UK Government

RAF057/2324: Evaluation of the Business Energy Advice Service (BEAS) pilot

Impact evaluation report

Department for Energy Security and Net Zero (2026)

Authors

The evaluation was conducted by Technopolis Ltd, with support from IFF and David Tobin Consulting (DTEC).

Views expressed in this report are those of the authors and not necessarily those of the UK government.

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Executive summary

Programme overview

The Business Energy Advice Service (BEAS) was a pilot scheme funded by the Department for Energy Security and Net Zero (DESNZ) to support small and medium-sized enterprises (SMEs) across the West Midlands in reducing energy consumption and progressing towards decarbonisation. The scheme, delivered by the West Midlands Combined Authority (WMCA), offered standard and Energy Intensive (EI) audits, along with match-funded grants to support eligible businesses in implementing energy-saving measures.

While BEAS aimed to deliver direct benefits to participating businesses, a central purpose of the pilot was to generate evidence to strengthen DESNZ understanding of how SMEs engage with energy efficiency support, what works most effectively, and where challenges remain. BEAS therefore had a dual function: as a support mechanism and as a data-gathering exercise to inform the future design, targeting, and delivery of SME decarbonisation policies.

This evaluation assesses Phase 1 of BEAS only. Phase 1 of BEAS covers the period from first launch in October 2023 until the end of March 2025, the original endpoint of the scheme. In Phase 1, BEAS delivered a total of 2,178 audits (to SMEs of varying sizes and across a wide range of sectors), including 100 EI audits (primarily to manufacturing SMEs). BEAS also provided £2.745 million in grant funding to support more than 100 businesses (Table 3).

The scheme received a one-year extension, Phase 2, covering the period April 2025 to March 2026. At the time of writing (February 2026) shortly before the end of Phase 2, the scheme had carried out an additional c900 audits, and anticipated awarding up to £14 million in grant funding. Much of this Phase 2 grant funding was awarded to SMEs who received audits in Phase 1. However, this evaluation was scoped to focus upon BEAS grants awarded within the time period of Phase 1.

Methodological approach

This report summarises the findings of the BEAS Phase 1 Impact Evaluation undertaken in 2025-2026. The evaluation was conducted by Technopolis Ltd, with support from IFF and David Tobin Consulting (DTEC). It aimed to identify the energy saving potential of participating SMEs, the impacts that have occurred and estimate potential later impacts arising from BEAS audits and grants.

Two methodological approaches were used. A theory-based analysis was undertaken to assess progress against the scheme's Theory of Change (the intended mechanisms through which the scheme expects to achieve impact). A quantitative model was developed to estimate and monetise total BEAS Phase 1 savings (energy, cost and carbon) utilising Monitoring Information (MI) and survey data from participating SMEs. Actual energy consumption data was not available and therefore unable to be used. **Future impact evaluation of any future similar SME energy efficiency support schemes could be more robust if participating SMEs were required to collect and return energy consumption data consistently**. This was not required by BEAS.

The report relies heavily upon two data sources with limitations:

- **BEAS scheme MI data:** This data has limitations for two main reasons. Data inputted by auditors in BEAS audit reports forms the content of the MI data. However, a review of audit methodologies showed that alignment of audit methodologies with recognised energy audit standards, the rigour of analysis and reporting, and transparency of approach, was variable and suggests potential for variation in the quality of the data. In addition, there were challenges in the collection and collation of MI data within the BEAS scheme. This led to inconsistencies, errors and missing data.
- **Self-reported evidence from surveyed SMEs:** Findings may be influenced to an extent by unknown response biases. In addition, some survey sub-samples were small and are therefore indicative.

Findings

Key message 1: Significant potential energy savings for SMEs were identified via BEAS audits

In total, BEAS offered a potential 157 GWh of estimated annual energy savings via audits delivered to 2,178 SMEs in the West Midlands.

This included 115 GWh from 2,078 standard audits. This represented approximately a third of the reported annual energy usage of the SMEs audited in BEAS Phase 1. Potential savings for standard audits came from a range of measures including solar (which was particularly dominant), LEDs, building fabric, energy management, and heating and cooling measures.

For the 100 EI audits delivered to EI SMEs, the potential saving was 42 GWh. This represented up to a fifth of the reported annual energy usage of these SMEs. BEAS recommendations made in EI audits largely involved energy management and measures improving the energy efficiency of production or process equipment.

At a lifetime level for the period 2023 to 2053, in total, BEAS recommended measures were estimated to offer SMEs a potential 3,215 GWh of estimated energy savings.

Key message 2: Short term implementation of BEAS audit recommendations was relatively high. This focused upon measures with the lowest absolute costs and shorter payback periods

SMEs were surveyed at least six months and up to two years after they had their BEAS audit. By this point in time i.e. in the short term, over half (54%) of the surveyed SMEs reported that they had implemented some of the audit recommendations (either fully or partially). At a recommendation level, this meant that almost a third of recommended measures had been fully implemented (22%) or partially implemented (8%). Measures with the lowest absolute cost and shorter payback periods (LEDs, energy management, refrigeration and heaters) were most commonly fully or partially implemented.

Key message 3: There is potential for further implementation of BEAS audit recommendations in the future

Surveyed SMEs also reported having definite plans to implement a further small proportion of recommendations (6%) in the financial year (to March 2026) and were considering implementing another third of recommendations (33%) in the future generally. Building fabric and solar recommendations, measures with relatively high cost and/or long payback periods, were relatively likely still to be under consideration for future implementation.

Key message 4: BEAS audits supported SMEs to implement energy efficiency measures by overcoming informational barriers

BEAS audits supported SMEs to plan and implement energy efficiency measures, through identifying appropriate measures, providing information about the costs involved, payback periods and how to implement these.

The majority of surveyed SMEs (80%) who identified previously experiencing the barrier of 'Not being aware of energy efficiency measures available' (43% of the total sample)[1] said this was overcome via BEAS audits.

Surveyed SMEs who had implemented at least some BEAS recommendations (without a BEAS Phase 1 grant) said that a majority (60%) of these recommendations would not have been implemented at all or only partially without BEAS.

Key message 5: BEAS grants were awarded to a small proportion of SMEs in Phase 1 but supported these SMEs to implement some EE recommendations by overcoming financial barriers

107 SMEs received a BEAS grant in Phase 1 and installed at least some recommended energy efficiency measures. The grant helped to overcome financial barriers. Almost all of those (89%) of surveyed SMEs (who had received a BEAS grant) who identified previously experiencing the ‘financial barrier(s) to implementing energy efficiency measures' said this was overcome via the BEAS grant.

However, the majority of SMEs had not accessed a BEAS grant in Phase 1. This was largely due to a shortened scheme delivery period following initial delays to scheme mobilisation. Where surveyed SMEs had not received a Phase 1 BEAS grant and stated that they faced financial barriers to implementation, almost half (48%) said that those barriers remained. Subsequent further impacts are expected from a much larger value of BEAS grants awarded during BEAS Phase 2, some of which will have been awarded to those who had an audit within Phase 1. Further installation of measures recommended in Phase 1 audits is likely to require measures to overcome the financial barrier previously identified. However, it is important to note that this does not mean all recommendations without financial barriers have been implemented, as other obstacles may still need to be addressed for full implementation.

[1] n=436 weighted and unweighted. BEAS SME evaluation survey C6. What has prevented you from implementing energy demand and carbon reduction measures for your business in the past?

Key message 6: BEAS contributed to energy, carbon and cost saving impacts

Installation of EE measures recommended by BEAS contributed to reduced SME energy consumption (and accordingly carbon savings). This also translated into cost savings for SMEs. However, SMEs reported that the extent of bill savings actually experienced was sometimes also influenced by external factors, notably change in energy prices.

We have modelled estimated savings. **These are based upon a number of compounding uncertainties and assumptions using scheme MI and survey data (detailed in the main report), not actual energy consumption data, and as such are indicative estimates only**. About a third of the total potential savings are expected to be achieved. This is a population-level estimate scaled up from data on the extent to which surveyed SMEs reported that BEAS recommendations had been or were planned to be implemented. Table 1 presents the estimated quantified benefits, where the majority of savings (77-83%) arise from recommendations made to SMEs who did not receive a BEAS Phase 1 grant.

Table 1: Total lifetime savings from implemented and planned BEAS measures

	BEAS audit only	BEAS audit and grant	Total lifetime savings	% of total potential savings from BEAS recommendations
Energy savings (GWh)	795	186	981	31%
Carbon savings (tCO2)	74,293	20,857	95,510	28%
Cost savings (£ million)	20.5	4.3	24.8	31%

Source: Technopolis quantitative benefits model

Key message 7: Over half of the total estimated lifetime energy savings (57%) are calculated to be attributable to BEAS (based upon modelling), that is, they are not expected to have been achieved without BEAS

Table 2 presents the attributed saving estimates with low, central and high values based upon low, central and high assumptions for the key variables in the analysis.

Table 2: Total lifetime BEAS attributed (net) savings (implemented savings minus the counterfactual)

	Low value	Central value	High value
Energy savings (GWh)	387	556	749
Carbon savings (tCO2)	39,487	57,299	77,545
Cost savings (£ million)	10.3	14.6	19.6

Source: Technopolis quantitative benefits model

Key message 8: Indicative value for money estimations suggest BEAS Phase 1 has a small positive Net Present Value and a Benefit-Cost Ratio above 1

The total estimated monetised benefits of BEAS Phase 1, £46.87 million, were slightly larger than the total costs, £40.04 million. This comparison of scheme costs and benefits gives a central overall indicative estimated benefit-cost ratio (BCR) of 1.17 (with lower and upper estimates of 0.64 to 2.1), indicating a positive £1.17 return for every £1 of investment. The Return on Public Sector Cost (RPSC) was 1.6 (with lower and upper estimates of -0.48 and 4.4).

BEAS also offered other unmonetised value. In particular, the scheme had a key objective of providing data and learnings to DESNZ about support for SME decarbonisation. Learnings have been identified in this evaluation, as well as through other learning mechanisms, and could generate significant value for future policy and scheme development.

Key message 9: Solar played a dominant role in the energy, carbon and cost savings available and achieved through BEAS

In relative terms, solar was less likely to be installed under BEAS than some other measures with lower costs and/or paybacks such as LEDs and energy management. However, total estimated lifetime attributed savings were greatest from solar due to the prevalence of this recommendation plus the relatively high energy savings and lifetime of this measure. The estimated proportions of attributed, lifetime savings from solar were energy (47%), carbon (26%) and cost (57%). BEAS grants were not available for solar installations in Phase 1. Other sources of grant funding such as UKSPF may have been accessed for solar installations. However, given a relatively small number of UKSPF grants (23) were awarded to BEAS audited SMEs in Phase 1, the influence of this is expected to be limited.

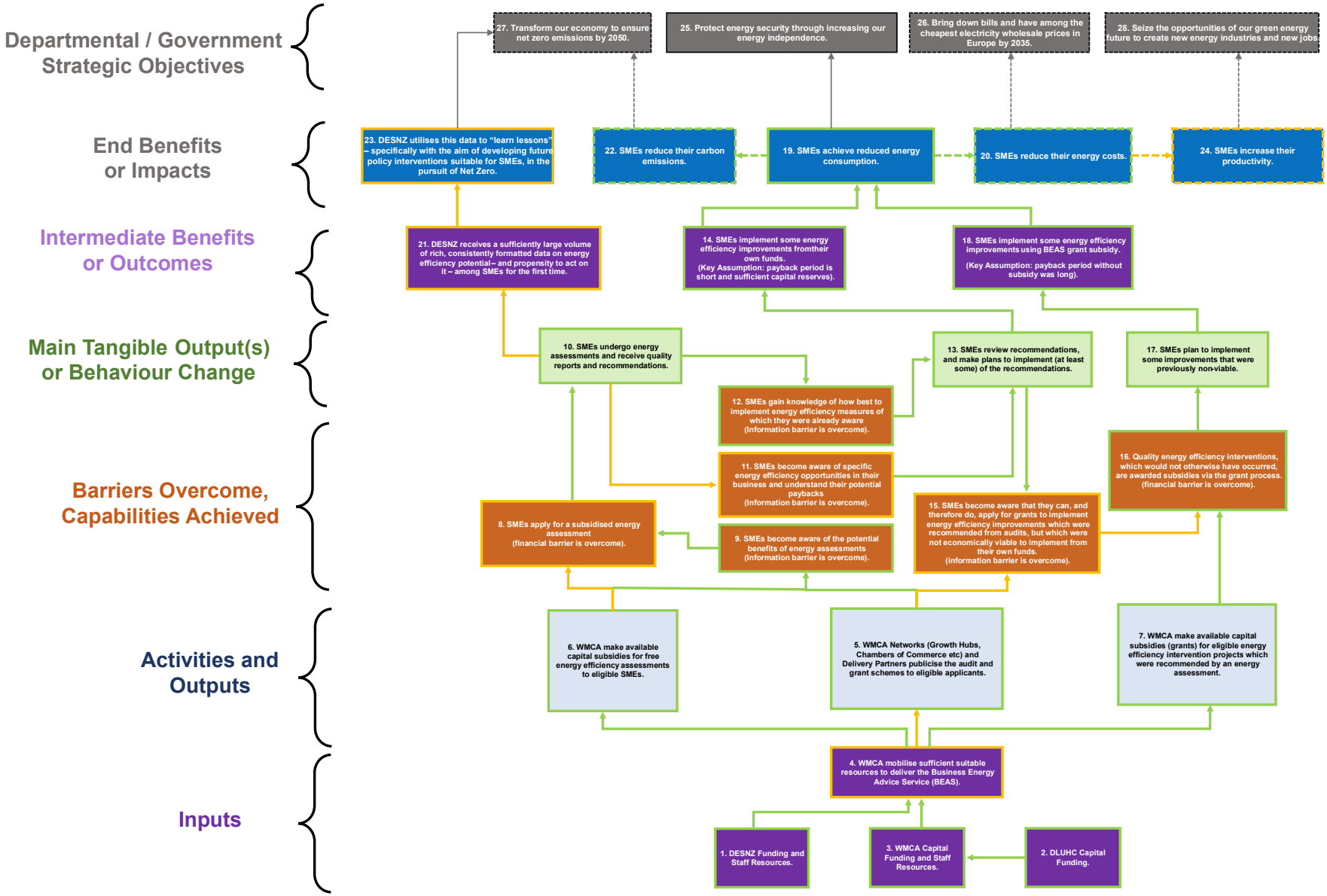
Key message 10: Overall the evidence has shown that generally the BEAS scheme is generating outputs, outcomes and impacts as intended via the Theory of Change

The ToC diagram overleaf in Figure 1 summarises this using the following colour key:

- **Boxes and arrows highlighted with a solid green outline** indicate ToC elements and causal pathways that hold true and have been achieved, supported by consistent and credible evidence
- **Boxes and arrows highlighted with solid amber outline** indicate elements or pathways that appear to hold true or have been achieved only to some extent, and for which evidence is mixed

Earlier parts of the ToC (inputs, activities and barriers overcome) were assessed in the BEAS process evaluation report. This impact evaluation report covers the outputs, outcomes and impacts of the ToC. The full ToC is available in report Annex B.

Figure 1: Pilot BEAS Theory of Change diagram



Source: Technopolis using original ToC developed by DESNZ. Also available separately.

Glossary

The following abbreviations are used throughout this report.

Abbreviation	Definition
BCC	Birmingham City Council
BEAS	Business Energy Advice Service
BCR	Benefit-Cost Ratio
CA	Contribution Analysis
CAPT	Contribution Analysis Process Tracing
CIBSE	Chartered Institution of Building Services Engineers
CRM	Customer Relationship Management
DESNZ	Department for Energy Security and Net Zero
DPs	Delivery Partners
EE	Energy Efficiency
EI	Energy Intensive (Audit)
GWh	Gigawatt-hour
kWh	Kilowatt-hour
LED	Light-Emitting Diode
MHCLG	Ministry of Housing, Communities and Local Government
MI	Management Information
ND NEED	Non-domestic National Energy Efficiency Data
NPV	Net Present Value
PV	(Solar) Photovoltaic
PT	Process Tracing
QA	Quality Assurance
SME	Small and Medium-Sized Enterprise
TCO2E	Tonnes of Carbon Dioxide Equivalent
ToC	Theory of Change
UKSPF	UK Shared Prosperity Fund
WMCA	West Midlands Combined Authority
VfM	Value for Money

Introduction

BEAS background and objectives

Small and medium enterprises (SMEs) play a key role in meeting the UK's legally binding commitment to reach Net Zero by 2050. However, SMEs face significant information and financial barriers to decarbonisation. Many SMEs lack clear, trusted guidance on practical energy-efficiency measures and technologies, limiting informed decision-making and leading to inefficient energy use. In addition, limited affordability and access to finance, often combined with a lack of time, further restrict investment in upgrades, leaving smaller firms exposed to rising energy costs and a higher risk of closure.[2]

The Business Energy Advice Service (BEAS) was therefore developed as a government-funded pilot scheme. It was designed to support DESNZ in building a stronger evidence base to inform future SME decarbonisation policy by providing insights into the benefits of this support, the ongoing barriers SMEs face, and the most effective delivery mechanisms for implementing similar schemes. Data capture was therefore a key objective of the pilot scheme.

BEAS aimed to help SMEs in the West Midlands region[3] to reduce their energy consumption and support their decarbonisation efforts. The scheme offers standard and energy intensive (EI) audits[4], along with match-funded grants to support eligible businesses in implementing energy-saving measures.

The Pilot BEAS objectives were to:

1. Learn lessons and gather data to inform future policies on energy and carbon reduction. Part of the rationale for this pilot was that it would generate a dataset of useful information on SME Energy Efficiency behaviour and potential to supplement the existing intelligence.
2. Energy demand and carbon reduction in SMEs to contribute to overarching government Net Zero targets.

Phase 1 of BEAS covers the period from first launch in October 2023 until the end of March 2025, the original endpoint of the scheme. In Phase 1, BEAS delivered a total of 2,178 audits[5] to SMEs of varying sizes and representing a wide range of sectors, including 100 EI audits (primarily to manufacturing SMEs). In Phase 1, BEAS provided £5.83 million in grant funding to support 224 businesses.

[2] 'BEAS Business Case, 2023' (not published)
[3] Areas included as part of BEAS are Birmingham, Solihull, Sandwell, Dudley, Walsall, Wolverhampton, Coventry, Staffordshire and Stoke-on-Trent, Warwickshire, Worcestershire and The Marches (Herefordshire, Shropshire, Telford and Wrekin).
[4] EI audits are more detailed audits that include road mapping conducted for SMEs that either have annual energy costs (including gas and electricity) that exceeded 10% of their turnover, or a total annual energy consumption greater than 0.75 GWh.
[5] In the majority of cases, each audit was delivered to a distinct SME, but a small number (53) of SMEs received audits at more than one site.

The scheme received a one year extension, Phase 2, covering the period April 2025 to March 2026. At the time of writing (February 2026) shortly before the end of Phase 2, the scheme had carried out an additional c900 audits, and anticipated awarding up to £14 million in grant funding. Much of this Phase 2 grant funding was awarded to SMEs who received audits in Phase 1. However, this evaluation was scoped to focus upon BEAS grants awarded within the time period of Phase 1.

BEAS is funded by DESNZ. Phase 1 was also supported by UK Shared Prosperity Fund (UKSPF) funding.[6] This consisted of UKSPF funding used in the delivery of audits which cannot be distinguished from DESNZ audit funding and is covered by this evaluation. UKSPF also offered funding for grants, with distinct eligibility criteria, separate from the BEAS scheme. These UKSPF grants are not a focus of this evaluation but are referred to where relevant in understanding how BEAS audit recipients implemented recommendations.

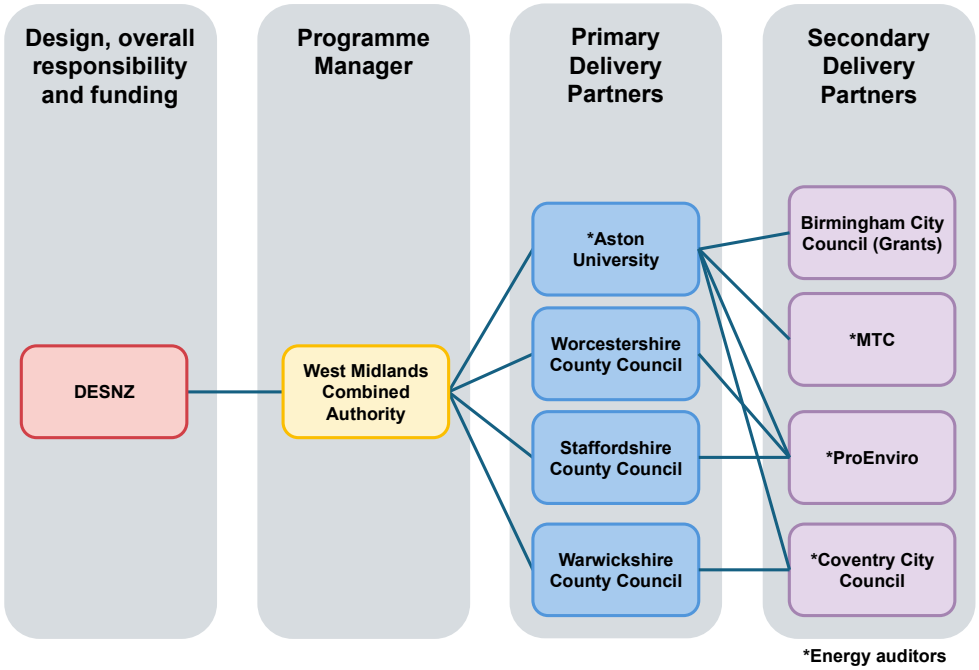
Delivery was led by the West Midlands Combined Authority (WMCA), in partnership with primary and secondary (audit) Delivery Partners (Figure 2).

