Department for
Energy Security
& Net Zero

Energy efficiency in the manufacturing sector

2021

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Executive Summary

This report outlines the results from research commissioned by the Department of Business Energy and Industrial Strategy (BEIS)[1] to gain a greater understanding of the management of energy and take-up of energy efficiency (EE) measures for different segments of the UK manufacturing industry. It entailed an online survey conducted by IFF Research and ran between August and November 2021. A total of 1,144 responses were achieved, with 1,114 included within the analysis for this report[2].

It is worth noting that industry is dominated, in numerical terms, by small businesses: more than 3 in 5 have fewer than 10 employees or are sole traders [3]. This research provides particular value to, by providing more evidence on behaviours relating to energy usage and efficiency amongst these smaller businesses. For SMEs, there is an immediate need to increase the priority with which they consider energy efficiency improvements and reduce the access to information and access to finance barriers hindering this.

The results of the research show particularly stark differences between SMEs and large businesses. The differences in experiences and attitudes between size groups make some of the overall findings less insightful – masking variations that sit behind 'all manufacturer' figures. Efforts have therefore been made within the report, to highlight these size band differences as much as possible.

Nearly all (98%) manufacturers reported using electricity, while 41% used natural gas and 17% liquid fuel at their sites. The larger the manufacturer, the more likely they were to report using natural gas or liquid fuel. There was substantial variation by subsector – for example, manufacturers in Paper were much more likely to use natural gas (56%), while those in Vehicles and Food and Drink (inc. tobacco) commonly used liquid fuel (25% and 23% respectively). The cost of this energy use ranged considerably by business size, although on average was estimated to account for 4% of businesses' total costs (a similar proportion across manufacturers).

Around half of manufacturers used a basic meter to measure their electricity (51%) and natural gas (48%) usage. Around three in ten (29%) used a smart meter, while 16% used automatic meter readings (AMR) to measure electricity usage – although usage of such meters was more common in medium and large businesses. Use of meters for liquid fuels was much less common.

Over a third (36%) of businesses regularly monitored their energy usage (but not energy efficiency), while 11% monitored both energy usage and energy efficiency. These figures increased considerably by size of manufacturer. Almost all (99%) large manufacturers monitored their energy usage, compared to 37% of micro manufacturers. Furthermore, 64% of large and 24% of medium manufacturers monitored both usage and efficiency (compared to 8% of micro and 13% of small manufacturers). Typically, businesses used energy bills and their site's meter to undertake their monitoring. It is only large manufacturers who typically

[1] Now the Department of Energy Security and Net Zero (DESNZ)
[2] Due to receiving only 30 responses from Sole Traders, a number too small to be representative of a very large population, we have not included their responses within the findings or analysis in this report. More information on this can be found within the Methodology chapter.
[3] Source: Business population estimates 2022 – GOV.UK (www.gov.uk)

used other methods such as in-house tracking (76%), external energy consultants (41%), or benchmarking (24%) to monitor energy use and efficiency.

Over a quarter (28%) of manufacturers who monitor their energy usage/efficiency regularly reported these metrics, rising to 58% of medium manufacturers and 90% of large. Most do so for internal use, whereas only a small minority conduct reporting to meet regulatory compliance requirements or voluntary/corporate social responsibility (28% and 18% respectively of those who report, although again, this increased the larger the manufacturer).

The majority (72%) of manufacturers do not receive or look for information or advice that will help to develop their understanding of energy usage and/or energy efficiency. Propensity to access information increased considerably by size of manufacturer. Of those who sought advice, the most common source of advice was external consultants (32% of those who accessed information used these), followed by online platforms and tools (21%), and non-sector specific business networks, trade associations and social media (18%). Thirteen percent used government-related sources.

Across all manufacturers, over six in ten (66%) had taken steps in the past five years to improve energy efficiency at their site, ranging from 57% among micro businesses to 99% of large businesses. The most common improvements made were investing in building improvements (47%), implementing behavioural and cultural changes (27%), and replacing industrial equipment (24%); all three measures were more likely to have been implemented by larger manufacturers.

Of those manufacturers (regardless of size) who had taken action to improve energy efficiency over the past five years, nearly two thirds (65%) stated that their meter and/or energy bills were an influence behind their decisions to make these changes. This was by a distance the most common driver, with other influences such as meeting corporate social responsibility targets (24%), and stakeholder pressure to respond to climate change concerns (14%) far less common. Around one in ten (9%) manufacturers have had an energy audit in the past five years for the purpose of improving their energy efficiency, rising to 74% among large businesses (note this is 74% who reported they had an energy audit in order to improve energy efficiency; there should be more who have had an audit as part of ESOS requirements).

In terms of business profile, a key learning from the research was that the majority of micro (62%) and small (54%) manufacturing businesses rent their site rather than owning it, indicating that they might have limited control over certain energy efficiency improvements, for example, those relating to the site’s buildings.

Manufacturers were asked to estimate where they could make improvements to maximise their industrial sites’ energy efficiency, how much these improvements would cost, and how much this would reduce their energy usage. There is no standardised way to define energy efficiency and the survey’s cognitive testing revealed that some manufacturers found these questions challenging to answer, especially when considering estimated costs. Consequently, this data is relatively experimental, so findings should be treated with caution i.e. interpreted as indicative not conclusive. Half (54%) of all manufacturers thought they could make improvements by investing in building improvements, while around two-fifths suggested they could make improvements in heat supply, by replacing industrial equipment, through behavioural change, and by introducing control and monitoring systems for energy usage. The median cost for each improvement was no more than £30,000, with the exception being replacing industrial equipment, for which the median cost expectation was £100,000. The larger the manufacturer, the greater the estimated median cost for each improvement was. Manufacturers estimated

that if all possible improvements were made, this would result in a 25% reduction in energy usage, on average, relative to 2019 levels.

The key barrier manufacturers cited in improving their site's energy efficiency was financial. Around a half of all respondents (51%) agreed that their business could not afford (or access the funding or financing) to make the changes they needed to make. This figure was much lower among large businesses (25%[4] compared to SMEs (51%). Smaller businesses highlighted that energy costs are a very small proportion of total production costs – hence, it was not a focus for the business. A third (34%) reported that they did not have enough information on how to improve their energy efficiency, though they wanted to implement changes to do so Access to information was another barrier to improving energy efficiency cited by manufacturers. The same proportion of SMEs cited information as a barrier (34%) compared to 13%[5] of large firms. Similarly, a third of all manufacturers and SMEs respectively (34%) reported that improving energy is a low priority for their business. This figure was much lower among large manufacturers (3%[6]).

In looking to finance energy efficiency improvements, 40% drew funding from internal budgets, the most common source of funding (rising to 90% among large manufacturers). Less than 5% used government funding, or private finance loans. A high volume of manufacturers hadn't considered the different types of funding for energy efficiency improvements or were not sure whether their firm had used or considered them.

Half of all manufacturers (49%) who have done something to improve energy efficiency did not know what the average payback period had been (or will be). The most common time period cited was five years (10%) or more (15%), although 23% of manufacturers gave a time period of less than five years.

[4] Indicates sub-group is statistically higher or lower than all manufacturers.
[5] Indicates sub-group is statistically higher or lower than all manufacturers.
[6] Indicates sub-group is statistically higher or lower than all manufacturers.

Methodology

This chapter outlines the method used to collect and analyse relevant data.

Approach

Manufacturers were invited to take part in the research via a postal letter (Appendix A). This letter detailed why the study was being conducted, why taking part in the survey was important and provided a link to the online survey (and a unique access code) for each business. This push-to-web approach was supported by telephone chasing, a reminder postcard, and email reminders to manufacturers who had provided a contact email address via telephone chasing. An open version of the survey link was also created during fieldwork and disseminated by BEIS (via Trade Association contacts) to enable and encourage other manufacturers (those not originally sampled) to take part in the survey.

Survey design

The questionnaire devised for the online survey covered UK manufacturers' approaches to energy usage and energy efficiency. Specifically, it captured details on organisation profile, energy costs, fuel types, monitoring and reporting, improvements to support energy efficiency and the finances involved.

A considerable amount of questionnaire development took place ahead of fieldwork. BEIS drafted an initial set of questions and IFF Research then reviewed these, followed by a small cognitive testing exercise. The purpose of cognitive testing was to ensure that: the full range of respondents interpret and understand the questions and response options as anticipated; the topic content is relevant to our audience; and we have not missed any areas of focus that affect businesses' approaches to energy efficiency.

In total, nine cognitive interviews were conducted with manufacturers the week before fieldwork began. The interviews showed that there were some questions which were hard to understand, and adaptions were made accordingly. A copy of the final survey is included in Appendix D.

Sample

BEIS initially requested a target sample size of 4,500 respondents in order to provide a high level of confidence in results when split by sub-sector. IFF sourced contact details of 41,109 UK manufacturing businesses from Market Location (a provider of B2B wholesale business data); this total was based on the assumption that in order to achieve the desired number of completes (4,500), we would need to sample on a ratio of approximately 8:1 (for every 9 invited, 1 would complete).

Manufacturers were sampled based on their 2-digit ONS Standard Industrial Classification (SIC) code and their business size. We did not aim for a purely representative sample, as the manufacturing population is heavily skewed towards sole traders and the self-employed, and

certain sub-sectors are far larger than others. Achieving a sample that was representative of this population would mean that we could not reliably analyse the views or experiences of larger businesses, or businesses in certain sub-sectors which were of interest to BEIS, because they represent such a small proportion within this population. Table 1 and Table 2 show the proportions of different manufacturers in the population and the sample.

Table 1. Proportion of manufacturers in the population and sample, by business size

Size	Proportion in population	Proportion in sample
Sole Trader	38%	8%
Micro (2-9)	44%	40%
Small (10-49)	16%	40%
Medium (50-249)	5%	10%
Large (250+)	1%	2%
Total	**100%**	**100%**

Table 2. Proportion of manufacturers in the population and sample, by industrial sector

Sector	Proportion in population	Proportion in sample
Chemicals (SIC: 20)	2%	8%
Electronics (SIC: 26 and 27)	6%	13%
Food and Drink (inc. tobacco) (SIC: 10 and 11)	7%	9%
Glass and Ceramics (SIC: 23.1,3,4)	1%	2%
Iron and Steel (SIC 24.1-3)	1%	1%
Metal Products and Machinery (SIC 25 and 28)	26%	22%

Sector	Proportion in population	Proportion in sample
Non-ferrous metals (SIC 24.4-5)	1%	2%
Non-metallic minerals inc. cement (SIC 23.2; 23.4-7; 23.9)	2%	3%
Other Industry (SIC: 5-9,13-16,18, 21, 31-33)	45%	26%
Paper (SIC: 17)	1%	4%
Refining (SIC: 19)	<0.5%	1%
Rubber & Plastic (SIC: 22)	4%	4%
Vehicles (SIC: 29 and 30)	4%	5%
Total	**100%**	**100%**

Fieldwork

Fieldwork ran from 24th August 2021 until 15th November 2021, commencing with a postal letter containing a link to the online survey. As the sample file contained contact details of CEOs or Executive Assistants, recipients were asked to forward the email to colleagues if they were better placed to complete the survey. Manufacturers with fewer than 50 employees were informed that the best person to complete the survey would likely be the owner, founder or managing director. Manufacturers with more than 50 employees were informed that the best person would likely be a member of staff with responsibility for, or understanding of, energy usage within the company. Such employees would be either environment/energy managers or facilities managers. More information about who completed the surveys can be found in the Job titles section.

Telephone chasing began on 31st August 2021. These calls had three purposes: to make businesses aware they had been sent a survey invitation[7], encourage completion of the online survey as well as offer them the opportunity to complete over the phone if they preferred[8].

[7] This was considered important due to continued working from home policies
[8] Seven manufacturers opted to complete via the telephone.

Reminder postcards (Appendix B) were sent on 10th September 2021 to 35,000 manufacturers who had not yet completed the survey.

Postcards were used instead of reminder letters in the hope that they would be more eye-catching and easily noticed (as they were not hidden behind an envelope). Manufacturers with more than 50 employees had "FAO Environment/Energy/Facilities Manager" added to their postal address to try to address the potential issues of contact names within the sample being out of date.

The original sample file only included addresses and telephone numbers, and did not include email addresses. However, during the telephone chasing, manufacturers were able to provide an email address so that the invite letter could be automatically forwarded to them. During fieldwork, four additional reminder emails were sent to these collected emails. An example is shown in Appendix C.

Due to concerns regarding low response rates, an open link to the survey was also created for BEIS to circulate amongst relevant contacts[9]. The survey was further published through BEIS' channels and industry events. Ultimately, this exercise did not deliver a significant uplift in responses: 57 completed via this link.

Response rates

In total, 1,144 out of a possible 41,109 manufacturers took part in the survey, approximately a quarter of the original target of 4,500. Of these 1,144 respondents, 57 completed via the open link disseminated by BEIS through Trade Association contacts.

The majority of manufacturers who took part in the study were smaller businesses, in line with the population profile. As shown below, about two fifths (43%) of respondents were businesses with between 10 and 49 employees, while just under a third (30%) were micro businesses (2-9 employers).

A breakdown of response rates by business size is shown in Table 3. In total, only 30 Sole Traders responded to the survey, representing 3% of all respondents. To be representative of the Sole Trader population, this group would have needed to be weighted up to a much larger proportion, which given the extremely low number of responses was deemed unreliable. It was therefore agreed that Sole Trader's responses would be removed from the analysis and weighting process and not included within this report.

[9] Thus allowing anyone with the link to take part, regardless of whether they had been originally sampled

Table 3. Breakdown of manufacturers by size

Size	Population	Mailout Sample	Responses achieved	Proportion of responses	Response rates (versus sample)	Sampling Error[10]
Sole Trader[11]	*48,516*	*3,097*	*30*	*3%*	*1%*	*+/- 17.9%*
Micro (2-9)	59,860	16,595	340	30%	2%	+/- 5.3%
Small (10-49)	21,330	16,345	488	43%	3%	+/- 4.4%
Medium (50-249)	6,295	4,278	210	18%	5%	+/- 6.8%
Large (250+)	1,325	794	76	7%	10%	+/- 11.2%
Total	**137,321**	**41,109**	**1,144**	**100%**	**3%**	**+/- 2.9%**
Total (minus Sole traders)	**88,805**	**38,012**	**1,114**	**100%**	**3%**	**+/- 2.9%**

Table 4 shows the different sectors represented among respondents, the numbers of manufacturers from each sector that participated in the study, as well as their response rates. A fifth of all respondents (20%), the largest proportion, were manufacturers of metal products and machinery. The next most commonly represented sectors were Electronics manufacturers (14%) and Food and Drink manufacturers (12%). A third of respondents were manufacturers classified as 'other industry'[12].

[10] Standard error should be interpreted as follows: 'for a question asked of all respondents in this group where the survey result is 50%, we are 95% confident that the true figure lies within the range of that figure +/- the standard error percentage.

[11] Due to receiving only 30 responses from Sole Traders, a number too small to be representative of a very large population, we have not included their responses within the findings or analysis in this report.

[12] 'Other industry' included SIC codes 5-9; 13-16; 18; 21; 31-33 e.g. 'Manufacture of textiles', 'Printing and reproduction of recorded media' and 'Repair and installation of machinery and equipment'

Table 4. Breakdown of manufacturers by sector

Sector	Population [13]	Mailout Sample	Responses achieved	Proportion of responses	Response rates (versus sample)	Sampling Error[14]
Chemicals (SIC: 20)	3,005	3,171	47	4%	1%	+/- 14.3%
Electronics (SIC: 26 and 27)	8,770	5,514	161 (159)[15]	14%	3%	+/- 7.8%
Food and Drink (inc. tobacco) (SIC: 10 and 11)	9,820	3,779	134 (129)	12%	4%	+/-8.6%
Glass and Ceramics (SIC: 23.1,3,4)	1,201	919	24 (22)	2%	3%	+/- 20.9%
Iron and Steel (SIC 24.1-3)	1,046	452	7	1%	2%	+/- 37%
Metal Products and Machinery (SIC 25 and 28)	35,570	8,900	227 (220)	20%	3%	+/- 6.6%
Non-ferrous metals (SIC 24.4-5)	764	631	13	1%	2%	+/- 27.2%

[13] Population figures sourced from BEIS Business Population Estimates (2020) which contains all VAT and PAYE registered businesses (https://www.gov.uk/government/statistics/business-population-estimates-2020)
[14] Standard error should be interpreted as follows: 'for a question asked of all respondents in this group where the survey result is 50%, we are 95% confident that the true figure lies within the range of that figure +/- the standard error percentage.
[15] Figures in brackets show responses achieved minus Sole Traders

Sector	Population [13]	Mailout Sample	Responses achieved	Proportion of responses	Response rates (versus sample)	Sampling Error[14]
Non-metallic minerals inc. cement (SIC 23.2; 23.4-7; 23.9)	2,485	1,152	18	2%	2%	+/- 23.1%
Other Industry (SIC: 5-9,13-16,18, 21, 31-33)	61,855	10,866	372 (359)	33%	3%	+/- 5.2%
Paper (SIC: 17)	1,380	1,736	32	3%	2%	+/- 17.3%
Refining (SIC: 19)	75	352	5	<0.5%	1%	+/- 43.8%
Rubber & Plastic (SIC: 22)	5,530	1,467	64 (63)	6%	4%	+/- 12.3%
Vehicles (SIC: 29 and 30)	5,820	2,170	40	3%	2%	+/- 15.3%
Total	**137,321**	**41,109**	**1,144 (1,114)**	**100%**	**3%**	**+/- 2.9%**

Overall, the response rate was lower than anticipated during the design of the study and compared to similar previous studies, although this did reflect a general downturn in business survey response rates since the Covid-19 pandemic commenced.

Challenges encountered included:

- The ongoing impact of Covid-19 restrictions: many individuals were working from home and therefore did not receive the original letter or were available to take a phone call
- The length of the survey, which averaged 22 minutes: Typically, an online survey should be under 15 minutes; any longer and it starts to create unreasonable burden on the

respondent. Whilst dropout rates during the survey were not problematic, the survey length did impact how the survey could be advertised (e.g., we could not reference in the initial invite letter that this was a short survey) and promoted during call chasing, which may have reduced response rates

- The survey topic: We know from the telephone chasing that, for many respondents, the detailed focus on energy usage and energy efficiency was not a high priority for them or their business and thus they were not interested in participating in the survey.[16] This may have been exacerbated by issues relating to energy price increases, supply chain issues and staffing problems (as a result of Brexit and Covid-19), meaning businesses had other issues to focus on during this time
- The sample not having named individuals more relevant to the study or containing email addresses

Weighting and analysis

Descriptive statistics from the survey data were presented in excel tables, which showed responses for each question at a total level as well as broken down by key sub-groups, including:

- Manufacturer size (based on survey responses at A2)
- Industrial sector size (based on sample variable)
- Job role (based on survey responses at question A4)
- Building ownership (based on survey responses to question A9)
- Whether manufacturer is energy intensive (based on survey responses to question B1B and B1D: whether businesses' total energy costs accounted for more or less than 10% of total business costs)
- Whether the manufacturer is part of government scheme linked to energy efficiency (based on survey responses to question C2)

The survey data was weighted to the population based on business size and industrial sector. Consequently, smaller businesses – who make up the largest proportion of the manufacturing sector (but who are likely to contribute the least in terms of energy emissions) – account for a greater proportion of the overall 'manufacturing' figures presented within this report. The survey was not weighted based on energy usage or intensity figures due to the lack of relevant reliable estimates.

Limitations

While every effort has been taken to ensure that the findings presented in this report are as accurate and reliable as possible, it is important to note some limitations of the research. Key limitations include the breadth of the achieved sample against the sampling target; responses were gathered from only a minority of the population and varied across business size. While

[16] Fieldwork was extended to try and provide more flexibility to businesses to respond.

weighting has been applied to render the sample representative of the manufacturing sector, the level of confidence one can have in the data is reduced owing to the size of the sample achieved. It is worth considering for example that those that did respond may be more likely to be manufacturers who had more time available to take part or are more interested/invested in their energy usage and energy efficiency.

In terms of the impact of this for the report, only statistically significant differences (at a 95% confidence level) have been highlighted, and caveats provided for base sizes of 30 or lower. Significant differences are indicated in the charts in the report with an asterisk and explained within the source information underneath each chart.

At an overall level, with 1,114 responses, the survey data has a sampling error of +/- 2.9%. This should be interpreted as follows: ‘for a question asked of all respondents in this group where the survey result is 50%, we are 95% confident that the true figure lies within the range 47.1% to 52.9%. At a subsector level the sampling error ranges considerably, as shown in Table 3 and Table 4, and readers should take care interpreting findings where sampling errors are high.

A further limitation relates to the knowledge held by respondents. For many businesses in the manufacturing sector, energy efficiency is not a high priority for them. This means that some respondents found certain questions difficult to answer. We have highlighted high levels of ‘Don’t know’ responses where these occurred.

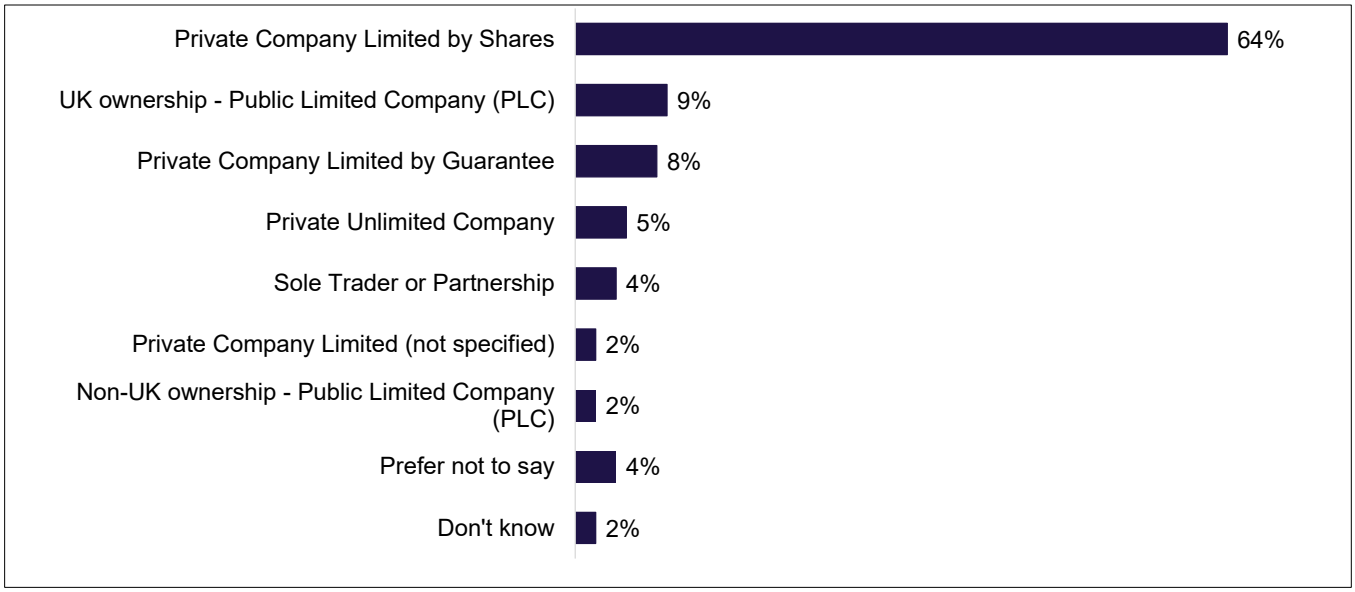
Business profile

This chapter outlines the characteristics of the 1,114 manufacturing businesses that participated in the study to provide context for subsequent findings.

Firm type

Most manufacturers were private companies, with the majority (64%) being private companies limited by shares. Figure 1 shows the different types of businesses that responded to the survey.

Figure 1. Breakdown of manufacturers by firm type



Source: Energy Efficiency Survey. A10: Which of these best describes your business? All Manufacturers (n=1114)

Job titles

When invited to participate in the study, manufacturers with less than 50 employees were informed that the best person to complete the survey would likely be the owner, founder or managing director.

Manufacturers with more than 50 employees were informed that the best person would likely be a member of staff with responsibility for, or understanding of, energy usage within the company e.g. environment managers, energy managers or facilities managers.

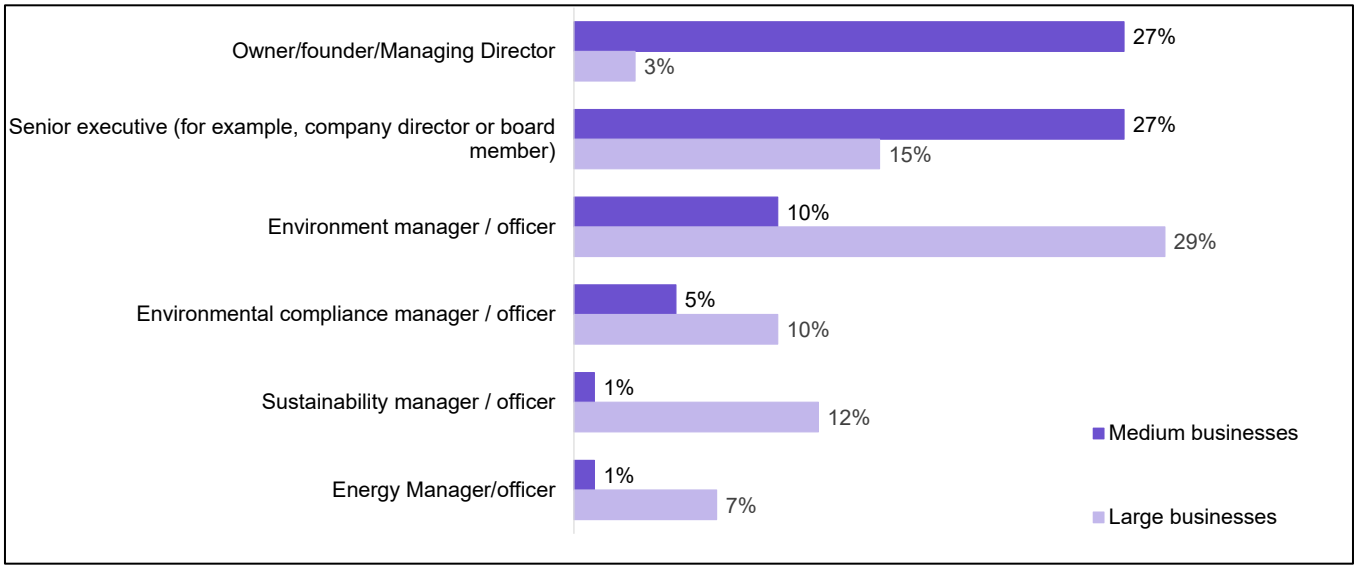
Three quarters (75%) of respondents from micro businesses and just over half (54%) of those from small businesses were owners, founders or managing directors. The next most common job role was Senior Executive (e.g. Company Director or Board Member) (11% micro; 18% small).

