Most government funded low-carbon heating schemes only require MCS certification, as opposed to the whole PAS 2030 standard.

Ofgem and ECO

[Ofgem](#) is Great Britain's independent energy regulator. Ofgem operates within a statutory framework set by Parliament. The Government is responsible for setting the policy for the energy sector and proposing any changes to this statutory framework. Ofgem plays a key role in supporting key policy areas, such as decarbonisation.

With regards to innovation, Ofgem is most relevant, through its duty to **administrate** the Government's [ECO scheme](#). At the time of publishing this paper, in August 2022, we are at the end of the third iteration of the Energy Company Obligation, which obligates energy suppliers to install energy saving 'measures' into vulnerable and low-income households and offers routes to market for innovation.

Below is the Government's proposal on the next iteration of ECO (ECO4). This is a useful read to get a sense of what is changing in this space for the future.

[Consultation on the Design of the Energy Company Obligation ECO4: 2022-2026.](#)

Further information on ECO can be found on the Government website (www.gov.uk) and Ofgem website (www.ofgem.gov.uk).

PAS 2035/2030

There are two important Publicly Available Specifications (PAS) for this sector— PAS 2030 and PAS 2035. These previously separate documents are now combined as PAS 2035/2030:2019.

PAS 2035 is a process standard for 'retrofitting dwellings for improved energy efficiency', and is concerned with coordinating, assessing, designing, and evaluating energy efficiency retrofits in domestic dwellings. The process involves identifying areas where improvements can be made and specifying and designing the relevant improvement measures. It is also concerned with the monitoring of domestic retrofit projects, and defines responsibilities and qualifications for the retrofit roles within. **PAS 2035 is a risk management process.**

PAS 2030 provides the requirements for the installation part of the process and is a 'specification for the installation of energy efficiency measures in existing dwellings.' Installers are certified against the standard and use PAS 2030 to

demonstrate that they have installed energy efficiency measures that meet the required specifications. Please note, that PAS 2030 does not enable conformity with other areas within the TrustMark standard, such as lodgement and financial protection—it is just a technical specification.

Businesses can achieve certification to PAS 2030 to ensure the compliance of their installations. PAS 2035 does not underpin certification, but it is a standard that sets out the requirements to which those delivering funded retrofit projects must meet. The PAS documents are to be taken as a whole, as they are inextricably linked.

PAS 2035 is the overarching standard in the Retrofit Standards Framework, i.e., it ‘calls up’ multiple applicable standards. It is designed to provide clear guidance through a procedure for those delivering a retrofit project, which takes a holistic (‘whole-house’ or ‘whole building’) approach, to prevent piecemeal retrofits that can lead to negative, unintended consequences.

Most current government-funded schemes (*including those that provide an opportunity for innovation and demonstration*) require retrofit projects to follow the PAS 2035 process, including installation by a PAS 2030-certified installer. Projects need to be lodged with TrustMark. Whilst these requirements are mainly targeted at those delivering energy efficiency improvements, there are three impacts on manufacturers:

1. PAS 2030 recognises a limited number of measure types, such as loft insulation, external wall insulation, or a boiler installation, and has, to date, been updated only periodically. There is no clear route for an innovative technology or product, which does not fall into an existing measure type, to be installed as part of a PAS 2035 retrofit project.
2. PAS 2030 certification bodies provide certification for the installers of measures included in PAS 2030. Initial conversations with a small number of certification bodies suggests that the cost of creating a set of bespoke requirements for a new measure type (which would often be the case for innovative products) may be beyond the reach of most innovative SMEs.
3. The requirement for a long-term insurance to backup warranties is largely unobtainable for a small number of innovative measures. Insurers are, understandably, risk-averse, and there is little incentive to

understand novel technologies or applications. Claims against materials or approaches result in a general blockade for the product in question, even if, in the future, the product is further developed to a higher standard.

Future Developments of PAS 2035/2030

PAS 2035/2030 was fully adopted in October 2021, when PAS 2030:2017 was withdrawn as a stand-alone document. PAS 2035/2030 was further amended in 2022, as [PAS 2035/2030:2019+A1:2022](#).

Following that, BSI and BEIS have agreed, in principle, to adopt an annual review and revision cycle for the document. This is aimed at providing a quick response to feedback from industry, as they adopt and use the standard. Another element is to allow for the adoption of innovative products and processes as they gain acceptance in the market, as the expectation is that more solutions will become available.