Figure 2 shows the scheme's governance structure. The four principal scheme stakeholders had the following roles and responsibilities.

- DESNZ provided overall strategic direction, funding, and oversight, including setting eligibility criteria and managing scheme-level risks. Rather than being designed in isolation, BEAS was developed using the existing processes and delivery framework created under UKSPF.
- WMCA was responsible for scheme coordination, programme management, communication and outreach, data management, and liaising with Delivery Partners.
- Primary Delivery Partners were responsible for assessing applications for both audits and grants. They also administered the grants, other than Aston who delivered audits in the WMCA city region with grants administered by Birmingham City Council (BCC).
- Secondary Delivery Partners delivered the audits on behalf of the Primary Delivery Partners and had audit teams who conduct the audits (i.e. energy auditors). The lines in the figure show which Secondary Delivery Partners were contracted by which Primary Delivery Partners.

[6] UK Shared Prosperity Fund

Figure 2: Pilot BEAS governance structure



Source: Technopolis, adapted from DESNZ 2024[7]; * = delivered energy audits directly.

Evaluation of BEAS Phase 1

Technopolis, supported by IFF and David Tobin Consulting (DTEC), was commissioned by DESNZ to deliver a Process and Impact Evaluation of the Pilot BEAS Phase 1. The objectives of the evaluation are to:

- Identify what worked well and where improvements are required
- Gather insights on impacts, including energy and cost savings as well as any secondary benefits
- Inform the design of future policies and programmes

The impact evaluation focused on the following objectives:

- Exhibit transparency and accountability for the design and delivery of the Pilot BEAS
- To identify impacts which have occurred and estimate potential later impacts arising from providing participants with subsidised energy assessment reports
- To identify, via data from the BEAS-aligned energy audits, the energy saving potential of participating SMEs
- To collect evidence on the 'Outputs', and to the extent possible, 'Outcomes' and 'Impacts' elements of the Theory of Change
- To understand additionality, deadweight, and the degree of causality associated with outcomes/impacts.

This report presents the findings of the Impact Evaluation.

[7] 'BEAS Pilot extension, 2025' (not published)

Methodology

Approach

The evaluation was framed around a set of research questions (Annex A) aimed at understanding the scheme's outcomes and impacts and how the scheme contributed to these, as hypothesised in the Theory of Change (ToC) (see Figure 1).

Two evaluation frameworks were developed for the study. The first evaluation framework aligns the research questions with the most relevant evidence sources and data collection tools.

The second evaluation framework is a Contribution Analysis Process Tracing (CAPT) framework (described in full in Annex A, with the completed framework given in Annex B) designed to assess progress against the scheme's ToC. Using the CAPT framework the evaluation team gathered and triangulated evidence to assess each ToC element in scope and judged the extent to which it was delivered as expected. For some key causal pathways within the ToC, we have undertaken Contribution Analysis (CA). For this, we have constructed a Contribution Claim i.e. a claim about how the BEAS scheme contributes to a specific output, outcome or impact. We have also constructed related 'Alternative Explanations' i.e. an alternative hypothesis about how other factors (external to BEAS) have contributed or limited the same output, outcome or impact of interest. This enables us to consider the contribution of BEAS relative to other external factors which may also play a role. Contribution claims, alternative explanations and an assessment of the evidence supporting or refuting these are presented in relevant report sections. Explanation about how conclusions were reached on the strength of evidence for contribution claims and alternative explanations is given in Annex A. Earlier parts of the ToC (inputs, activities and barriers overcome) were assessed in the BEAS process evaluation report. This impact evaluation report covers the outputs, outcomes and impacts of the ToC.

In addition, a quantitative model was developed to estimate and monetise total BEAS Phase 1 savings (energy, cost and carbon) utilising Monitoring Information (MI) and survey data (detailed in the later section: Method for quantifying estimated energy savings). Actual energy consumption data was not available and was not used, hence reported savings figures are indicative estimates only.

A mixed methods approach was used to collect and triangulate evidence. Primary data collection took place between August and October 2025 and included:

- **SME survey:** All SMEs who received BEAS support (an audit and/or grant) during Phase 1 were invited to participate in a survey.[8] 436 responses were received, a 20% response rate. Survey data was weighted to adjust for small differences in the profile of survey respondents (relating to business size and sector, audit type and Delivery Partner) compared with the wider population of SMEs who received BEAS support. The primary purpose of the survey was to gather representative data about the extent of implementation of BEAS audit recommendations and the role of BEAS in this.

[8] The BEAS scheme did not require SMEs to participate in the survey or other evaluation activity.

- **Qualitative interviews:** 25 follow up in-depth interviews were conducted with surveyed SMEs. Qualitative samples were selected to represent a range of SMEs in relation to key characteristics such as size, sector, type of audit received, and grant status. The interview topic guide included some topics not covered in the SME survey, but was also used to explore some survey topics in more depth.

Primary data collection was subject to quality assurance throughout the process.

The following secondary sources of data were used in the evaluation:

- **MI data analysis:** Analysis of data from the scheme's Monitoring Information (MI) database played an essential role in the impact evaluation, particularly in the estimation of energy savings.
- **Document review:** Programme documentation, for example, the business case and lessons learnt report, was reviewed by members of the study team during mobilisation, to inform the design of research tools and to support familiarisation prior to interviews.

Annex A provides a more detailed description of the evaluation methodology and details of the primary data collection samples achieved.

Presentation of findings

The following points should be noted about how findings are presented throughout the report.

- Many of the key data variables (particularly from the MI data) are positively skewed (values are clustered towards the lower end) with a long tail of high values. The report therefore often presents median rather than mean values.[9] Data tables also often include 25th and 75th percentile values to show the distribution of the data, but not minimum and maximum figures which generally only highlight outliers.
- Survey data is presented as percentages, with the weighted and unweighted sample sizes also provided and the full survey question used. Differences in survey findings by SME characteristic are only reported where these are statistically significant, unless otherwise specified. The small size of the sample of EI audit recipients meant that it was unlikely we would identify statistically significant differences between EI and Standard audit recipients. However, given interest in any differences between these groups, where the data suggests there may be a difference we have noted this.
- Where findings relating to grant receipt are discussed, these refer to award of a BEAS grant during Phase 1 unless otherwise specified. Some surveyed SMEs reported receiving a BEAS grant who were not identified in the MI data. This may be due to errors in the MI database; SMEs receiving a BEAS grant after the end of Phase 1; SMEs receiving a UKSPF grant instead; or SMEs confusing BEAS funding with support received through another scheme.

[9] The median depends only on the order of values, not the magnitude. It is therefore a more robust metric for measuring an average when analysing skewed data.

- For qualitative interviews with SMEs, the following categories are used to indicate the extent of findings: (i) one SME reported (only one mention), (ii) a few or some SMEs reported (more than one but fewer than half), (iii) most or the majority of SMEs reported (more than half), and (iv) all SMEs reported (every SME). Where relevant, findings are also disaggregated according to whether the SMEs received a BEAS grant or not.

Limitations

A key element of this study is the quantitative estimation of impacts, particularly energy savings, arising from the scheme. Some other key impacts (carbon and cost savings) also use estimation of energy savings as the starting point for their estimation. Monetisation of the value of these impacts also relies upon these estimates. There are a number of limitations and uncertainties in the calculation of energy saving impacts (detailed in the next section: Method for quantifying estimated energy savings).

In summary, these calculations, but also other analysis presented in this report, relies heavily upon two data sources with limitations.

Firstly, the report relies upon **BEAS scheme MI data**.[10] (At the time at which this study was undertaken, it was not possible to use actual energy consumption data to assess BEAS realised energy savings. This was because the scheme did not require audited SMEs to collect and provide energy consumption data. In addition, it was too early to access aggregate energy consumption datasets such as the Non-domestic National Energy Efficiency Data (ND NEED) Framework which are not available in real time.) Scheme MI data has limitations for two main reasons.

- A review of audit methodologies (reported in the BEAS process evaluation) showed that alignment of audit methodologies with recognised energy audit standards, the rigour of analysis and reporting, and transparency of approach, was variable across the different Delivery Partners. This suggests potential for variation in the quality of the data inputted by auditors in audit reports which then forms the content of the MI data.
- As documented further in the BEAS process evaluation report, there were challenges in the collection and collation of MI data within the BEAS scheme. Individual Delivery Partners collected MI data using different templates and formats before this was then shared centrally with WMCA and DESNZ. This led to inconsistencies, errors and missing data.

The MI data has been used as provided and not cleaned further. Given the volume of data and issues identified, it was not proportionate to clean this manually.

[10] MI variables used within the analysis presented in this report: i) estimated annual energy savings, ii) fuel type saved, iii) recommendation category, iv) estimated cost to implement measures, v) estimated payback period, vi) margin of error of energy savings and vii) margin of error of estimated costs to implement measures viii) annual energy usage.

Secondly, **primary data collection with SMEs who participated in BEAS**, particularly via the survey but also via interview, is a key data source. The profile of the SME survey sample was large and had a similar profile to the BEAS audit recipient population as a whole in terms of key characteristics such as sector, size, and delivery partner. However, it is still possible there was some other unknown bias to the profile of SMEs who chose to participate (for example, in the extent to which positive outcomes are attributed to BEAS rather than other scheme or sources of funding) which will influence the findings presented here.

Some survey sub-samples, notably those who received EI audits and those officially recorded as having received a BEAS grant, were small and as such findings are indicative for these sub-samples only.

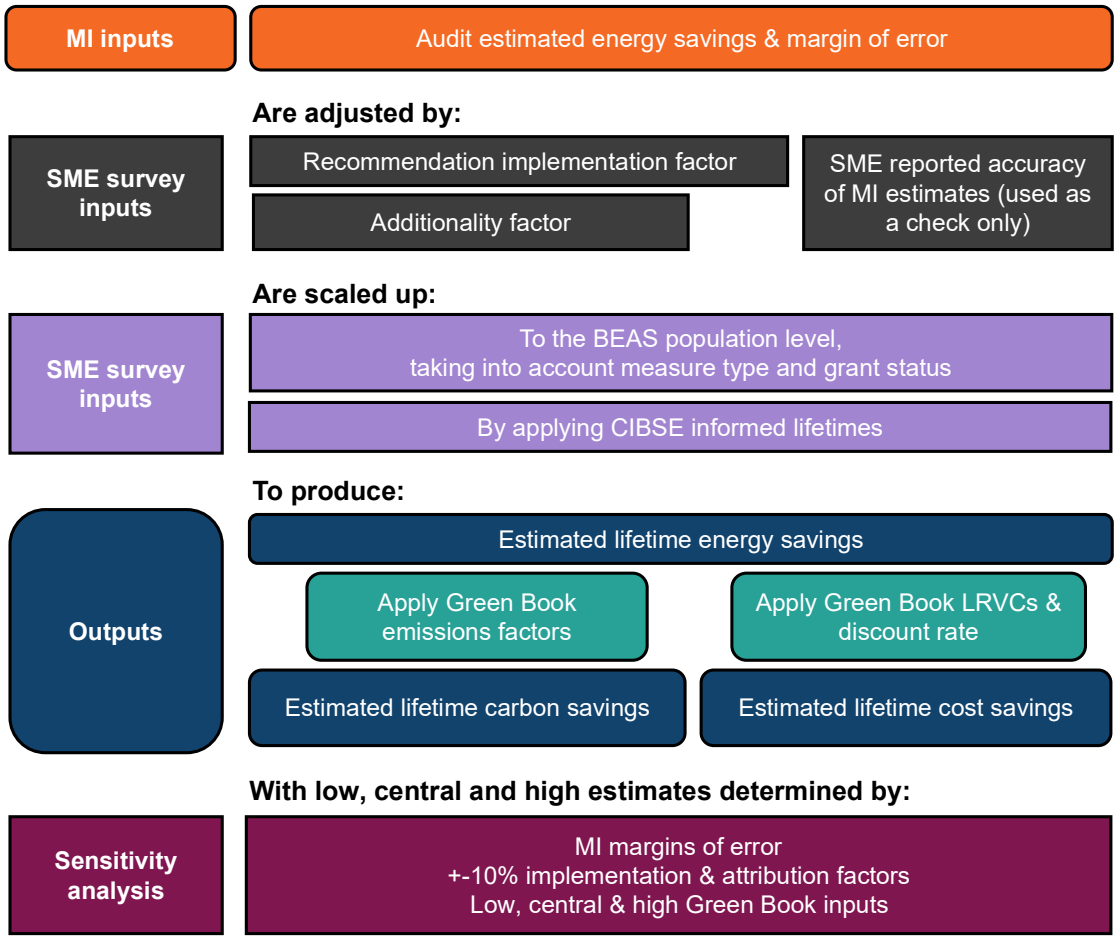
Method for quantifying estimated energy savings

Overview of method for quantifying estimated energy savings

The method used for estimating energy, carbon and cost savings is summarised in Figure 3 and then explained narratively.

There are a number of compounding uncertainties, limitations and assumptions made in this estimation of energy savings. These also apply to the estimates of carbon and cost savings as these are based upon energy saving estimates. The numbers presented here should therefore be treated as estimates only.

Figure 3: Method for estimating energy, carbon and cost savings arising from BEAS



Source: Technopolis

Step 1: Energy saving inputs from the MI data

Estimations of energy savings impacts begin with audit estimates of energy savings, not actual energy consumption data. (The BEAS scheme did not require audited SMEs to collect and return energy consumption data.) This report uses the estimates of energy savings for each audit recommendation provided by BEAS scheme auditors as the primary input data source for scheme energy savings estimates. BEAS auditors themselves indicated an expected margin of error on these figures, with a median value of 30%. This margin of error has been used within our estimations to contribute to the low and high values given.

As noted in the previous section, the calculated energy saving estimates originate in audits with varied methodologies and of varying quality. This suggests potential for variation in the quality of the calculations used by auditors to estimate energy savings. Again, as noted in the previous section, there were also challenges in the central collection and collation of audit data including energy saving estimates. This led to inconsistencies, errors and missing data. This is expected to apply to energy savings estimates, although efforts were made by scheme management to minimise the amount of missing data. Accordingly, this variable had 2.9% missing data overall, all arising from EI audits. A review of the MI data also noted that some data within this variable is likely to be unreliable.

SMEs were also asked about how accurate they thought the estimations of energy savings given in BEAS audits were.[11] This is used as a check of accuracy, albeit whilst recognising that SMEs themselves may not always have access to good data on this or understand this fully. Overall, the proportion of surveyed SMEs who thought that energy savings were higher or lower than predicted was equal.[12] This suggests that audit inaccuracy is not more likely to over- or under-estimate true energy savings. Thus, we have not adjusted our estimates based upon this.

Step 2: Application of inputs from the SME survey

Understanding the extent of implementation and attribution of BEAS recommended measures and thus the extent to which energy savings are expected to be realised, relies upon reports from a sample of surveyed SMEs.

Implementation of BEAS recommendations

For each individual recommendation, we have asked surveyed SMEs whether they have implemented this. The response options and intended % of energy savings which are then accordingly included in the impact calculation are shown in Table 3 below.

[11] As noted elsewhere in the report, a relatively high proportion (42%) of SMEs were not able to comment on the accuracy of energy saving estimates. This group has been removed from the data shown in Figure 14.
[12] n=236 weighted, 242 unweighted (SMEs who had fully or partially implemented at least one BEAS recommendation). BEAS SME evaluation survey: D6: Please tell us the extent to which you feel like the estimated energy savings for the measures recommended to you were accurate.

Table 3: Recommendation implementation factors

Response	% of energy savings counted in total quantitative impact
Fully implemented	100% achieved energy savings
Partially implemented	75% achieved energy savings
Definite plans to implement in this financial year (i.e. have budget approval)	50% planned energy savings
Under consideration to implement in the future	25% planned energy savings
No plans to implement	0% planned energy savings
Don't know	0%

Source: Technopolis

Attribution of BEAS recommendations

Attribution to BEAS of the EE measure installation which generated energy savings again relies upon self-reporting by surveyed SMEs. This means we have mainly relied upon SMEs' own reports via the survey about whether, to what extent and when they would have installed energy efficiency measures in the absence of BEAS. Again, survey responses have been scaled up and applied to the whole BEAS population in the estimate of energy savings.

This self-reported counterfactual case is less certain than for implementation. The SME should be fairly clear about whether or not a measure has been installed, but responses about what they would have done in the absence of BEAS are likely to be more uncertain, hypothetical and subjective. We undertook a light touch benchmark review of other support available to SMEs in the West Midlands for the installation of energy efficiency and decarbonisation measures. This identified some other sources of support as detailed further elsewhere in the report. However, it did not suggest the need to adjust attribution figures used here.

Two cases were defined: an 'intervention' case, and a 'counterfactual' case. The intervention case represented the presence of BEAS. The counterfactual case represented, as far as possible, what would have occurred in the absence of the BEAS.

For survey respondents in the intervention case, responses were translated to whether a recommendation was implemented in a given year. In all years that a recommendation was assumed to have been implemented, the audit value for per annum energy savings was applied for the life of the asset in the recommendation.

For survey respondents, in the counterfactual case, responses were translated to whether a recommendation would have been implemented (in the absence of BEAS) in a given year. Survey respondents identified the proportion of the recommendation they would have implemented (e.g. 25%, 50%, 75, 100%). This value was applied to the energy savings as a proxy for the scale of energy savings that would have been achieved.

Survey respondents also specified the delay to implementing a recommendation that would have occurred in the absence of BEAS. This was included in both cases to identify the implementation date and therefore the overall time period of energy savings.

The 'attribution case' was the difference in energy savings observed between the intervention case and the counterfactual case, on a per recommendation, per year basis.

Step 3: Scaling up to the BEAS population

We have used SME survey responses to assume the same level of implementation, planned implementation and attribution to BEAS across the whole BEAS population. Within this scaling up, we have taken into account both the profile of measure types (e.g. Solar, LEDs etc) and BEAS grant receipt (factors which affected the level of implementation) in order to improve the robustness of this process.

We achieved a reasonably good response rate of 20% in this survey and a reasonably similar sample profile compared to the population. This gives some confidence in the assumptions made in scaling up survey responses to the population, but it still rests on an assumption. There may have been non-response bias to the survey, for example, if SMEs were more inclined to participate if they had had more positive experiences of or taken more action in response to BEAS. This is a key limitation in the method.

The level of survey response was consistent across both standard and EI audits. However, given a relatively small number of EI audits were undertaken overall (100), the absolute number of responses (22) from SMEs who had EI audits is relatively small. As such, estimates of energy savings for EI audits are less reliable as a breakdown, because they rely upon a relatively small absolute number of SME responses.

Scaling up over time

Estimated annual energy savings were also scaled up to give lifetime figures using the assumed technology lifetimes.[13]

Step 4: Estimated savings figures produced

The process described thus far produced energy savings estimations. These estimations were then used as the basis for carbon and cost saving estimations.

Estimated lifetime carbon savings attributed to BEAS were calculated by applying Green Book fuel specific emissions factors to estimated attributed lifetime energy savings. Estimated lifetime cost savings attributed to BEAS were calculated by applying fuel specific Green Book Long Run Variable Costs (LRVCs) of energy supply to estimated attributed lifetime energy savings and discounting to provide a present value.

[13] This is based upon CIBSE (2026) 'Indicative Economic Life Expectancy' tables (Appendix 12.A1 of CIBSE Guide M Maintenance engineering and management. Tables updated January 2020.) Where the technologies listed in the CIBSE guide were more specific than our categories, we have made an assumption using the most common lifetime for the type of measure.

Sensitivity checks

Sensitivity checks have been used to produce low, central and high estimates as shown in Table 4.

Table 4: Factors used in sensitivity analysis to produce low, central and high estimations of savings

	Low value	Central value	High value	Source
Energy savings	Auditor margin of error applied	Energy saving estimate	Auditor margin of error applied	BEAS MI data
Implementation and attribution factor used in scaling up survey responses	-10%	Survey based factor	+10%	SME survey, plus standard adjustment of +-10%
Carbon emissions	Green Book low values	Green Book central values	Green Book high values	Green Book fuel specific emissions factors
Energy costs	Green Book low values	Green Book central values	Green Book high values	Green Book Long Run Variable Costs (LRVCs)

We have not currently applied a rebound effect. SME survey data suggests that 10 – 20% of SMEs may be increasing production as a result of BEAS installed measures (20%) and/or using more energy in other parts of the business since installing BEAS measures (10%). However, we do not know the extent to which individual businesses are selecting to use energy savings in other areas of the business or to increase production. A rebound effect would increase the estimated value realised through energy use by the business, but will reduce carbon savings, and therefore is likely to balance out to an extent in the overall monetisation of benefits. We therefore concluded that this will not have a significant effect on the overall level of monetised savings realised.

Findings

BEAS energy demand reduction and carbon potential

You should use this template for most documents, including research and government responses. There are separate templates for consultations and independent reports.

Key message 1: Significant potential energy savings for SMEs were identified via BEAS audits

In total, BEAS offered a potential 157 GWh of estimated annual energy savings via audits delivered to 2,178 SMEs in the West Midlands.

This included 115 GWh from 2,078 standard audits. This represented approximately a third of' the reported annual energy usage of the SMEs audited in BEAS Phase 1. Potential savings for standard audits came from a range of measures including solar (which was particularly dominant), LEDs, building fabric, energy management, and heating and cooling measures.