These senior management roles were the most commonly selected among medium businesses - each by just over a quarter (27%) of respondents. A lower proportion of

respondents mentioned job roles more specifically related to energy (such as Environment Manager or Environmental Compliance Manager (10% and 5% respectively).

Amongst large businesses, a larger proportion of respondents reported having energy-related job roles. Just over a quarter (29%) of respondents from large businesses described their role as Environment Manager; over a tenth (12%) as Sustainability Manager and one in ten (10%) as Environmental Compliance Manager.

Figure 2. Respondent job titles

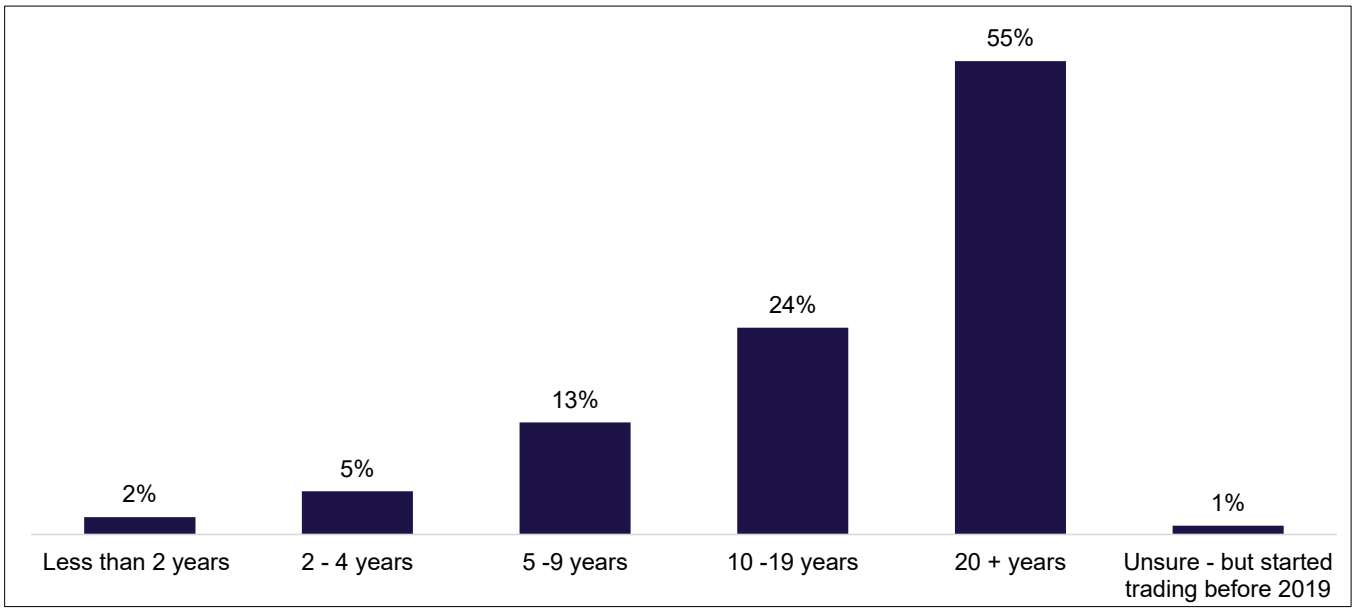


Source: Energy Efficiency Survey. A4: What is the most appropriate description of your role in the business? All Manufacturers (n=1114). Job titles not specifically related to energy (e.g. facilities manager) not shown.

Trading years

As shown in Figure 3, most manufacturers were long established businesses, with over half (55%) reporting a trading history of at least 20 years. Larger manufacturers were more likely than smaller ones to have been trading for longer (87% of medium and 83% of large businesses versus 44% of micro businesses had traded for 20+ years).

Figure 3. Numbers of years manufacturers have been trading

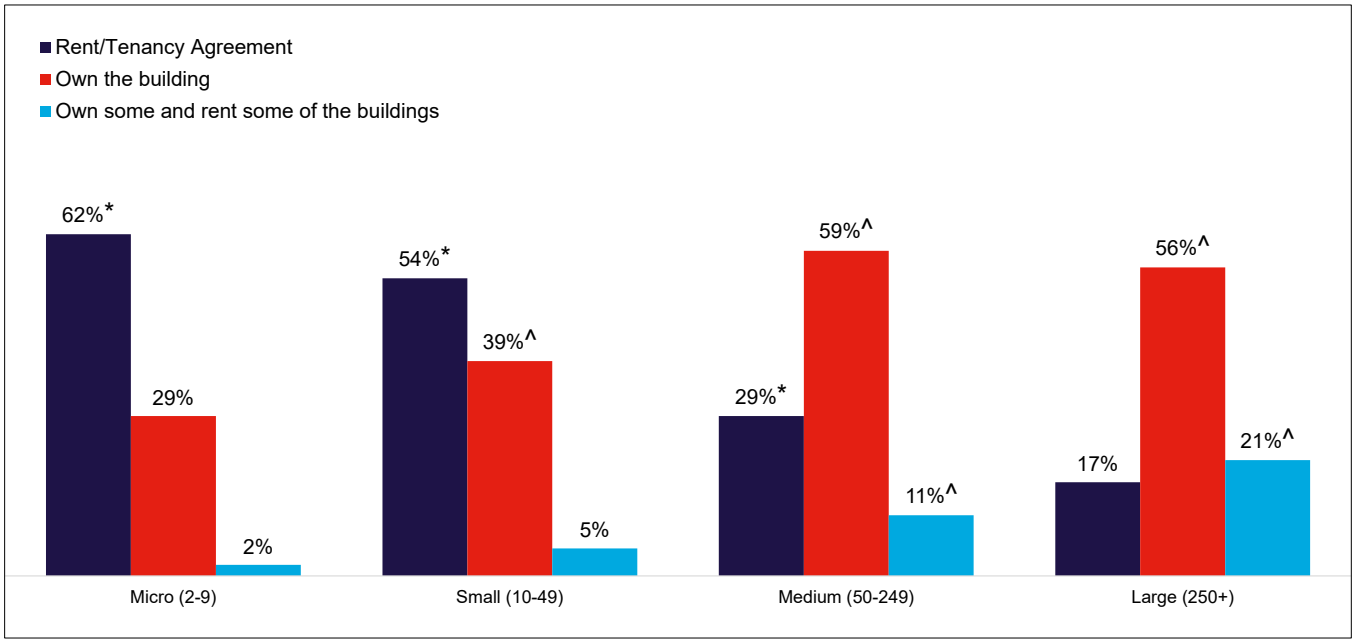


Source: Energy Efficiency Survey. A3: Roughly how long has your business been trading? All manufacturers (n=1114)

Ownership of sites

As shown in Figure 4, smaller manufacturers were more likely to rent their buildings. A sixth (62%) of micro businesses and just over half (54%) of small businesses were renters. Conversely, larger businesses were typically more likely to own their buildings. Among both medium and large businesses, just under six in ten, (59% and 56% respectively) owned their buildings.

Figure 4. Proportion of businesses that rent or own their buildings, by business size



Source: Energy Efficiency Survey. A9: Thinking about your [site/sites] does your company own the buildings or rent them? Micro (n= 340), Small (n=488), Medium (n=210) and Large (n=76). *Indicates sub-groups that are

significantly higher than large businesses. ^Indicates sub-groups that are significantly higher than micro businesses. Responses selected by <2% of manufacturers not displayed in chart.

Government schemes

Larger manufacturers were significantly more likely than smaller ones to have sites that were part of the government schemes intended to support energy efficiency. Almost nine in ten (87%) large businesses reported being part of at least one government scheme, compared to a 35% of medium businesses and less than a tenth of either small or micro businesses (6% and 2% respectively).

Amongst large businesses, the most common government schemes they were part of were:

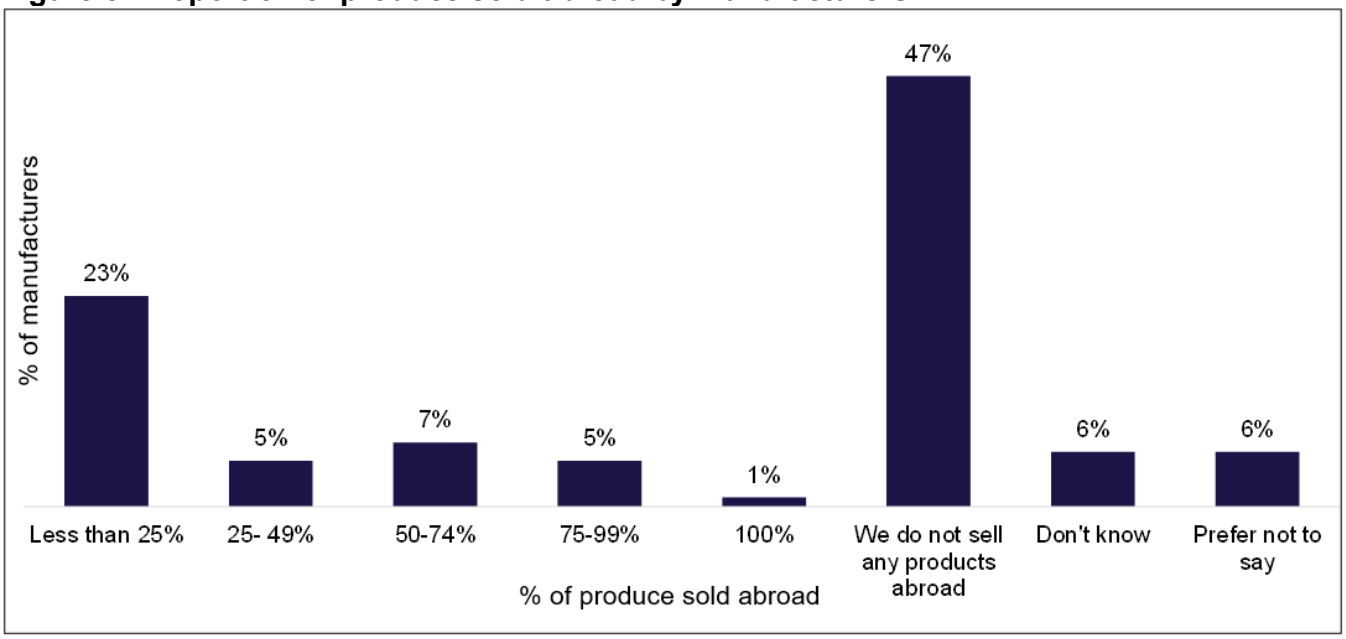
- Energy Savings Opportunity Scheme (73%)
- Climate Change Agreements (58%)
- UK Emissions Trading Scheme (26%)

Business abroad

As shown in Figure 5, almost half of all manufacturers (47%) did not sell any products abroad, and a fifth (23%) sold less than 25% of their products outside the UK. Exporting behaviour increased with the size of the business: for example, one in seven (14%) large and medium-sized manufacturers sold at least half of their products abroad. Other differences amongst manufacturers include:

- Food and Drink manufacturers were more likely than average to not trade abroad; 58% of respondents from this sector reported they do not sell any products abroad compared to 47% of all manufacturers. Alternatively, manufacturers of Electronics and Chemicals were less likely than average to not trade abroad (30%respectively)
- Vehicles manufacturers were more likely than average (25% versus 7% overall) to sell at least half of their products abroad.

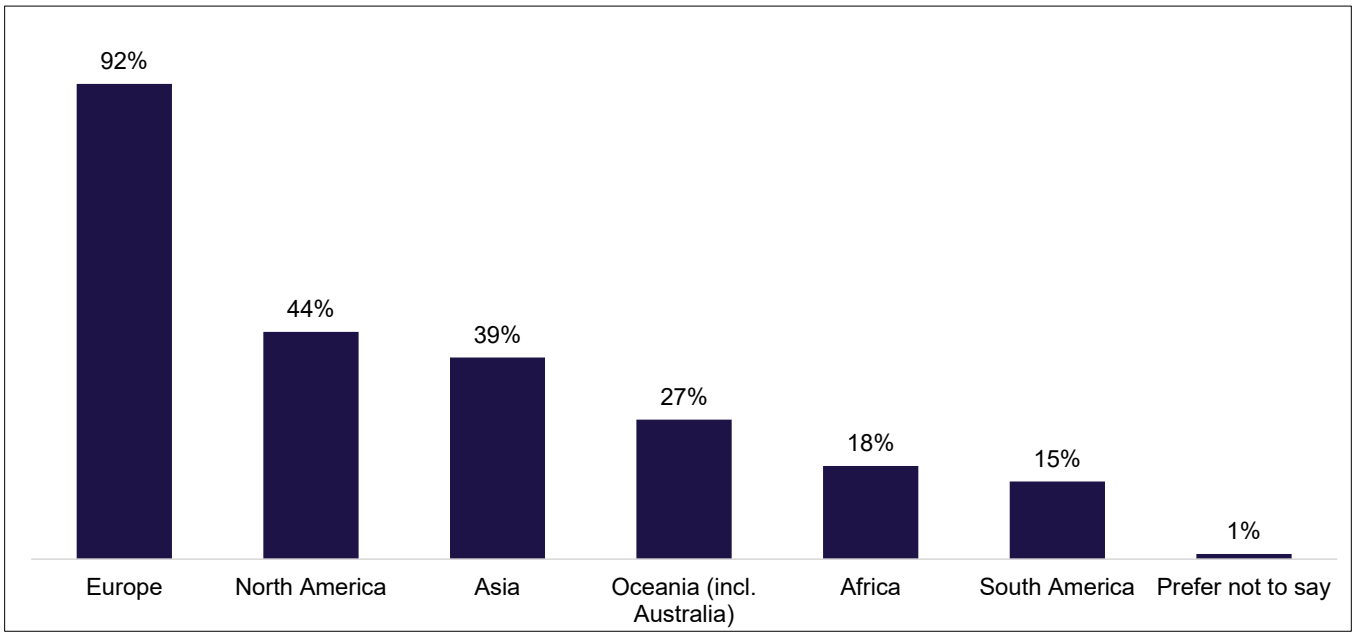
Figure 5. Proportion of produce sold abroad by manufacturers



Source: Energy Efficiency Survey. A11: Roughly what percentage of what your business produces is sold abroad? All manufacturers (n=1114)

Manufacturers who sold their products abroad were asked where this trade usually took place. Almost all (92%) sold their products in Europe and almost half (44%) sold in North America, while four in ten (39%) sold in Asia, as shown in Figure 6. The larger the manufacturer, the more likely they were to sell across a range of regions.

Figure 6. Where businesses sell their products abroad

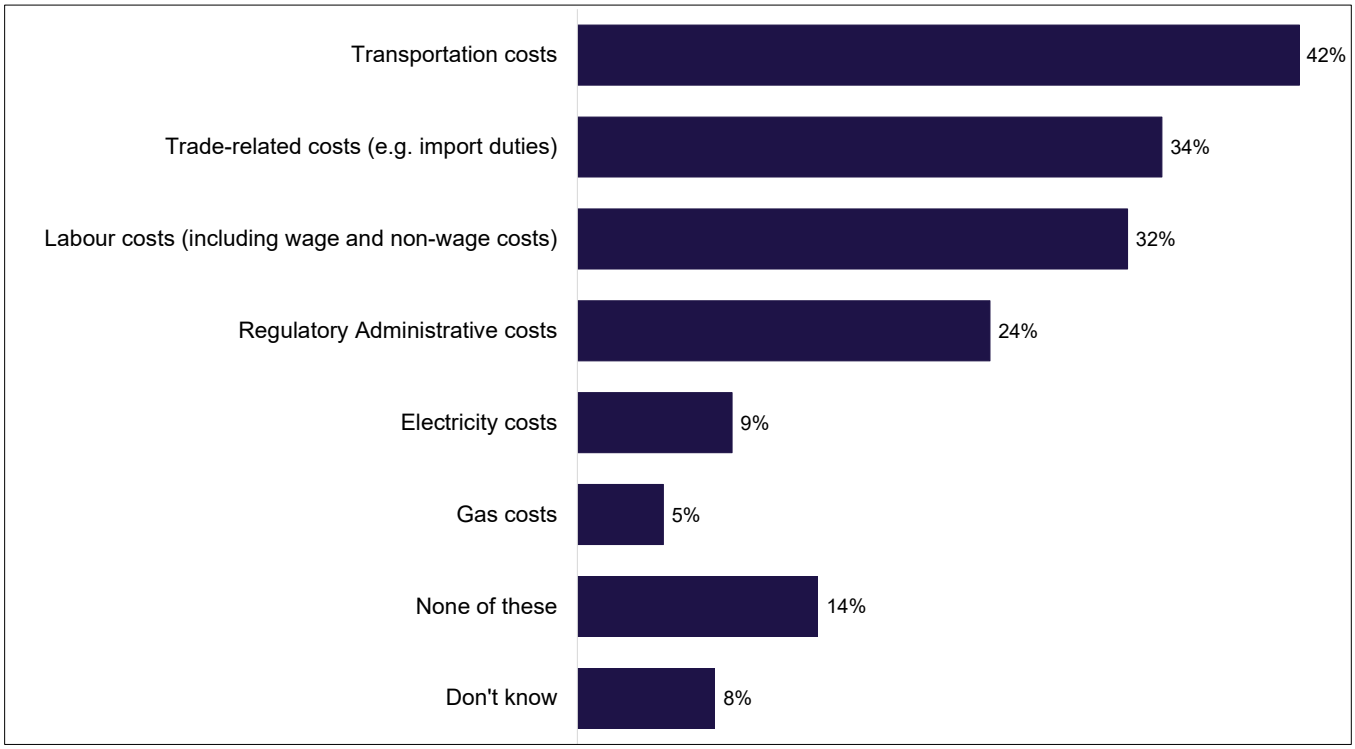


Source: Energy Efficiency Survey. A12: Other than the UK, where does your business usually sell what it produces? Manufacturers who sell their produce abroad (n=572)

Competition

The survey asked manufacturers (who trade outside the UK) what (top three) costs had the biggest impact on their ability to compete with competitors abroad. As shown in Figure 7, most manufacturers (who trade outside the UK) reported that competition was most affected by costs related to transportation (42%) and trade (34%). Energy-related costs, such as electricity, gas and other fuel costs, were each mentioned by less than a tenth of businesses overall (9% electricity, 5% gas and 3% other fuel costs).

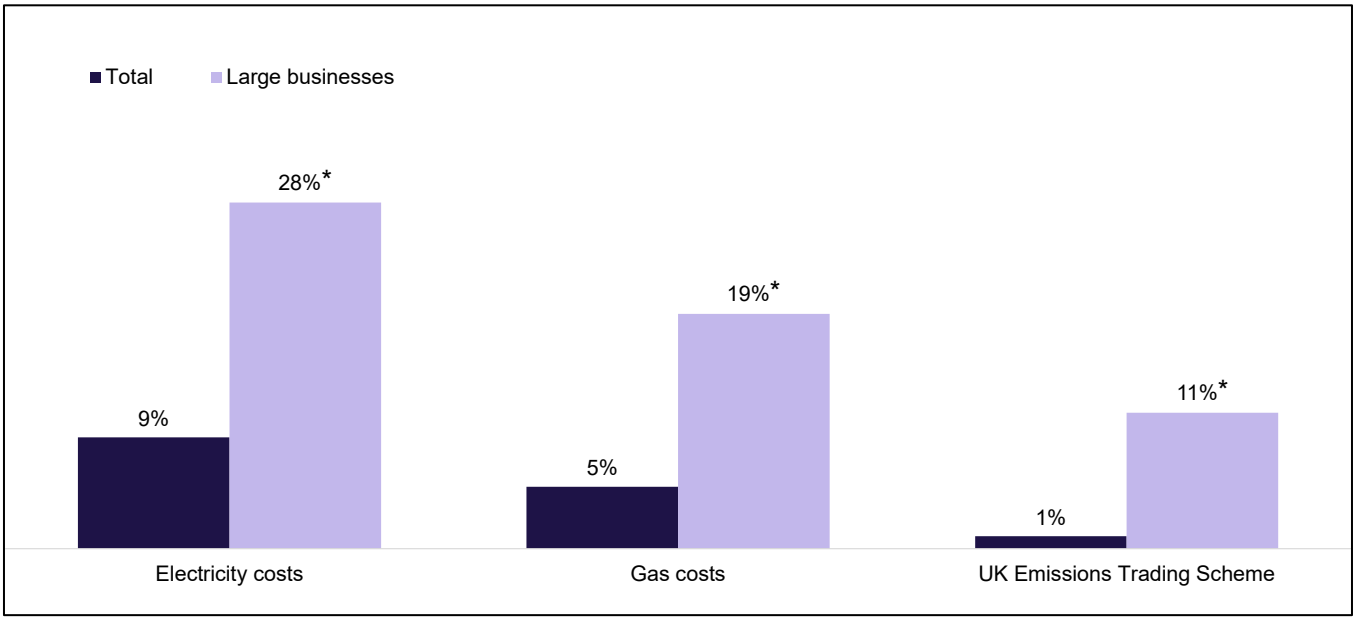
Figure 7. Costs affecting competitiveness abroad



Source: Energy Efficiency Survey. A6. Which of these costs has the biggest impact on your ability to compete with your competitors abroad? Manufacturers who sell their produce abroad (n=572). Responses selected by <5% of manufacturers not displayed in chart.

Large businesses, however, were significantly more likely than average to report a large impact on competition abroad from some of these energy-related costs such as electricity (28% vs 9% overall), gas (19% vs 5% overall) and the UK Emissions Trading Scheme (11% vs 1% overall), as shown in Figure 8.

Figure 8. Energy-related costs affecting competitiveness among large businesses



Source: Energy Efficiency Survey. A6. Which of these costs has the biggest impact on your ability to compete with your competitors abroad? (Please select up to three responses) Manufacturers who sell their produce abroad (n=572) Large businesses (35). *Indicates figures significantly higher than the total.

A large proportion of businesses that mentioned either electricity or gas costs as having the biggest impact on their ability to compete abroad mentioned other accompanying costs. Three quarters (75%) of these businesses reported having costs (outside of electricity and gas) affecting competitiveness. The costs most mentioned alongside either electricity or gas costs were as follows:

- Labour costs (51%)
- Transportation costs (39%)
- Trade-related costs (24%)
- Regulatory Administrative costs (21%)

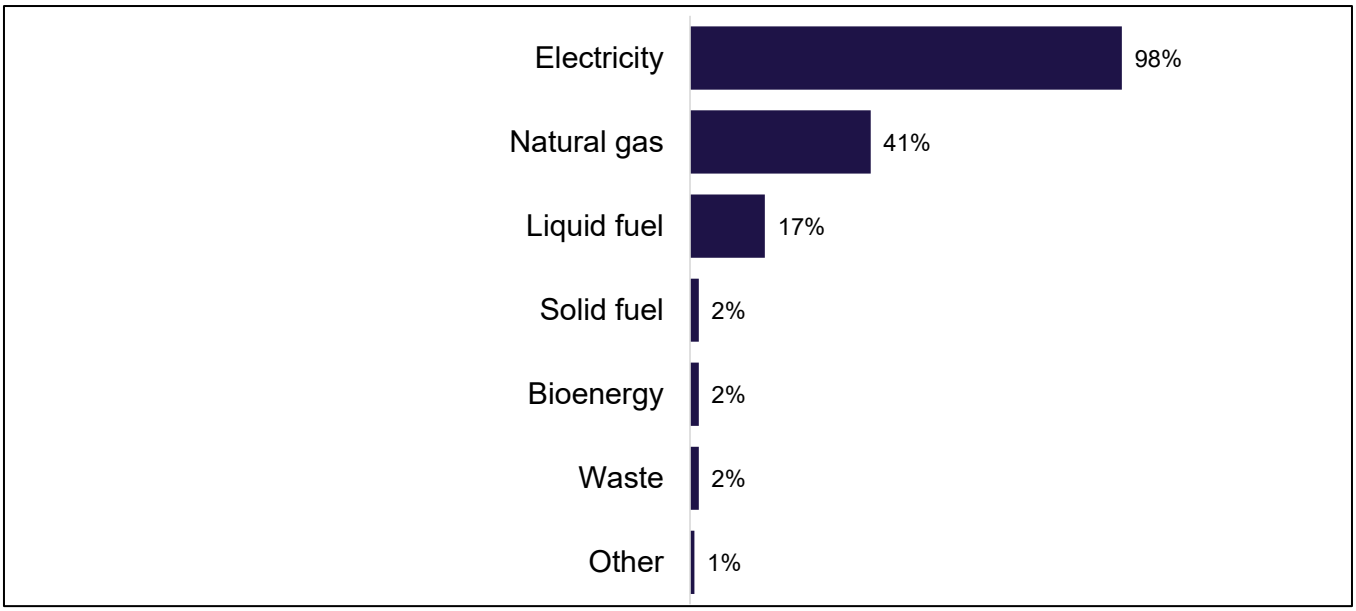
Energy usage and costs

This chapter provides an overview of the types of fuels that manufacturers use, their estimated total energy costs and what proportion of their total business costs this represents.