The new revision project will run to Spring 2023, when an updated version of PAS 2035/2030 will be published. Addressing the need to accommodate innovative measures is one of the key proposals in the scope of works.

A new steering group will be established to agree changes to the standard. Recent feedback from government and industry will be fed into the development phase, and workshops will be held to agree a set of changes. As with all BSI standards projects, a period of public consultation will be held.

Information on BSI projects can be found here: <https://standardsdevelopment.bsigroup.com/>, including links to public consultations.

SAP

The [Standard Assessment Procedure](#) is the methodology used by the Government to assess and compare the energy and environmental performance of dwellings. SAP works by assessing how much energy a dwelling will consume when delivering a defined level of comfort and service provision. The assessment is based on standardised assumptions for occupancy and behaviour.

SAP is used to underpin the delivery of several key energy and environmental policy initiatives, for example:

- Buildings Regulations for England and the Devolved Administrations.
- [Energy Performance Certificates \(EPCs\)](#). The SAP methodology underpins the EPC, which can only be produced by a qualified and accredited assessor. Domestic Private Rented Sector Regulations set standards using EPCs for the energy performance level at which homes can be rented out. SAP quantifies a dwelling's performance in terms of energy use per unit floor area, a fuel-cost-based energy efficiency rating (the SAP Rating). Different measures/products have a SAP score associated with them.

Many innovative technologies improve the energy efficiency of dwellings in novel ways, which may not be fully captured by SAP. Updates to SAP are infrequent and capturing the impact of individual technologies may be outside the scope of an update. Given the requirements of funded schemes to measurably improve the EPC rating of homes, this presents a barrier to the adoption of innovative products. SAP Appendix Q has been developed to enable the performance data from these new technologies to be integrated into the existing SAP assessment calculation for energy efficiency evaluation. The SAP Appendix Q website holds a searchable database of all approved technologies that can be entered into SAP under [Appendix Q](#). Find out how to get your product into SAP Appendix Q below.

TrustMark

[TrustMark](#) is the only Government Endorsed Quality Scheme for work done in and around the home. The purpose of TrustMark is to drive up consumer confidence through its network of licenced Scheme Providers and their TrustMark Registered Businesses. TrustMark Scheme Providers commit to meeting the Framework Operating Requirements and ensuring their TrustMark Registered Businesses maintain required standards of technical competence, consumer protection and trading practices.

To support this activity, TrustMark licenses and audits Scheme Providers with over 15,000 TrustMark Registered Businesses. These encompass 156 different service types, including: plumbers, electricians, installers and builders.

It is important to note that TrustMark does not set the technical standards. However, TrustMark, like the other stakeholders listed above, may be able to help connect you with the right organisations, should you require assistance.



HELPFUL TIPS

Get your Product into SAP

Practically all government-funded energy efficiency schemes require products to have a SAP score associated with them. This means your innovative product must be recognised within SAP as a starting point.

Your product may already be well aligned to a measure category (family of products, e.g., insulation or heat pump). Suppliers can get new products that use technologies already recognised in SAP (e.g., heat pumps, boilers, etc.) listed on the Product Characteristics Database (PCDB), see https://www.ncm-pcdb.org.uk/sap/_searchpod.jsp?id=17. The process is relatively quick and straightforward, and just requires the specified performance data to be submitted to BRE. The PCDB is updated monthly.

However, if this is not the case, and you have a completely new technology, you will need to get your measure recognised in SAP through the SAP Appendix Q process, see <https://www.ncm-pcdb.org.uk/sap/page.jsp?id=20>.

The performance of a newly recognised technology/product is initially assessed using data held in the [Appendix Q database](#). BRE is happy to engage with manufacturers of innovative products and provide options to get a product into SAP. This is a good first port of call, and early engagement with them will help. You can contact them at this email address: SAPQ@BRE.co.uk.