For the 100 EI audits delivered to EI SMEs, the potential saving was 42 GWh. This represented up to a fifth of the reported annual energy usage of these SMEs. BEAS recommendations made in EI audits largely involved energy management and measures improving the energy efficiency of production or process equipment.

At a lifetime level for the period 2023 to 2053, in total, BEAS recommended measures were estimated to offer SMEs a potential 3,215 GWh of estimated energy savings.

Type of technologies recommended by BEAS

Each BEAS energy efficiency audit report delivered to an SME included a number of recommendations for the installation of specific energy efficiency and decarbonisation measures. In total, for Phase 1 of BEAS, 7,498 recommendations for the installation of individual energy efficiency and decarbonisation measures were made via the 2,178 audits. 7,012 recommendations were made in the 2,078 standard audits, with just over three recommendations per audit on average. 486 recommendations were made in the 100 EI audits, with just under five recommendations per audit on average.

Figure 4 shows the breakdown of BEAS recommendations by measure or technology type. Recommendations were not systematically categorised initially at the time of the audit. DESNZ therefore applied an automated coding system to open text descriptions of recommendations in order to categorise these. Whilst this coding system was robust in correctly categorising the majority of measures, it did also result in a large number of missing values for standard audits. These have been referred to as ‘other - standard’.

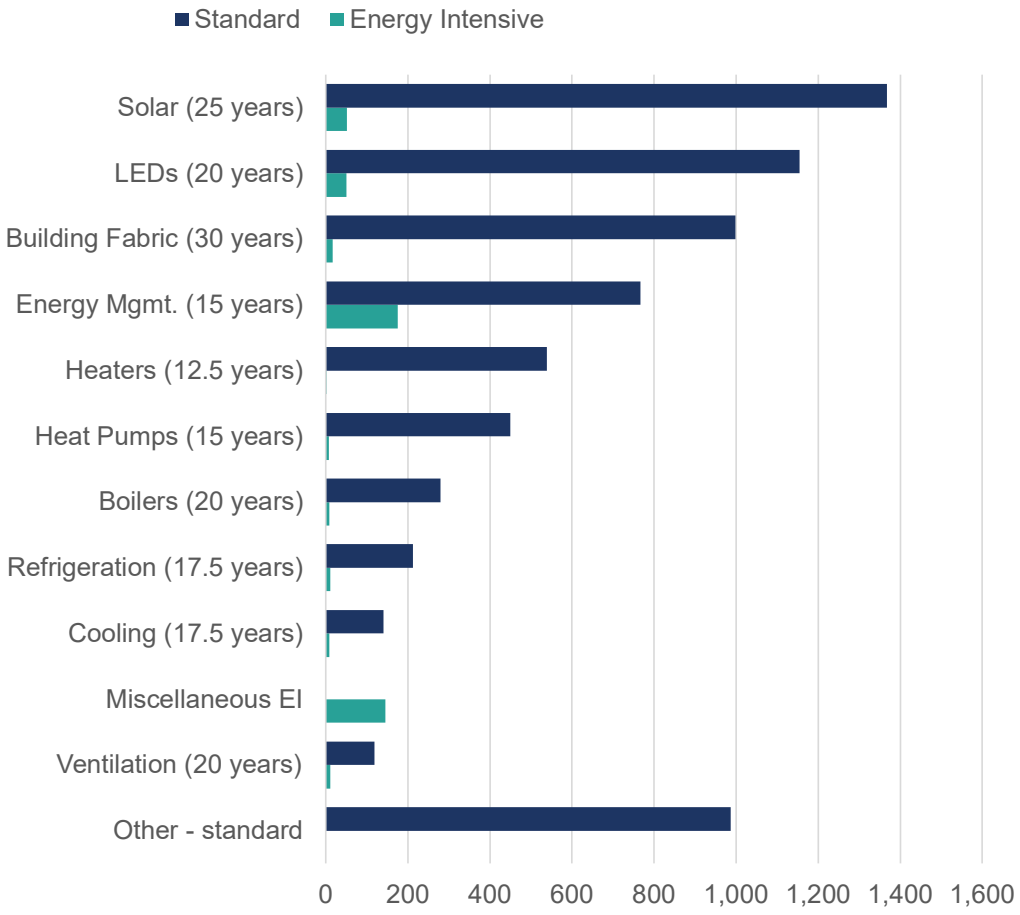
The estimated lifetime[14] of each measure is given in brackets in the categories in Figure 4. Technology lifetimes were all long, varying from 15 to 30 years.

A wide range of technologies were recommended in standard audits. Particularly high proportions of recommendations were for: solar panels; LED lighting; building fabric; and energy management. Energy management involves analysing and monitoring how energy is used across a site to identify opportunities for improved control and reduced consumption. Recommendations in the 'other - standard' category are varied and include those relating to machinery such as repair of compressed air leaks. However, there are also many recommendations that would fit within other existing recommendation categories but were not picked up by the coding.

The profile of measures recommended within the smaller number of EI audits differed from that of standard audits. A higher proportion, over a third (36%), of measures recommended within EI audits were 'energy management'. Almost a third (30%) of measures recommended within EI audits were categorised as 'miscellaneous'. 'Miscellaneous EI' recommendations principally covered installation of specific production or process equipment, for example, a variable speed drive compressor, a new furnace or electric forklift. A further 10%of EI audit recommendations were for LEDs and another 10%to solar panels. Whilst they were still in scope, proportionately fewer EI recommendations were made for measures associated with building energy efficiency improvements, notably, building fabric, heat pumps, and heaters. This is expected to be because production/process energy use was likely to be the major driver of energy consumption amongst these energy intensive SMEs.

[14] This is based upon the CIBSE (2026) 'Indicative Economic Life Expectancy' tables (Appendix 12.A1 of CIBSE Guide M Maintenance engineering and management. Tables updated January 2020.) Where the technologies listed in the CIBSE guide were more specific than our categories, we have made an assumption using the most common lifetime for the type of measure.

Figure 4: Number of standard/EI audit recommendations by measure type



n=7498

Source: BEAS Phase 1 MI data

As might be expected, refrigeration recommendations were more common in the accommodation and food services sector (11%) compared to generally (3%)[15]. Energy management recommendations became more common as the size of the business (by number of employees) increased. 10% of recommendations for businesses with 0-9 employees were classified as energy management, but this rose to 19% of recommendations for businesses with 100-249 employees. This suggests metering becomes increasingly insightful for larger businesses with higher energy consumption overall and these businesses may have more personnel and resource to analyse energy data. There were no other clear patterns in the types of recommendations made according to business size or sector.

Energy and carbon reduction potential

Estimation of energy savings in this report begins from energy savings estimates given by the BEAS scheme auditors for the individual measures recommended within audits. These are estimates and the limitations of these are detailed in the earlier Limitations section of the report.

[15] Data table 3 in section 1 of Technical Annex A provides a full breakdown of recommendation types by sector.

If SMEs implemented all the recommendations provided in their BEAS audits, as shown in Table 5, the interquartile range (where the middle 50% of values lie) for estimated potential annual energy savings per SME would be:

- 7,700 to 55,300 kWh for standard audits
- 150,100 to 465,300 kWh For EI audits

As would be expected, EI audits offered much higher potential kWh savings per SME.

Table 5: Estimated annual energy saving of BEAS recommendations, by audit type (kWh)

Audit type	Count	25%	Median	75%	Total
Standard	2,078	7,700	21,800	55,300	114,578,400
EI	100	150,100	289,100	465,300	42,113,000
All audits	2,178	8,100	23,300	62,200	156,691,400

n=2178

Source: BEAS Phase 1 MI data

For context, Table 6 shows total annual energy use reported by SMEs as recorded in BEAS MI data. This suggests that SMEs receiving a standard audit could save about a third of their annual energy usage[16] if they implemented all BEAS audit recommendations. This is slightly lower for SMEs receiving an EI audit - up to about a fifth of their annual energy usage[17].

Table 6: Total annual energy use reported by SMEs participating in BEAS audits, by audit type (kWh)

Audit type	Count	25%	Median	75%	Total
Standard	1,827	22,300	58,700	171,700	377,808,800
EI	98	917,500	1,433,500	2,723,900	280,209,300
All audits	1,925	23,500	64,000	210,600	658,018,100

n=2178

Source: BEAS Phase 1 MI data

Accordingly, Table 7 shows that the highest estimated potential annual energy savings arose from miscellaneous EI measures. Across standard and EI audits, solar panels, heat pumps and boilers offered the greatest potential savings at an individual recommendation level. LEDs and refrigeration offered the lowest potential savings at an individual recommendation level.

[16] This is 30%-37% depending upon which values are compared: 25%, median, 75% or total savings.
[17] This is 15%-20% depending upon which values are compared: 25%, median, 75% or total savings.

Table 7: Estimated annual energy saving of BEAS recommendations by measure type (kWh)

Recommendation Category	Count	25%	Median	75%	Total
Miscellaneous EI	140	16,300	36,200	93,300	13,378,300
Solar	1,418	5,800	13,700	32,600	43,071,200
Heat Pumps	454	3,100	9,700	23,300	11,203,200
Boilers	287	3,900	8,600	21,400	9,409,000
Ventilation	130	2,500	5,700	18,000	5,278,900
Energy Mgmt.	924	900	4,500	18,500	20,888,300
Heaters	540	1,200	4,000	17,000	13,105,900
Cooling	150	1,800	3,800	8,500	1,459,900
LED	1,202	1,000	2,600	6,500	8,321,100
Refrigeration	222	700	2,400	5,400	1,721,700
Building Fabric	1,015	900	2,200	6,700	10,702,300
Other - standard	987	1,300	4,500	13,000	18,151,700
All[18]	7,469	1,600	5,000	16,500	156,691,400

n=7469

Source: BEAS Phase 1 MI data. Does not include 29 recommendations with missing estimated energy savings values

Table 8 shows the breakdown of annual energy saving by fuel type saved. Over half (56%) was electricity and a third (33%) was gas.

[18] This includes 987 recommendations which were not categorised.

Table 8: Estimated annual energy saving of BEAS recommendations by fuel type saved (kWh)

Fuel type saved	Count	Total	%
Electricity	5,406	87,424,000	56%
Gas	1,415	52,023,700	33%
Electricity/ Gas Combination	123	4,075,000	3%
LPG	83	4,117,300	3%
Oil	155	4,392,300	3%
Other	287	4,659,000	3%

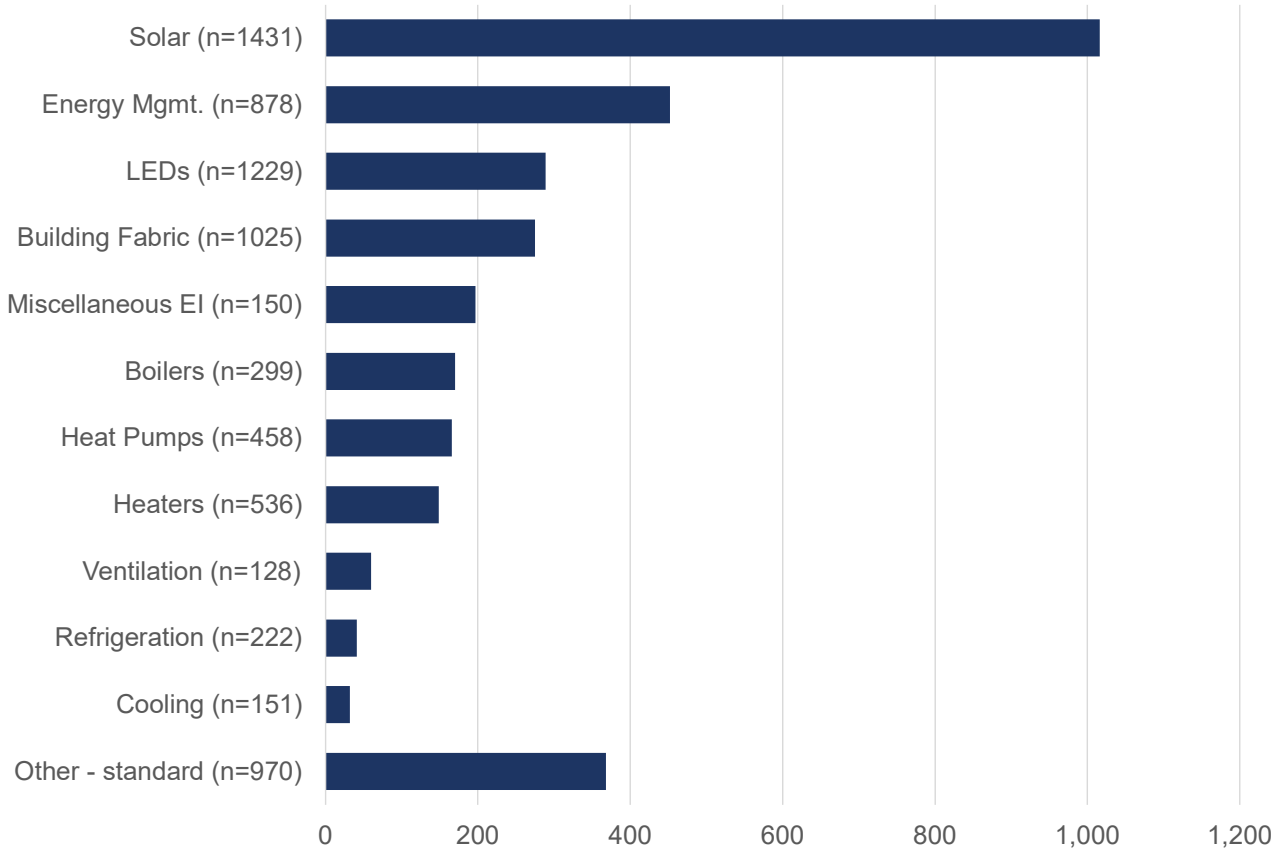
n=7469

Source: BEAS Phase 1 MI data. Does not include 29 recommendations with missing estimated energy savings values

In total, BEAS offered a potential 157 GWh of estimated annual energy savings, 115 GWh from standard audits and 42 GWh from EI audits. Estimated potential energy savings have also been calculated at a lifetime level over a period of thirty years from 2023 to 2053. This considers the estimated lifetimes[19] of the different technology types such that those with longer lifetimes will generate more savings. At a lifetime level, in total, BEAS recommended measures are estimated to offer a potential 3,215 GWh of estimated energy savings, 2,347 GWh from standard audits and 867 GWh from EI audits. As shown in Figure 5, installation of solar panels would play a dominant role (estimated lifetime energy savings of 1,015 GWh) due to the prevalence of this recommendation, the relatively high energy savings and lifetime of this measure.

[19] This again is based upon the CIBSE (2026) '[Indicative Economic Life Expectancy]' tables (Appendix 12.A1 of CIBSE Guide M Maintenance engineering and management. Tables updated January 2020.) Where the technologies listed in the CIBSE guide were more specific than our categories, we have made an assumption using the most common lifetime for the type of measure.

Figure 5: Total potential lifetime energy saving from all BEAS recommendations, by measure type (GWh)

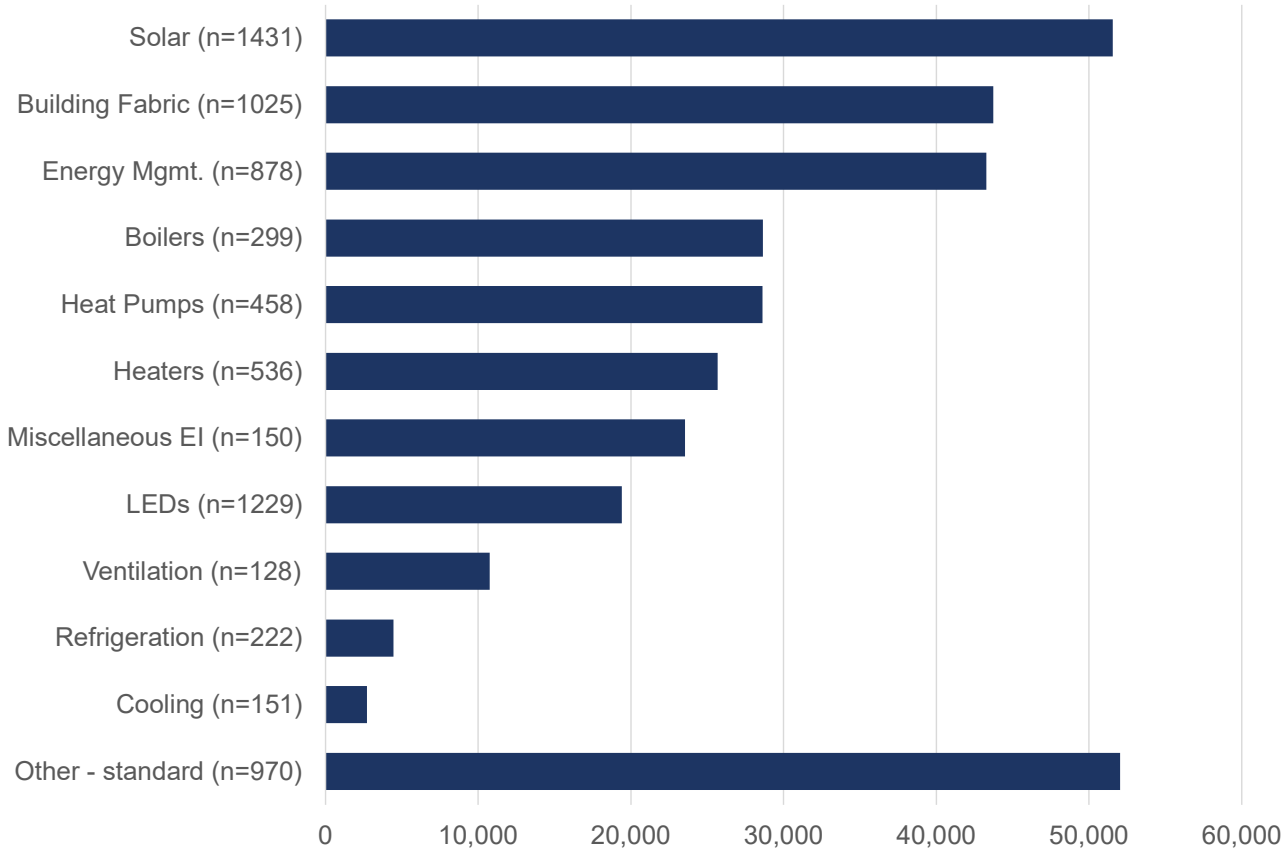


n=7477. Excludes all recommendations with an energy savings value of 0 or less.

Source: BEAS Phase 1 MI data

Estimated carbon savings have also been calculated by applying published UK government Green Book carbon factors to energy savings according to fuel type (electricity, gas, LPG, oil). At a lifetime level, this would generate estimated carbon savings of 334,383 tCO2e, 246,883 tCO2e from standard audits and 87,500 tCO2e from EI audits. Figure 6 shows that installation of solar panels again would generate a high proportion of carbon saving due to the high total potential energy savings. For carbon savings, this is more closely followed by energy management, building fabric, and then heat pumps, boilers and heaters. This is because these measures include gas savings offering greater carbon savings than electricity, particularly over the lifetime due to projected future reductions in the electricity grid emission intensity. The 'other' category has the highest proportion of carbon savings because many of the included measures use gas.

Figure 6: Total potential lifetime carbon saving from all BEAS recommendations, by measure type (tCO2e)



n=7477, Excludes all recommendations with an energy savings value of 0 or less.

Source: BEAS Phase 1 MI data

Costs and affordability of BEAS recommendations

Table 9 provides key statistics on the estimated costs of implementation by measure type and Table 10 does so for the estimated payback period. This data is drawn from estimates given by auditors, as collated in the BEAS MI data. Auditors were asked to indicate the expected margin of error of the estimated cost to implement measures. The mean value for this was 25%, median 30%. Surveyed SMEs were also asked the extent to which they felt the BEAS audit estimated cost to install recommended measures was accurate.[20] Almost four in 10 (39%) felt that the cost was about the same, and similar proportions thought they were either lower or higher. Overall, this suggests that audit estimated costs provide a reasonable starting point for understanding costs.

With the exception of miscellaneous EI audit measures, solar panels (median cost of £20,000) and then heat pumps (median cost of £10,000) were the most expensive measure types in terms of absolute costs. However, payback periods were longest generally for building fabric (median of nine years) and heat pumps (median of seven years), with solar panels being slightly lower (median of six years).

[20] n=235 weighted and n=242 unweighted. BEAS SME evaluation survey D9. Please tell us the extent to which you feel like the estimated cost of implementing the measures that were recommended to you was accurate.

As might be expected given their nature, energy management measures had the lowest costs and payback periods of all types of measure, with median values of 0 for both. Aside from this, in terms of absolute costs, heaters, refrigeration and LEDs had the lowest median costs (£1,800-2,000). These measure types also had lower payback periods (median values of 3-3.9 years).