Types of fuel

As shown in Figure 9, almost all (98%) manufacturers used electricity in their business, with a sizeable minority using natural gas (41%) and liquid fuel (17%). Manufacturers of all sizes were likely to use electricity (responses ranged between 97% and 100%), but larger manufacturers were more likely to use natural gas and liquid fuel, compared to smaller ones.

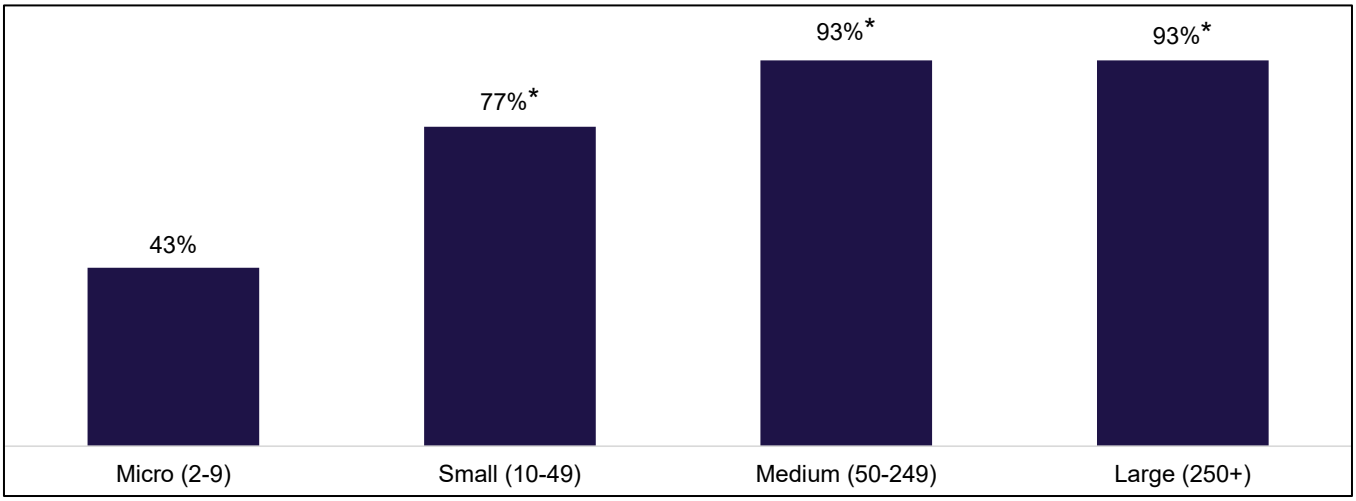
Figure 9. Types of fuel used by manufacturers



Source: Energy Efficiency Survey. B2a: Which of the following fuel types are used by your business? All manufacturers (n= 1114). Fewer than 1% of respondents selected “Don’t know” or Prefer not to say”.

As shown in Figure 10, small (77%), medium (93%) and large (93%) manufacturers were more likely to use more than one fuel type than micro manufacturers (43%).

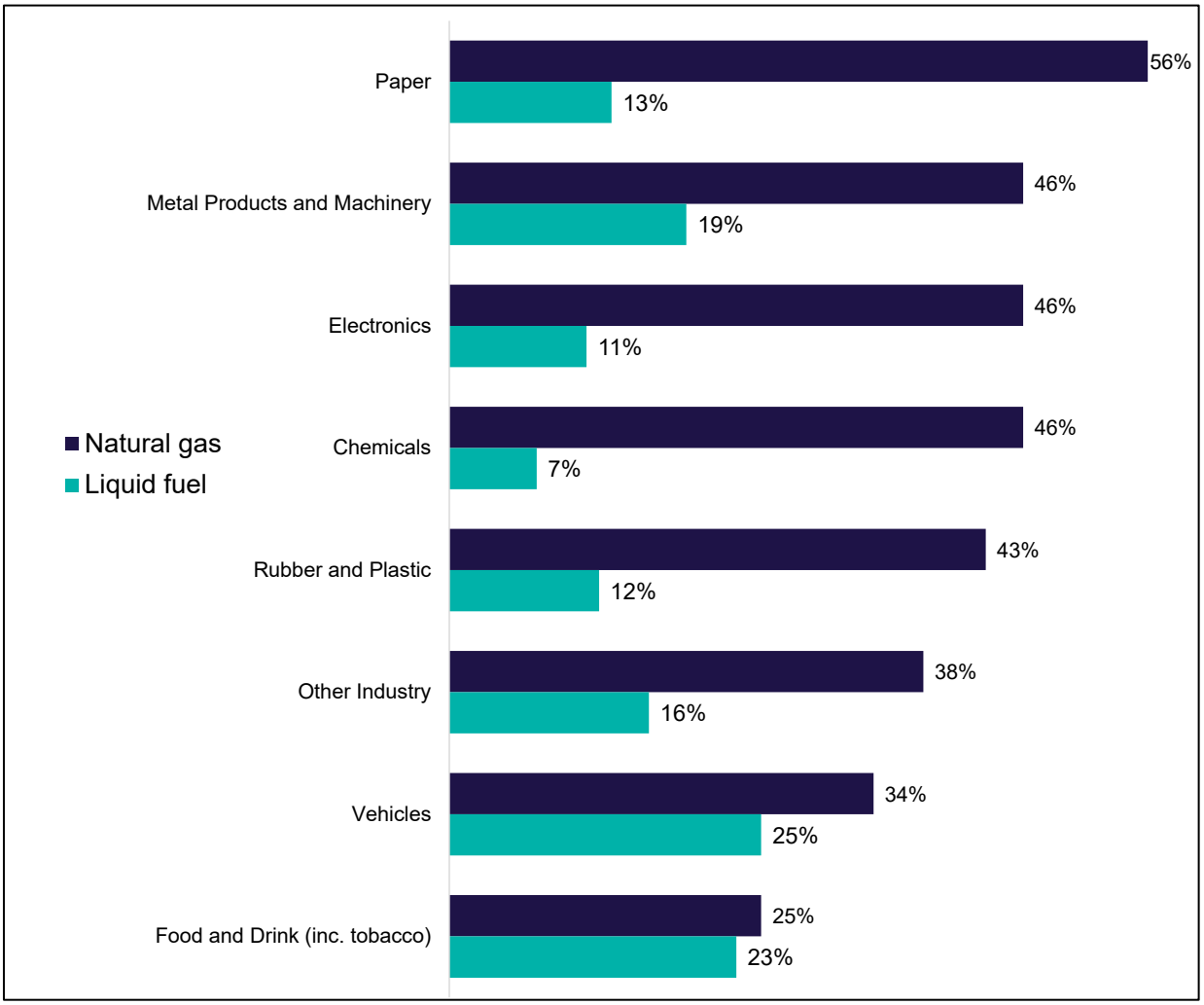
Figure 10. Proportion of manufacturers who use more than one fuel type, by business size



Source: Energy Efficiency Survey. B2a: Which of the following fuel types are used by your business? Micro manufacturers (n= 340), Small (n=488), Medium (n=210) and Large (n=76). *Indicates sub-groups are statistically higher than micro manufacturers.

Whilst manufacturers across different industries commonly used electricity, the proportion who used natural gas or liquid fuel varied considerably, as shown in Figure 11.

Figure 11. Use of natural gas/liquid fuel used by industrial sector



Source: Energy Efficiency Survey. B2a: Which of the following fuel types are used by your business? All manufacturers (n= 1114), paper (n=32), metal products and machinery (n=220), electronics (n=159), chemicals (n=47), rubber and plastic (n=63), other industries (n=359), vehicles (n=40) and food and drink (n=129). Only sectors with more than 30 responses shown.

Energy costs

The survey asked manufacturers (who had been trading in 2019) to estimate how much their business' total energy costs were in 2019. As shown in Table 6, the larger the manufacturer, the greater these costs were[17]. There wasn't a correlation between business size and the proportion these energy costs represented of total costs.

Table 5. Total energy costs and proportion of total costs, by business size

	In 2019, roughly how much were your business's total energy costs? (Median)	What is this as a percentage of your business's total costs? (Median)
Micro (2-9)	£3,000	5%
Small (10-49)	£21,000	3%
Medium (50-249)	£155,000	4%
Large (250+)	£1,500,000	5%
Total	**£6,000**	**4%**

Source: Energy Efficiency Survey. B1A In 2019, roughly how much were your business's total energy costs? And B1b What is this as a percentage of your business's total costs? All manufacturers trading in 2019 (n= 1144), Micro (n= 332), Small (n=488), Medium (n=208) and Large (n=75).

A sizable minority (13%) of manufacturers did not know what their total energy costs were and an even greater proportion (26%) did not know their energy costs as a percentage of their total costs. Large manufacturers, in particular, were unsure how much their energy costs form part of their total costs (47%).

Energy intensive manufacturers[18] had median energy costs of £7,200, which, on average, represented 15% of their total costs. In comparison non-energy intensive manufacturers had energy costs of £5,950, which accounted for 2% of their total costs.

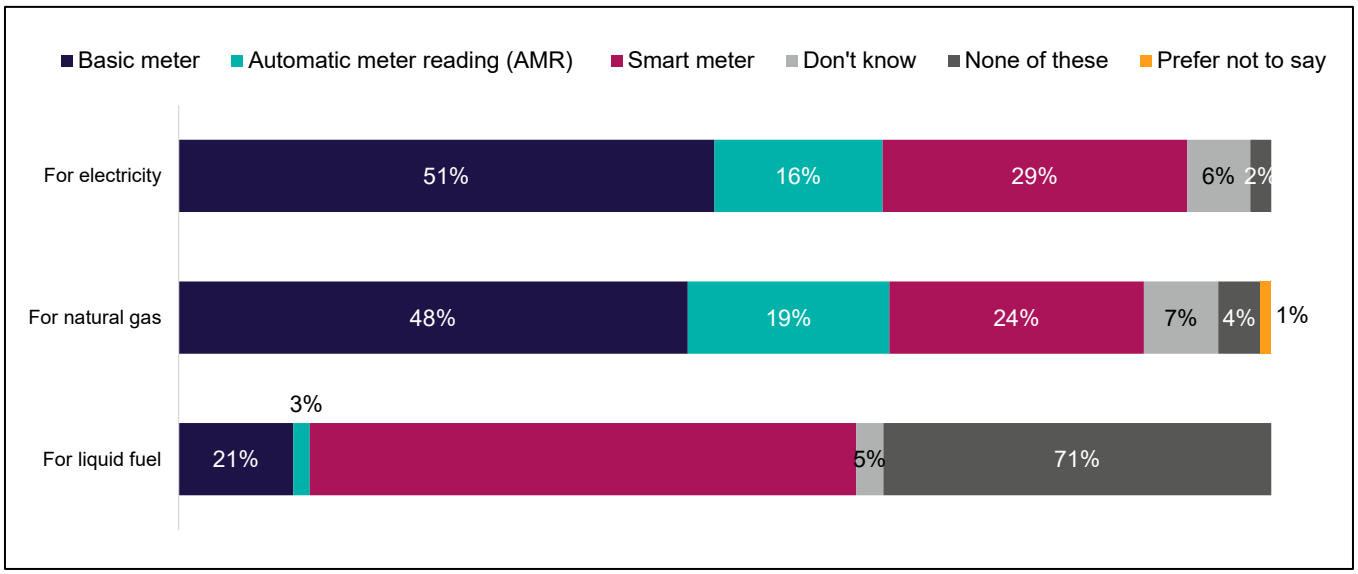
Energy meters

Of those using electricity, half of manufacturers used a basic meter (51%) to monitor usage, whilst 29% used a smart meter and 16% use an automatic meter. Similar proportions of meter

[17] Median figures shown to account for outliers.
[18] Energy intensive manufacturers were defined as whether businesses' total energy costs accounted for more or less than 10% of total business costs (within the survey)

usage were reported amongst manufacturers using natural gas (as shown in Figure 12). In comparison, three quarters (71%) of those using liquid fuel reported using none of these meters for liquid fuel consumption.

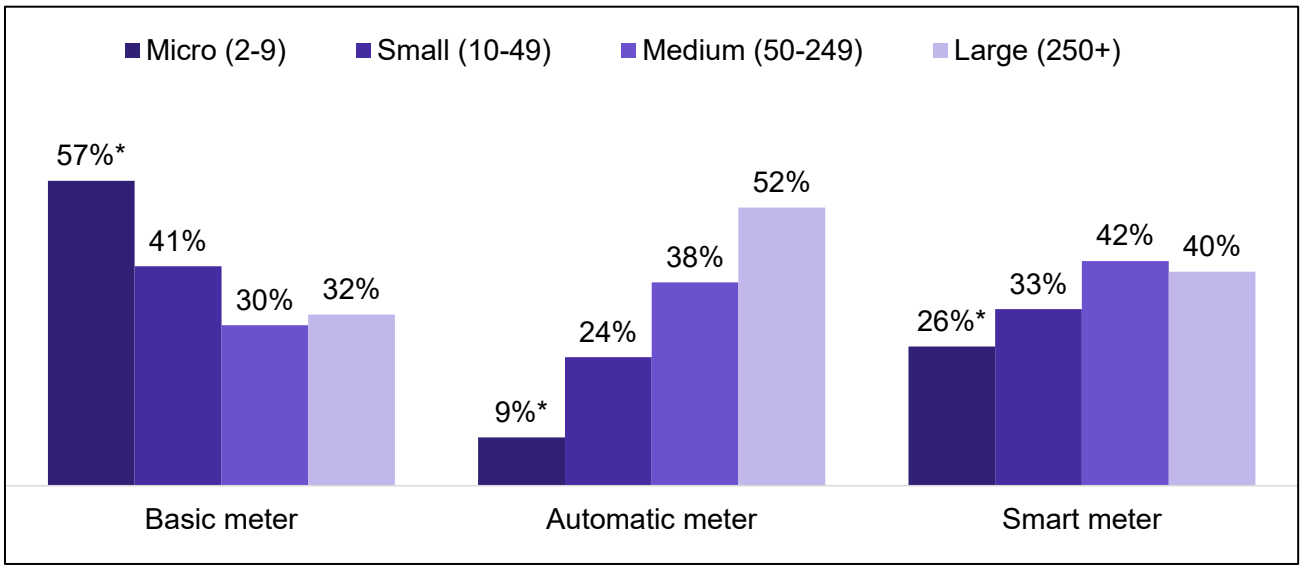
Figure 12. Types of meters used for different energy sources



Source: Energy Efficiency Survey. B3: What type of meter do you mostly use at your industrial site(s)? All manufacturers using electricity (n= 1102), natural gas (n=638), and liquid fuel (n=206). Figures for solid fuel, bioenergy, waste and other not shown due to low base sizes.

As shown in Figure 13, smaller manufacturers were more likely than larger manufacturers to use basic meters to monitor electricity usage, and less likely to use automatic or smart meters. For instance, 57% of micro businesses reported using basic meters, compared to 41% of small, 30% of medium and 32% of large manufacturers.

Figure 13. Types of meters used for electricity, by business size



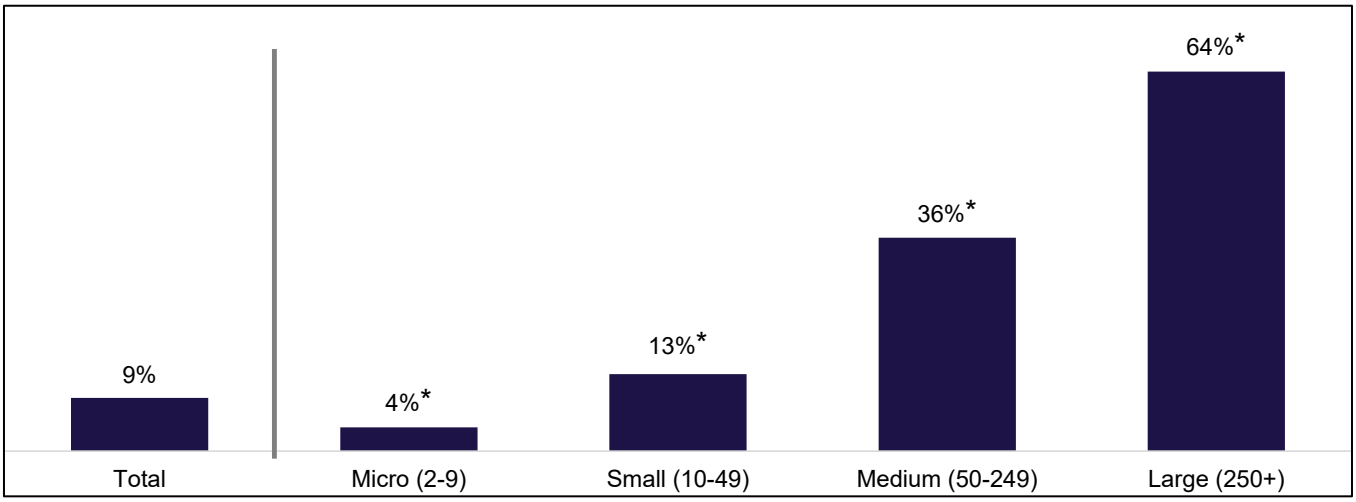
Source: Energy Efficiency Survey. B3: What type of meter do you mostly use at your industrial site(s)? All manufacturers using electricity (n= 1102), Micro (n= 332), Small (n=486), Medium (n=209) and Large (n=75). *Indicates sub-group is statistically higher or lower than other sub-groups shown.

There were no differences in meter usage to monitor electricity between energy intensive and non-energy intensive manufacturers.

Sub-meters

As shown in Figure 14, only 9% of manufacturers have an energy sub-meter, but the larger a manufacturer is, the more likely they are to have them on their industrial site(s), with two thirds of large manufacturers reporting this (64%).

Figure 14. Proportion of manufacturers who have energy sub-meters on their industrial site(s)



Source: Energy Efficiency Survey. B4/B4A: Do you have energy sub-meters on your industrial site(s)? All manufacturers (n= 1081), Micro (n= 319), Small (n=479), Medium (n=208) and Large (n=75). *Indicates sub-group is statistically higher or lower than all manufacturers.

Manufacturers who are energy intensive were also more likely compared to those who are not (13% vs. 8%) to have sub-meters on their site(s), as were those involved in government energy schemes (ranging from 30% to 100% depending on the scheme).

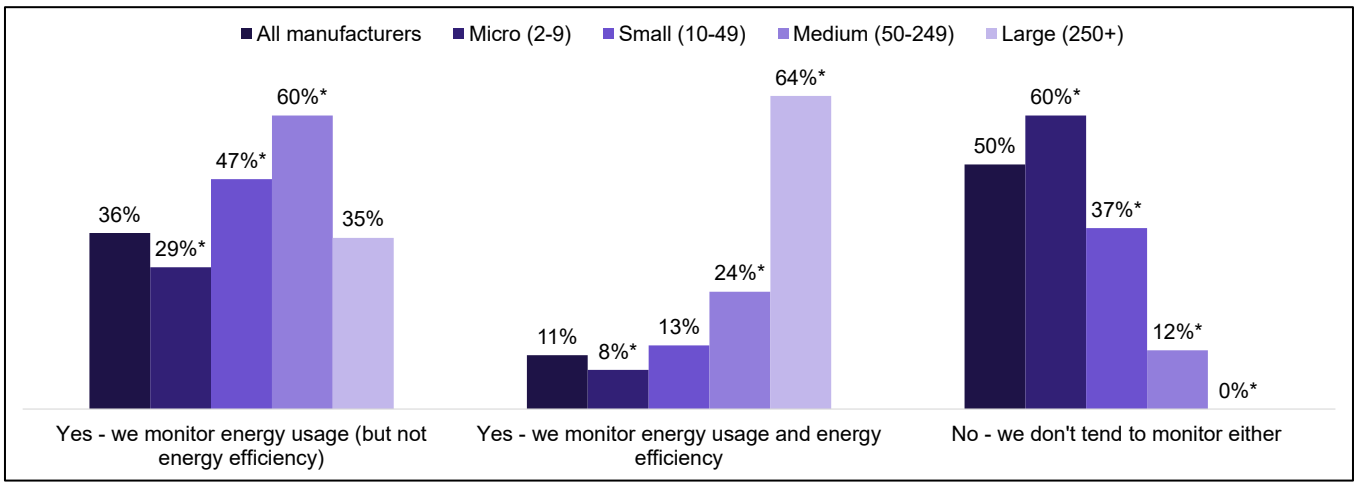
Energy efficiency

This chapter details the extent to which manufacturers monitor and/or report their energy usage and efficiency; what information sources they use to support energy efficiency improvements; and whether there is untapped potential to further improve energy efficiency.

Monitoring energy usage and efficiency

It was more common for manufacturers to monitor only their energy usage (36%) than to monitor both their energy usage and their energy efficiency (11%). As shown in Figure 15, large manufacturers were more likely than smaller manufacturers monitor energy usage and energy efficiency.

Figure 15. Proportion of manufacturers who monitor their energy usage or energy efficiency from its industrial site(s), and by business size



Source: Energy Efficiency Survey. C3: Does your business typically monitor energy usage and/or energy efficiency at your industrial site(s)? All manufacturers (n= 1144), Micro (n= 340), Small (n=488), Medium (n=210) and Large (n=76). *Indicates sub-group is statistically higher or lower than all manufacturers. Fewer than 2% of respondents selected “Don’t know” or Prefer not to say”.

Those who are part of the Climate Change Agreement (CCA) scheme (48%), Energy Savings Opportunity Scheme (ESOS) (53%) or Emissions Trading Scheme (ETS) (59%) were more likely to monitor energy usage and efficiency, compared with all manufacturers (11%).

Manufacturers who own their building(s) (16%) were more likely to monitor energy usage and efficiency, compared with those who rent their building(s) (8%).

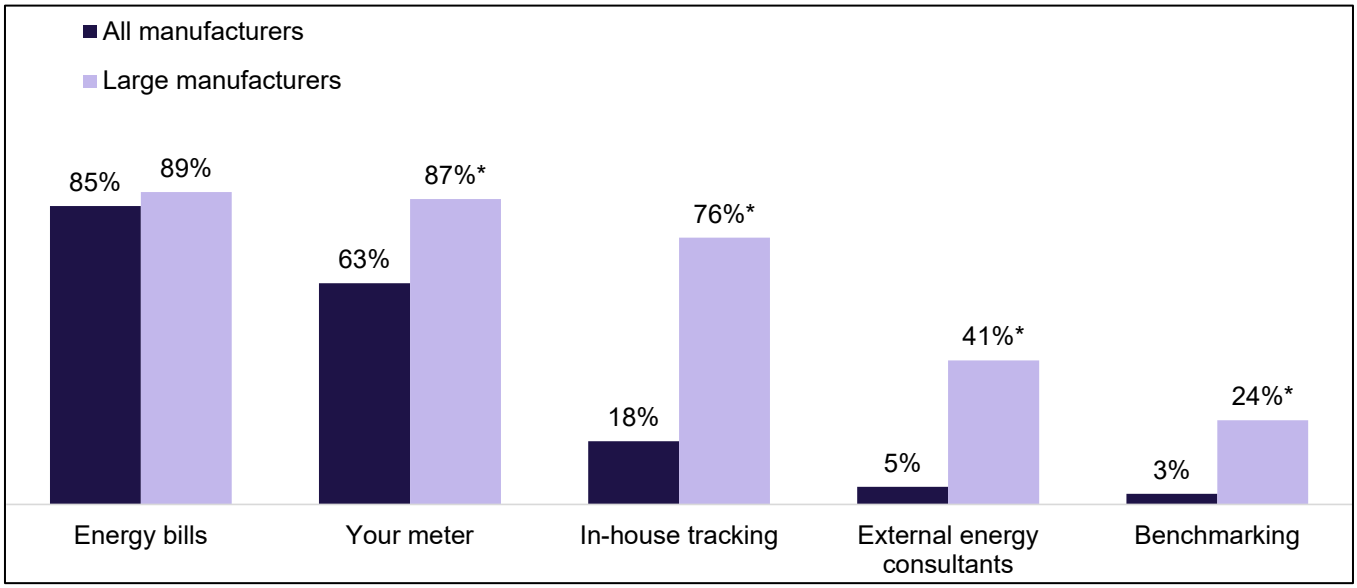
How manufacturers monitor their energy use and/or efficiency

Amongst manufacturers who monitor energy usage (regardless of if they also monitor efficiency), 85% did so using energy bills and 63% via their energy meter, as shown in Figure 16.

Large manufacturers were more likely to use meters (87% vs. 56% of small manufacturers, and 66% of medium manufacturers), but all manufacturers were equally likely to use energy bills.

Only 3% of all manufacturers monitored their energy usage by comparing it with their peers or the wider industrial sector. However, 24% of large manufacturers reported doing this (also shown in Figure 16).