Consider Working with an Energy Supplier via the ECO Route for Innovation

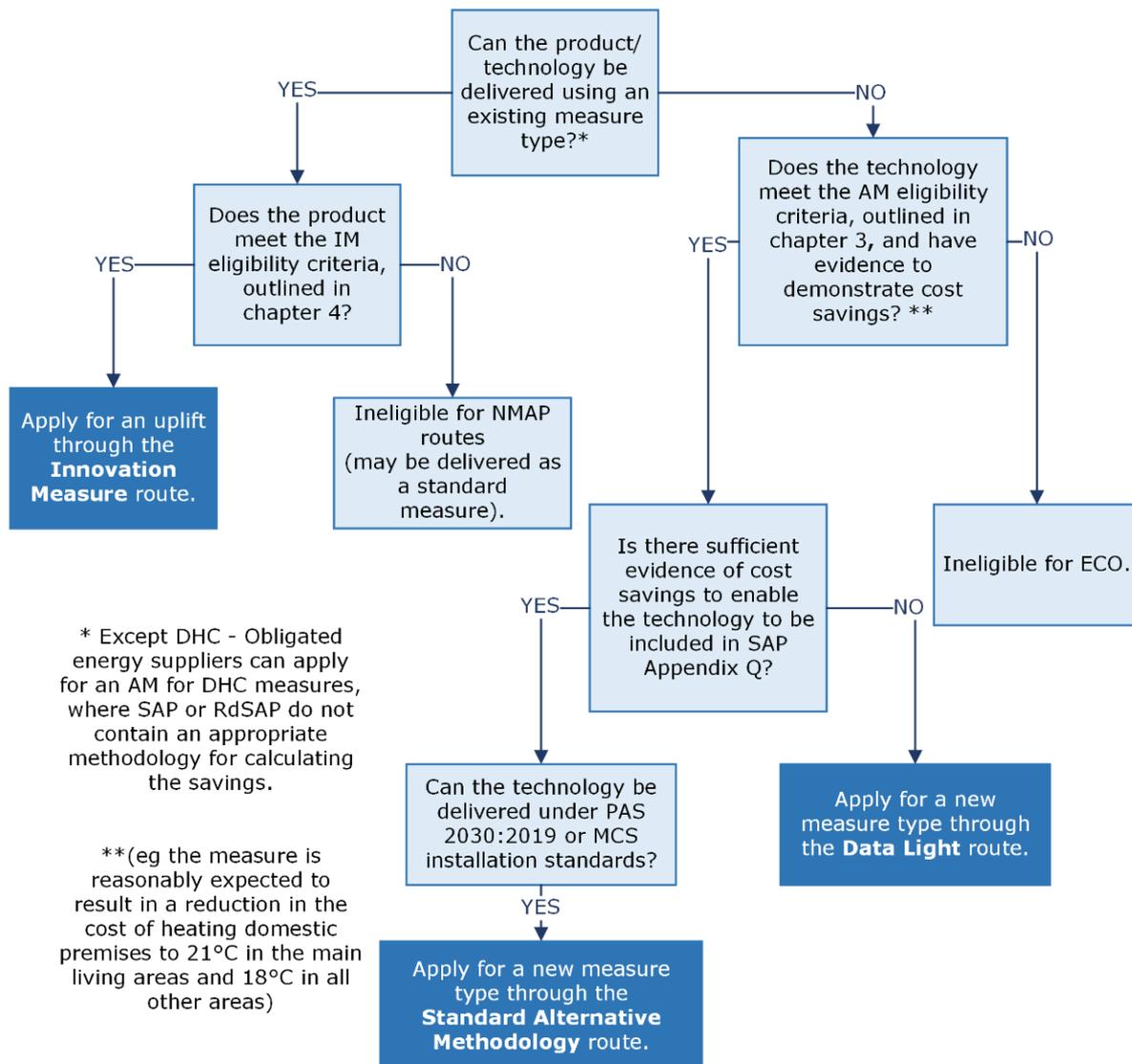
Working alongside an Energy Company (e.g., EDF, E.ON, etc.) has proven to be beneficial in getting products into SAP via the ECO Scheme. This provides an alternative option.

Innovation guidance on the scheme, from Ofgem, can be found [here](#).

ECO currently offers support for innovation via three different routes:

1. **Standard Alternative Methodology (SAM)**—A route for awarding a new measure type for technologies deliverable under PAS 2030:2019 or the MCS, and not currently recognised in SAP, nor deliverable through the scheme under an existing standard measure type. The evidence of cost savings must be of a similar level as required for inclusion in SAP as a space heating measure. A successful application will result in a new measure type and partial project score being created.
2. **Data Light Measures (DLMs)**—A route for awarding a new measure type and set of scores for technologies not currently deliverable through the scheme under an existing measure type. The DLM route requires less extensive evidence to support the space heating cost savings than the SAM route. Applications must be for a technology certified by a party accredited to ISO/IEC 17065:2012. A successful application will result in the creation of a new DLM type and a set of partial project scores. Each DLM will be capped at 1,250 qualifying actions per annum, under any specific DLM type description.
3. **Innovation Measures (IMs)**—A route for awarding an uplift to measures that can demonstrate an improvement over comparable measures currently deliverable under ECO. Following a successful application, a description of the IM will be published, and a score uplift can then be awarded to products meeting that description. Either a 25% or 45% uplift can be awarded. Please note that applications must include the specific product(s) that the applicant intends to promote as IMs.
 - a. Measures delivered under this route are capped.
 - b. Please see below a useful flowchart (taken from the official Ofgem guidance, linked [here](#)) to help you decide how to get your products into ECO, and, therefore, eligible for installation under the government-funded scheme. **A new measure may fit within**

an existing TrustMark trade if it does not a new trade would need to be created. This will require defined competence and technical standards and will also require the support of a TrustMark Scheme Provider(s) in order to register businesses for that trade. Likewise, the new measure will require appropriate financial protection.



Be Aware of Available Government Funding and Qualifying Criteria for the Different Government Schemes

Innovate UK provide details on available **government funding**. Please search on: [Innovation Funding Service](#), [KTN Opportunities](#) and [UKRI Funding Finder](#). There are usually different funding schemes available depending upon current government focus.

Check the requirements of the latest government funding schemes. Eligibility and product requirements will differ depending upon the scheme.

For example, for products to be installed under ECO, SHDF, HUG, and LAD schemes, installations must be completed by TrustMark Registered Businesses, and to PAS 2035/2030:2019 standards. MCS standards apply to low-carbon heating installed under those schemes.

However, the Boiler Upgrade Scheme only requires MCS standards, with no requirement for TrustMark or PAS 2035/2030.

Considerations when Seeking to Demonstrate Compliance with PAS 2035/2030

The following information outlines areas that could be considered when seeking to demonstrate a new product complies with PAS 2035/2030 requirements. The key sections of the PAS are included in brackets for further information:

1. Understand the inherent technical risk of installing your product (PAS 2035, Annex B, Table B.2).
2. Understand the interactions of your product with other measures (PAS 2035, Table B.1, Criterion 4, and Figure D.1).
3. Independent validation of the performance of your product from testing, not just modelling.
4. Specifying installer competencies, i.e., the skills required to install your product (see annexes of PAS 2030 for examples).

5. Identifying a Certification Body to certify installers of your product
6. Incorporation into the SAP energy rating. This can facilitate the improvement option evaluation (PAS 2035, Clause 9). See the section on SAP above.

Industry Reflections

[AirEx](#) is a smart air brick which manages ventilation in the void beneath suspended floors to reduce heat loss. It includes inbuilt sensors that detect temperature and humidity inside the void and uses external weather data to determine the optimum level of ventilation to improve the thermal



performance of the home, whilst ensuring there is sufficient airflow to prevent issues such as damp and timber rot. It is very easy to install, not requiring any special competencies, and provided the installer is familiar with basic masonry to seal the product in place, an untrained person should be more than able to carry out the installation.

Being a unique and novel product, in an industry that has seen little innovation has made the process of acceptance within Government-funded schemes very challenging for the business. They are nearing the completion of their journey to full acceptance in the ECO market, after three years of efforts. AirEx have recently successfully gained acceptance into SAP Appendix Q, but this was a long and challenging process, and, as an SME, struggled with both the cost and complexity involved.

Some of the challenges AirEx have faced are:

- Lack of a clear roadmap for innovation. Lots of time and resources are required to identify who key decision makers are and what they require.
- Many of the accreditations required were not designed with innovation in mind.

- Regulatory bodies are typically slow to make decisions and implement solutions.
- Given the number of organisations involved with regulating the sector, there can be uncertainty with regards to who is responsible for what. One specific example was their attempts to understand how [AirEx](#) could be installed as part of a PAS 2035/30 compliant retrofit project. Conversations with BSI, Scheme Providers, TrustMark, BEIS, and Ofgem, were necessary to identify a clear path forward as this has not been established before.

AirEx found working with a membership organisation, like the Sustainable Energy Association, valuable. They also recommended setting up an informal cluster of organisations who are undertaking the same journey towards getting their products into SAP. The ability to share experiences and speak with one voice would increase impact, allow for tangible change through the industry and help future generations of innovative products play a part in our transition to Net Zero.