Table 9: Estimated costs of recommendation implementation, by measure type (£)

Measure type	Count	25%	Median	75%	Total
Miscellaneous EI	120	9,850	25,000	55,000	5,933,000
Solar	1,417	10,000	20,000	45,000	62,460,700
Heat Pumps	453	4,000	10,000	20,000	8,243,700
Cooling	148	1,500	4,400	11,000	1,679,900
Boilers	287	2,000	4,000	7,600	3,275,000
Building Fabric	1,015	1,000	3,000	10,000	12,808,900
Ventilation	128	1,500	3,000	7,500	1,025,300
LED	1,201	900	2,000	4,900	6,863,600
Refrigeration	222	600	2,000	5,000	975,200
Heaters	541	300	1,800	6,000	3,606,700
Energy Mgmt.	911	0	0	5,000	11,041,000
Other - standard	987	200	2,000	10,000	12,621,700
All	7,430	800	4,000	15,000	130,534,700

n=7430

Source: BEAS Phase 1 MI data. Does not include 68 recommendations without estimated cost of implementation values

Table 10: Estimated payback period, by measure type (years)

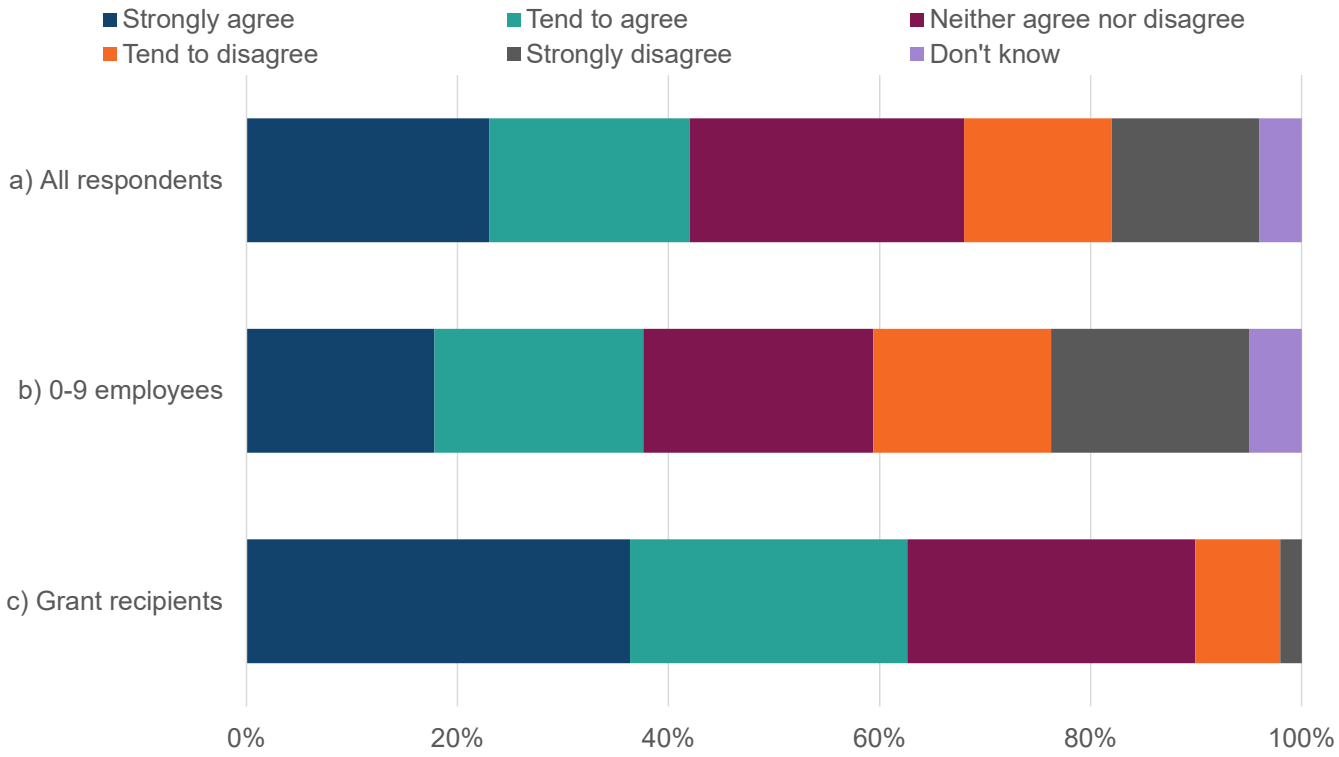
Measure type	Count	25%	Median	75%
Building Fabric	970	3.4	9	24
Heat Pumps	386	3.6	7.4	15.7
Solar	1401	4.7	6	8
Boilers	273	2.5	5	8.4
Ventilation	125	2	4	7
Refrigeration	217	2	3.9	7
Miscellaneous EI	127	2.2	3.7	6.5
Cooling	145	2	3.5	7
Heaters	505	1	3	6
LED	1178	2	3	5
Energy Mgmt.	813	0	0	4
Other - standard	896	0.7	3	8
All	7036	2	4.2	8

n=7036

Source: BEAS Phase 1 MI data. Does not include 462 recommendations without estimated payback period values.

Figure 7 shows the extent to which SME survey respondents agreed that the measures recommended in their audits were affordable. Overall, there was a mixed picture. Smaller SMEs (with 0-9 employees) were more likely to disagree that measures were affordable (37% compared to 28% across the whole sample). Unsurprisingly, given the financial support, SMEs who received a grant (BEAS or others) were more likely to agree that measures were affordable than others (62% compared to 36% who did not report receiving a grant).

Figure 7: Percentage of SMEs who agreed that BEAS recommended measures were affordable



Full survey question: D1: Please tell us the extent to which you agree or disagree with these statements about your energy assessment report: The energy demand and carbon reduction measures recommended in the energy assessment report were affordable.

a: n=337 weighted, n=342 unweighted. b: n=133 weighted, n=143 unweighted. c: n=84 weighted, n=91 unweighted.

Source: BEAS evaluation survey of SMEs

Implementation of BEAS recommendations

Key message 2: Short term implementation of BEAS audit recommendations was relatively high. This focused upon measures with the lowest absolute costs and shorter payback periods

SMEs were surveyed at least six months and up to two years after they had their BEAS audit. By this point in time i.e. in the short term, over half (54%) of the surveyed SMEs reported that they had implemented some of the audit recommendations (either fully or partially). At a recommendation level, this meant that almost a third of recommended measures had been fully implemented (22%) or partially implemented (8%). Measures with the lowest absolute cost and shorter payback periods (LEDs, energy management, refrigeration and heaters) were most commonly fully or partially implemented.

Key message 3: There is potential for further implementation of BEAS audit recommendations in the future

Surveyed SMEs also reported having definite plans to implement a further small proportion of recommendations (6%) in the financial year (to March 2026) and were considering implementing another third of recommendations (33%) in the future generally. Building fabric and solar recommendations, measures with relatively high cost and/or long payback periods, were relatively likely still to be under consideration for future implementation.

Business level implementation of BEAS recommendations

SMEs were surveyed at least six months and up to two years after they had their BEAS audit. By this point in time[21], as shown in Figure 8, over half (54%) of the surveyed SMEs reported that they had implemented some of the audit recommendations (either fully or partially). A small minority (12%) had implemented all their recommendations. About a further third (31%) of SMEs still had recommendations under consideration, with a small minority (5%) saying they had definite plans to implement at least some recommendations within the financial year. Only a small proportion (15%) of SMEs reported no implementation or plans to consider any recommendations further.

Overall, this seems a relatively high level of implementation. This is particularly noteworthy given that some recommendations may not be implemented immediately because existing equipment has not reached the end of its life and/or is still being paid for. The following quote from an interviewed standard audit SME discussing their boiler illustrates this.

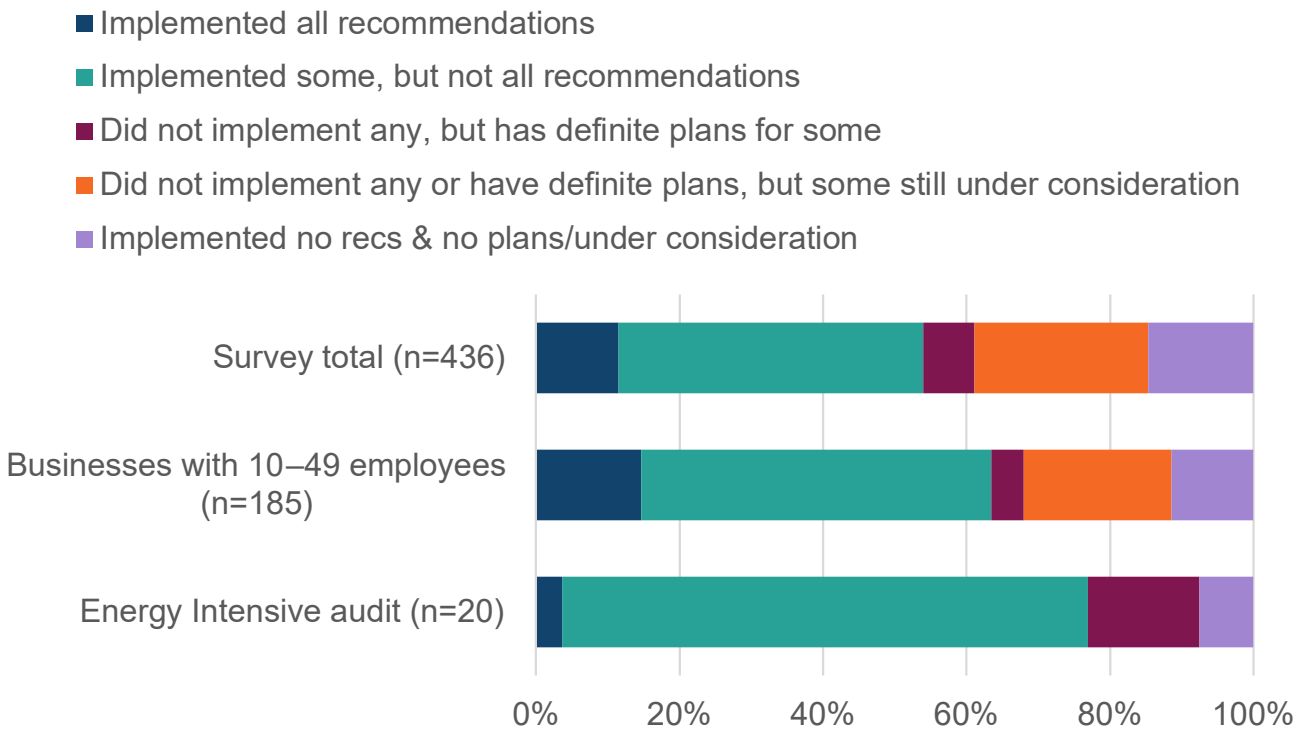
> *"It's passed every service. It's never failed a service, so we were advised, well, we took it on that, if it's working, don't repair it. It's not broken down…don't touch it, don't mess with it, whereas the other areas we've got issues with."*
> (SME standard with grant)

[21] This introduces temporal heterogeneity in the implementation findings. This has not been accounted for in the calculation of estimated savings presented in this report and is a limitation.

Whilst based on a small sample, nearly all SMEs in receipt of EI audits (92%) had either implemented at least some recommendations or were planning to do so within the financial year. This is partially related to grant receipt, as a higher proportion of EI audit SMEs were awarded BEAS grants than those with standard audits. However, even amongst EI SMEs without a grant, a slightly higher proportion (60%) had implemented at least some recommendations.

A higher proportion (64%) of SMEs with 10-49 employees had implemented some or all of their BEAS audit recommendations compared to smaller and larger SMEs.

Figure 8: Percentage of SMEs with each implementation status



Full survey question: B2: What is the current status of the recommended measures?

Total weighted and unweighted n=436

Source: BEAS evaluation survey of SMEs

SMEs who received a BEAS Phase 1 grant receipt implemented at least some recommendations using the grant funding. When the relatively small sample of grant recipients is excluded from the analysis, the overall profile of implementation by SME remains similar: with half (49%) having implemented (either fully or partially) at least some recommendations. This suggests that implementation is not necessarily contingent upon grant receipt.[22]

[22] This analysis relies upon identification of BEAS Phase 1 grant recipients in the BEAS MI scheme data. However, even when the analysis uses self-reporting of grant receipt by surveyed SMEs (which may include BEAS grants awarded in Phase 2, UKSPF grants or other sources of financial support), 45% of SMEs who did not report any grant receipt still said they have implemented at least some BEAS recommendations.

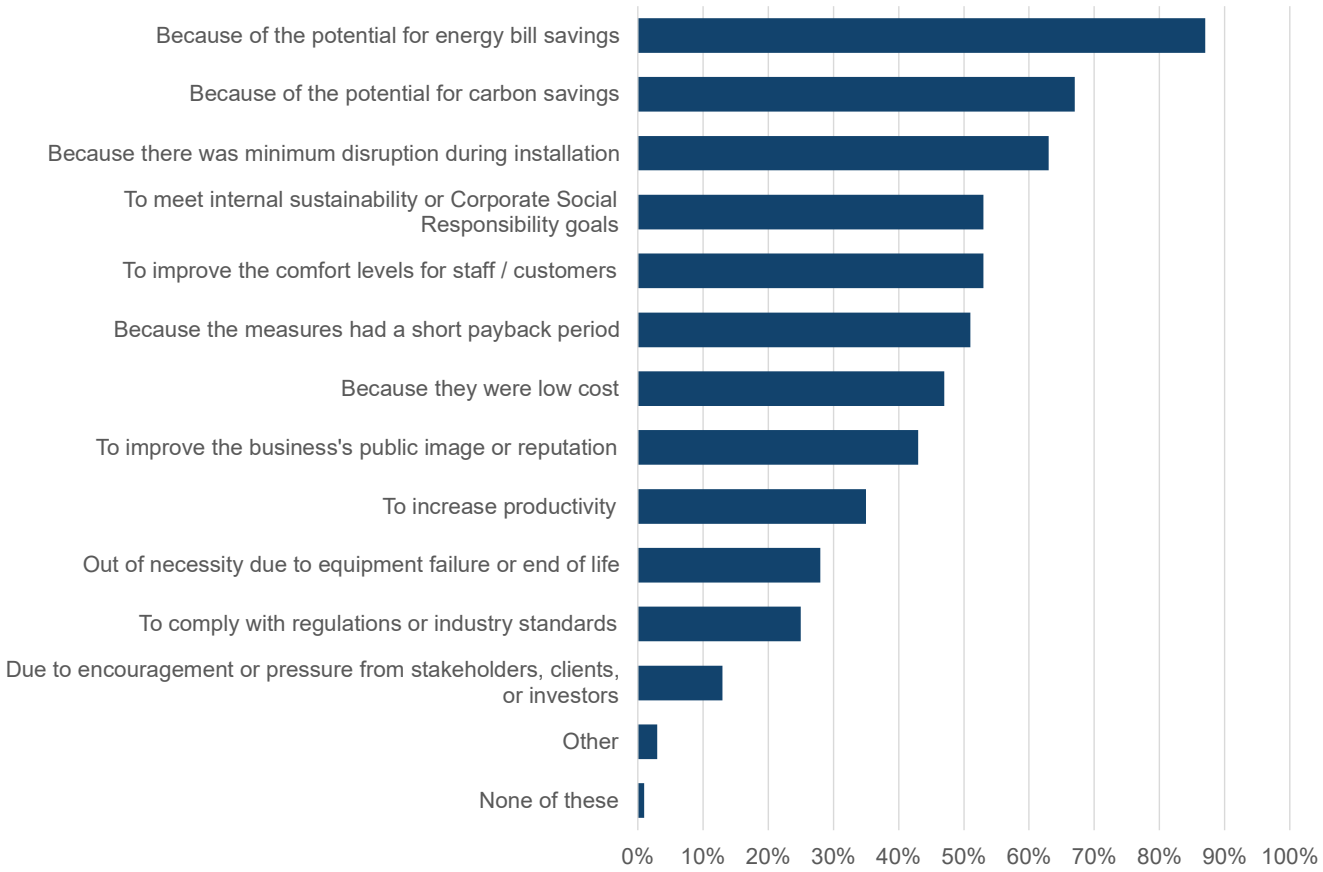
A small proportion (7%) of surveyed SMEs[23] said that they had rolled out implementation of BEAS recommendations to other sites, as well as the one which was the subject of the original audit. This would be expected to generate some additional energy savings which are not included in the estimates presented later in this report.

SME motivations for implementing BEAS recommendations

Figure 9 shows surveyed SMEs' reported motivations for full or partial implementation of measures.[24] The primary driver was the potential for energy bill savings, followed by the potential for carbon savings. Smaller SMEs (0-9 employees) were less likely to select 'to meet internal sustainability targets or Corporate Social Responsibility goals' as a motivation for installing LED lighting (33% compared to 51% of the total sample). This suggests that these SMEs may be less likely to have such targets.

[23] n=372 weighted and n=376 unweighted. BEAS SME evaluation survey B3. Have you implemented any of the recommended measures in any other sites in the West Midlands or wider UK since receiving your BEAS report?
[24] This question was asked to respondents about a maximum of two fully or partially implemented measures to limit questionnaire length. If a respondent had implemented more than two measures, then two were selected at random and asked about.

Figure 9: Percentage of SMEs citing each reason for installing measures (multiple reasons could be selected by each SME)



Full survey question: D3: Please tell us why you chose to install specific measures.

Total n=350 and unweighted n=358

Source: BEAS evaluation survey of SMEs

Implementation of BEAS recommendations by measure type

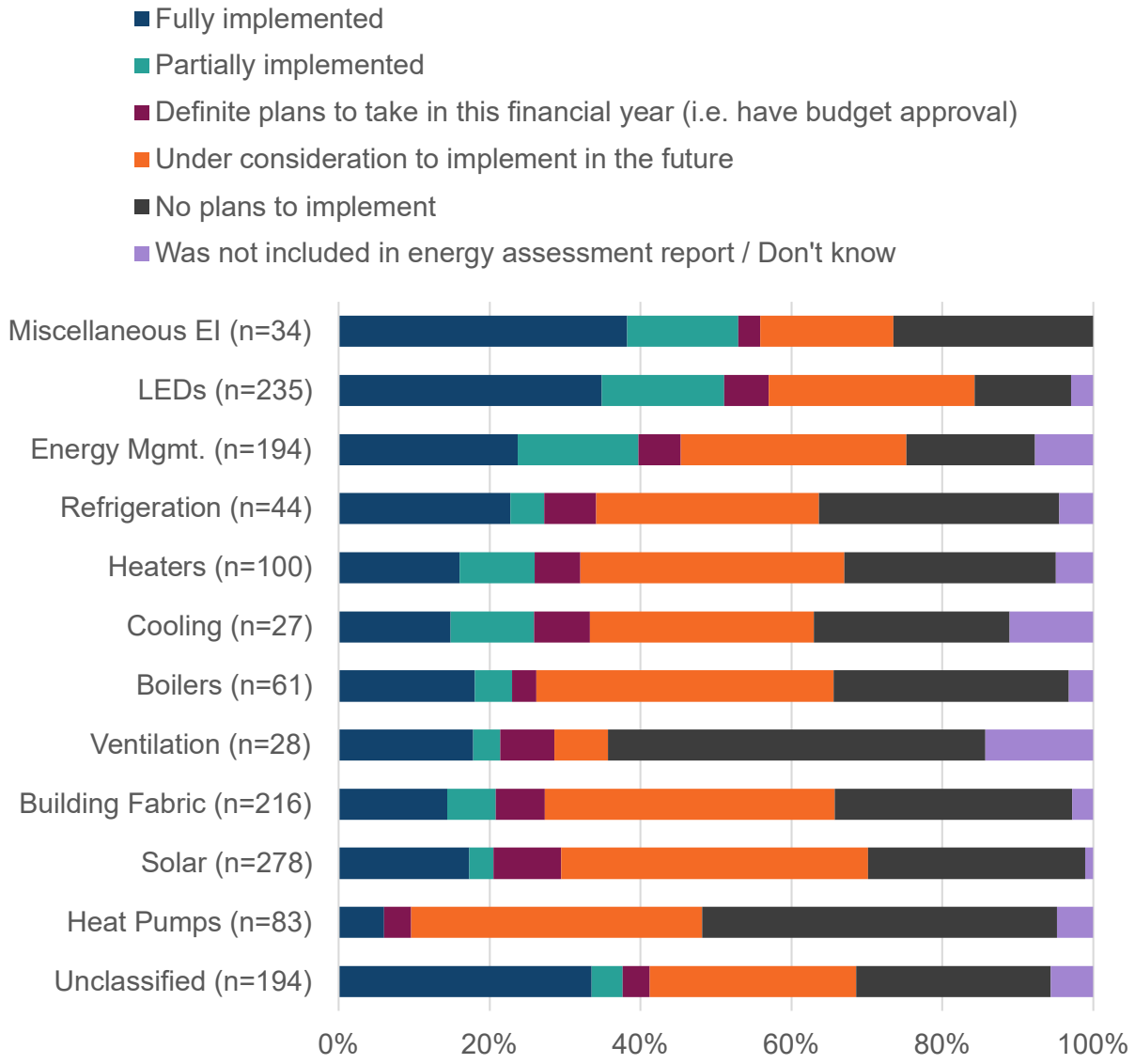
At the recommendation level, of the total 7,498 BEAS recommendations, surveyed SMEs reported that almost a third of recommended measures had been fully implemented (22%) or partially implemented (8%). Surveyed SMEs reported having definite plans to implement a further small proportion of recommendations (6%) in the financial year (to March 2026) i.e. they have budget approval. Surveyed SMEs were also considering another third of recommendations (33%) for future implementation. Figure 10 shows implementation status by recommendation category. Miscellaneous EI measures were most commonly fully or partially implemented. Amongst the whole sample (those who received standard and EI audits), measures with the lowest absolute cost and shorter payback periods (LEDs, energy management, refrigeration and heaters) were most commonly fully or partially implemented. Survey data[25] on SME reported motivations for implementing measures also further demonstrates that both these factors were important.

[25] n=104 weighted and 104 unweighted for LEDs, n=54 weighted and 57 unweighted for Energy Management. BEAS SME evaluation survey D3. Please tell us why you chose to install specific measures.