Figure 16. How manufacturers typically monitor their energy usage and/or efficiency, by business size



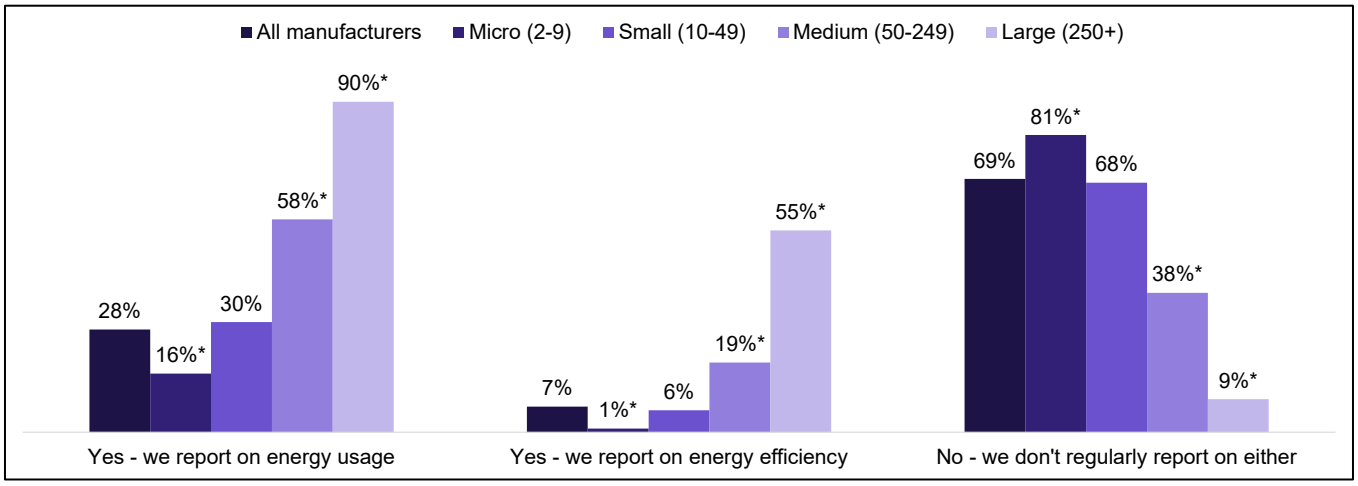
Source: Energy Efficiency Survey. C4: Which of the following does your business typically use at your industrial site(s) to monitor energy usage and/or energy efficiency? All manufacturers (and large) who monitor their energy usage/efficiency (n= 679) (n=75). *Indicates sub-groups are statistically higher or lower than all manufacturers. Fewer than 2% of respondents selected “Other”, “Don’t know”, “None of these” “or Prefer not to say”.

Reporting

A third (29%) of manufacturers who monitor their energy usage/efficiency regularly reported these metrics[19]. As shown in Figure 17, reporting energy usage (28%) is much more common than reporting energy efficiency. As with previous findings, larger manufacturers were more likely than smaller manufacturers to report both energy usage and efficiency.

[19] Questionnaire wording did not stipulate whether this was internal or external reporting but this is covered in a later question (C6). Wording for C5 did include: “Reporting may involve analysis, summarising data or findings, or visualising data through charts and graphs. By ‘regularly report’, we mean at least once per year”.

Figure 17. Proportion of manufacturers who regularly report energy usage or energy efficiency from its industrial site(s), by business size



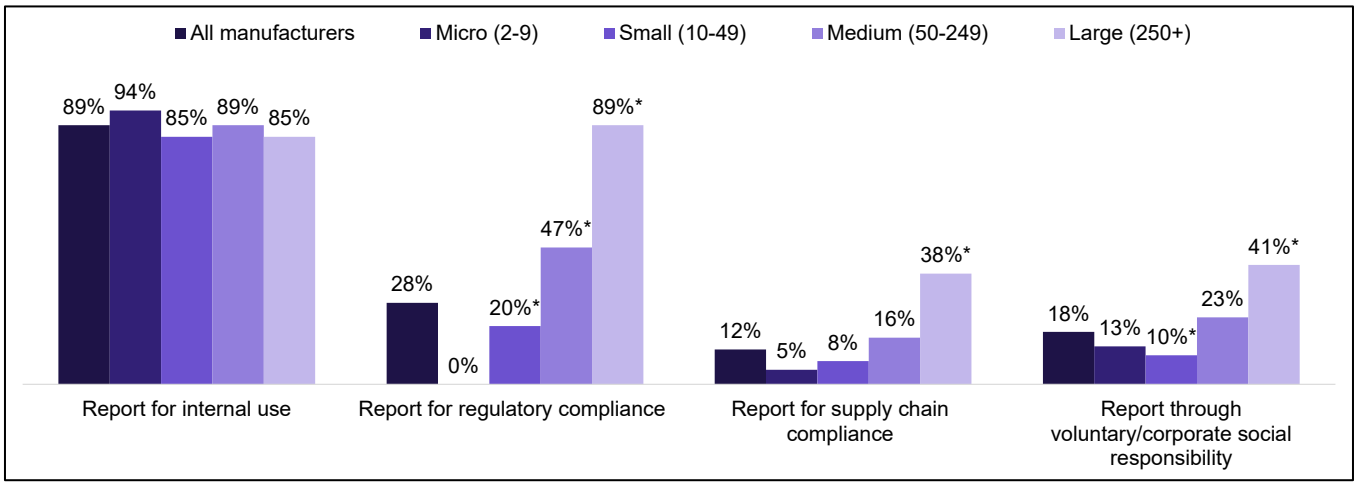
Source: Energy Efficiency Survey. C5: As well as monitoring your energy usage and/or energy efficiency, does your business regularly report energy usage or energy efficiency from its industrial site(s)? All who monitor their energy usage/efficiency (n= 679), Micro (n= 131), Small (n=294), Medium (n=179) and Large (n=75). *Indicates sub-groups are statistically higher or lower than total. 2% of respondents selected “Don’t know”.

A large majority of businesses who are in scope of ESOS reported their energy usage (90%), and half reported their energy efficiency (48%).

Almost all (89%) manufacturers who report energy usage or efficiency did so for internal use. There is a sizeable minority who report for regulatory compliance (28%), for voluntary/corporate social responsibility (18%), whilst only 12% do so for supply chain compliance.

Medium and large businesses typically had more varied reasons for reporting their energy usage and/or energy efficiency as shown in Figure 18.

Figure 18. Reasons businesses report energy usage and/or energy efficiency



Source: Energy Efficiency Survey. C6: And for what purpose does your business report energy usage and/or energy efficiency? All who report energy usage or energy efficiency (n= 300), Micro (n= 24[20]), Small (n=100),

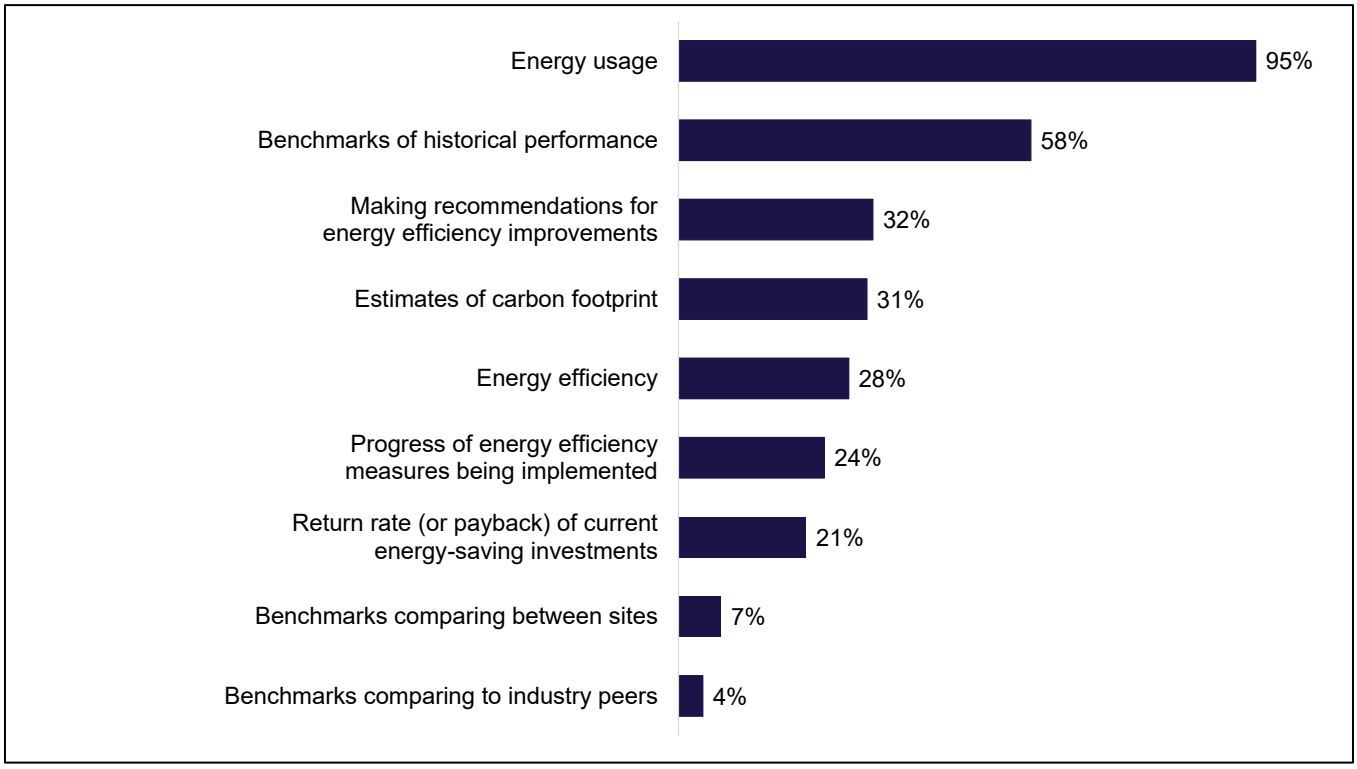
[20] Percentages are still statistically significant at the 95% confidence level but due to low base size (n=24) findings should still be interpreted as indicative not conclusive.

Medium (n=108) and Large (n=68). *Indicates sub-groups are statistically higher or lower than total. 1% of respondents selected “Don’t know” or “None of these”.

Internal reports are used to display a range of information, most commonly energy usage (95%). As shown in Figure 19, manufacturers who report for internal use were much more likely to report energy usage than energy efficiency (28%). The proportion reporting energy usage was similar across manufacturer size. However, larger manufacturers were more likely than smaller manufacturers to report energy efficiency (41% of medium and 79% of large, compared to 21% of small).

Over half (58%) of manufacturers reported benchmarks of historical performance, and a third reported carbon footprint estimates (31%). Outside of historical performance, fewer report benchmarks comparing sites (7%) or industry peers (4%).

Figure 19. Scope of internal reports for energy usage or efficiency



Source: Energy Efficiency Survey. C7: Which of the following fall within the scope of these internal reports? All manufacturers who use energy usage or energy efficiency reports for internal use (n= 258)

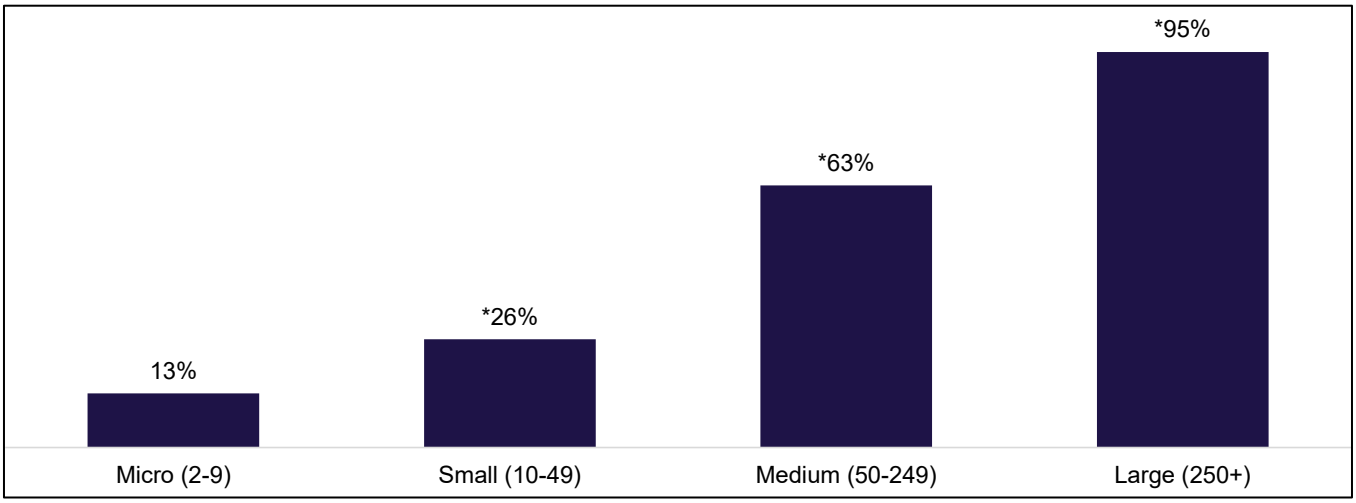
Information sources

Sources of information or advice used

Around one in five (21%) respondents used at least one source of information or advice to learn more about their energy usage and/or energy efficiency, leaving a majority (72%) who did not access such information. A small proportion (7%) either did not know or refused to answer.

Overall, larger manufacturers were more likely to have got information or advice on their energy usage and/or energy efficiency, compared to smaller manufacturers. As shown in Figure 20, nearly all (95%) large manufacturers, as well as close to two in three (63%) medium-sized manufacturers, used at least one source of advice.

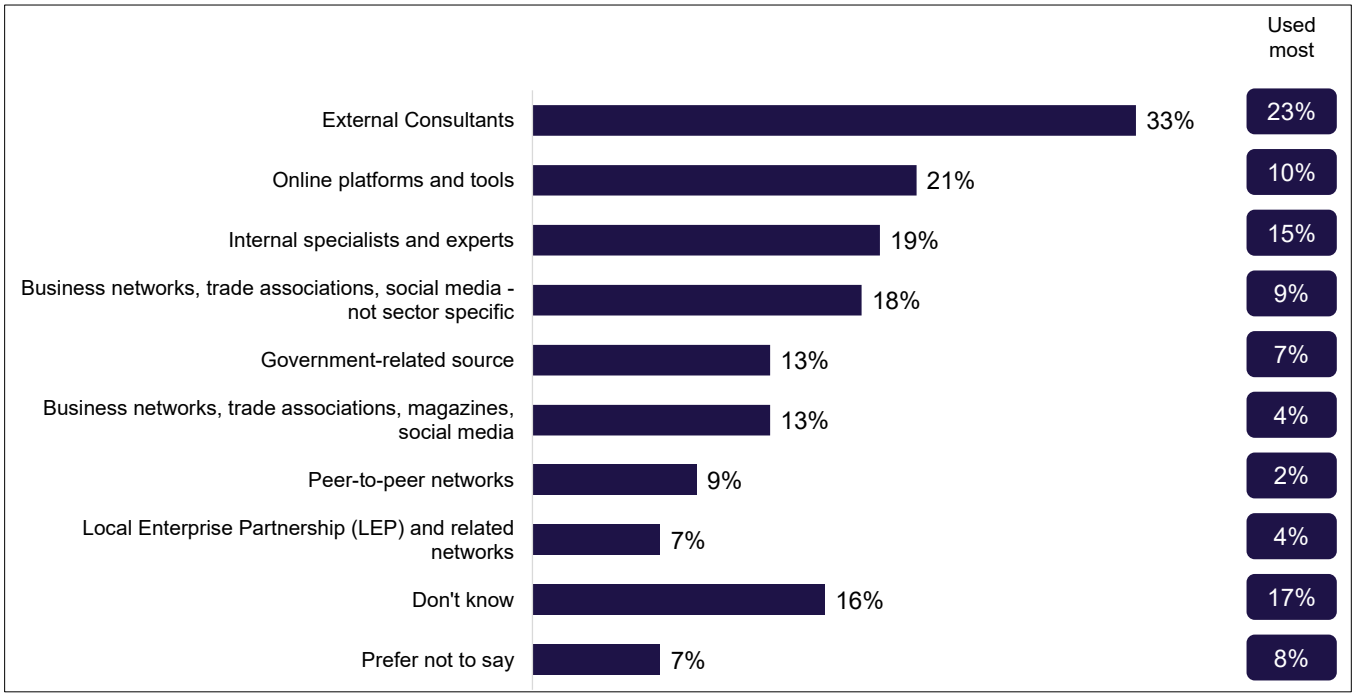
Figure 20. Proportion of manufacturers who had used at least one source of information or advice, by size



Source: Energy Efficiency Survey. C8: Does your business use any of the following sources to get information or advice on your energy usage and/or energy efficiency? – Used at least one source. All manufacturers: Micro (n= 340), Small (n=488), Medium (n=210), Large (n=76). *Indicates sub-groups are statistically higher than micro manufacturers.

As shown in Figure 21, those manufacturers who did get any information or advice used a variety of sources, including external consultants (33%), online platforms and business tools (21%) and business networks, trade associations or social media (not sector specific: 18%).

Figure 21. Sources used to get information or advice on energy usage and energy efficiency



Source: Energy Efficiency Survey. C8: Does your business use any of the following sources to get information or advice on your energy usage and/or energy efficiency? C9. Which network or source of information does your business use most? Base: All manufacturers who used at least one source of information or advice (n=462). Responses selected by <1% of manufacturers not displayed in chart.

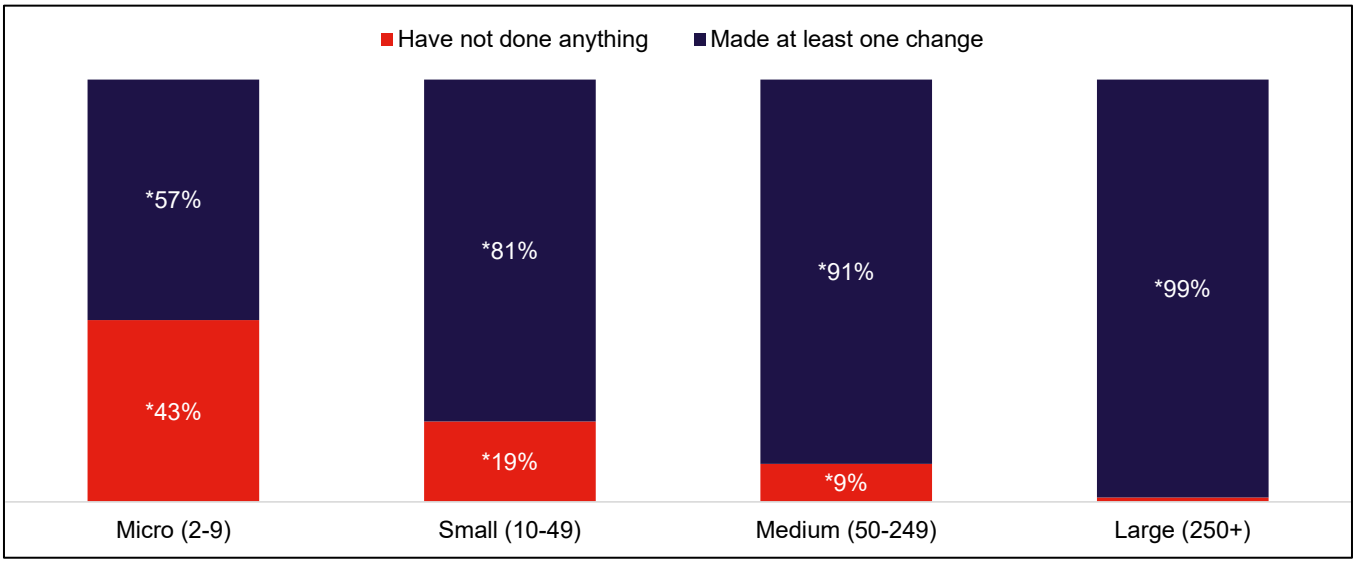
Improvements and investments

Improvements to energy efficiency

Although very few manufacturers (21%) had sought information or advice on how to improve their energy usage and/or energy efficiency, two thirds (66%) had done something to improve their energy efficiency within the past five years.

Larger manufacturers were again more likely to have made improvements, as shown in Figure 22.

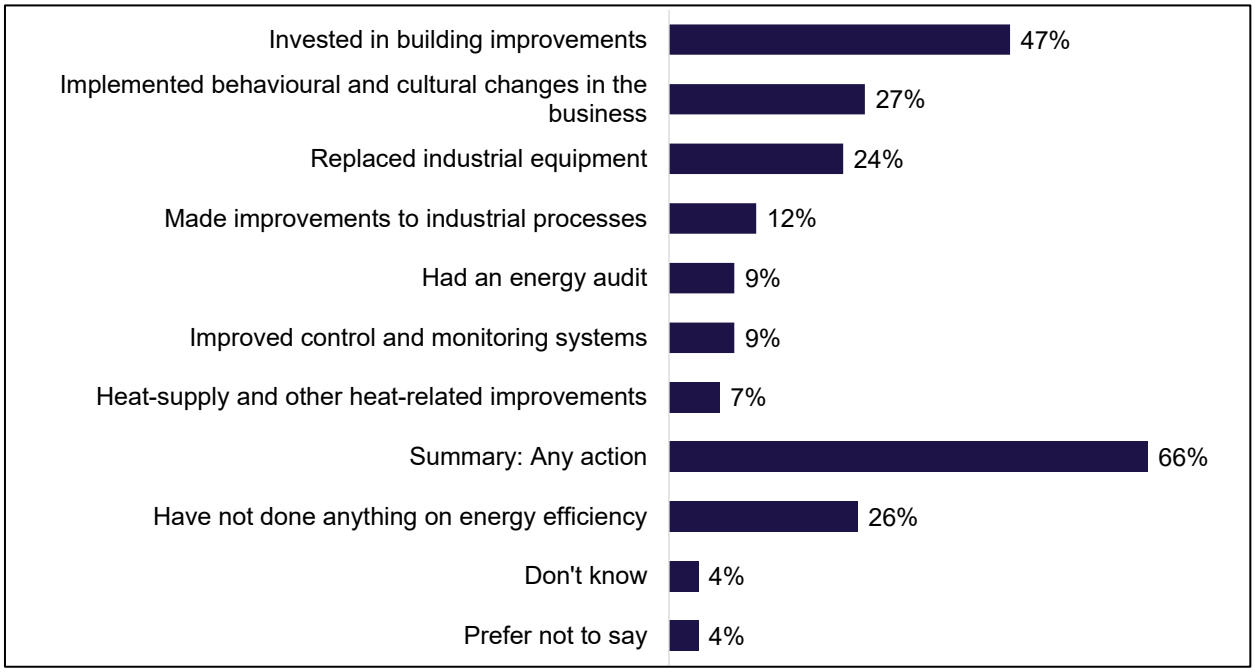
Figure 22. Manufacturers who had made at least one change over the past five years to improve energy efficiency, by size



Source: Energy Efficiency Survey. C10: Over the past five years, has your business done anything to improve your energy efficiency? If so, what have you done? All manufacturers: Micro (n=340), Small (n=488), Medium (n=210), Large (n=76) *Indicates sub-groups are statistically higher or lower than total.

As shown in Figure 23, the most common improvements made were investing in building improvements (47%), implementing behavioural and cultural changes (27%), and replacing industrial equipment (24%).

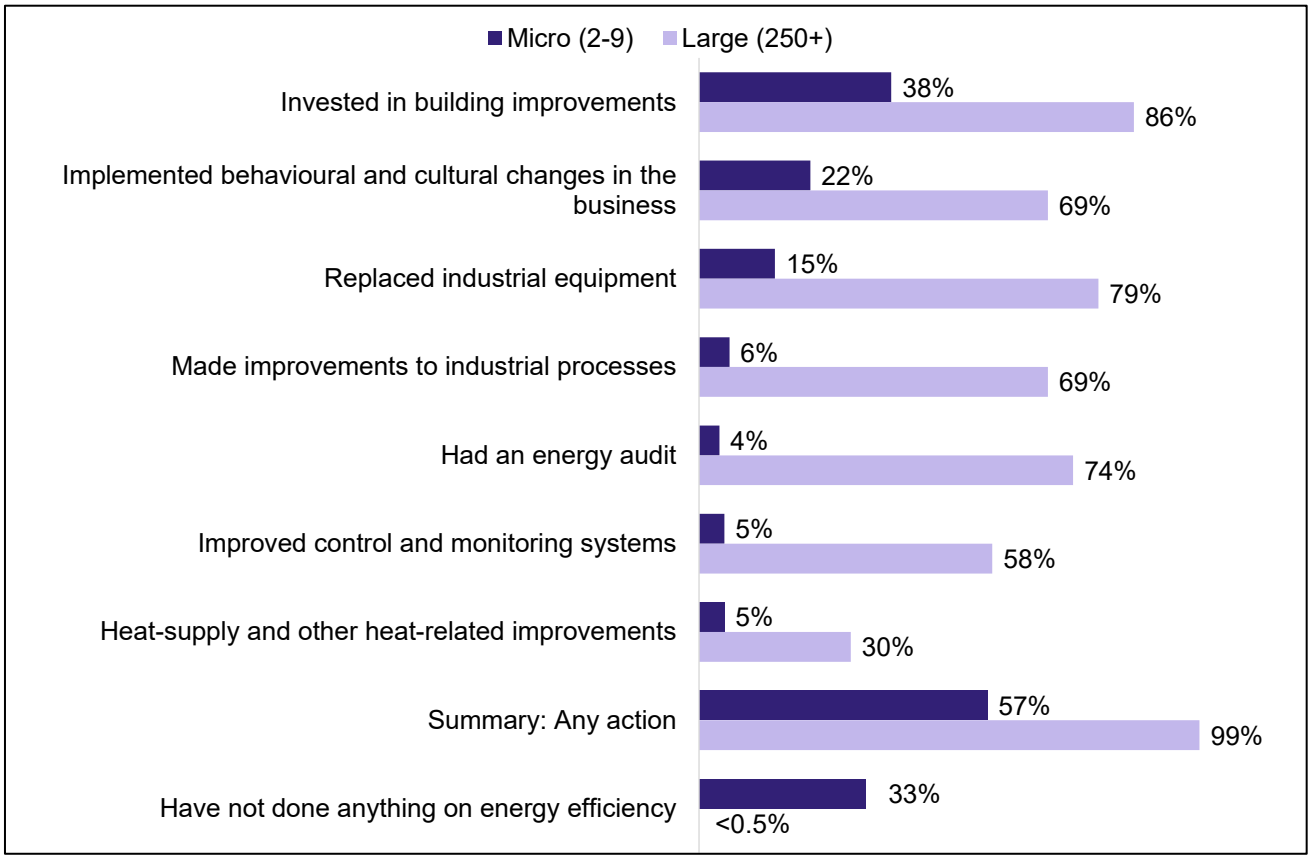
Figure 23. Changes made over past five years to improve energy efficiency



Source: Energy Efficiency Survey. C10: Over the past five years, has your business done anything to improve your energy efficiency? If so, what have you done? Base: All manufacturers (n=1,114). Responses selected by <5% of manufacturers not displayed in chart.

As shown in Figure 24, the larger manufacturers, were more likely to have made each improvement. For example, 79% of large manufacturers and 55% of medium manufacturers had replaced industrial equipment to improve energy efficiency in the past five years, compared to 15% of micro manufacturers. Building ownership followed a similar pattern, whereby manufacturers who owned their own buildings were more likely to have made most of the improvements.

Figure 24. Changes made over past five years to improve energy efficiency, by business size



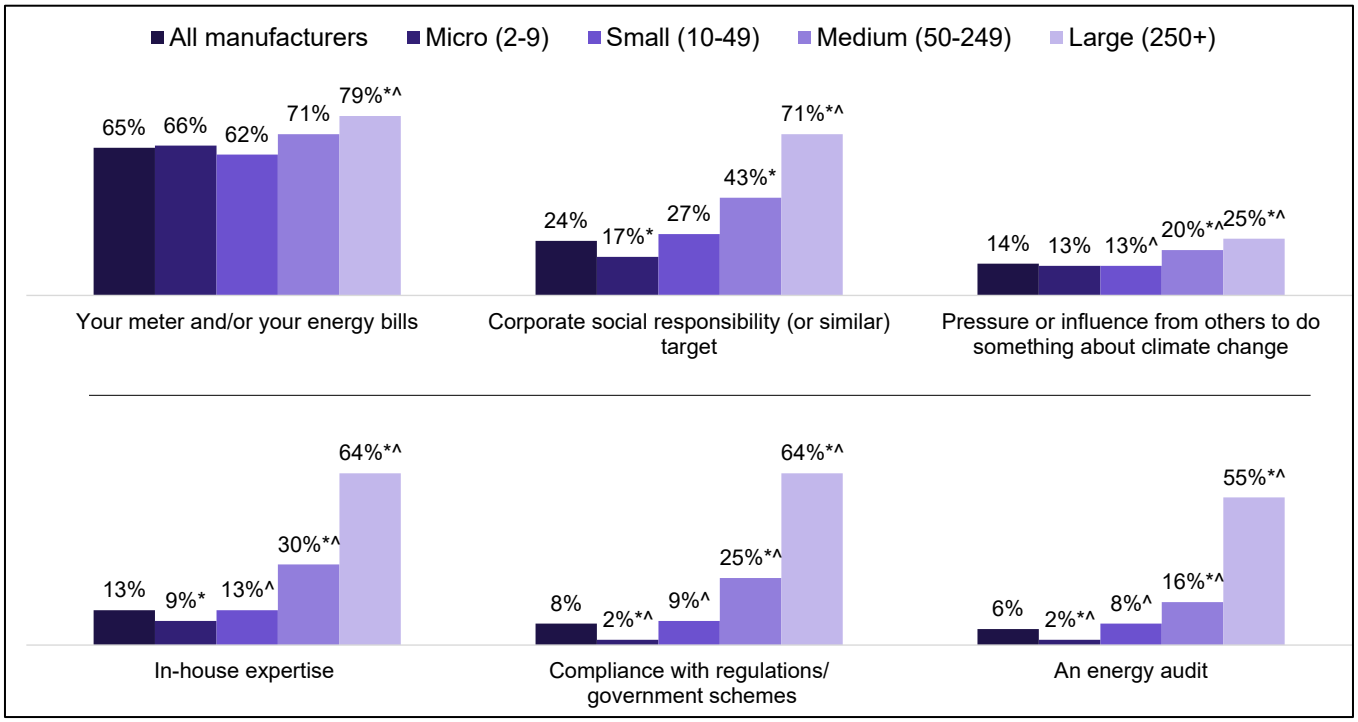
Source: Energy Efficiency Survey. C10: Over the past five years, has your business done anything to improve your energy efficiency? If so, what have you done? Base: All manufacturers: Micro (n=340), Large (n=76). Responses selected by <5% of manufacturers not displayed in chart.

Of those manufacturers who had taken action to improve energy efficiency over the past five years, their influences for doing so varied between manufacturers of different sizes. Most micro and small manufacturers were influenced to take action by their energy meter and/or energy bills (66% and 62% respectively). Other influences, such as corporate social responsibility (17% and 27% respectively) and pressure to do something about climate change (both 13%), were only mentioned by a minority of micro and small manufacturers.

On the other hand, large manufacturers shared several influences for taking actions. Whilst their energy and/or energy bills were still the most frequent influence (79%), a majority were also influenced to take action by corporate social responsibility (71%), in-house expertise (64%), compliance with regulations (64%), and an energy audit (55%).

In most cases, the larger the manufacturer, the more likely they were to have stated any single influence behind their decision, as shown below.

Figure 25. Influences behind the decision to take action in the past five years to improve energy efficiency, by size



Source: Energy Efficiency Survey. C11: Did any of the following influence your decision to make these improvements? Base: Manufacturers who had done something to improve energy efficiency in past five years: Micro (n=198), Small (n=388), Medium (n=192), Large (n=75), *Indicates sub-groups are statistically higher or lower than total. ^Indicates <30 responses per size band[21]. Responses selected by <5% of all manufacturers not displayed in chart.

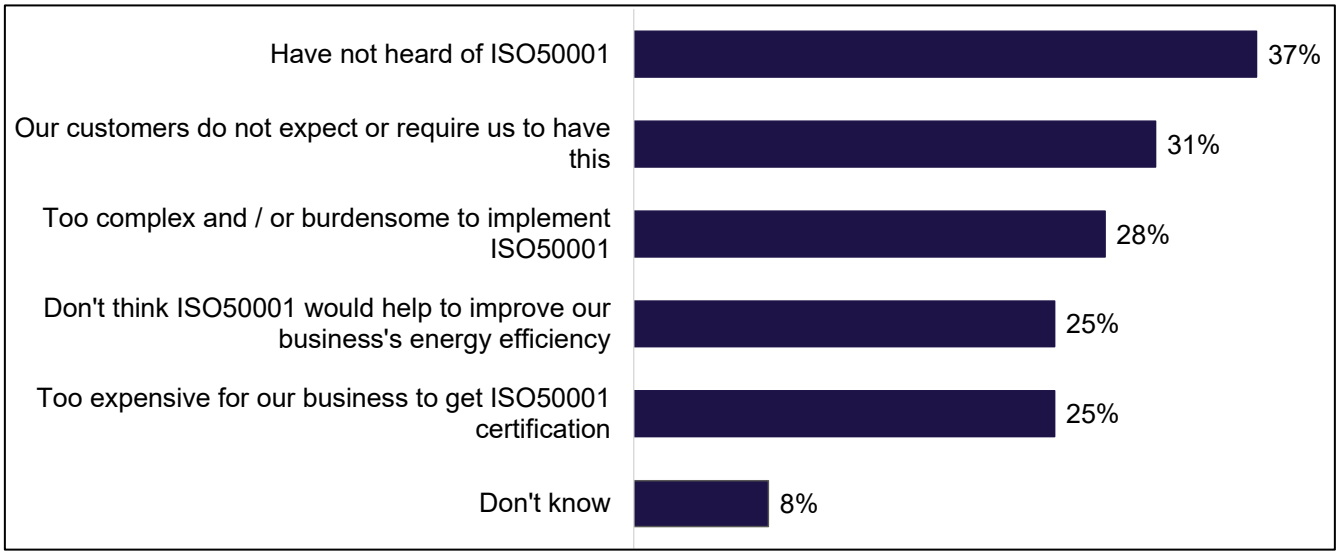
ISO50001

Overall, 1% of manufacturers had implemented the energy management system ISO50001 in the last five years in order to improve energy efficiency, although this rises to one in three (33%) large manufacturers.

Manufacturers gave a variety of reasons for not obtaining ISO50001, although having not heard of ISO50001 was the most common reason given (37%). As shown in Figure 26, more than a quarter also stated that either their customers did not expect them to have it (31%), they perceived it as too complex or burdensome to implement (28%), or they didn't think it would actually improve their business's energy efficiency (25%).

[21] Percentage is statistically significant at the 95% confidence level but due to low base sizes (<30) findings should still be interpreted as indicative not conclusive

Figure 26. Reasons for not getting ISO50001 in past five years to improve energy efficiency

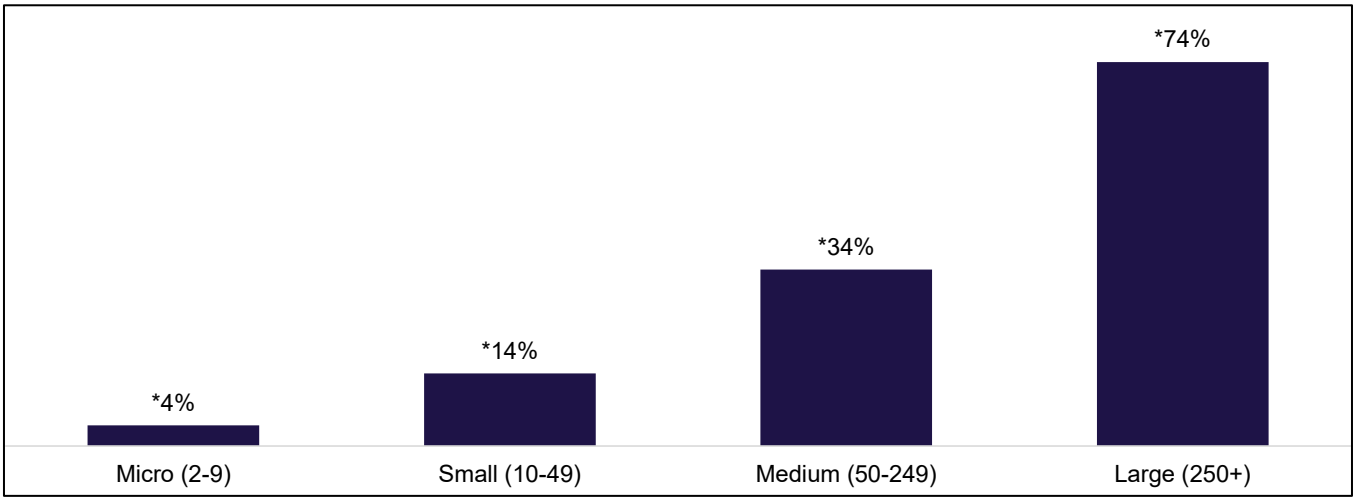


Source: Energy Efficiency Survey. C12: You mentioned that your business does not have ISO50001 (a type of standard that validates a best practice approach to energy management). Why is this? Base: Manufacturers who do not have ISO50001 (n=1,005). Responses selected by <5% of manufacturers not displayed in chart.

Energy audits

Around one in twenty (5%) manufacturers have had an energy audit in the past five years for the purpose of improving their energy efficiency, although this varies significantly by manufacturers of different sizes. Whilst most manufacturers had not had an energy audit to improve energy efficiency, over one in three (34%) medium and three in four (74%) large manufacturers had, as shown in Figure 27.

Figure 27. Manufacturers who have had an energy audit in the past 5 years in order to improve their energy efficiency



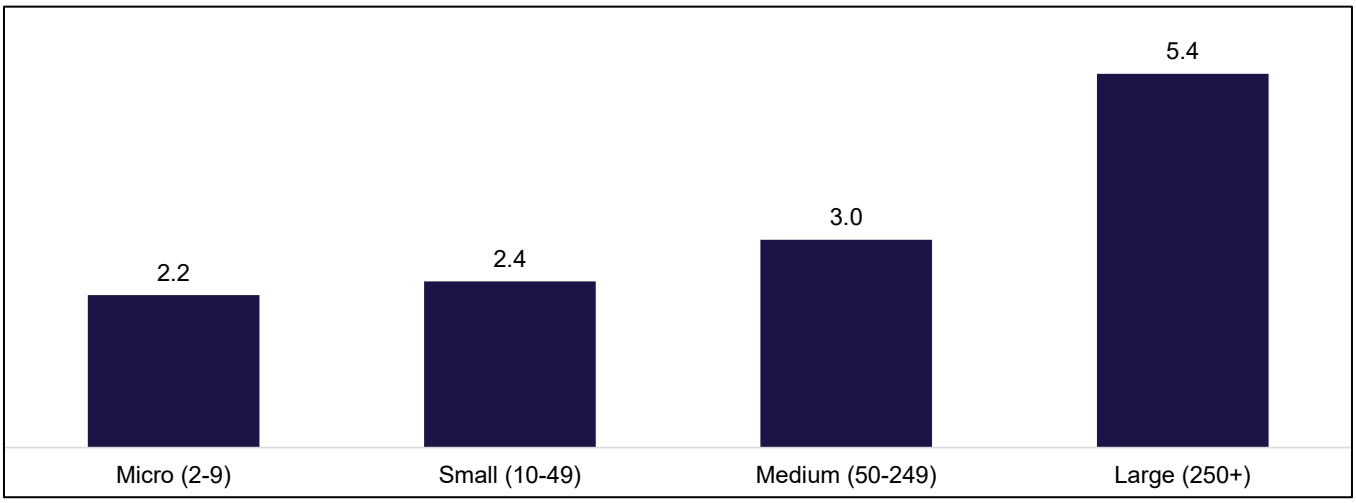
Source: Energy Efficiency Survey. C10: Over the past five years, has your business done anything to improve your energy efficiency? If so, what have you done? – Energy audit, Base: All manufacturers: Micro (n=340), Small (n=488), Medium (n=210), Large (n=76) *Indicates sub-groups are statistically higher or lower than total (5%).

Of those who had an audit, the vast majority (86%) used an external consultant rather than internal specialists (17%) or online tools (5%).

Investments

Manufacturers made investment decisions two years into the future, on average. As shown by Figure 28, while there was little difference in this timeframe between micro and small manufacturers, whereas large manufacturers' timeframes for investment decisions were typically double that of the average (5.4 years).

Figure 28. Average number of years into the future investment decisions are made, by size



Source: Energy Efficiency Survey. C14a: We'd now like you to think about what your business could do to improve your energy efficiency in the future. Thinking about your business plan, how many years into the future are investment decisions made? – Average number of years, Base: All manufacturers: Micro (n=340), Small (n=488), Medium (n=210), Large (n=76) Please note, manufacturers who answered 'Less than 1 year' were treated as 0.5 years when calculating the averages.

A large proportion (28%) of manufacturers made investment decisions less than one year in the future. As might be expected, this was highest for small manufacturers (31%) and lowest for larger manufacturers (9%).

It is also worth noting that over one in five (22%) manufacturers did not know how far into the future investment decisions are made, whilst a further 8% preferred not to answer.

Untapped potential of energy efficiency

Manufacturers were asked to estimate where they could make improvements to maximise their industrial sites' energy efficiency, how much these improvements would cost, and how much this would reduce their energy usage. These estimations were made whilst ignoring financial and business constraints, and assuming that they had the sufficient expertise and funds.

The purpose of this was to understand the scale of untapped potential to improve energy efficiency. As such, this is a relatively experimental section and findings should be interpreted with caution. Other BEIS publications also provide estimates for such improvements.

Potential improvements to industrial sites

Manufacturers were presented with a list of potential improvements they could make to maximise their sites' energy efficiency. They were then asked - for each - whether this would improve energy efficiency, whether no further improvements could be made, or whether it was not applicable to their business.

The most common improvement that could be made was to invest in building improvements, which was feasible for over half (54%) of manufacturers. One in four (25%) could not make any further improvements, whereas one in six (15%) said investing in building improvements was not applicable to their business. Interestingly, manufacturers who owned their buildings were more likely than those who rented to have said that no further improvements could be made by investing in building improvements (37% compared with 18%).

Whilst two fifths (40%) of manufacturers could improve their industrial sites' energy efficiency by implementing behavioural and cultural changes, a similar proportion of manufacturers (37%) claimed that no further improvements could be made this way. This was the highest proportion for any of the improvements. Micro manufacturers were largely driving this, with 41% having stated that they could not improve energy efficiency through implementing behavioural and cultural changes, compared to 30% who could.

The ability to make these improvements to maximise industrial sites' energy efficiency differs by the size of manufacturer. As shown in Table 7, for all of the improvements, the larger the manufacturer the more likely they were to state that they were able to make the improvement. The improvements were more likely to be considered not applicable to smaller businesses. It is unclear whether this is because smaller businesses do indeed have fewer improvements applicable to their business, or whether smaller businesses are just less aware of the improvements that are applicable to their business (for example, they are less likely to undertake energy efficiency audits).

Table 6. Improvements that can be made to maximise industrial sites' energy efficiency, by size

Type of EE improvement	Micro (2-9)	Small (10-49)	Medium (50-249)	Large (250+)
Investing in building improvements	51%*	57%*	65%*	66%*
Heat-supply and other heat-related improvements	36%	45%*	58%*	66%*
Replacing industrial equipment	31%*	51%*	73%*	89%*
Behavioural and cultural changes in the business	30%*	57%*	70%*	87%*
Control and monitoring systems for energy usage	27%*	52%*	72%*	86%*
Making improvements	15%*	30%*	55%*	78%*

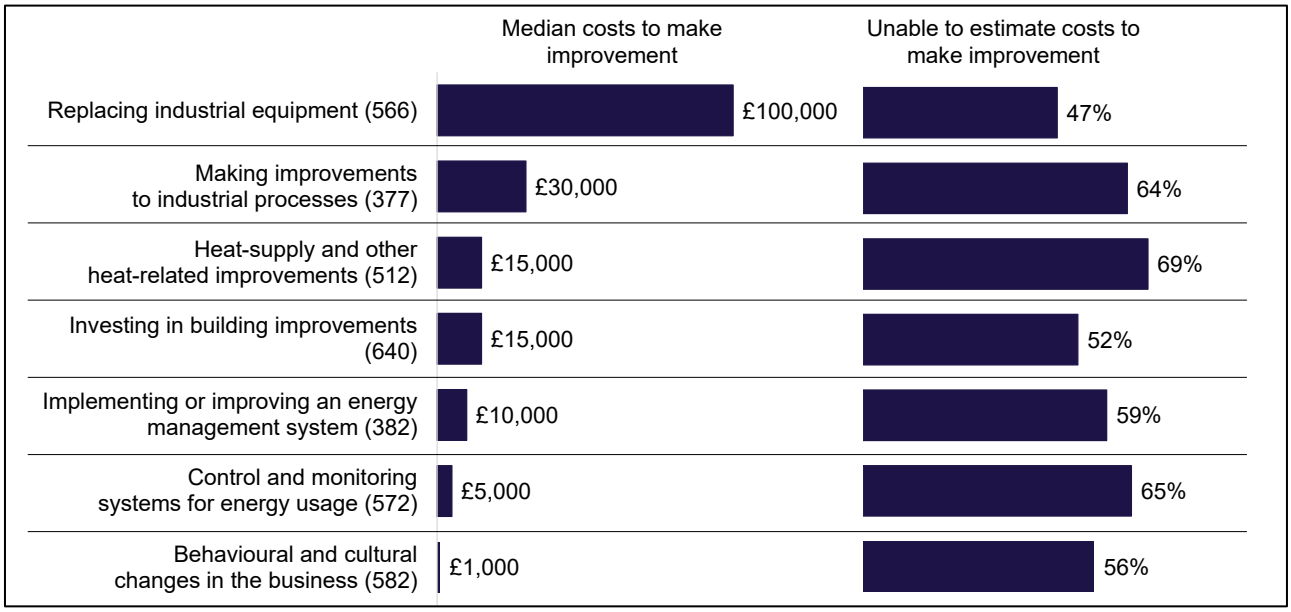
Type of EE improvement	Micro (2-9)	Small (10-49)	Medium (50-249)	Large (250+)
to industrial processes				
Implementing or improving an energy management system	14%*	35%*	52%*	64%*

Source: Energy Efficiency Survey. C14loop: Ignoring all financial and business constraints, where could you make further improvements to maximise your industrial sites' energy efficiency by 2030? Please tick all those that are relevant to your industrial sites and where you feel that you have not already optimised your energy efficiency. - This would further improve our industrial sites' energy efficiency (ignoring financial constraints) Base: All manufacturers: Micro (n=340), Small (n=488), Medium (n=210), Large (n=76) *Indicates sub-group is statistically higher or lower than all manufacturers.

Estimated costs of potential improvements

Figure 29 shows the median estimated costs for most improvements was £20,000 or below, with the exception of replacing industrial equipment (which rose to £100,000). The most common improvement that could be made was investing in building developments, applicable to half (50%) of manufacturers. The median expected cost for making these changes was £10,000, placing it in the middle of the potential changes in terms of cost of implementation.

Figure 29. Estimated median costs to implement improvements (£)



Source: Energy Efficiency Survey. C15: If you had sufficient expertise and funding to maximise your energy efficiency by making all of the changes that you've just suggested, roughly how much do you think it would cost (in capital) for all your industrial sites? If you are unsure, please provide a best estimate. – Median Base: Manufacturers who can make each improvement at C14, varies by improvement (see parentheses)

Estimated reduction in energy usage

If businesses were able to make all the improvements proposed to their industrial sites, they anticipated on average this would result in a 25% reduction in energy usage relative to their 2019 energy use figures[22]. This was consistent across manufacturers of different sizes.

Again, many manufacturers struggled to estimate the reduction in energy usage from the potential improvements. Nearly six in ten (59%) manufacturers who could make at least one improvement to their industrial sites could not provide an estimate for how much the improvements would reduce energy usage. Large manufacturers were more likely to be able to provide an estimate, with only around one in three (35%) not able to.

[22] Manufacturers were asked how confident they were with this estimation. Overall, 55% of manufacturers who could make at least one improvement and were able to provide an estimate of the energy reduction were confident of their estimation (Base: 483)

Barriers to improving energy efficiency

This chapter provides an overall picture of what barriers manufacturers experience in improving their energy efficiency and explores why some manufacturers don't have enough information to improve their energy efficiency or consider it a lower priority.

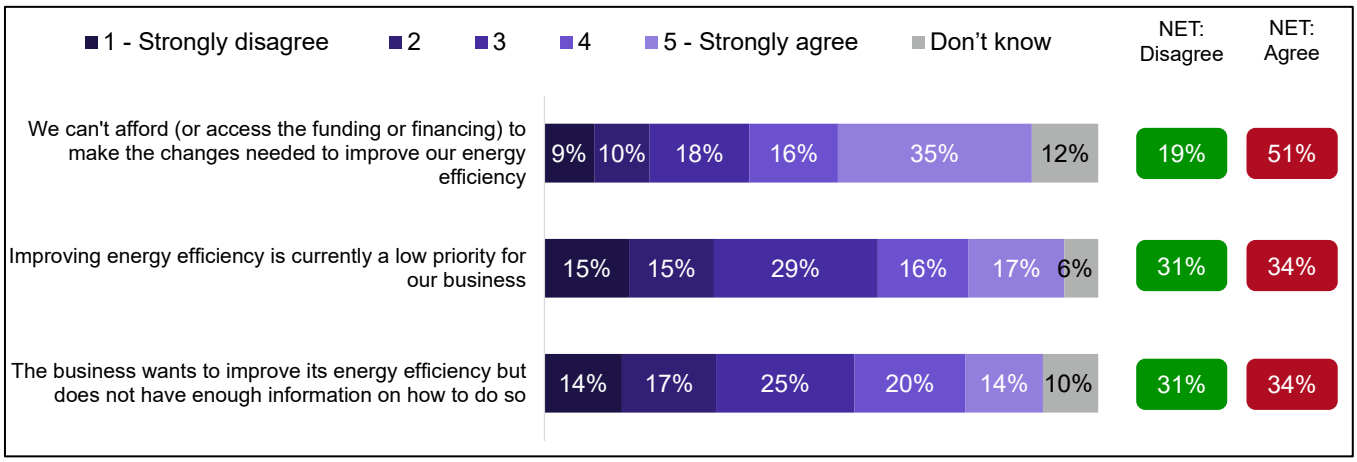
Key barriers to improving energy efficiency

Manufacturers were asked to what extent they agreed or disagreed with the following statements:

- We can't afford (or access the funding or financing) to make the changes needed to improve our energy efficiency
- Improving energy efficiency is currently a low priority for our business
- The business wants to improve its energy efficiency but does not have enough information on how to do so

As shown in Figure 30, half (51%) of all manufacturers agreed that they cannot afford (or access the funding or financing) to make the changes needed to improve their energy efficiency. A fifth (19%) disagreed with this, 12% were not sure and 18% neither agreed nor disagreed. Manufacturers varied more regarding the other barriers, with 34% agreeing that energy efficiency is a low priority for them, and 34% also reporting they do not have the necessary information.