Higher proportions of SMEs selected 'because they were low cost' and 'because the measures had a short payback period' as the reasons for implementing LEDs and energy management measures compared to for other measures[26]. An interviewed SME (EI audit, without a grant) explained the relevance of finance and payback:

> *"It all comes down to finance, really and the payback ... A payback of ten years is a long time in our businesses. If we got a good payback on anything of two years, or around two years or less, we'd be thinking of doing it… we don't have to borrow the money to implement... we can generate cash that we can use."*
> (SME EI without grant)

Figure 10: Percentage of BEAS recommendations with each implementation status, by measure type



Full survey question: B2: What is the current status of the recommended measures?

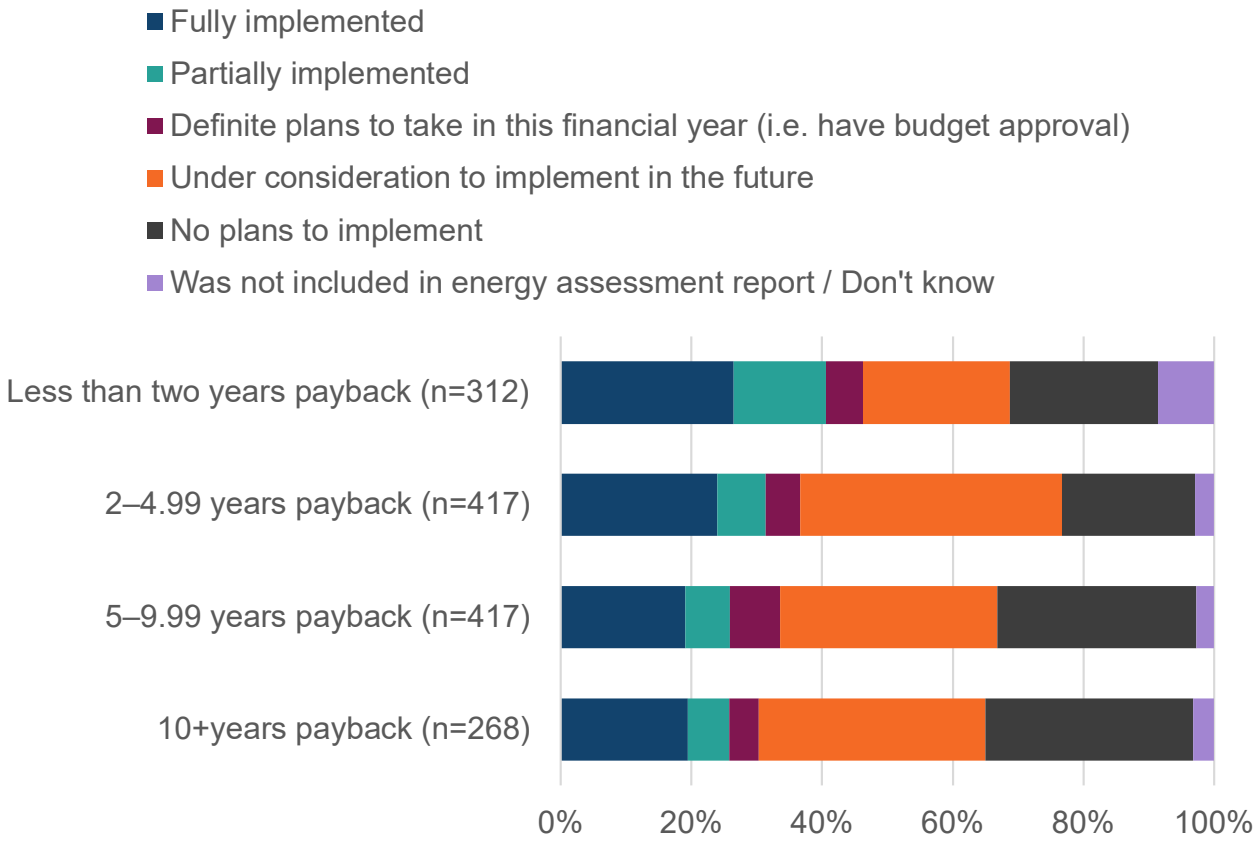
Total n=1494 and unweighted n=1505

Source: BEAS evaluation survey of SMEs

[26] However, probably due to relatively small sub-samples, this was only statistically significant for LEDs and only in relation to 'because the measures had a short payback period'.

The relevance of payback is further illustrated in Figure 11 which shows how implementation declines as the payback period increases across all BEAS recommendations.

Figure 11: Percentage of recommendations with each implementation status, by estimated payback period



Full survey question: B2: What is the current status of the recommended measures?

Total n=1414, unweighted n=1423

Source: BEAS Phase 1 MI data and BEAS evaluation survey of SMEs

Reasons why BEAS recommendations were not implemented

Surveyed SMEs had no plans to implement just over a quarter of all recommendations (26%). As shown in Figure 10 above, survey respondents were mostly likely to report that they had no plans to implement heat pumps.[27] Building fabric and solar recommendations were also relatively likely still to be under consideration for future implementation. These measures have relatively high cost and/or long payback periods (see data in Table 9 and Table 10). Financial barriers were the main reason given by survey respondents for not implementing measures, as shown below in Figure 12. Other economic constraints (for example, high interest rates or inflation rates) were also mentioned by a sizeable proportion of surveyed SMEs.

> *"If you're forking out two, two and a half grand to save one hundred, one hundred fifty pounds a month, you've got the hundred fifty pounds, but you don't have the two and a half grand."* (SME standard audit without grant)

[27] This follows ventilation but responses for ventilation were based upon a small sample (n=27) and are not statistically significant.

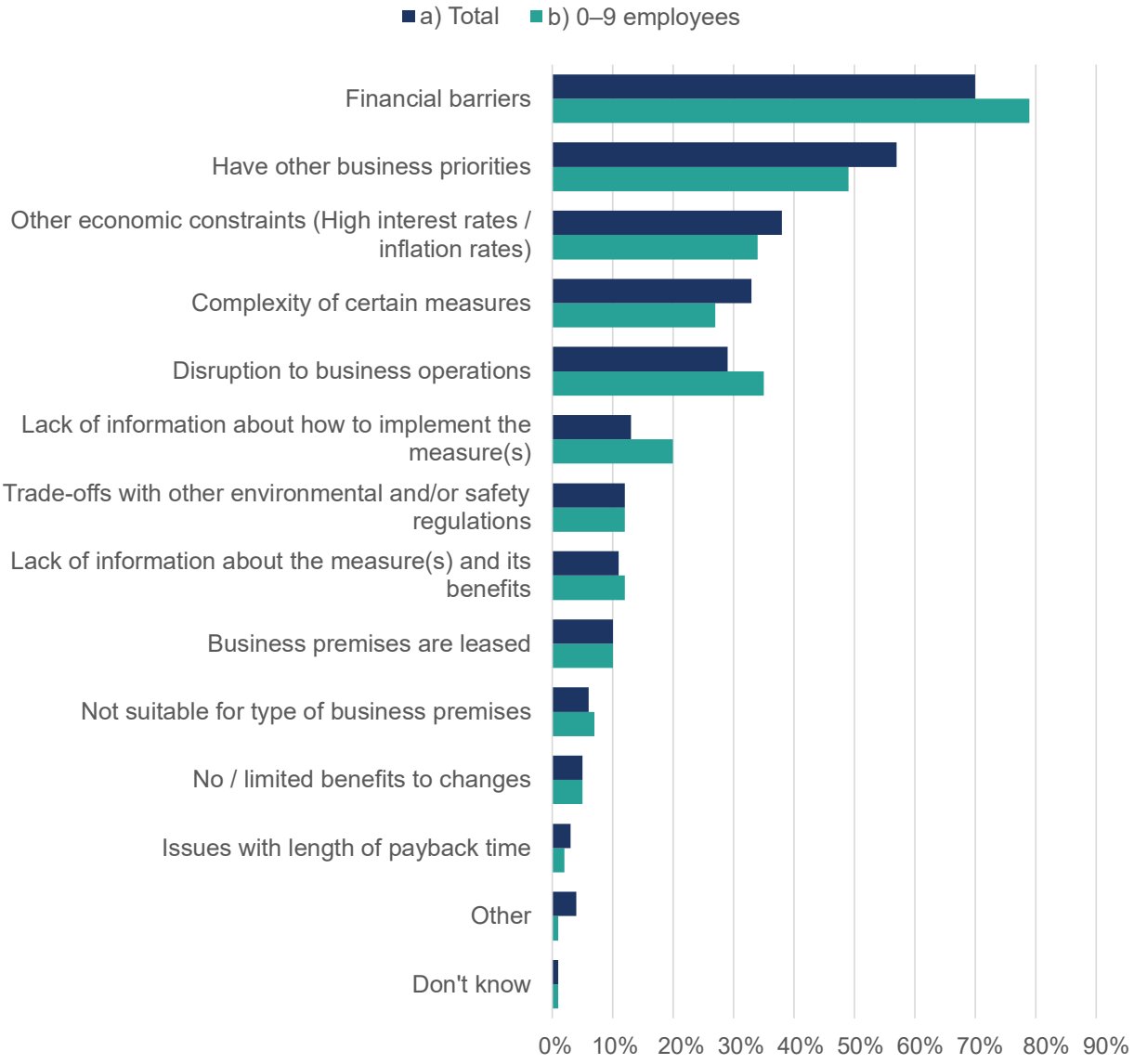
Smaller SMEs (0-9 employees) were slightly more likely to cite financial barriers (79% as compared to 71% across the total sample) and were less likely to cite having other business priorities (49% compared to 57% across the total sample) as reasons for not implementing measures.

Explanations from interviewed SMEs also illustrated how a number of reasons often interacted together in decisions to delay or not implement BEAS recommendations. For example, one standard SME interviewee explained that a recommendation for solar with batteries would only be considered in the future if the cost decreases, in a context where they would need a large volume of batteries and identified significant health and safety risks. Another standard SME explained that recommendations were not currently being considered because they were not a business priority as the savings were relatively small and they required some further information. Some interviewed SMEs gave quite specific individual reasons for not implementing recommendations as illustrated in the following quotes.

> *“Solar panels we couldn't do anyway, because we've got asbestos in the roof.”* (SME standard audit with grant)

> *“We still have a concern that the compressors are very fragile, so they may be energy efficient, but if anything was to fall in our furnace and break them, it's [a] very expensive."* (SME EI audit without grant)

Figure 12: Percentage of SMEs selecting each reason for not planning to implement BEAS recommendations



Full survey question: D4: For the measure(s) that you do not plan to implement, what are the reasons for this?

a: Total n=198 and unweighted n=199, b: 0-9 employees n=82 and unweighted n=87

Source: BEAS evaluation survey of SMEs

Additionality of BEAS

As explained in the Methodology section at the beginning of the report, for some key causal pathways within the BEAS Theory of Change (Figure 1), we have undertaken Contribution Analysis (CA). For this, we have constructed a Contribution Claim i.e. a claim about how the BEAS scheme contributes to a specific output/outcome/impact for testing. We have also constructed related 'Alternative Explanations' i.e. an alternative hypothesis about how other factors (external to BEAS) have contributed or limited the same output/outcome/impact of interest. The Contribution Claim and Alternative Explanation can both be true. Strong evidence for the contribution claim does not rule out other factors influencing outcomes, and vice versa. The assessment aims to determine the extent of BEAS activities' contribution to outcomes, while recognising that these occur within a broader system where other factors also affect results.

The evidence about how BEAS contributed to the implementation of the energy efficiency measures is assessed within this framework, alongside alternative explanations of this. The CA findings are summarised in the box with further evidence detailed below.

The role of BEAS audits in the installation of measures

Key message 4: BEAS audits supported SMEs to implement energy efficiency measures by overcoming informational barriers

BEAS audits supported SMEs to plan and implement energy efficiency measures, through identifying appropriate measures, providing information about the costs involved, payback periods and how to implement these.

Causal pathway tested: [The (BEAS) recommendations are persuasive and deliverable as the expected benefits outweigh the possible costs] leading [SMEs to implement some energy efficiency improvements from their own funds] because [SMEs deem some improvements to be economically/commercially viable outright (i.e. have reasonable payback) and have funds available and decide to commit them].

Survey and interview evidence supported the claim that information in BEAS energy audits led SMEs to (plan and) implement recommendations because these were persuasive and deliverable. The majority of surveyed SMEs (80%) who identified previously experiencing the barrier of 'Not being aware of energy efficiency measures available' (43% of the total sample)[28] said this was overcome via BEAS[29]. Larger SMEs (50+ employees) were more likely to say that BEAS helped overcome this barrier than smaller SMEs (0-9 employees).

Most interviewed SMEs (both with standard and EI audits) explained how the information provided in the BEAS report supported them to implement or plan to implement measures. This included suggesting energy efficiency measures that they were not already aware of,

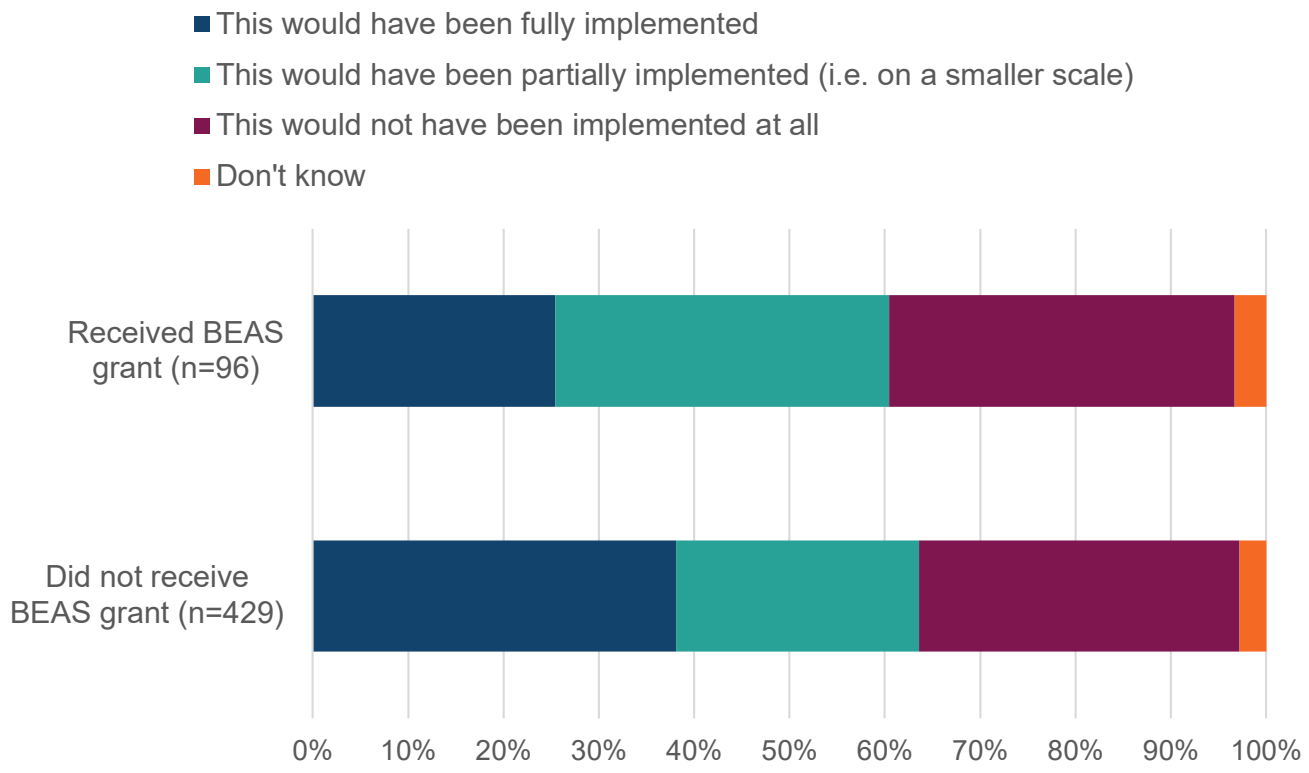
[28] n=436 weighted and unweighted. BEAS SME evaluation survey C6. What has prevented you from implementing energy demand and carbon reduction measures for your business in the past?
[29] n=404 weighted and 405 unweighted. BEAS SME evaluation survey C7. Of the barriers you previously selected, which one(s) do you feel the Business Energy Advice Service (BEAS) helped your business overcome?

confirming their initial thoughts about options, providing detailed insight into costs and payback periods and information about how to implement measures. For example, one SME that had implemented all recommended measures commented:

> *"It was a fantastic report…it told you exact details …for instance on the solar…what the savings, the payback would be on each array… It was very well broken down and made you understand both what you'd put in and get back."*
> (SME standard audit without grant)

As shown in Figure 13, surveyed SMEs who had implemented at least some BEAS recommendations (without a BEAS Phase 1 grant) said that overall just over a third (34%) of recommendations would not have been implemented at all without BEAS. In addition, these SMEs (who did not have a BEAS Phase 1 grant) reported that just over a quarter (26%) of recommendations would have only been partially implemented without BEAS. Just over a third (38%) of recommendations would have been fully implemented without BEAS. However, it should be noted that SME responses to this question may be hypothetical and speculative. For example, hindsight bias may occur where SMEs now believe they would have installed the measure, but actually have forgotten that without the BEAS audit, they may not have had the information required to do so.

Figure 13: Percentage of recommendations with each expected implementation status in the absence of BEAS, divided by the grant status of the businesses



Full survey question: D5: For each of the measures that you have implemented or have definite plans to implement, what would you have done in the absence of the recommendations in the energy assessment report?

n=525, unweighted n=534

Source: BEAS evaluation survey of SMEs

Influence of other factors on installation of BEAS recommended measures

There is also evidence supporting alternative explanations that other factors, aside from BEAS, also contributed to or limited SME implementation of BEAS recommendations. As noted in the previous section, surveyed SMEs cited other business priorities and wider economic constraints as external factors limiting the implementation of measures. Other regulation played a limited role in both motivating and limiting some implementation of measures. The need to replace existing equipment occurred in some cases.

In interviews, SMEs sometimes explained how a number of these motivations interacted together leading to implementation of recommendations. For example, one interviewee explained how they had needed to revamp the heating in their offices, but they did this in a more extensive and energy efficient way due to the suggestions provided in the BEAS audit report and the BEAS grant received.

Contribution Claim 3: Summary of BEAS contribution to installation of measures – There was strong evidence that BEAS contributed to SME plans for and implementation of energy efficiency measures, through identifying appropriate measures, providing information about the cost, payback periods and how to implement these.

Alternative Explanations 3-6 & 9[30]: Summary of contribution of other factors to installation of measures – There was also strong evidence that UKSPF also provided financial support to implement measures. Thus this has also been supporting the role of BEAS audits. Conversely, there was strong evidence that other business priorities faced by businesses limited their implementation of measures in some cases. There was moderate strength evidence of the role of economic constraints, other regulation and replacement of equipment, indicating these played a more minor role in decision making.

[30] As explained above, the Contribution Claim and Alternative Explanation can both be true. Strong evidence for one does not exclude other factors. Outcomes can be caused by BEAS and also shaped by broader factors outside BEAS influence.

The role of BEAS grants in the installation of measures

Key message 5: BEAS grants were awarded to a small proportion of SMEs in Phase 1 but supported these SMEs to implement some EE recommendations by overcoming financial barriers.

Causal pathway tested: [Quality energy efficiency interventions, which would not otherwise have occurred, are awarded subsidies via the grant process] leading [SMEs to implement energy efficiency improvements using BEAS grant subsidy] because [SMEs deem the improvement(s) to be economically/commercially viable now subsidised (i.e. have reasonable payback) and have funds available and decide to commit them].

107 SMEs received a BEAS grant and accordingly installed recommended energy efficiency measures. As context to interpreting findings for SMEs with grants, it is important to note that grant applications were reviewed against certain criteria. These included: a minimum payback period of two years; clear justification that the project would not otherwise proceed; and assessment of the project deliverability, risk management and applicant capability. This means that the audit recommendations and the SMEs implementing these using grants may have a slightly different profile to the rest of the BEAS audited population.

Just over half (54%) of surveyed SMEs who identified previously experiencing the 'financial barrier(s) to implementing energy efficiency measures'[31] said this was overcome via BEAS[32]. This increased to almost all of those who received a BEAS grant (89%)[33]. SME interviewees explained the role of the grant in making implementation possible and reducing payback periods.

> *"The main reason has been finance quite honestly...If the grants hadn't been available, we certainly wouldn't have installed the solar PV and might not have installed such an eco-friendly heating system…"* (SME standard audit with grant)

> *"It boils down to the grant. It all comes back to making paybacks work in a difficult economic environment."* (SME EI with grant)

As shown previously in Figure 13, surveyed SMEs reported that BEAS played a slightly more important role in the implementation of BEAS measures in cases where the SME had also received a BEAS Phase 1 grant as well as an audit. Surveyed SMEs with a BEAS grant said that 71% of the implemented BEAS recommendations would not otherwise have been fully or partially implemented. This compares with 59% of implemented recommendations amongst those who only received a BEAS audit and no BEAS grant.

[31] n=436 weighted and unweighted. BEAS SME evaluation survey C6. What has prevented you from implementing energy demand and carbon reduction measures for your business in the past?
[32] n=404 weighted and 405 unweighted. BEAS SME evaluation survey C7. Of the barriers you previously selected, which one(s) do you feel the Business Energy Advice Service (BEAS) helped your business overcome?
[33] n=38 weighted and 42 unweighted (respondents who were awarded a BEAS grant). BEAS SME evaluation survey C7. Of the barriers you previously selected, which one(s) do you feel the Business Energy Advice Service (BEAS) helped your business overcome?