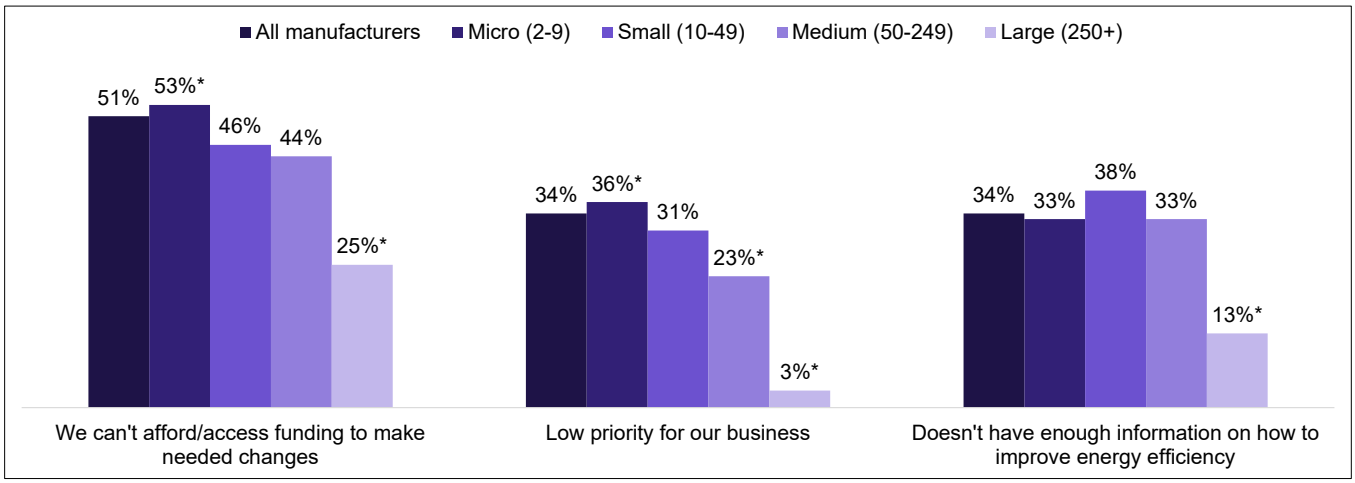
Figure 30. Barriers to energy efficiency



Source: Energy Efficiency Survey. C17: To what extent do you agree with the following statements about improving energy efficiency on your UK industrial sites/site? All Manufacturers (n= 1114)

As shown in Figure 31, for large businesses, the key barrier was not being able to afford (or access sufficient funding or financing) to improve energy efficiency, although fewer considered this a barrier compared to smaller businesses.

Figure 31. Barriers to energy efficiency by manufacturer size (NET: Agree)



Source: Energy Efficiency Survey. C17: To what extent do you agree with the following statements about improving energy efficiency on your UK industrial sites/site? All Manufacturers (n= 1114), Micro (n= 340), Small (n=488), Medium (n=210) and Large (n=76). *Indicates sub-group is statistically higher or lower than all manufacturers.

Differences between manufacturers included:

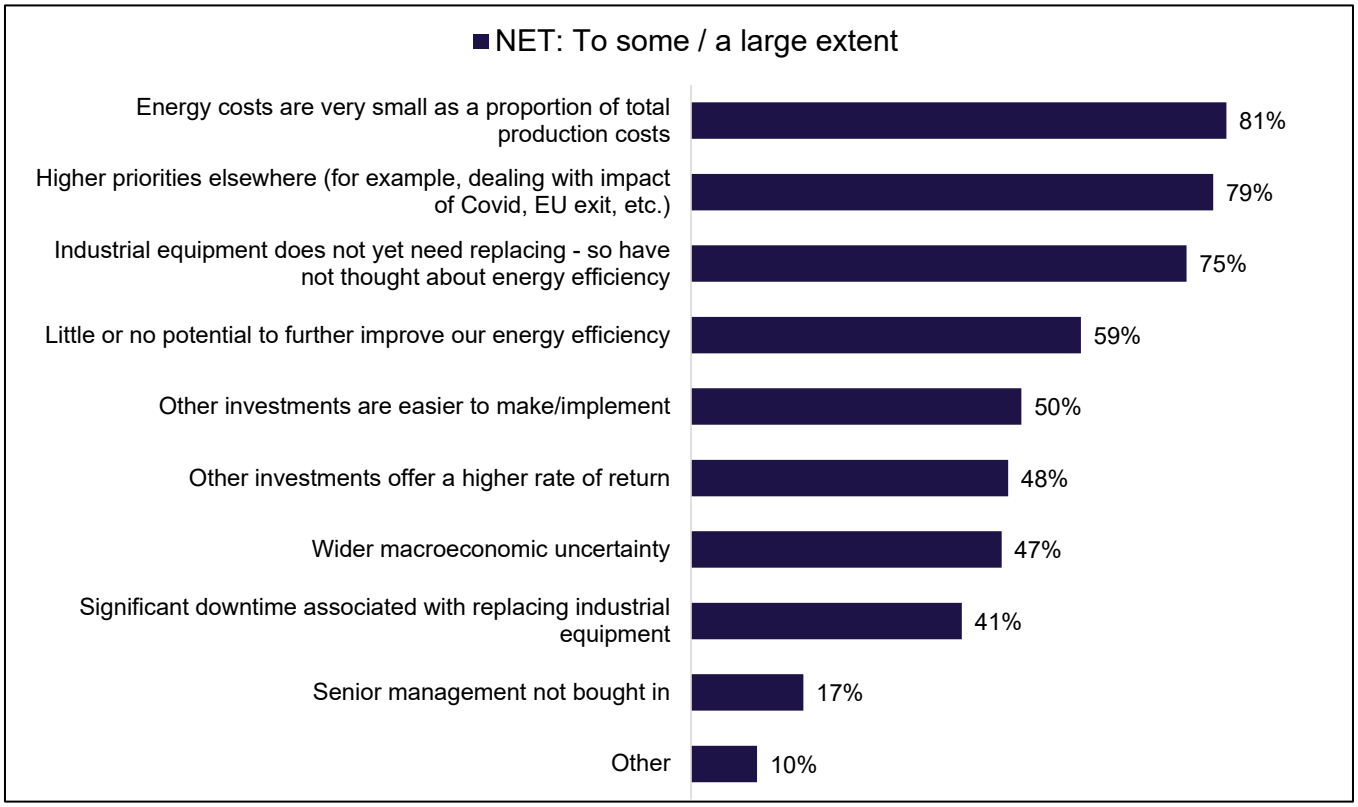
- Manufacturers of electronics (31%) and chemicals (35%) were more likely to disagree that they cannot afford to make the changes needed to improve their energy efficiency.
- 72% percent of energy intensive manufacturers reported that they cannot afford (or access the funding or financing) to make the changes needed to improve their energy efficiency. This compared to 48% of non-energy intensive manufacturers.
- Energy intensive manufacturers were less likely than non-energy intensive manufacturers to agree that improving energy efficiency is currently a low priority for their business (32% vs. 40%). However, they were more likely to agree that they do not have enough information to improve their energy efficiency (43% vs. 34%).

Prioritisation

The survey presented manufacturers with a list of reasons suggestive of why energy efficiency might be a low priority for their business. As shown in Figure 32, a wide range of reasons were applicable, but the most common reason was that energy costs were a small proportion of total production costs (81%). This reason was more common amongst micro (84%) and small (78%) manufacturers compared to medium (67%) manufacturers.

Over three-quarters (79%) reported that they had priorities elsewhere (such as dealing with the impact of Covid-19 and Brexit), or that their industrial equipment does not yet need replacing and therefore energy efficiency is less ‘front of mind’ (75%). Higher priorities elsewhere were a more common factor amongst medium-sized businesses than manufacturers overall (90% vs 79%).

Figure 32. Factors explaining why energy efficiency is a relatively low priority



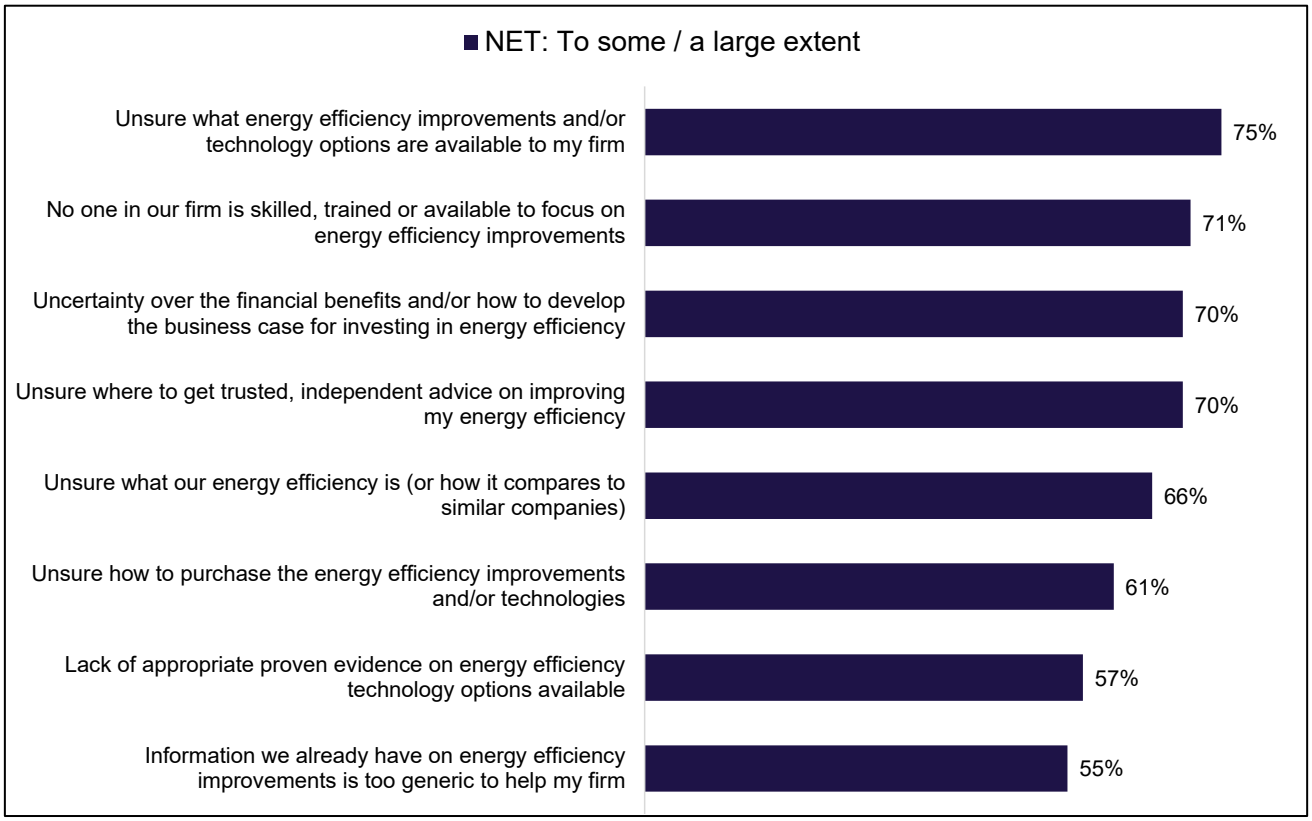
Source: Energy Efficiency Survey. C18: To what extent do each of the following factors explain why energy efficiency is a relatively low priority? (Multiple choice) All who consider energy efficiency to be a low priority (n= 635)

Information and expertise

The survey asked why manufacturers felt that they do not have enough information on how to improve their energy efficiency. As shown in Figure 33, a wide range of reasons were applicable, with over half of all manufacturers selecting each reason.

The most common reason was that manufacturers were unsure what energy efficiency improvements and/or technology options were available to their firm (75%). The second most common reason was not having someone skilled, trained or available to focus on energy efficiency improvements (71%).

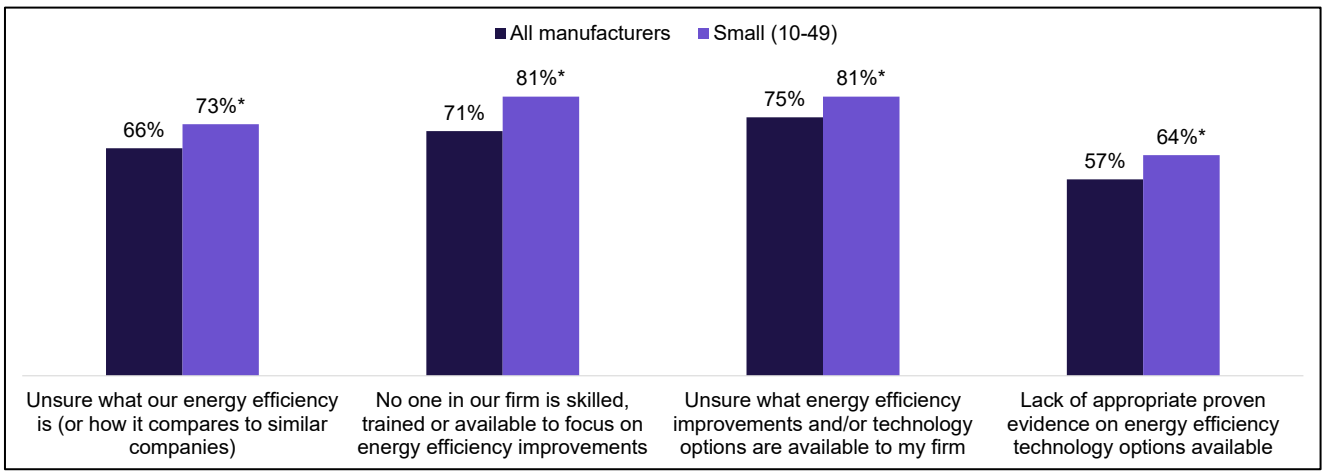
Figure 33. Reasons why manufacturers don't have enough information to improve their energy efficiency



Source: Energy Efficiency Survey. C19: To what extent do each of the following factors explain why you don't have enough information? (Multiple choice) All who consider energy efficiency to be a low priority (n= 642)

Small manufacturers were more likely to think the following were reasons for not having enough information to some / a large extent, compared to manufacturers overall (Figure 34).

Figure 34. Reasons why manufacturers don't have enough information to improve their energy efficiency (All manufacturers verses small)



Source: Energy Efficiency Survey. C19: To what extent do each of the following factors explain why you don't have enough information? (Multiple choice) All who consider energy efficiency to be a low priority (n= 642), Small (n=300). *Indicates sub-group is statistically higher than all manufacturers.

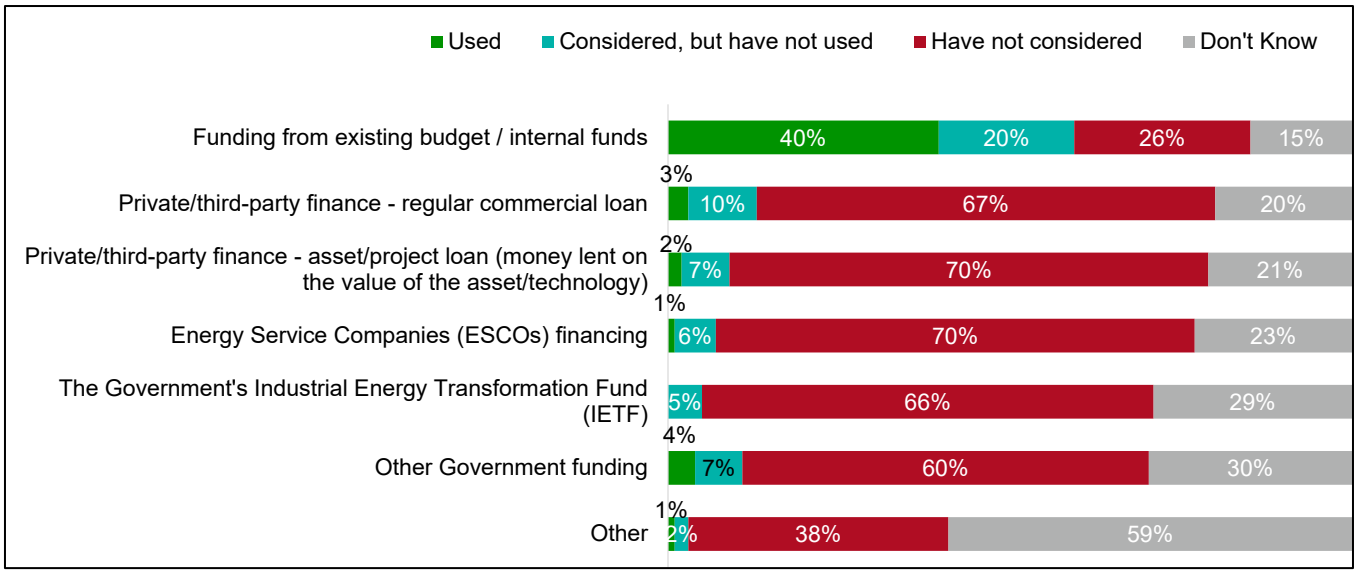
Access to finance

This chapter explore the types of funding that manufacturers have considered or used to improve their energy efficiency, as well as the average payback period for any energy efficiency improvements manufacturers have made to date.

Types of funding used or considered

Two in five manufacturers (40%) have used funding from their existing budget or internal funds to improve energy efficiency – considerably more common than all other funding types. In addition, a fifth (20%) have considered using this type of funding. As shown in Figure 35, all other funding types have been used or considered by less than 13% of manufacturers.

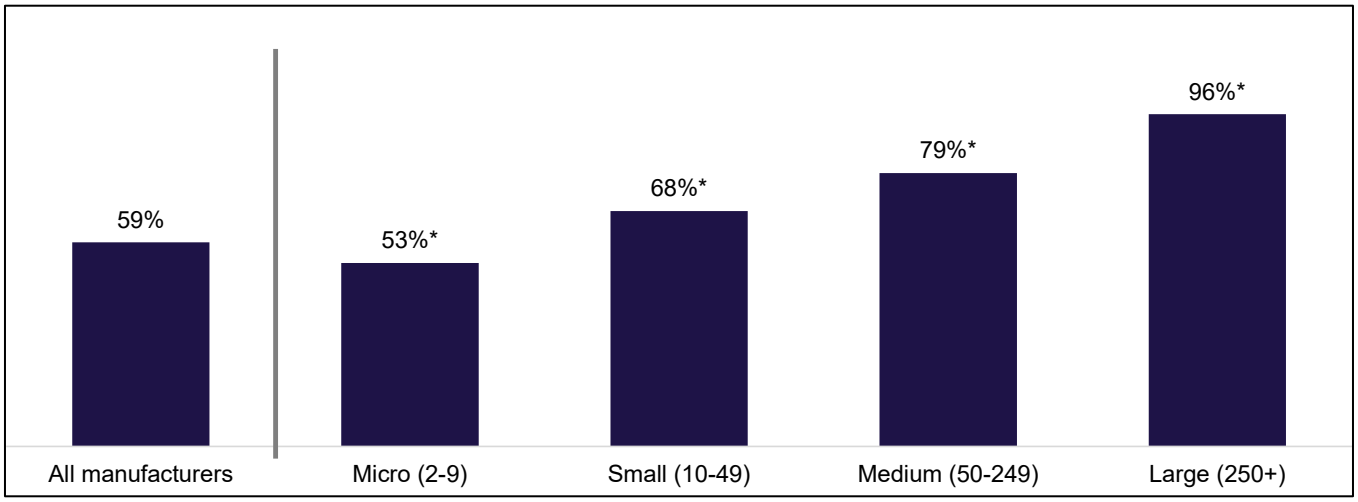
Figure 35. Types of funding used or considered to improve energy efficiency



Source: Energy Efficiency Survey. D1: What type of funding have you used or considered using to improve energy efficiency? All manufacturers (n= 1114)

The size of manufacturer was strongly associated with what funding had been used, considered or not considered. As shown in Figure 36, the larger the manufacturer, the more likely they were to have used or considered using their existing budget or internal funds to improve energy efficiency; a pattern seen across all types of funding.

Figure 36. Proportion who have used or considered using their existing budget or internal funds to improve energy efficiency, by manufacturer size



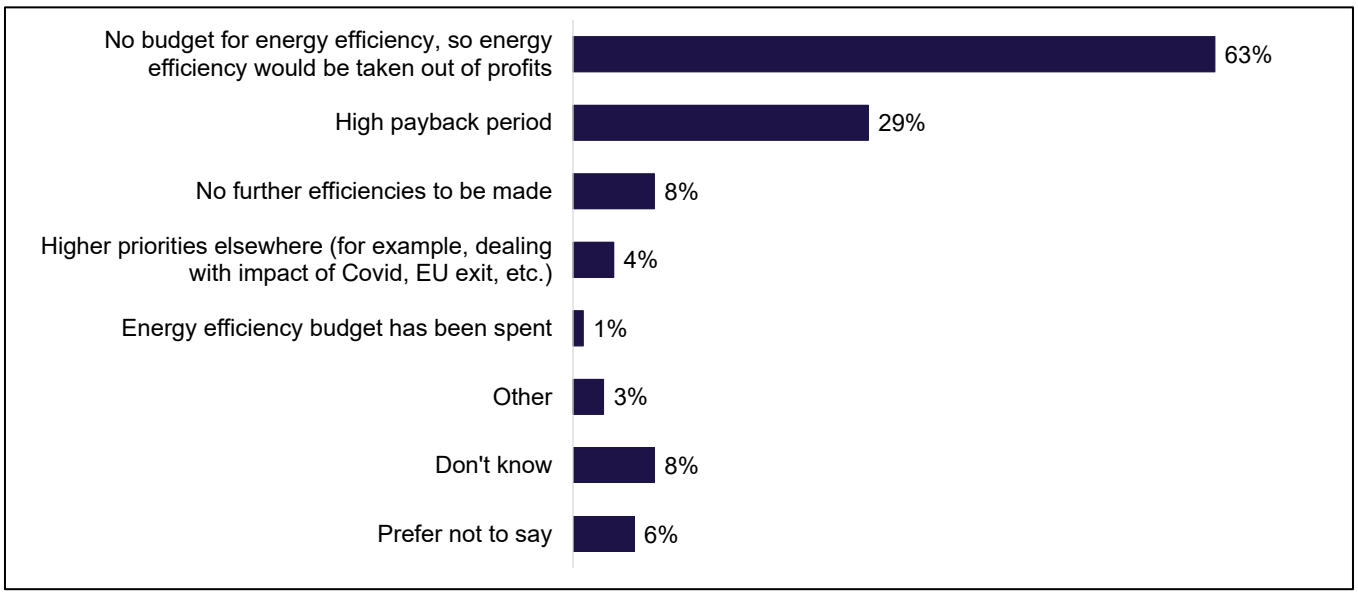
Source: Energy Efficiency Survey. D1: What type of funding have you used or considered using to improve energy efficiency? All Manufacturers (n= 1114), Micro (n= 340), Small (n=488), Medium (n=201) and Large (n=76)
*Indicates sub-group is statistically higher or lower than all manufacturers.

Due to low bases sizes, sub-group differences are not reported in the remainder of this section.

Reasons for considering but not using types of funding

Manufacturers who had considered certain types of funding but not gone on to use them were asked their reasons for this. With regards to using **internal funds,** having no budget for energy efficiency – meaning that investments in energy efficiency would be taken out of profits – was the most common reason given (63%). Three in ten (29%) reported it was because this funding has a high payback period, as shown in Figure 37 .

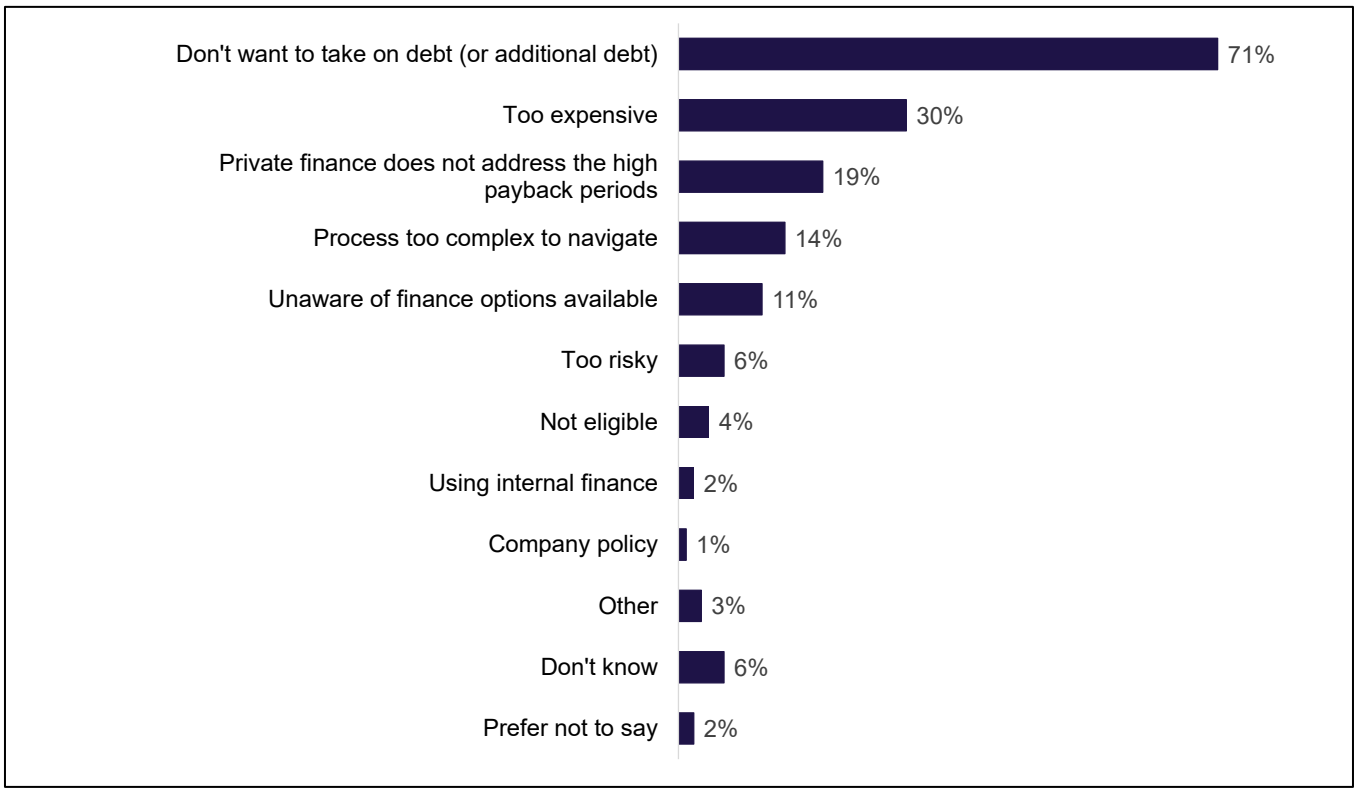
Figure 37. Reasons for considering but not using internal funds to fund energy efficiency improvements



Source: Energy Efficiency Survey. D2: Why have you considered but not used internal funds to fund energy efficiency improvements? (Multiple choice) All manufacturers who have considered but not used financing from existing budget (n= 197)

As shown in Figure 38, almost three quarters (71%) of manufacturers who have considered but not used **private third party finance** reported this is because they don't want to take on debt or additional debt, whilst a third (30%) thought this option was too expensive.

Figure 38. Reasons for considering but not using private third party finance

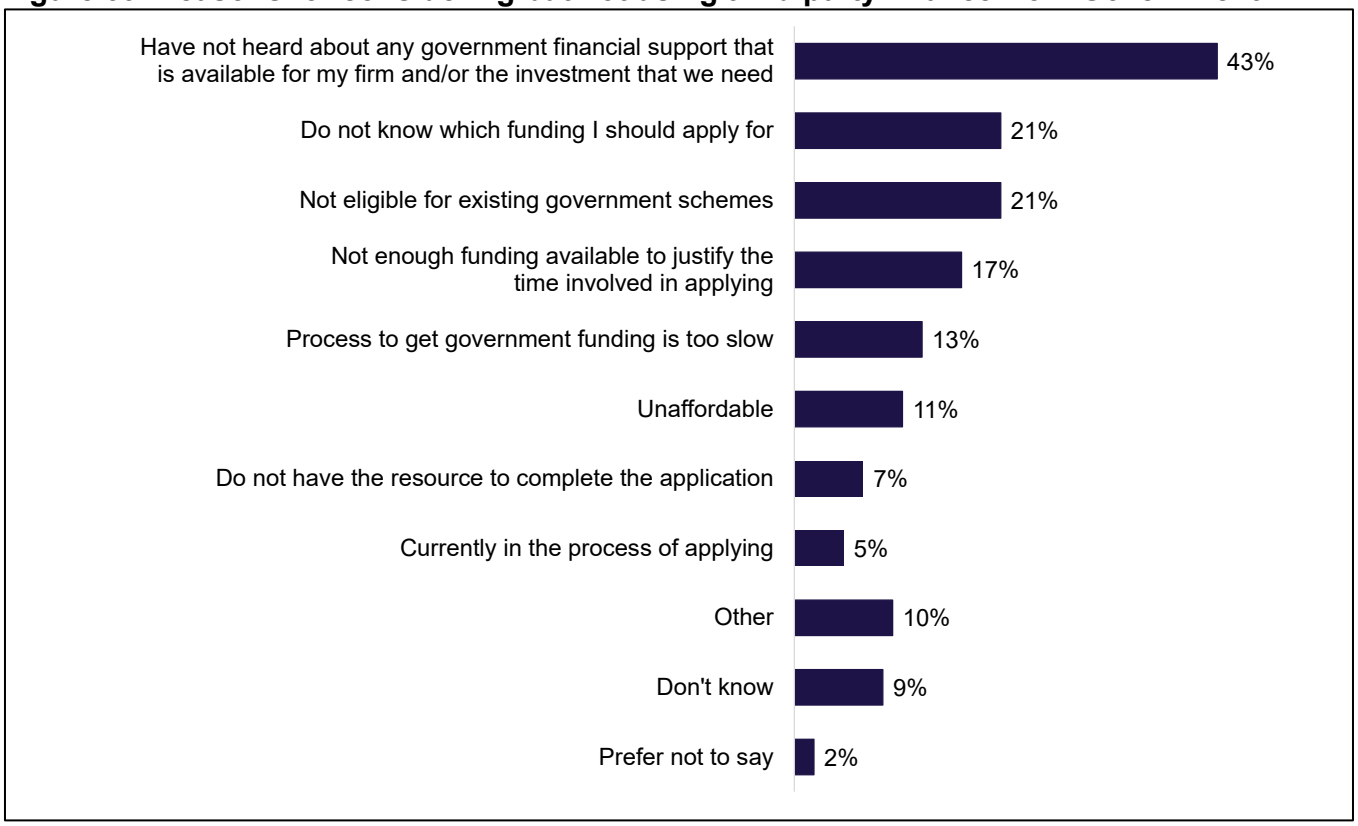


Source: Energy Efficiency Survey. D3: Why have you considered but not used private third-party finance to fund energy efficiency improvements? (Multiple choice) All manufacturers who have considered but not used private third party finance (n=176)

Reasons for considering but not using **third party finance from Government** were a little more varied, although "not having heard about government financial support that is available for their firm and/or the investment that they need" was the most common reason amongst manufacturers (43%).

A fifth (21%) did not know which funding they should apply for, or thought they were not eligible for existing government schemes.

Figure 39. Reasons for considering but not using third party finance from Government

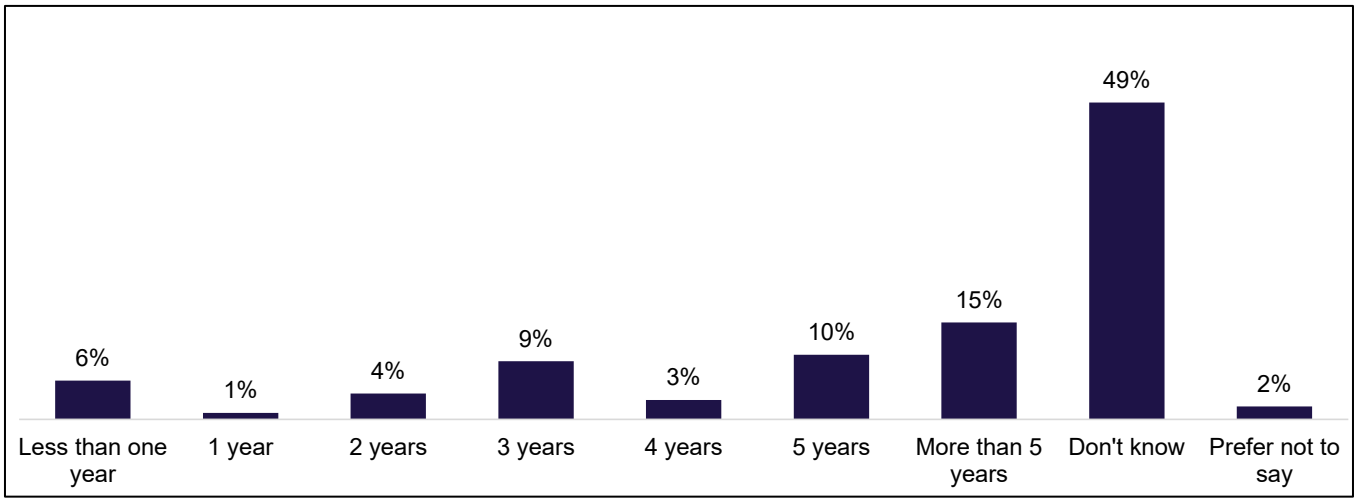


Source: Energy Efficiency Survey. D4: Why have you considered but not used government funding to part-finance or fully finance an investment? (Multiple choice) All manufacturers who have considered but not used third party finance from government (n=142). “Do not know how to complete the application” not selected by any manufacturer.

Payback periods

As shown in Figure 40, half of all manufacturers (52%) who have done something to improve energy efficiency do not know what the average payback period of their investment has been (or will be). Around a quarter, however, reported that the average payback period was five years (9%) or more (15%).

Figure 40. Average payback period for energy efficiency improvements made to date



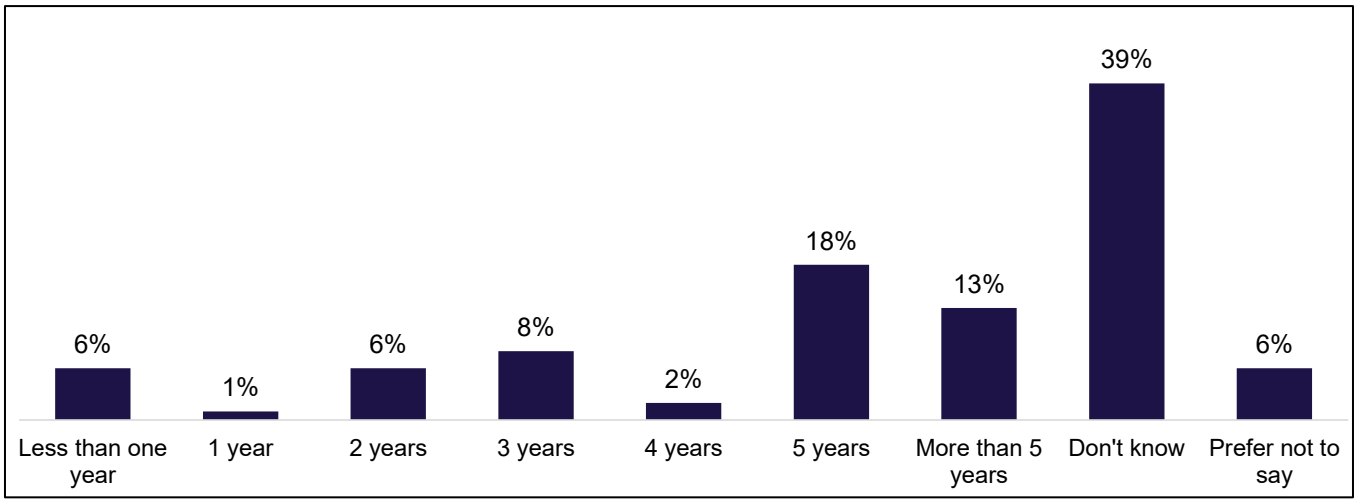
Source: Energy Efficiency Survey. D5: For energy efficiency improvements you have made to date, what has been/will be the average payback period? Manufacturers who have done something to improve energy efficiency (n=828)

Energy intensive manufacturers were more likely to know their average pay back period compared with non-intensive manufacturers (30% selected 'don't' know' vs. 46%).

The median payback period that businesses could accept to invest in a large energy efficiency improvement is five years – with 18% accepting a 5-year payback period, and 13% accepting a payback period of over 5 years. The smaller the manufacturer, the more likely the business did not know what payback period they could accept (43% for micro businesses compared to 35% of small, 23% or medium and 15% of large).

Large manufacturers were more likely than all other manufacturers to be comfortable accepting a payback period of over 5 years (25% vs. 13%).

Figure 41. Maximum payback period businesses could accept to invest in a large energy efficiency improvement



Source: Energy Efficiency Survey. D6: What is the maximum payback period your business could accept to invest in a large energy efficiency improvement? All manufacturers (n=1114)

Conclusions

This research has unearthed a wealth of evidence pointing towards the behaviours and attitudes of businesses of all different sizes and subsectors within the manufacturing industry.

The lack of monitoring and reporting of energy usage and efficiency is one of the key themes emerging from the survey. Half of all manufacturers do not monitor their energy usage or efficiency, and this is even lower amongst smaller manufacturers. Similarly, the survey shows the lack of knowledge businesses have regarding their energy costs and how this compares to their total costs.

The lack of awareness, knowledge and monitoring of energy usage is important given that the survey also showed that meter and energy bills are one of the biggest drivers for those who have made energy efficiency improvements in the past five years. It suggests that if more manufacturers were aware of their energy usage, its costs, and how this compares to others, they would have more impetus to make associated efficiency measures. That said, for many, energy efficiency improvements are not prioritised as they represent only a small proportion of their overall costs.

Larger manufacturers have access to a lot more information regarding energy usage and efficiency, compared to their smaller counterparts. This information is primarily via external consultants and online tools, rather than Government or peer-to-peer networks. Smaller businesses would likely benefit from more accessible and tailored information supporting steps to energy efficiency improvements.

The survey also found that Corporate Social Responsibility and pressure to do something about climate change were influences on taking action to improve energy efficiency – but only to a noticeable extent amongst large businesses. Overall, compliance with government schemes is not a current driver for energy efficiency changes.

Encouragingly, the survey showed that despite a lack of information and monitoring, the majority of manufacturers have done something to improve their energy efficiency. This illustrates that changes are possible and there is some appetite amongst the sector. However, the most common changes made were investing in building improvement and helps to explain why changes were primarily made amongst those who own their own building. It suggests businesses that rent their premises may require more support to improve their energy efficiency.

The survey highlights that costs are viewed as the most significant barrier to making energy efficiency improvements in this sector. Very few manufacturers have used, or more importantly considered, any other types of finance other than internal funds. Most reported not having heard about Government funding, or not knowing which to apply for, highlighting the need to improve awareness and understanding of this vital support and reiterating that competing priorities and lack of information are also significant barriers in this sector.

Appendix A

[Contact]
[Company]
[Company2]
[Address line 1]
[Address line 2]
[Address line 3]
[Address line 4]
[Address line 5]
[Postcode]
[Date]

Help us understand your journey towards energy efficiency

Dear [Contact],

The Department for Business, Energy and Industrial Strategy (BEIS) would like to hear about your experiences of, and attitudes towards, energy efficiency. We are therefore writing to invite you to **take part in a short online survey.**

By taking the time to participate in this study, you will help BEIS understand more about the manufacturing sector's approach to their energy usage and energy efficiency; the barriers faced in trying to improve energy efficiency; and the ways that BEIS could support you to become more energy efficient. **Even if energy efficiency is less of a priority at the moment, your views are just as valuable to us.** This information will be vital for shaping future policies that will take the industrial sector further down the path towards Net Zero.

We appreciate that the past eighteen months have been incredibly challenging and that businesses are facing increased pressures, but taking part will ensure the results accurately reflect the views of your industry.

The best person to complete this survey is likely to be the [if size (1-49)]: owner/founder/managing director [if size (50+)]: Environment/Energy/Facilities Manager] or a member of staff with responsibility for, or understanding of, energy usage in your company; if this is not you, please pass this letter on to the most appropriate individual.

Please complete the survey by navigating to the link below and entering the unique access code:

Website: www.iffresearch.com/energysurvey
Access code: [ID]

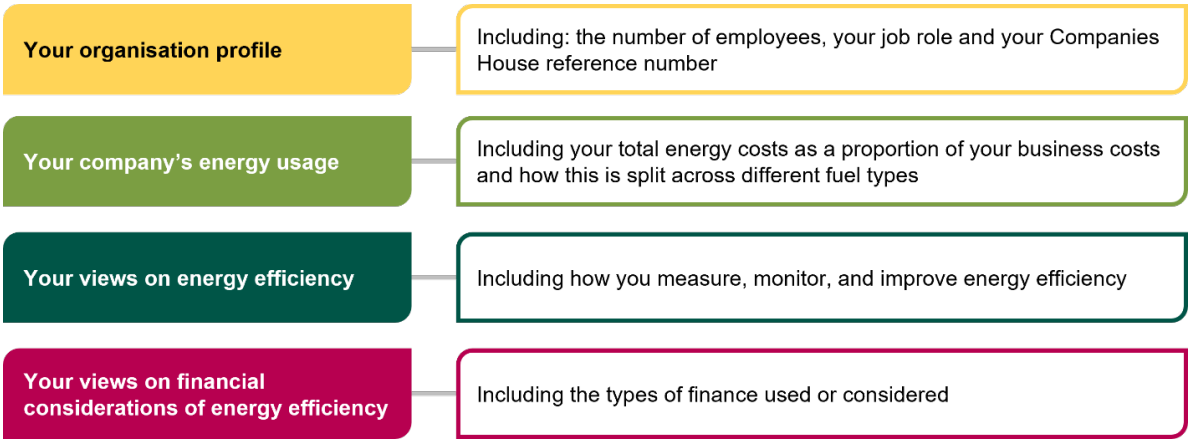
You have until 27th September 2021 to complete the survey. Depending on your answers, it should take about 20 minutes to complete and you can pause the survey and return to it if needed. In order to maximise the number who share their views, we will be calling businesses who do not complete online to support them or offer them the chance to complete via telephone.

Yours faithfully,

Vivienne Geard, Head of Carbon, Hydrogen & Industry Analysis, Department for Business, Energy & Industrial Strategy

What will be asked

You may find it helpful to have the below information to hand while completing the survey.



Frequently Asked Questions

Is the survey compulsory?
Participation in the study is entirely voluntary, but your views will be vital for helping to shape future policies on energy efficiency.

Do I still need to participate if my business doesn't think about/do anything on energy efficiency?
We're keen to hear from a large variety of different manufacturing firms, including those who do not currently do anything on energy efficiency. We therefore still value your company's input.

How do I complete the survey?
Type the link provided in the green box overleaf into your internet browser and enter in your unique access code (shown in the green box overleaf). You will then be directed to the start of the survey.

Who are IFF Research?
We have commissioned IFF Research, an independent research agency, to carry out this research on our behalf.

Can I complete over the phone?
The survey is being hosted online and is designed to be easy to complete, but we do offer a chance for businesses to complete via telephone if they are experiencing any difficulty completing online.

Who do I contact if I need support?
If you have any issues or queries about completing the survey, please email IFF Research at **IFFMailbox_EnergyManufacturing@iffresearch.com** or phone **0808 169 9380**, or email BEIS at **industrialenergy.survey@beis.gov.uk**

Will my data be kept confidential?
Yes, the findings are strictly confidential. The research is being conducted strictly in accordance with the Market Research Society Code of Conduct, and any information you provide will be handled securely in line with the UK Data Protection Act and the EU General Data Protection Regulation (GDPR). Unless express permission is given by you, your name and contact details will be deleted 12 months after completion of this project. You have a right to have a copy of your data, change your data, or withdraw from the research at any point. If you'd like to do this, please visit our website at: www.iffresearch.com/gdpr

Appendix B

[if size (50+)]: FAO: Environment/Energy/Facilities Manager
[Contact]
[Company]
[Company2]
[Address line 1]
[Address line 2]
[Address line 3]
[Address line 4]
[Address line 5]
[Postcode]
[Date]

Return Address

IFF Research
5th Floor, St Magnus House
3 Lower Thames Street
London
EC3R 6HD

Energy Efficiency Survey for Manufacturing Businesses

A reminder to complete the survey before Tuesday, 28th of September

The Department for Business, Energy and Industrial Strategy (BEIS) would like to hear about your experiences of, and attitudes towards, energy efficiency. This survey is vital for shaping future policies that will help the industrial sector progress towards Net Zero.

Even if energy efficiency is less of a priority at the moment, your views are just as valuable to us.

To complete the survey:

1. Type www.iffresearch.com/energysurvey in the address bar of your internet browser
2. Enter your unique access code: [ID]

For more information, please refer to the letter we sent you previously.

If you have already completed the survey, please accept our sincere thanks.

IFFMailbox_EnergyManufacturing@iffresearch.com

0808 169 9380

IFF Research

Department for Business, Energy & Industrial Strategy

Appendix C

Subject Line: Only a few days left to influence the way that Government supports your industry to decarbonise.

Dear [Contact],

There is still time to take part in the energy efficiency survey being conducted for the Department for Business, Energy and Industrial Strategy (BEIS). **However, the survey will close on Monday 15th November.**

Join over 1,000 businesses who have already provided their experiences of, and attitudes towards, energy efficiency.

Click the link below and enter your unique access code:

Click here to complete the survey
Access code: [ID]

Why complete this survey?

- This information will be vital for shaping future policies that will take the industrial sector further down the path towards Net Zero. **Even if energy efficiency is less of a priority, your views are just as valuable to us.**
- By completing this survey, you will also help BEIS understand how to help you to become more energy efficient.

The best person to complete this survey is a member of staff with responsibility for, or understanding of, energy usage in your company. Depending on your answers, it will take around 20 minutes to complete the survey. You can pause and return to it if needed.

If you have any issues or queries about completing the survey, please email IFF Research at IFFMailbox_EnergyManufacturing@iffresearch.com or phone **0808 169 9380**, or email BEIS at **industrialenergy.survey@beis.gov.uk**.

We look forward to receiving your feedback.

Kind regards,

Nicola Wildash,

Senior Research Manager, IFF Research

Appendix D

ORGANISATION PROFILE

ask all

A1A. I'd firstly like to check which specific industry your business belongs to. Our records show that you are in the [INSERT TEXT SIC FROM SAMPLE]. Is this correct?

Yes	1	
No	2	
Not sure	3	

IF SIC CODE ON SAMPLE NOT CORRECT (A1A = 2,3)

DS: AUOPOPULATE IF A1A=1

A1B. Which of the following standard industrial classifications best describes your business?

05: Mining of coal and lignite	1	
06: Extraction of crude petroleum and natural gas	32	
07: Mining of metal ores	2	
08: Other mining and quarrying	3	
09: Mining support service activities	4	
10: Manufacture of food products	5	
11: Manufacture of beverages	6	
12: Manufacture of tobacco products	7	
13: Manufacture of textiles	8	
14: Manufacture of wearing apparel	9	
15: Manufacture of leather and related products	10	
16: Manufacture of wood and of products of wood and cork; except furniture; manufacture of articles of straw and plaiting materials	11	

17 : Manufacture of paper and paper products	12	
18 : Printing and reproduction of recorded media	13	
19 : Manufacture of coke and refined petroleum products	14	
20 : Manufacture of chemicals and chemical products	15	
21 : Manufacture of basic pharmaceutical products and pharmaceutical preparations	16	
22 : Manufacture of rubber and plastic products	17	
23.1,3-4 : Manufacture of glass and ceramics	18	
23.2, 5-9: Manufacture of other non-metallic minerals including cement	19	
24.1-3 : Manufacture of iron and steel	20	
24.4-5: Manufacture of non-ferrous metals	21	
25 : Manufacture of fabricated metal products; except machinery and equipment	22	
26 : Manufacture of computer; electronic and optical products	23	
27 : Manufacture of electrical equipment	24	
28 : Manufacture of machinery and equipment n.e.c.	25	
29 : Manufacture of motor vehicles; trailers and semi-trailers	26	
30 : Manufacture of other transport equipment	27	
31 : Manufacture of furniture	28	
32 : Other manufacturing	29	
33 : Repair and installation of machinery and equipment	30	
None of the above - my company is not in the manufacturing sector	31	GO TO A1BCHECK

IF A1B=31

A1BCHECK. Is your company involved in any of the following:

Please select all that apply.

MULTICODE 1-3

Manufacture of products or materials	1	
Repair or installation of machinery or equipment	2	
Mining or extraction of raw materials	3	
None of the above	4	EXCLUSIVE. SCREEN OUT

A1BCHECK Screen out text: Unfortunately this particular survey is only suitable for businesses in the manufacturing sector. Thank you for your time. If you have any queries please email IFFMailbox_EnergyManufacturing@iffresearch.com

A1DUM SECTOR DUMMY VARIABLE, DO NOT ASK

Food and Drink (inc. tobacco)	1	A1B = 5-7
Paper	2	A1B = 12
Refining	3	A1B = 14
Chemicals	4	A1B=15
Rubber and Plastic	5	A1B=17
Glass and Ceramics	6	A1B= 18
Non-metallic minerals inc. cement	7	A1B=19
Iron and Steel	8	A1B=20
Non-ferrous metals	9	A1B= 21
Metal Products and Machinery	10	A1B = 22 OR 25
Vehicles	11	A1B = 26 OR 27
Electronics	12	A1B = 23 OR 24
Other Industry	13	ELSE

Ask all

What is the size of your business in the UK – in terms of number of employees?

Please include both full-time and part-time employees on your payroll and any working proprietors or owners, but exclude outside contractors or agency staff.

read out. single code

No employees	1	
Micro (1-9 employees)	2	
Small (10-49 employees)	3	
Medium (50-249 employees)	4	
Large (250-999 employees)	5	
Very large (1,000+ employees)	6	
DO NOT READ OUT Don’t know	7	
DO NOT READ OUT Refused	8	

ASK ALL

Roughly how long has your business been trading?

IF NECESSARY: DID THE BUSINESS START TRADING BEFORE 2019?

Less than 2 years	1	
2 – 4 years	2	
5 – 9 years	3	
10 – 19 years	4	
20 + years	5	
Unsure – but started trading before 2019	6	

Don’t know	7	

ask all

What is the most appropriate description of your role in the business?

read out. single code

Owner/founder/Managing Director	1	
Senior executive (for example, company director or board member)	2	
Engineer	3	
Procurement manager / officer	4	
Environment manager / officer	5	
Environmental compliance manager / officer	6	
CSR officer manager / officer	7	
Sustainability manager / officer	8	
Energy manager / officer	9	
Facilities manager / officer	10	
Other (please specify)	11	
DO NOT READ OUT: Refused	13	

ask all

How many industrial sites does your business operate in the UK?

An industrial site is defined as a facility or site housing an industrial process(es) – for example, chemicals, animal by-products, mining or quarrying.

If your company operates from one single premises, please enter 1 below.