Influence of other support on installation of BEAS recommended measures

UKSPF grant funding also contributed to the installation of energy efficiency measures recommended in BEAS audits, albeit to a lesser extent. 107 BEAS grants were awarded worth £2.745 million awarded to SMEs during BEAS Phase 1. Twenty-three UKSPF grants[34] with a combined value of £641,662 were also awarded to SMEs who had BEAS audits and potentially offered funding for solar panels and heat pumps, measures that were not funded by BEAS Phase 1 grants. Some other sources of funding for similar energy efficiency measures were also identified, for example, the Worcestershire Net Zero Programme and Marches Energy Grant. These schemes had similar offers to BEAS but with some variation by local area in eligibility, total value of grants and the extent of match funding required. However, only a small proportion of surveyed SMEs (7%) reported use of other schemes, although it is possible that some SMEs were unclear about the source of funding. The total extent of funding available through other schemes was smaller.

However, the majority of SMEs had not accessed a grant. Almost half (48%) of surveyed SMEs without a BEAS grant who said they previously faced financial barriers reported still doing so, as discussed further in the BEAS process evaluation report (Financial barriers overcome section). Amongst the SMEs who still faced financial barriers, the most common issues cited were not being able to afford high initial costs (19%), poor cash flow (17%), low likelihood of return on investment (17%), and broader economic pressures or efforts to keep the business afloat (15%)[35].

Contribution Claim 4: Summary of BEAS grant contribution to installation of EE measures – There is strong evidence that BEAS grants supported a relatively small number of SMEs to implement EE recommendations that were otherwise non-viable because they brought the payback of investment into an acceptable range. However, this is expected to be extended in Phase 2 when more grants were awarded to those who received audits in Phase 1.

Alternative Explanation 7: Contribution of non-BEAS support – There was also strong evidence that other SMEs (the majority) also implemented EE measures without a grant, or with alternative grants. However, installations have been skewed towards measures with lower costs and/or shorter payback periods. Some SMEs still faced financial barriers to the installation of EE measures suggesting that there was a greater potential role tor financial support, but this had not yet been achieved.

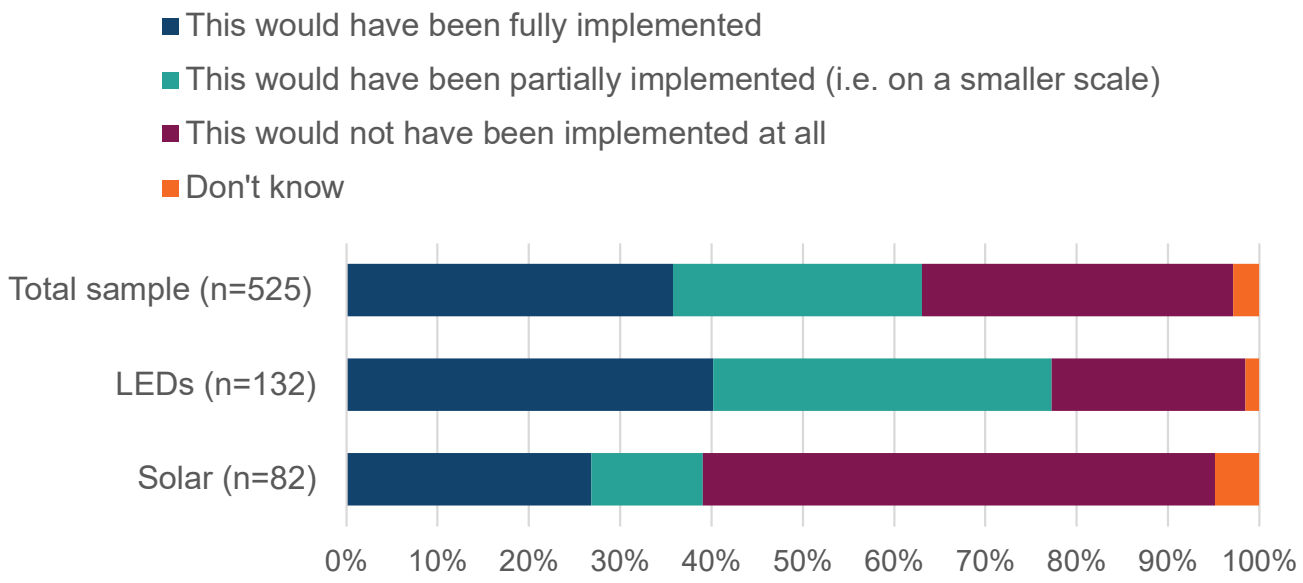
Variation in the role of BEAS in the installation of measures

The level of attribution to BEAS (amongst those receiving an audit and/or a BEAS Phase 1 grant) was broadly consistent across different types of recommendation with the exceptions of LEDs and solar panels, shown in Figure 14. Overall, BEAS played less of a role in the implementation of LEDs compared to other measures. A higher proportion of SMEs said LEDs would have been partially implemented without BEAS (37%), and fewer said these would not

[34] UKSPF also offered grants, administered by local authorities, for local energy-efficiency initiatives, including potentially some BEAS recommended measures. The exact nature of support varied by local authority but typically accounted for 40% to 70% of total installation costs.
[35] n = 148 weighted, 147 unweighted

have been implemented at all without BEAS (21%). Conversely, BEAS played a greater role in the implementation of solar panels compared to other measures. A higher proportion of SMEs said solar panels would not have been implemented at all without BEAS (56%) compared to other measures.

Figure 14: Percentage of recommendations with each expected implementation status in the absence of BEAS, by measure type



Full survey question: D5: For each of the measures that you have implemented or have definite plans to implement, what would you have done in the absence of the recommendations in the energy assessment report?

n=525, unweighted n=534

Source: BEAS evaluation survey of SMEs

In the majority of cases where SMEs said they would have implemented measures without BEAS (including those who received a BEAS audit and/or grant), BEAS has brought forward implementation. On average, SMEs reported that they would otherwise have installed the measures 2.2 years later[36]. This was slightly longer for building fabric measures (three years on average).

> *"We could have done most of the measures eventually but would have had to wait longer to implement the solar, and maybe waited longer to double glaze all floors. "* (SME standard audit, with grant)

[36] n=331 weighted and 336 unweighted. BEAS SME evaluation survey D5B. And for each of the measures that you would have implemented without the Business Energy Advice Service (BEAS) recommendations, how many years later would you have implemented them?

In cases where SMEs said they would have partially implemented measures without BEAS, the extent to which they reported that they would have done this varied. 33% said that they would have implemented a quarter of the costs of the recommended measure. This suggests that they would have implemented the measure at a quarter of the scale, for example, installing new lighting on one floor out of four floors in a building. A similar proportion (36%) would have implemented half of the costs of the measure, and fewer (15%) would have implemented three quarters of the costs[37].

The role of BEAS in delivering energy savings

Key message 6: BEAS contributed to energy, carbon and cost saving impacts.

Installation of EE measures recommended by BEAS contributed to reduced SME energy consumption (and accordingly carbon savings). This also translated into cost savings for SMEs. However, SMEs reported that the extent of bill savings actually experienced was sometimes also influenced by external factors, notably change in energy prices.

Causal pathway tested: [SMEs implement energy efficiency improvements] leading to [SMEs achieve reduced energy consumption] because [the projects are successfully deployed and therefore deliver the degree of energy consumption reduction expected].

The majority of surveyed SMEs (86%) who were aware of energy savings levels[38] indicated that savings had been realised. A small proportion (14%) said that no energy savings had been realised. There were two examples of SMEs reporting and explaining the lack of energy savings in the qualitative interviews. In one case, the EI SME had partially implemented an energy management recommendation to reduce out of hours energy consumption. They had examined what machinery was running during the night. However, they had not then actually progressed to reduce usage because there were business risks to stopping the machinery running. Another interviewed EI SME indicated that they had said there were no savings in their survey response because the measure was still in the process of being installed. These responses suggest that the small proportion of SMEs reporting no energy savings may arise from cases where measures are not fully implemented to the extent that generates energy savings.

Surveyed SMEs also identified other factors influencing energy usage since BEAS recommended measures were installed as shown in Figure 15. Over half (53%) of respondents cited change in energy prices. Qualitative data indicated the importance of energy prices and the subsequent relevance of energy saving measures to SMEs in a high energy price context.

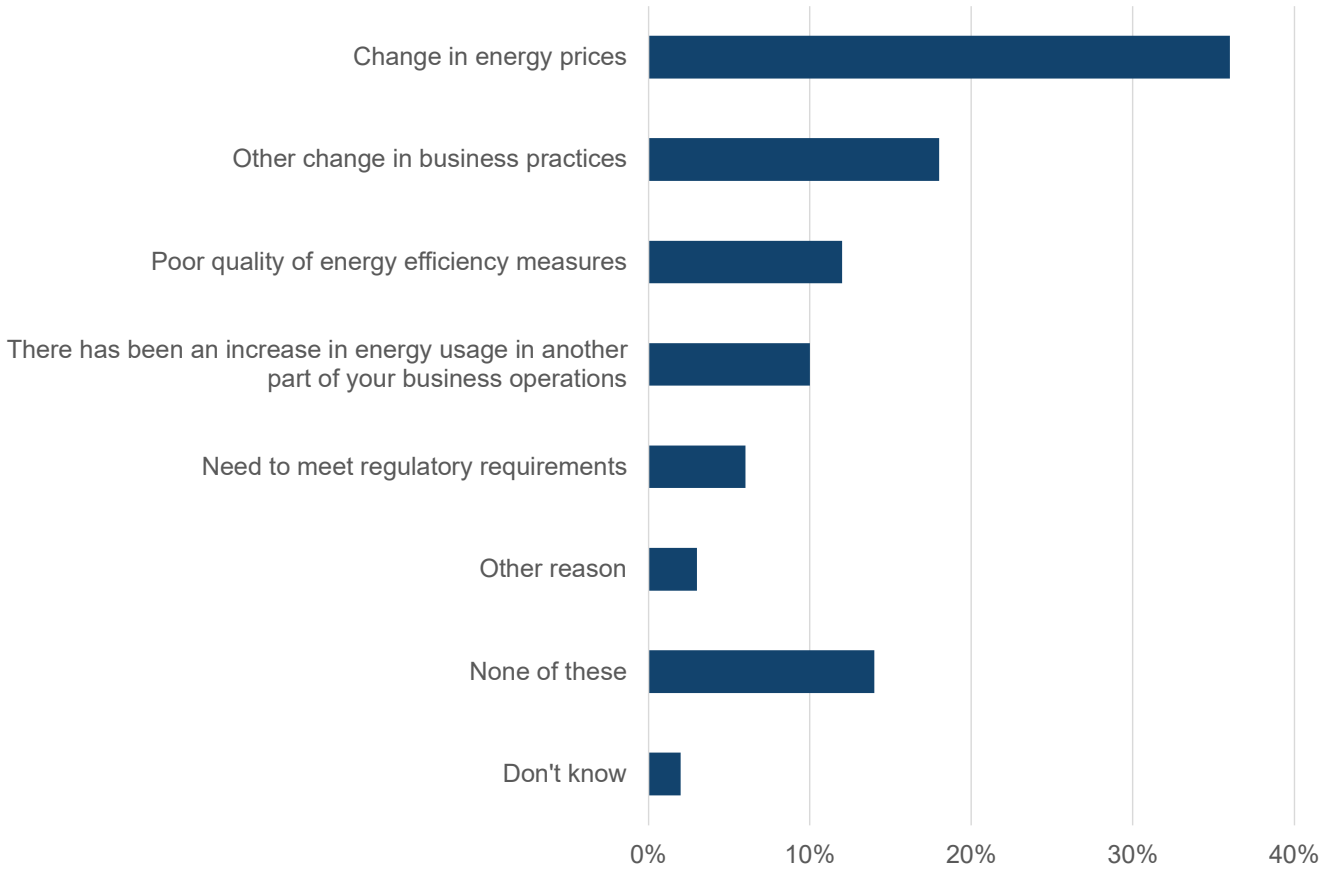
[37] n=143 weighted and 146 unweighted. BEAS SME evaluation survey D5C-1. For those measures that you would have partially implemented without the recommendations, what percentage of the cost of the recommendations would you have implemented?

[38] n=137 weighted, n=136 unweighted. This response is taken from the survey question D6. Please tell us the extent to which you feel like the estimated energy savings for the measures recommended to you were accurate. (n=236 weighted, n=242 unweighted.) Quite a large proportion of surveyed SMEs (42%) did not know whether BEAS audit recommendation energy saving predictions were accurate. Qualitative data from interviewed SMEs suggest that this may be because for many, it was too early to assess energy savings from BEAS accurately. This means that the base for this question does not cover all those who implemented measures.

However, it did not explicitly demonstrate a link through which energy prices led to reduced energy consumption, other than via the installation of BEAS recommended measures.

A relatively small proportion of survey respondents (10%) indicated that they had increased energy usage in other parts of the business at the same time as saving energy via BEAS recommended measures. This is outline evidence of a rebound effect. Some qualitative interviewees gave examples explaining how this occurred. An SME with an EI audit (without a grant) explained that their energy usage had reduced due to the implementation of LED lighting as recommended by BEAS. However, at the same time, the business has been transitioning to greater use of electric vehicles and so was using more electricity to charge these, whilst using less petrol/diesel. Another business (standard audit with a grant) discussed how they had discovered that they could use their air source heating system as air conditioning in the summer to make offices more comfortable for their staff. They had not yet experienced a winter with the new system to assess any change in their overall level of energy consumption.

Figure 15: Percentage of SMEs identifying other factors influencing energy usage since their BEAS recommended measures were installed



Full survey question: D7: Which of the following factors, if any, have influenced your business energy usage since the Business Energy Advice Service (BEAS) recommended measures were implemented?

Total n=137, unweighted n=136

Source: BEAS evaluation survey of SMEs

Contribution Claim 5: Summary of BEAS contribution to reduced energy consumption –There was strong evidence that implementation of BEAS recommendations contributed to reduced energy consumption because EE measures were successfully installed for the majority of SMEs.

Alternative Explanations 10-12: Summary of contribution of other factors to energy consumption in the same period – There was also limited evidence that for a small proportion of SMEs, energy savings were limited by changes in business practices, poor quality EE installations and/or trade-offs with environmental and safety regulations.

The role of BEAS in delivering carbon savings

The evidence presented in relation to the role of BEAS in delivery of energy savings also applies to the delivery of carbon savings (ToC box 22[39]). The measures installed will generate carbon savings through reduction in the energy consumed. In some cases, such as heat pumps, measures sometimes also involve switching from a more carbon intense fuel such as gas to a less carbon intense fuel such as electricity. This increases the relative level of carbon emissions secured.

The role of BEAS in delivering energy cost savings

Causal pathway tested: [SMEs achieve reduced energy consumption] leading to [SMEs reduce their energy costs] because [fewer units of energy/fuel must be purchased].

The majority (90%) of surveyed SMEs who were aware of cost savings levels[40] thought there had been cost savings from the BEAS recommended measures they had installed. Only a very small proportion (10%) said that no energy cost savings had been realised from the measures they had implemented. The earlier qualitative insight into a small number of cases where energy usage savings were not realised suggests that this may be explained by cases where measures are not fully implemented. This may also apply to the lack of cost savings for a small number of SMEs.

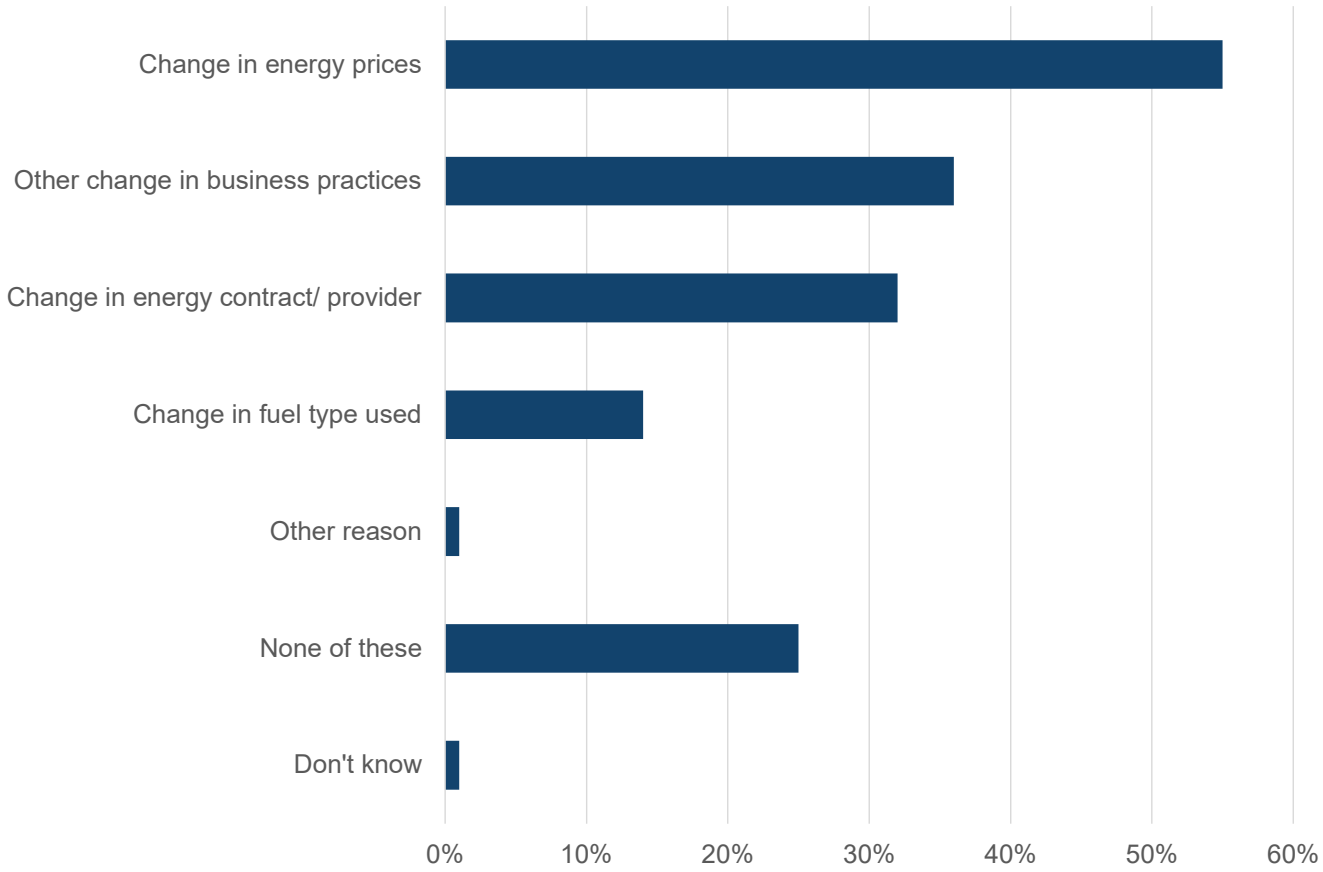
Surveyed SMEs also identified other factors influencing energy costs since BEAS recommended measures were installed as shown in Figure 16. Similarly to energy savings, over half (55%) of respondents cited change in energy prices. About a third of respondents identified change in business practice (26%) and/or change in energy contract/provider (32%) as influencing energy costs. A qualitative interviewee gave a specific example of cost savings achieved by securing a better deal with a different provider.

There was limited evidence that change in fuel type had limited energy cost savings. Only a small proportion (14%) of survey respondents cited change in fuel type used as a factor influencing energy costs since BEAS recommended measures were installed. Fuel switching is most likely to occur where heat pumps are installed, and possibly in installation of other sources of heating and some miscellaneous EI measures. Relatively small numbers of these measures were implemented compared with other measure types via BEAS Phase 1.

[39] Figure 1

[40] n=150, unweighted n=149.Similarly to energy savings, quite a large proportion of survey respondents (38%) did not know whether energy cost saving predictions from BEAS recommendations were accurate. Qualitative data again suggests this may be because it is too early to judge in some cases. This response is taken from the survey question D6-2. Please tell us the extent to which you feel like the estimated cost savings for the measures recommended to you were accurate. (n=235, unweighted n=242.) This means that the base for this question does not cover all those who implemented measures.

Figure 16: Percentage of SMEs identifying different factors influencing energy costs since their BEAS recommended measures were installed



Full survey question: D8: Which of the following factors, if any, have influenced your business energy costs since the Business Energy Advice Service (BEAS) recommended measures were implemented?

Total and unweighted n=149

Source: BEAS evaluation survey of SMEs

Contribution Claim 6: Summary of BEAS contribution to reduced energy costs – There was strong evidence that implementation of BEAS recommendations contributed to reduced energy costs because fewer units of energy had to be purchased after EE measures were successfully installed.

Alternative Explanations 13-15: Summary of contribution of other factors to change in energy costs in the same period – There was strong evidence that change in energy prices also influenced SME energy costs in the same period. There was weak evidence that for small proportions of SMEs, changes in energy procurement and fuel switching also affected energy costs.

Estimated energy, carbon and cost savings

Estimated total energy, carbon and cost savings

Evidence already presented from SMEs shows that BEAS has contributed to energy savings. This section of the report now progresses to estimate the level of these savings quantitatively. The method used is set out in full at the beginning of the report in the section: Method for quantifying estimated energy savings. There are a number of compounding uncertainties, limitations and assumptions made in this estimation of energy savings as explained in the method. These also apply to the estimates of carbon and cost savings as these are based upon energy saving estimates. **The numbers presented here should therefore be treated as indicative estimates only.**

The findings from surveyed SMEs on the extent to which BEAS recommendations have been implemented have been applied to the BEAS population to estimate total lifetime energy savings at the BEAS population level. Estimations of total lifetime energy, carbon and cost savings are presented in Table 11 for all BEAS recommended measures anticipated to have been implemented fully or partially, and for proportions of recommendations anticipated to be planned[41]. The level of savings estimated to be achieved comprises just under a third of total potential savings.

For each type of savings, it is estimated that 42% of the savings is based upon planned implementation of recommendations in the future, rather than those already implemented[42].

Table 11: Total lifetime savings from implemented and planned BEAS measures

	BEAS audit only	BEAS audit and grant	Total lifetime savings	% of total potential savings from BEAS recommendations[43]
Energy savings (GWh)	795	186	981	31%
Carbon savings (tCO2)	74,293	20,857	95,510	28%
Cost savings (£ million)	20.5	4.3	24.8	31%

Source: Technopolis quantitative benefits model

Key message 7: Over half of the total estimated lifetime energy savings (57%) are calculated to be attributable to BEAS (based upon modelling), that is, they are not expected to have been achieved without BEAS.

[41] A factor of 0.75 is applied to recommendations categorised as 'definite plans to take in this financial year' and a factor of 0.25 is applied to recommendations categorised as 'under consideration to implement in the future' reflecting the greater uncertainty about implementation of these.
[42] Due to the way the model is set up, this is an approximation as it is not possible to say whether recommendations (which were not covered in the survey) were implemented or planned to be implemented.
[43] See Figure 5.

As detailed previously, these estimations have then been adjusted further drawing upon surveyed SME reports of the extent to which EE measures would have been implemented without BEAS and when and to what extent, this would have otherwise been done. This enables us to estimate the additionality of BEAS. Applying this adjustment, over half of the total estimated lifetime energy savings (57%) are calculated to be attributable to BEAS (based upon modelled attribution, rather than a counterfactual evaluation design). Table 12 provides estimations of total energy, carbon and cost savings for all BEAS attributed implemented measures. This is total savings minus the counterfactual (i.e. what would have happened in the absence of BEAS), providing BEAS attributed savings. Low, central and high values are given using low, central and high assumptions of the different inputs to the estimations (as detailed further in the Method for quantifying estimated energy savings).

Table 12: Total lifetime BEAS attributed (net) savings (implemented savings minus the counterfactual)

	Low value	Central value	High value
Energy savings (GWh)	387	556	749
Carbon savings (tCO2)	39,487	57,299	77,545
Cost savings (£ million)	10.3	14.6	19.6

Source: Technopolis quantitative benefits model

For total lifetime attributed savings, the proportions which arise from standard, rather than EI, audits are similar across each type of saving (81-84%).

Similarly, the proportions which occur where a BEAS grant was not awarded are similar across each type of saving (77-83%).

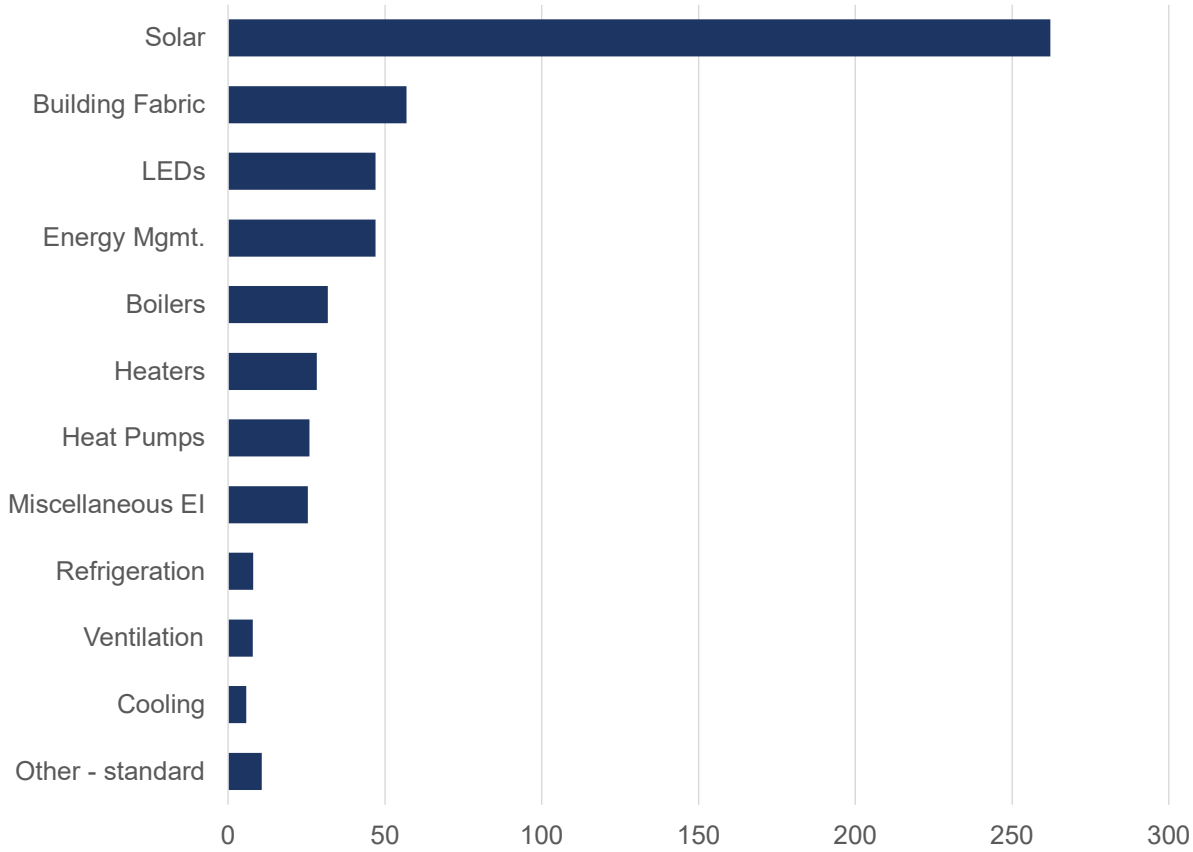
If lifetime energy cost savings were distributed evenly across the 85% of participating SMEs who had implemented or planned to implement some or all BEAS recommendations, then this would suggest a lifetime cost saving of £7,900 per SME. LRVC costs are used in line with Green Book methodology. However, the LRVC costs are expected to underestimate the cost savings available directly to SMEs significantly. This is because LRVCs do not include other costs present in retail energy prices, for example, carbon costs, fixed costs and taxes. For example, the Green Book retail electricity price for commercial/public sector in 2025 was 18.8p/kWh, in contrast to the LRVC of 13.1p/kWh. Thus the savings available to SMEs are expected to be higher.

Estimated savings by measure type

Key message 9: Solar played a dominant role in the energy, carbon and cost savings available and achieved through BEAS.

Figure 17 shows how estimated attributed lifetime energy savings are broken down by measure type. Solar is by far the largest contributor.

Figure 17: Estimated lifetime energy savings from BEAS attributed implemented measures, by measure type (GWh)



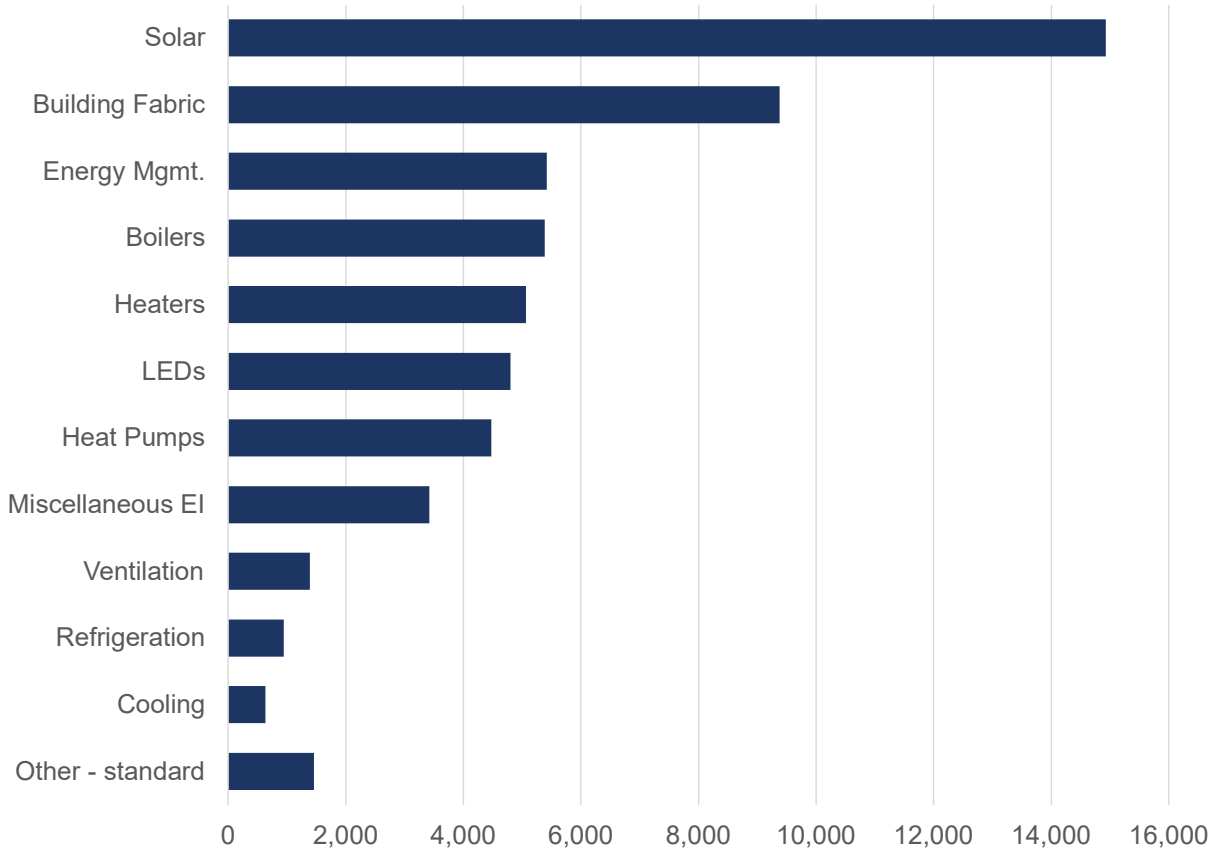
n=7477

Source: BEAS Phase 1 MI data

As shown in Figure 18, whilst savings from solar panels still comprise the largest part of carbon savings, the contribution made by building fabric, heat pumps[44], boilers and heaters is higher when compared to energy savings. This is due to the gas savings estimated to be realised. Gas will continue to emit the same level of emissions, whereas the emissions intensity of the electricity grid is projected to reduce over time.

[44] Estimation of heat pump savings did not take account of fuel switching because MI data on fuel type was poor quality. However, these constitute a small part of savings overall so will not influence overall figures significantly.

Figure 18: Estimated lifetime carbon savings from BEAS attributed implemented measures, by measure type (tCO2e)

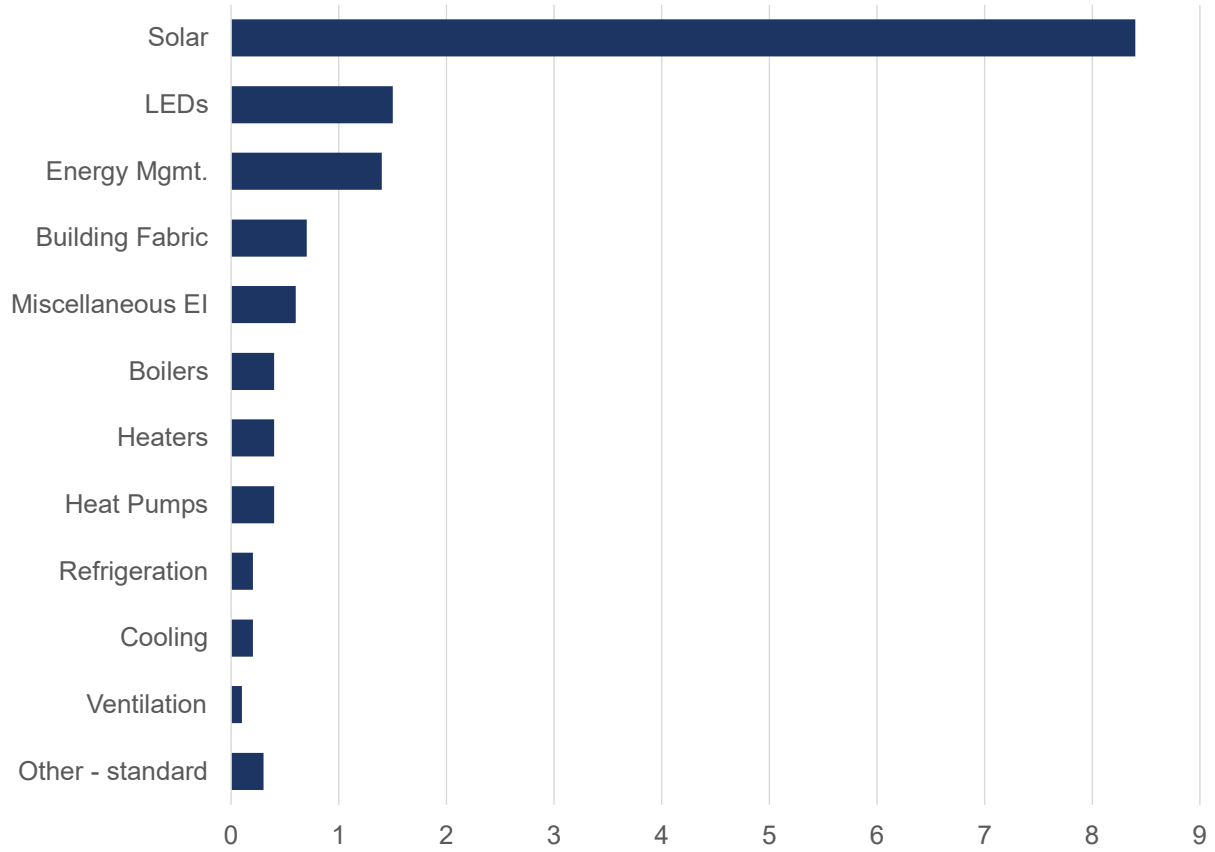


n=7477

Source: BEAS Phase 1 MI data

As shown in Figure 19, whilst savings from solar panels still comprise the largest part of cost savings, the contribution made by building fabric, heat pumps, boilers and heaters has decreased compared to energy savings. This is due to the lower price of gas, and hence lower value of the gas savings expected to be realised, compared to electricity savings.

Figure 19. Estimated lifetime cost savings from BEAS attributed implemented measures, by measure type (£ million)



n=7477

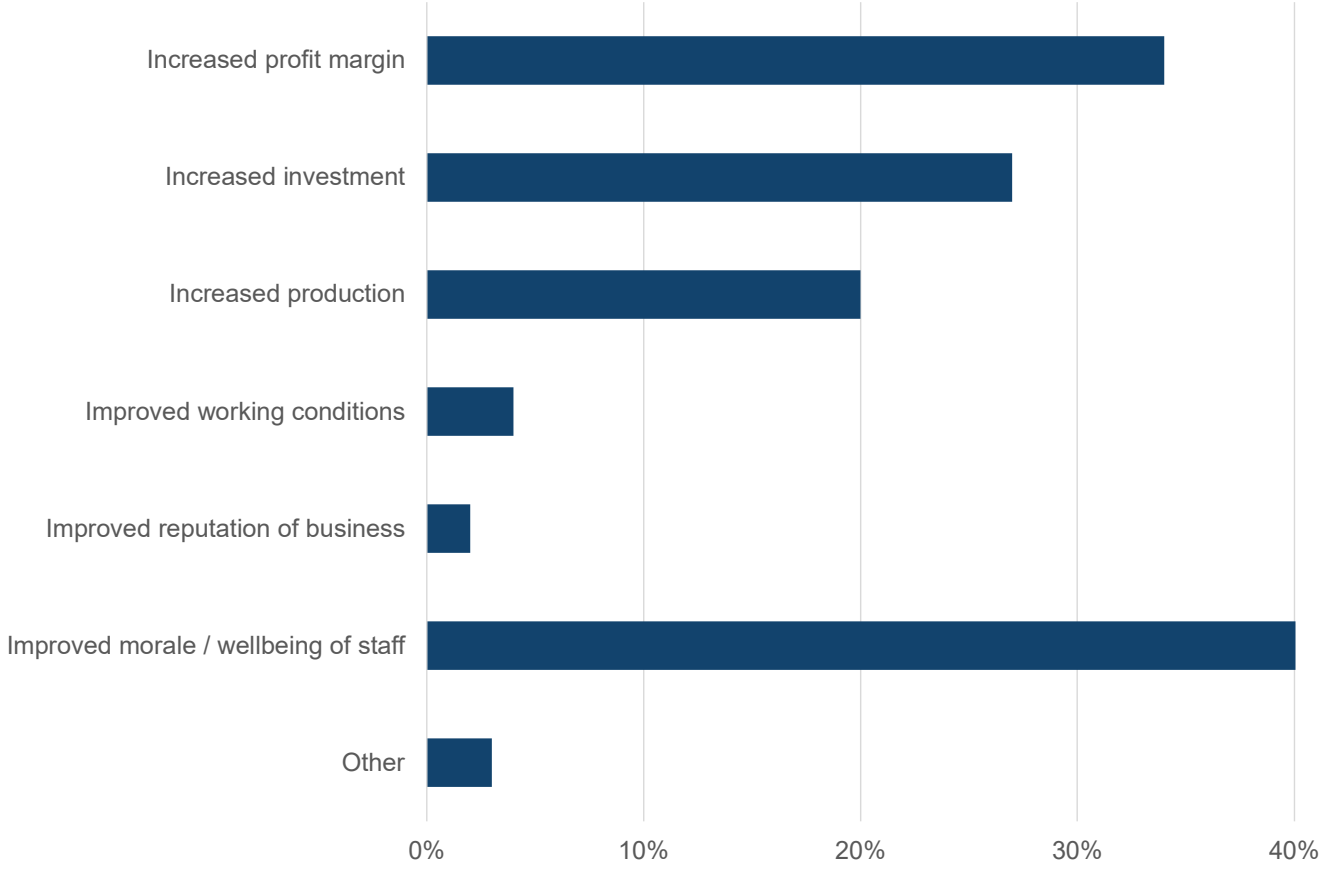
Source: BEAS Phase 1 MI data

Wider business benefits

Wider business outcomes

Figure 20 shows surveyed SME responses about the other benefits experienced in the West Midlands as a result of implementing BEAS recommended measures. About a third (34%) of surveyed SMEs who had implemented measures reported increased profit margin. Just over a quarter (27%) reported increased investment and about a fifth (20%) reported increased production (ToC box 24[45]). There were no statistically significant differences in reporting of these by business characteristics. We recommend that these findings are interpreted as suggestive of wider business benefits arising from BEAS, given that the level of estimated lifetime cost savings was relatively low.

Figure 20. Percentage of SMEs who experienced each wider business benefit from fully or partially implemented BEAS measures



Full survey question: D10: Which of the following, if any, have you experienced in the West Midlands as a result of the measures that you have fully or partially implemented?

Total n=235, unweighted n=242

Source: BEAS evaluation survey of SMEs

[45] Figure 1

Wider benefits (e.g. improved working conditions, better customer satisfaction) were emphasised a little more in interviews with some SMEs that had EI audits as illustrated in the quotes:

> *“The warehouse is much lighter having switched to LED lighting and this is a plus point for the workforce.”* (EI SME)

> *"We definitely get more gold stars with our customers, because a lot of them push for it [sustainability measures] and they want to know what we are doing and can pass those benefits onto their customers."* (EI SME)

> *"There is definitely more of a focus on things now, more bought into the ‘let's reduce our energy usage’ concept. So what I would say is, although there's not (been) direct benefits off the back of that, we are all looking at whether we should get rid of some of our machinery."* (EI SME)

Employment

Surveyed SMEs reported that BEAS had employment benefits in the West Midlands. However, given the level of energy and cost savings estimated, our expectation is that employment effects directly attributable to the BEAS audits, particularly the creation of new jobs, may have been overstated in the survey. It is unlikely that the cost savings from BEAS measures[46] will have been large enough to have any bearing on high costs such as employment. This is also supported by previous 2017 research from a similar business energy efficiency service which noted:

> *“evidence of employment-related benefits from use of beneficiary interview responses is limited and quite speculative i.e. not always directly linked to the implementation of measures.”*[47]

About a third of survey respondents[48] (34%) said that implementation of BEAS recommended measures had resulted in safeguarded jobs in the West Midlands. This was less common amongst smaller SMEs with 0-9 employees for whom a quarter (25%) reported this. This was more common amongst those who received a grant (57%).

[46] The average estimated lifetime cost saving was £7,904 per SME, potentially spread up to over 30 years (in line with the maximum lifetime of the installed recommendations).
[47] Zero Waste Scotland (2019) ‘Resource Efficient Scotland: Long-term follow up with supported organisations’
[48] n=235 weighted and 242 unweighted. BEAS SME evaluation survey D10. Which of the following, if any, have you experienced in the West Midlands as a result of the measures that you have fully or partially implemented?

After accounting for deadweight and displacement[49], the total number of jobs reported to be safeguarded by the survey sample was 209[50]. This was driven primarily by three outliers who each reported that 50 or more jobs had been safeguarded. Table 13 below shows that the mean number of jobs safeguarded reported was 3.53, the median was 0.3. If this was scaled up to the entire BEAS population of 2,178 SMEs, this provides a speculative estimate of about 75 to 900 jobs safeguarded[51].

A small proportion (12%) of surveyed SMEs reported that they had employed new staff in the West Midlands as a result of implementing BEAS recommendations. After accounting for deadweight and displacement, six new jobs were reported[52]. The mean number of additional jobs created was 0.31, the median was 0.22. If this was scaled up to the entire BEAS population of 2,178 SMEs, this provides a speculative estimate of 55-80 new jobs created[53]. However, as described at the beginning of this section, we anticipate this may be an overestimate.

Table 13: Survey responses on employment safeguarded and created

	n	Mean	Median	Maximum	Minimum
Number of jobs safeguarded	63	3.53	0.3	1042	0
Number of new jobs created	22	0.31	0.22	28	0

Full survey question: D10: Which of the following, if any, have you experienced in the West Midlands as a result of the measures that you have fully or partially implemented?

Source: BEAS evaluation survey of SMEs

[49] Deadweight has been accounted for by applying an attribution factor using survey responses to the question D5-1. For each of the measures that you have implemented or have definite plans to implement, what would you have done in the absence of the recommendations in the energy assessment report and/or grant? This will use SME survey responses, firstly to the question 'what would you have done in the absence of the recommendations in the energy assessment report (and grant funding)? A multiplier of 1 was used for 'This would not have been implemented at all'. Where an SME stated 'This would have been partially implemented (i.e. on a smaller scale)', a multiplier of 0.5 was applied. Where an SME stated 'This would have been fully implemented', a multiplier of 0 was applied. Displacement has been accounted for by applying a factor of 1 - the percentage response given to the survey question D13-1. If, for any reason, your business stopped operating tomorrow, of your entire market share, what percentage do you think would be taken by competitors in the West Midlands? We have not adjusted the figures for leakage because we are presenting effects at the level of the West Midlands and employment questions were asked at this spatial level too.

[50] n=72 unweighted. BEAS SME evaluation survey question D12: How many jobs, if any, have been safeguarded as a result of participating in the Business Energy Advice Service (BEAS) in the West Midlands? By job safeguarding, we mean a prevention of reduced staff working hours or of redundancies.

[51] The lower estimate uses the median and the higher estimate uses the mean value in the calculation.

[52] n=25 unweighted. BEAS SME evaluation survey D11. How many employees (FTE equivalents) have you gained as a result of any savings made through the implementation of the recommended measures in the West Midlands?

[53] The lower estimate uses the median and the higher estimate uses the mean value in the calculation.

BEAS Value for Money

Key message 8: Indicative value for money estimations suggest BEAS Phase 1 has a small positive Net Present Value and a Benefit-Cost Ratio above 1.

Table 14 summarises the low, central and high costs and monetised benefits of BEAS Phase 1, discounted to present estimates of net present value (NPV) in line with Green Book guidance. The calculations cover a thirty year period (covering the longest lifetime of a BEAS recommended measure).

The monetised benefits begin with the quantified estimates of energy, carbon and cost savings presented previously. Hence the same limitations apply to these monetised estimates of benefits as previously described and these should be treated as indicative estimates only. Green Book carbon values (£/tCO2e) were applied to monetise carbon savings. Green Book methods using fuel specific air quality damage factors (£/MWh) were used to monetise air quality improvements. All monetised benefits had a total NPV of £46.87 million.

DESNZ scheme costs had a NPV of £5.53 million[54]. This covers scheme delivery costs, but not grants, as grant costs are included within measure installation costs.

The measure installation costs rely upon MI estimates of these and their accompanying margin of error as provided by BEAS auditors. These MI estimates of costs are also subject to the same limitations as described for the BEAS scheme MI data generally at the beginning of the report. This includes missing data which suggests that the costs may be slightly underestimated, as was also noted previously for energy savings but to a slightly lesser extent. However, given the poor quality of the data it is not known to what extent this may balance out overall. The central NPV for measure installation costs was £34.51 million. SME survey data suggests there is no reason to expect these to be significantly higher or lower than estimated[55].

The total monetised benefits, £46.87 million, were slightly larger than the total costs, £40.04 million. This comparison of scheme costs and benefits gives a central overall indicative estimated benefit-cost ratio (BCR) of 1.17, indicating a positive £1.17 return for every £1 of investment.

The indicative estimated Return on Public Sector Costs[56] was 1.6, indicating a positive return of £1.60 for every £1 of public sector investment.

[54] Source: DESNZ.

[55] Surveyed SMEs were asked about the accuracy of measure implementation costs. A small proportion of respondents (13%) did not know. About four in 10 (39%) said these were about the same as predicted, and similar proportions said these were either higher or lower than predicted. n = 235, n=242 unweighted BEAS SME evaluation survey D11. How many employees (FTE equivalents) have you gained as a result of any savings made through the implementation of the recommended measures in the West Midlands?

[56] The RPSC is calculated as: (total discounted value of benefits minus total discounted value of private sector costs) divided by total discounted value of public sector costs. For the purposes of calculating the RPSC here, we have assumed that all measure installation costs which were not funded by BEAS grants were covered by SMEs themselves i.e. were private sector costs. This will slightly underestimate the contribution of public sector funding as we know that some SMEs accessed other sources of public sector funding, for example, UKSPF to fund at

BEAS is estimated to have cost £475/tCO2e[57]. This means it costs £475 to reduce each tCO2 over and above what would otherwise have been done in the absence of the scheme.

BEAS also offered some other unmonetised value. There are expected to be some small employment and production benefits as described earlier, but these are not valued here because they are small and unreliable. BEAS was a pilot scheme and aside from SME decarbonisation itself, the scheme had a key objective of providing data and learnings to DESNZ about support for SME decarbonisation. This is being realised in this evaluation, alongside other learning mechanisms, and could generate significant value for future policy and scheme development.

Table 14: Costs and Benefits of BEAS Phase 1

Costs/Benefits (£m, discounted[58])	Low value	Central value	High value
Scheme delivery costs[59]	-	5.53	-
Measure installation costs (BEAS grants i.e. public sector funding)	-	5.17	-
Measure installation costs (not BEAS grants)	33.67	29.33	23.48
Energy benefits	23.47	33.23	44.39
Carbon benefits	4.52	13.08	26.49
Air quality benefits	0.38	0.56	0.77
Net Present Social Value	**-16.01**	**6.83**	**37.48**
Return on Public Sector Cost	**-0.48**	**1.60**	**4.40**
Benefit-Cost Ratio	**0.64**	**1.17**	**2.10**

Source: Technopolis quantitative benefits model

We have not split the CBA by BEAS audits and grants. However, we do not think there is any reason to expect the range to differ substantially. Before monetisation, BEAS audit savings constituted approximately 80% of total estimated savings. Thus, we could assume that BEAS audit savings are likely to form a similar proportion of overall benefits, approximately totalling £37.5 million. BEAS Phase 1 grants formed a relatively small amount, £2.8 million (not

least some of the costs of measure installation. However, as we do not have a reliable figure for this, we have not been able to separate public and private sector costs entirely.

[57] Carbon cost-effectiveness is expressed as the net present cost per tonne of carbon dioxide equivalent (£/tCO2e). This metric is calculated by dividing the total discounted costs by the total undiscounted greenhouse gas emissions abated over the appraisal period. Total discounted costs comprise all capital expenditure required to implement the recommendations. To provide a transparent assessment of the scheme's additionality, carbon-related benefits are excluded from the net cost calculation, isolating the specific investment required to achieve the modelled reduction in carbon.

[58] Discounted to 2023 prices when the analysis period begins.

[59] Central value only

discounted), of the measure installation costs. This was also match funded, to total £5.6 million. It is not known how much of the scheme delivery costs covered audits versus grants.

However, scheme delivery costs in total are also relatively small compared with measure installation costs. Thus, grant costs are a small proportion of total costs. We would therefore anticipate that the BCR for audits only (without grants) would be in a similar range to that given above where grants are included.

Assessing progression in the Theory of Change

Key message 10: Overall the evidence has shown that generally the BEAS scheme is generating outputs, outcomes and impacts as intended via the Theory of Change.

Figure 21 shows the Theory of Change diagram for the BEAS scheme, developed by the DESNZ BEAS Monitoring and Evaluation team in 2023. The following elements of this were assessed and reported upon in the Process Evaluation report:

- Inputs (Boxes 1-3)
- Activities (Boxes 4-7)
- Barriers overcome (Boxes 8,9,11,12,15 & 16)

This impact report has assessed the following elements of the ToC:

- Outputs (Boxes 13 & 17)
- Outcomes (Boxes 14,18 & 21)
- Impacts (Boxes 19,20,22-24)

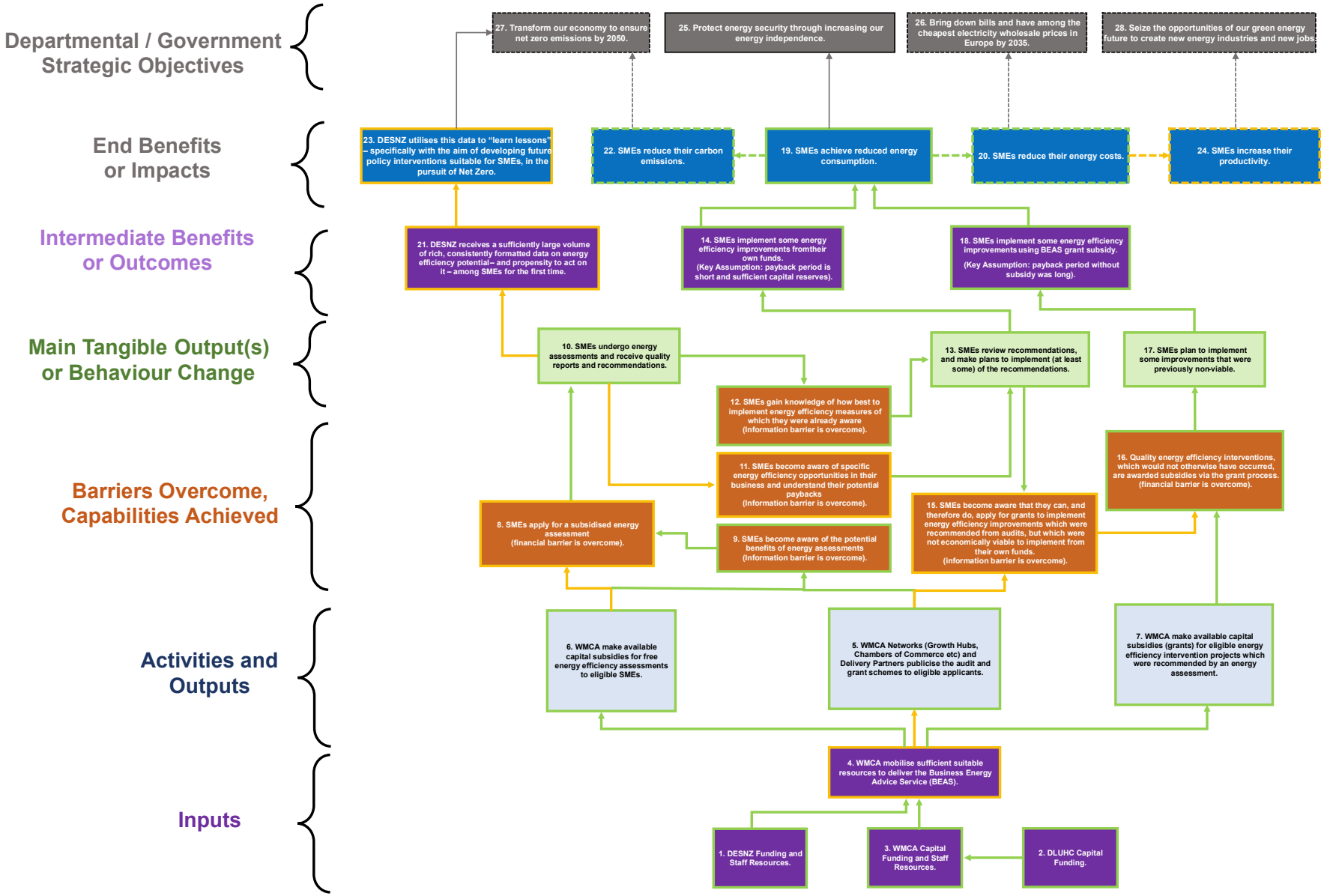
Findings of the CA PT assessment of causal linkages in the ToC have been presented throughout the preceding relevant sections of the report in the assessment of the Contribution Claims and Alternative Explanations.

To summarise the results of the ToC assessment, Figure 21 presents the colour-coding applied to the ToC elements and causal pathways that were within the scope of this evaluation, using the following colour key:

- **Boxes and arrows highlighted with a solid green outline** indicate ToC elements and causal pathways that hold true and have been achieved, supported by consistent and credible evidence.
- **Boxes and arrows highlighted with solid amber outline** indicate elements or pathways that appear to hold true or have been achieved only to some extent, and for which evidence is mixed.
- **Boxes and arrows highlighted with solid red outline** indicate elements or pathways that did not hold true, and where the evidence shows that the ToC expectation was not met.

Some boxes linked to energy savings have a dashed outline to indicate that they are mainly determined by energy savings.

Figure 21. Pilot BEAS RAG rated Theory of Change diagram



Source: Technopolis using original ToC developed by DESNZ.

Assessment of the Theory of Change

Installation of energy efficiency improvements and energy, carbon and cost savings arising from BEAS

As listed in Table 15, the report has already assessed and presented evidence in the relevant sections about the extent to which outputs, outcomes and impacts relating to energy, carbon and cost savings in the ToC have been achieved.

Table 15: Boxes in the ToC, and the sections of the report which cover them

ToC box(es) (and the causal pathway to these)	Covered in report section:
13 & 14	The role of BEAS audits in the installation of measures
17 & 18	The role of BEAS grants in the installation of measures
19	The role of BEAS in delivering energy savings
20	The role of BEAS in delivering energy cost savings
22	The role of BEAS in delivering carbon savings
24	Wider business outcomes

In summary, there is strong evidence that BEAS has enabled SMEs to overcome informational barriers via the provision of energy audits to implement and plan to implement audit recommended EE measures. There is also strong evidence that BEAS enabled SMEs to overcome financial barriers, particularly via the BEAS grant in cases where this was awarded. However, some financial barriers still remain to the installation of EE measures.

There was also strong evidence that installation of EE measures leads to the realisation of energy consumption savings. As a result, there is similarly strong evidence about the realisation of carbon and cost savings and production benefits arising from reduced energy consumption. However, there was also strong evidence that the extent of SME experienced cost savings is affected by wider changes in energy prices faced by SMEs.

Data capture and lesson learning from BEAS' pilot function

The outcome 'DESNZ receives a sufficiently large volume of rich, consistently formatted data on energy efficiency potential – and propensity to act on it – among SMEs for the first time' (ToC box 21) is judged to have been achieved to some extent. The survey of SMEs undertaken for this evaluation provides reasonably robust[60] data on SME propensity to act on the recommendations of BEAS audits. A BEAS MI database of energy audit recommendations and associated energy savings has also been produced. However, as noted at the beginning of the report and in more detail in the Process Evaluation report, there were significant limitations to the MI data collected via the scheme.

Following on from this, the impact 'DESNZ utilises this data to "learn lessons" – specifically with the aim of developing future policy interventions suitable for SMEs, in the pursuit of Net Zero' (ToC box 23) is also judged to have been achieved to some extent. Many lessons have already been learnt and adjustments made to scheme delivery during operation of the scheme as described in the Process Evaluation report. The two BEAS evaluation reports (process and this impact report) both provide further learnings. However, the impact report particularly is subject to limitations in the MI data. It is also not yet known if and how learnings from these reports will be used in future policy interventions for SMEs.

[60] The methodology section of the report notes that a large sample was achieved with a broadly representative profile in terms of known sample characteristics.

Conclusions

The first objective of BEAS was to 'learn lessons and gather data to inform future policies on energy and carbon reduction'. This has been met. The process evaluation report sets out how the scheme has learned lessons in terms of scheme delivery. The scheme has successfully collected a body of data about SME energy and carbon reduction. Whilst this data does have quality limitations, it provides useful insights presented throughout this impact report, summarised in the Executive summary, with key lessons learnt detailed below. However, this could have been more insightful if BEAS had required SMEs to collect and return energy consumption data. This could then have been used to more directly assess the impacts of the implementation of BEAS recommendations.

The generalisability of the findings may have limitations for the following reasons.

- The BEAS pilot occurred specifically in the context of the West Midlands region. SMEs from a range of sectors and sizes participated in standard BEAS audits. We have no specific reason to expect a similar standard audit scheme to operate differently in other regions of the UK, but it is possible that contextual factors may influence this. For example, the ecosystem of other overlapping energy efficiency support available to SMEs may differ by region, and also at different points in time.
- The EI audits were nearly all (95 out of 100) delivered to manufacturing SMEs. This means that impacts may differ if similar EI audits were delivered elsewhere to a different sectoral profile of SMEs.
- The prominence of solar in the BEAS recommendation mix is a major driver of saving estimates. If the measure mix had a different profile under other schemes, this would be expected to influence saving estimates.

The second objective of BEAS was: 'energy demand and carbon reduction in Micro, Small and Medium-sized companies to contribute to overarching government Net Zero targets'. The evidence shows that BEAS has made a significant contribution to this, but there is still some uncertainty about the scale of realised and attributable impacts. BEAS has successfully delivered a large number of audits and grants in a pilot programme. Through these, BEAS has supported SMEs to overcome information and financial barriers to install energy efficiency and decarbonisation measures, leading to energy and carbon reduction. It is estimated that over half (57%) of the energy, carbon and cost savings estimated to have been generated would not have occurred without the BEAS scheme[61].

In addition, a much larger value of further grants is being awarded through BEAS Phase 2 (with a smaller number of additional audits). Many of these Phase 2 grants are likely to be awarded to those who had audits in Phase 1 thereby leading to installation of further measures from these audits.

[61] This is based upon modelled attribution, not a counterfactual evaluation design.

Lessons learnt

Lesson 1: EE audits themselves (even without grants) can make a substantial contribution to energy savings, carbon reductions and cost savings

The data suggests the BEAS Phase 1 scheme will support SMEs to realise about a third of the potential energy savings identified in audits as available through EE and decarbonisation measures. Most of these savings were occurring through measures installed by SMEs that had not received a BEAS grant, and were skewed towards those with lower costs and/or shorter payback periods. This illustrates that energy efficiency audits themselves were important in enabling SMEs to install some measures.

Lesson 2: Financial support contributes to further implementation and energy savings

A key uncertainty is the extent to which BEAS recommendations which are still under consideration will be realised in the future. Some SMEs may be waiting for existing equipment to reach the end of its life. However, many SMEs still faced financial barriers. As such, the level of energy savings achieved would be expected to increase if a larger total value of grant funding was available.

Provision of financial support in slightly different forms to help overcome the challenge of paying the upfront cost of measures and/or to reduce the level of match funding required would also be expected to increase energy savings. Financial support is particularly likely to support smaller SMEs (with 0-9 employees). Greater financial support is also especially likely to support the installation of measures with higher absolute costs and/or longer payback periods, but with greater potential carbon savings. These include heat pumps, solar panels and building fabric.

Lesson 3: BEAS suggests that funding support for solar is currently likely to be a dominant part of SME EE action

Solar panels have played a dominant role in the contribution of BEAS. A large number of BEAS recommendations were to install solar panels and these offered the highest energy and carbon savings and over a relatively long lifetime. Installation of solar panels generated the largest proportion of estimated BEAS attributed lifetime energy, carbon and cost savings.

Lesson 4: The scheme could be adjusted to improve Value for Money

The evaluation suggests that the pilot scheme operated at around the break-even point in terms of costs and benefits, with an indicative estimated Benefit-Cost Ratio of 1.16 (range of 0.64 to 2.08). However, these estimates rely upon imperfect MI data and assume that population level savings reflected those reported by surveyed SMEs. There are also other unmonetised benefits such as the learnings generated through the pilot scheme. A fully developed (rather than pilot) scheme might offer a slightly more positive return on investment, and may still be required to enable SMEs to progress towards net zero. Adjustments to the scheme that could be tested further to help improve Value for Money include:

- Excluding funding for LEDs given SMEs are more likely to install these without support than other measures.
- Additional funding or other support for solar to address the relatively high costs that can act as a barrier to installation and further enable the significant contribution this measure can make to savings.

Lesson 5: Further research would help to reduce uncertainty about the impact of schemes such as BEAS

More confident quantification and monetisation of scheme impacts to guide policy making could be achieved through additional research in the following ways.

- A follow up of BEAS supported SMEs at a later point in time could provide firmer insights about what has and has not been implemented and also about the energy savings arising from measures.
- A future follow up could also be extended to cover SMEs supported via BEAS Phase 2 to provide a more complete picture.
- Where feasible, quasi-experimental methods could also be used with a dataset of actual energy consumption such as the Non-Domestic National Energy Efficiency Data Framework to assess energy savings more robustly.

Lesson 6: Future impact evaluation of any future similar SME energy efficiency support schemes could be more robust if participating SMEs were required to collect and return energy consumption data consistently

This was not required by BEAS. However, as mentioned as part of this evaluation, the absence of such data meant that energy, carbon and cost savings had to be modelled rather than directly measured, increasing uncertainty and limiting the robustness of monetised impacts. This was further compounded by reliance on scheme MI data with known inconsistencies and variable quality. Requiring standardised, auditable consumption data would reduce reliance on assumptions and enable more accurate and credible assessment of realised impacts.

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