ENTER NUMBER

WRITE IN. MINIMUM 1.		
DO NOT READ OUT Don't know	1	
DO NOT READ OUT Refused	2	

ENERGY USAGE

Ask all

The next section of this survey is focused on your business's energy usage. Even if your energy usage is low, your responses to these questions are just as valuable to us. If you are unsure of the answers to any questions, please provide a best estimate.

Ask all TRADING IN 2019 (A3=2-7)

B1A. We'd like to start by asking you about your energy costs in a typical year of operation (i.e. before the Covid-19 pandemic) to gain some context of the importance of energy to your business.

In 2019, roughly how much were your business's total energy costs?

Please answer as a monetary value (£). If you are unsure, please provide a best estimate.

WRITE IN		
DO NOT READ OUT Don't know	1	
DO NOT READ OUT Refused	2	

Ask all TRADING IN 2019 (a3=2-7)

B1B. What is this as a percentage of your business's total costs? If you are unsure, please provide a best estimate.

Enter percentage from 0-100

WRITE IN %		
DO NOT READ OUT Don't know	1	
DO NOT READ OUT Refused	2	

Ask all TRADING less than 2 years (A3=1)

B1C. We'd now like to focus on your business's energy usage. In 2020, roughly how much were your business's total energy costs?

Please answer as a monetary value (£). If you are unsure, please provide a best estimate.

WRITE IN		
DO NOT READ OUT Have been trading for less than a year	1	
DO NOT READ OUT Don't know	2	
DO NOT READ OUT Refused	3	

Ask all TRADING less than 2 years (A3=1)

B1D. What is this as a percentage of your business's total costs? If you are unsure, please provide a best estimate.

Enter percentage from 0-100

WRITE IN %		
DO NOT READ OUT Have been trading for less than a year	1	
DO NOT READ OUT Don't know	2	
DO NOT READ OUT Refused	3	

Ask all

B2A. Which of the following fuel types are used by your business? Please tick all that apply.

read out. multi code

Electricity	1
Natural gas	2

Solid fuel	3
Liquid fuel	4
Bioenergy	5
Waste	6
Other (please specify)	7
DO NOT READ OUT: Don’t know	8
DO NOT READ OUT: Refused	9

IF MORE THAN ONE FUEL TYPE SELECTED AT B2A

B2B. I’d like you to think about how your total energy bill divided up across these fuel types in [IF TRADING IN 2019 (A3=2-7) 2019] [IF NOT TRADING IN 2019 (A3=1) 2020]. Roughly what proportion of your total energy bill [IF MORE THAN ONE SITE A5>1) across all your UK sites] did each of the following fuel types account for? If you are unsure, please provide a best estimate.

enter % for each fuel type. must add up to 100% UNLESS DON’T KNOW SELECTED. [DISPLAY ROWS SELECTED AT B2A]

	Enter %	Don't Know
Electricity		1
Natural gas		1
Solid fuel		1
Liquid fuel		1
Bioenergy		1
Waste		1
Other (please specify)		1

Ask all

B3. What type of meter do you [IF MORE THAN 1 SITE (A5 > 1) mostly use at your industrial sites?] [IF ONLY HAS 1 SITE (A5 = 1) use at your industrial site?]

IF NECESSARY, READ OUT FOLLOWING DEFINITIONS:

read out. multicode each row. only show rows selected at b2a

	For electricity	For gas	For other fuels
Basic meter [These meters need to be read at the site of the meter, and are used by the utility company for billing purposes. These meters are very basic and are similar to those used in domestic buildings. They can have digital displays.]			
Automatic meter reading (AMR) or ‘advanced’ meter [AMR or advanced meters provide a company with the ability to read a meter remotely, automatically and at frequent intervals. For example, meter readings could be displayed real-time on a control panel/control room, providing much more accurate and ‘up to date’ energy usage data (than available through monthly or quarterly bills). This type of meter also reduces the need for manual readings and provides access to the information via internet ‘portals’, for example]			
Smart meter [A 'smart' meter allows meter readings to be displayed off-site (for example, to a utility company or aggregator) on a frequent basis (e.g. half-hourly). A ‘smart’ meter may also allow the utility company to both remotely read and instruct the meter and therefore allows a number of additional operations such as updating the metering tariff.]			
DO NO READ OUT Don’t know			
DO NOT READ OUT None of these			
DO NOT READ OUT Refused			

ASK IF MORE THAN 1 SITE (A5 > 1 OR A5 = DK OR REFUSED)

B4A. Do you have energy sub-meters on your industrial sites? Sub-meters measure the energy use of specific processes, equipment or site areas.

read out. SINGLE code

Yes – all of our industrial sites have sub-meters	1	
Yes – most of our industrial sites have sub-meters	2	
Yes – some of our industrial sites have sub-meters	3	
No – none of our industrial sites have sub-meters	4	
DO NOT READ OUT Don't know	5	
DO NOT READ OUT Refused	7	

ASK IF ONLY HAS 1 SITE (A5 = 1)

B4B. Do you have energy sub-meter(s) on your industrial site? Sub-meters measure the energy use of specific processes, equipment or site areas.

read out. SINGLE code

Yes	1	
No	2	
DO NO READ OUT Don't know	3	
DO NO READ OUT Refused	4	

ENERGY EFFICIENCY

Ask all

C1. The rest of the survey is focused on your business's views on energy efficiency. Even if energy efficiency isn't important to your business – we're still really interested in your responses to the following set of questions.

Ask all

C2. [IF MORE THAN 1 SITE (A5 > 1) Do you have any industrial sites that are] [IF ONLY HAS 1 SITE (A5 = 1) Is your site] currently part of any of the following government schemes, which are linked to energy efficiency? Please tick all that apply.

read out. multi code

Climate Change Agreements (CCAs)	1	
Industrial Heat Recovery Scheme (IHRS)	2	
UK Emissions Trading Scheme (ETS, formerly EU Emissions Trading Scheme)	3	
Energy Intensive Industries (EII) exemption scheme	4	
Energy Intensive Industries (EII) compensation scheme	5	
Industrial Energy Transformation Fund (IETF) funding	6	
Energy Savings Opportunity Scheme (ESOS)	7	
Other (please specify)	8	
DO NOT READ OUT Don't know	9	
DO NOT READ OUT None of these	10	
DO NOT READ OUT Refused	11	

ASK ALL

C3. Does your business typically monitor energy usage and/or energy efficiency at your industrial [IF MORE THAN 1 SITE (A5 > 1) sites] [IF ONLY HAS 1 SITE (A5 = 1) site]?

read out. SINGLE code

Yes – we monitor energy usage (but not energy efficiency)	1	
Yes – we monitor energy usage and energy efficiency	2	
No – we don't tend to monitor either	3	
DO NO READ OUT Don't know	4	
DO NO READ OUT Refused	6	

ask all who monitor their energy usage/efficiency (c3 = 1 OR 2)

C4. Which of the following does your business typically use at your industrial [IF MORE THAN 1 SITE (A5 > 1) sites] [IF ONLY HAS 1 SITE (A5 = 1) site] to monitor energy usage [IF C3 = 2 and/or energy efficiency]? Please tick all that apply.

read out. multi code

Your meter	1	
Energy bills	2	
In-house tracking (e.g. by an energy manager or an engineer)	3	
External energy consultants	4	
Benchmarking – comparing your energy usage with peers or the wider industrial sector	5	
Other (please specify)	6	
DO NO READ OUT Don't know	7	
DO NO READ OUT None of these	8	
DO NO READ OUT Refused	9	

ask all who monitor their energy usage/efficiency (c3 = 1 OR 2)

C5. As well as monitoring your energy usage and/or energy efficiency, does your business regularly report energy usage or energy efficiency from its industrial [IF MORE THAN 1 SITE (A5 > 1) sites] [IF ONLY HAS 1 SITE (A5 = 1) site]?

Reporting may involve analysis, summarising data or findings, or visualising data through charts and graphs. By 'regularly report', we mean at least once per year.

Please select all that apply.

DO NOT READ OUT. multi CODE

Yes – we report on energy usage	1	
Yes – we report on energy efficiency	2	
No – we don't regularly report on either	3	EXCLUSIVE
Don't know	4	EXCLUSIVE

ASK ALL WHERE C5=1 OR 2 (I.E. THEY REPORT):

C6. And for what purpose does your business report energy usage and/or energy efficiency? following? Please tick all that apply.

READ OUT. MULTI CODE

Report for internal use	1	
Report for regulatory compliance (for example, for Streamlined Energy and Carbon Reporting (SECR) or the Energy Savings Opportunity Scheme (ESOS))	2	
Report for supply chain compliance (for example, to corporate customers or SEDEX)	3	
Report through voluntary/corporate social responsibility (for example, an annual sustainability report or a Carbon Disclosure Project (CDP)).	4	
Other (please specify)	5	
DO NOT READ OUT Don't know	6	
DO NOT READ OUT None of these	7	
DO NOT READ OUT Refused	8	

if reports energy usAGe/EFFICIENCY for internal use (C6 = 1)

C7. You mention that your business produces energy usage or energy efficiency reports for internal use. Which of the following fall within the scope of these internal reports? Please tick all that apply.

read out. multi code

Energy usage	1	
Energy efficiency	2	
Benchmarks of historical performance	3	
[IF MORE THAT 1 SITE (A5 > 1)] Benchmarks comparing between sites	4	
Benchmarks comparing to industry peers	5	
Estimates of carbon footprint	6	
Progress of energy efficiency measures being implemented	7	
Return rate (or payback) of current energy-saving investments	8	
Making recommendations for energy efficiency improvements	9	
Other (please specify)	10	
DO NOT READ OUT Don't know	11	
DO NOT READ OUT None of these	12	
DO NOT READ OUT Refused	13	

Ask all

C8. Does your business use any of the following sources to get information or advice on your energy usage and/or energy efficiency? Please tick all that apply.

read out. multi code

Our business doesn't get any information on energy usage and/or energy efficiency	1	EXCLUSIVE
Internal specialists and experts. This may include engineers and/or energy managers.	2	
External Consultants.	3	

Consultants may provide tailored audits and advice on your energy performance and/or energy saving technologies you could invest in.		
Online platforms and tools. Examples are the Carbon Trust or Energy Savings Trust online tools.	4	
Peer-to-peer networks. This could be an informal local business network or a network specific to your industrial process.	5	
Business networks, trade associations or social media not specific to your sector. Examples are: the Energy Managers Association, the British Chambers of Commerce, the Federation of Small Businesses, etc.	6	
Business networks, trade associations, magazines or social media that are specific to your industrial sector. Examples are: the Society of Motor Manufacturers and Traders, the Chemical Industries Association, Farm Machinery magazine, Earthmovers magazine, etc.	7	
Government-related source. Examples are: the Department for Business, Energy and Industrial Strategy (BEIS[23]), your Local Authority, the Environment Agency, etc.	8	

[23] Now the Department of Energy Security and Net Zero (DESNZ)

Local Enterprise Partnership (LEP) and related networks (e.g. Growth Hubs)	9	
Other (please specify)	10	
DO NO READ OUT Don't know	11	
DO NO READ OUT None of these	12	
DO NO READ OUT Refused	13	

if use MORE THAN ONE network/source of information for ee management/decisions (C8 = 2-10 selected >2 time)

C9. Which network or source of information does your business use most?

only show options selected at C8. read out. single code

Internal specialists and experts. This may include engineers and/or energy managers.	2	
External Consultants. Consultants may provide tailored audits and advice on your energy performance and/or energy saving technologies you could invest in.	3	
Online platforms and tools. Examples are the Carbon Trust or Energy Savings Trust online tools.	4	
Peer-to-peer networks. This could be an informal local business network or a network specific to your industrial process.	5	
Business networks, trade associations or social media not specific to your sector.	6	

Examples are: the Energy Managers Association, the British Chambers of Commerce, the Federation of Small Businesses, etc.		
Business networks, trade associations, magazines or social media that are specific to your industrial sector. Examples are: the Society of Motor Manufacturers and Traders, the Chemical Industries Association, Farm Machinery magazine, Earthmovers magazine, etc.	7	
Government-related source. Examples are: the Department for Business, Energy and Industrial Strategy (BEIS[24]), your Local Authority, the Environment Agency, etc.	8	
Local Enterprise Partnership (LEP) and related networks (e.g. Growth Hubs)	9	
Other (please specify)	10	
DO NO READ OUT Don't know	11	ALWAYS SHOW
DO NO READ OUT None of these	12	
DO NO READ OUT Refused	13	ALWAYS SHOW

Ask all

C10. Over the past five years, has your business done anything to improve your energy efficiency? If so, what have you done? Please tick all that apply.

read out. multi code

Have not done anything on energy efficiency	1	EXCLUSIVE
Had an energy audit (for example, to understand our energy usage and/or efficiency, and get recommendations on improvements)	2	

[24] Now the Department of Energy Security and Net Zero (DESNZ)

Hired an energy manager and/or created a sustainability arm of the business	3	
Implemented behavioural and cultural changes in the business (e.g. training employees to turn off machines during down time)	4	
Improved control and monitoring systems	5	
Implemented an energy management system – ISO50001	6	
Implemented an energy management system – Other (for example, ISO140001, or PAS 2050/2060)	7	
Replaced industrial equipment	8	
Made improvements to industrial processes (for example, variable speed drives)	9	
Invested in building improvements (for example, e.g. installation of LED lighting, building fabric improvement)	10	
Heat-supply and other heat-related improvements (e.g. installing combined heat and power (CHP))	11	
Other (please specify)	12	
DO NO READ OUT Don't know	13	
DO NO READ OUT Refused	15	

ASK IF DONE ANYTHING TO IMPROVE ENERGY EFFICIENCY (C10 = 2-12)

C11. Did any of the following influence your decision to make these improvements? Please tick all that apply.

read out. multi code

Your meter and/or your energy bills	1	
In-house expertise (e.g. an energy manager or an engineer)	2	
Compliance with regulations or other government schemes	3	

Corporate social responsibility (or similar) target	4	
An energy audit	5	
External energy consultants	6	
Benchmarking – comparing your energy usage with peers or the wider industrial sector	7	
Pressure or influence from others to do something about climate change	8	
Other (please specify)	9	
DO NO READ OUT Don't know	10	
DO NO READ OUT None of these	11	
DO NO READ OUT Refused	12	

ASK ALL WHO DO NOT HAVE ISO50001 (C10 ≠ 6)

C12. You mentioned that your business does not have ISO50001 (a type of standard that validates a best practice approach to energy management). Why is this? Please tick all that apply.

read out. multi code

READ OUT.

Have not heard of ISO50001	1	
Too expensive for our business to get ISO50001 certification	2	
Too complex and / or burdensome to implement ISO50001	3	
Don't think ISO50001 would help to improve our business's energy efficiency	4	
Have another form of certification or energy management system that is superior to ISO50001	5	
Our customers do not expect or require us to have this	6	
We're in the process of implementing ISO50001 but are not ready for certification	7	

Other (please specify)	8	
Don't know	9	

Ask all WHO HAVE HAD AN ENERGY AUDIT (C10=2 OR C11=5)

C13. You mentioned that your business has had an energy efficiency audit. Who conducted this audit?

read out. MULTI code

Internal specialists and experts. This may include engineers and/or energy managers.	1	
External Consultants. Consultants provide tailored audits and advice on your energy performance and/or energy saving technologies you could invest in.	2	
Used an online tool. Online tools provide information and advice after you have provided some basic information on your energy performance. Examples are the Carbon Trust or Energy Savings Trust online tools.	3	
Other (please specify)	4	
Don't know	5	

Ask all

C14a. We'd now like you to think about what your business could do to improve your energy efficiency in the future.

Thinking about your business plan, how many years into the future are investment decisions made?

ENTER NUMBER OF YEARS

WRITE IN [NUMERIC]		
Less than one year		
DO NOT READ OUT Don't know	1	
DO NOT READ OUT Refused	2	

ASK ALL

C14loop. Ignoring all financial and business constraints, where could you make further improvements to maximise your industrial [if multiple sites [A5>1]: sites'] [if one site [A5=1]: site's] energy efficiency by 2030? Please tick all those that are relevant to your industrial [if multiple sites [A5>1]: sites in the UK] [if one site [A5=1]: site] and where you feel that you have not already optimised your energy efficiency.

read out. SINGLE CODE PER ROW

	This would further improve our industrial sites' energy efficiency (ignoring financial constraints)	No further improvements can be made (already optimised energy efficiency here)	Not applicable to my business	Don't know
Behavioural and cultural changes in the business (e.g. training employees to turn off machines during down time)	1	2	3	4
Control and monitoring systems for energy usage	1	2	3	4
Implementing or improving an energy management system (e.g. designating an energy manager, checking energy use more regularly, reporting energy use to the board, setting targets, creating continuous improvement)	1	2	3	4
Replacing industrial equipment	1	2	3	4

Making improvements to industrial processes (for example, variable speed drives)	1	2	3	4
Investing in building improvements (for example, e.g. installation of LED lighting, building fabric improvement). If you rent, please include what your landlord could do to improve energy efficiency.	1	2	3	4
Heat-supply and other heat-related improvements (e.g. installing combined heat and power (CHP))	1	2	3	4
Other (please specify)	1	2	3	4

ASK ALL who could improve ee (code 1 at any c14 row)

C15. If you had sufficient expertise and funding to maximise your energy efficiency by making all of the changes that you've just suggested, roughly how much do you think it would cost (in capital) [if multiple sites [A5>1]: for all of your UK industrial sites] [if one site [A5=1]: for your industrial site]? If you are unsure, pleas

e provide a best estimate.

only show options selected (CODE 1) at C14. read out. ENTER MONETARY VALUE FOR EACH ROW WHERE C15=1.

	Cost to further improve energy efficiency (£)	Don't know
Behavioural and cultural changes in the business (e.g. training employees to turn off machines during down time)		
Control and monitoring systems		
Implementing or improving an energy management system (e.g. designating an energy manager, checking energy use more regularly, reporting energy use to the board, setting targets, creating continuous improvement)		
Replacing industrial equipment		

Making improvements to industrial processes (for example, variable speed drives)		
Investing in building improvements (for example, e.g. installation of LED lighting, building fabric improvement). If you rent, please include what your landlord could do to improve energy efficiency.		
Heat-supply and other heat-related improvements (e.g. thermal fabric improvements, or installing combined heat and power (CHP))		
Other (please specify)		

ASK ALL

C16. …And how much would be the maximum reduction in your energy usage (in percentage terms, compared to the energy use you reported for 2019) if you were to make all of the changes you've suggested [if multiple sites [A5>1]: for all of your UK industrial sites] [if one site [A5=1]: for your industrial site]? If you are unsure, please provide a best estimate.

. enter number between 0 – 100%.

[WRITE IN [NUMERIC] %		
DO NOT READ OUT Don't know	1	
DO NOT READ OUT Refused	2	

ASK ALL

C16a. Thinking about the last [if asked C15 (CODE 1 AT ANY C14 ROW): two questions] [if not asked C15 (CODE 1 NOT AT ANY C14 ROW) : question] you have just answered about costs to improve energy efficiency and maximum reduction possible. How confident, if at all, are you in the estimates that you provided?

READ out. single code

Very confident	1	

Fairly confident	2	
Not very confident	4	
Not confident at all	5	
Don’t know	6	
Refused	7	

Ask all

C17. To what extent do you agree with the following statements about improving energy efficiency on your [if multiple sites [A5>1]: UK industrial sites] [if one site [A5=1]: site]?

READ out. single code per row

	Strongly disagree				Strongly agree	Don't Know
Improving energy efficiency is currently a low priority for our business	1	2	3	4	5	6
The business wants to improve its energy efficiency but does not have enough information on how to do so	1	2	3	4	5	6
We can’t afford (or access the funding or financing) to make the changes needed to improve our energy efficiency	1	2	3	4	5	6

IF EE IS A LOW PRIORITY (C17_1 = 3,4,5)

C18. You mentioned that energy efficiency is a relatively low priority on your industrial [if multiple sites [A5>1]: sites] [if one site [A5=1]: site]? To what extent do each of the following factors explain why energy efficiency is a relatively low priority?

read out. single code per row

	Not at all	To a small extent	To some extent	To a large extent	Don’t know
Energy costs are very small as a proportion of total production costs	1	2	3	4	5
Industrial equipment does not yet need replacing – so have not thought about energy efficiency	1	2	3	4	5

	Not at all	To a small extent	To some extent	To a large extent	Don't know
Significant downtime associated with replacing industrial equipment	1	2	3	4	5
Little or no potential to further improve our energy efficiency	1	2	3	4	5
Higher priorities elsewhere (for example, dealing with impact of Covid, EU exit, etc.)	1	2	3	4	5
Wider macroeconomic uncertainty	1	2	3	4	5
Senior management not bought in	1	2	3	4	5
Other investments offer a higher rate of return	1	2	3	4	5
Other investments are easier to make/implement	1	2	3	4	5
Other (please specify)	1	2	3	4	5

IF BUSINESS WANTS TO IMPROVE BUT LACKS INFORMATION (C17_2 = 3,4,5)

C19. You mentioned that whilst you would like to improve your energy efficiency, you do not have enough information on how to do so. To what extent do each of the following factors explain why you don't have enough information?

read out. single code per row

	Not at all	To a small extent	To some extent	To a large extent	Don't know
Unsure what our energy efficiency is (or how it compares to similar companies)	1	2	3	4	5
No one in our firm is skilled, trained or available to focus on energy efficiency improvements	1	2	3	4	5
Unsure what energy efficiency improvements and/or technology options are available to my firm	1	2	3	4	5
Information we already have on energy efficiency improvements is too generic to help my firm	1	2	3	4	5

	Not at all	To a small extent	To some extent	To a large extent	Don't know
Unsure where to get trusted, independent advice on improving my energy efficiency	1	2	3	4	5
Uncertainty over the financial benefits and/or how to develop the business case for investing in energy efficiency	1	2	3	4	5
Lack of appropriate proven evidence on energy efficiency technology options available	1	2	3	4	5
Unsure how to purchase the energy efficiency improvements and/or technologies	1	2	3	4	5

FINANCE

ASK ALL

D1. We'd now like to ask a few questions about how you might finance improvements to energy efficiency in the future.

What type of funding have you used or considered using to improve energy efficiency?

read out. single code per row

	Used	Considered, but have not used	Have not considered	Don't Know
Funding from existing budget / internal funds	1	2	3	4
Energy Service Companies (ESCOs) financing	1	2	3	4
Private/third-party finance – regular commercial loan	1	2	3	4
Private/third-party finance – asset/project loan (money lent on the value of the asset/technology)	1	2	3	4
The Government's Industrial Energy Transformation Fund (IETF)	1	2	3	4
Other Government funding	1	2	3	4
Other (please specify)	1	2	3	4

if considered but not used FINANCING FROM EXISTING BUDGET(D1_1 = 2)

D2. Why have you considered but not used internal funds (i.e. funding from your existing budget) to fund energy efficiency improvements? Please tick all that apply.

read out. multi code

High payback period	1	
Energy efficiency budget has been spent	2	

No budget for energy efficiency, so energy efficiency would be taken out of profits	4	
Other (please specify)	5	
Don't know	6	
Refused	7	

if considered but not used PRIVATE THIRD-PARTY FINANCE (D1_3 = 2 OR D1_4 = 2)

D3. Why have you considered but not used private third-party finance to fund energy efficiency improvements? Please tick all that apply.

read out. multi code

Private finance does not address the high payback periods	1	
Don't want to take on debt (or additional debt)	2	
Too expensive	3	
Not eligible	4	
Too risky	5	
Unaware of finance options available	6	
Process too complex to navigate	7	
Other (please specify)	8	
Don't know	9	
Refused	10	

if considered but not used THIRD PARTY FINANCE FROM GOVERNMENT (D1_5 = 2 or D1_6 = 2)

D4. Why have you considered but not used government funding to part-finance or fully finance an investment? Please tick all that apply.

read out. multi code

Have not heard about any government financial support that is available for my firm and/or the investment that we need	1	

Unaffordable	2	
Not eligible for existing government schemes	3	
Do not know how to complete the application	4	
Do not have the resource to complete the application	5	
Not enough funding available to justify the time involved in applying	6	
Process to get government funding is too slow	7	
Do not know which funding I should apply for	8	
Other (please specify)	9	
Don’t know	10	
Refused	11	

Ask IF DONE ANYTHING TO IMPROVE ENERGY EFFICIENCY (C10 = 2-11)

D5. For energy efficiency improvements you have made to date, what has been / will be the average payback period? Please specify in years.

By ‘payback period’, we mean the number of years it took / will take to see a full return on your initial financial investment.

enter number of years

WRITE IN [NUMERIC]		
Less than one year		
DO NOT READ OUT Don't know	1	
DO NOT READ OUT Refused	2	

ASK ALL

D6. What is the maximum payback period your business could accept to invest in a large energy efficiency improvement? Please specify in years.

By ‘payback period’, we mean the number of years it would take to see a full return on your initial financial investment.

enter number of years WRITE IN [NUMERIC]		
Less than one year		
DO NOT READ OUT Don't know	1	
DO NOT READ OUT Refused	2	

CLOSING DEMOGRAPHICS

Finally, we'd like to ask a few questions about your business. These information will be used for analysis purposes only, it will not be possible to identify your business in any published reports.

ASK IF A5=1 (only 1 industrial site)

What is the address of your industrial site?

ENTER Address

Address		
City		
County		
Country		
Postcode		
DO NOT READ OUT Don't know	1	
DO NOT READ OUT Refused	2	

ASK IF A5>1 (more than 1 industrial site)

What is the address of the main site that you work on?

ENTER Address

Address		
City		
County		
Country		
Postcode		
DO NOT READ OUT Don't know	1	
DO NOT READ OUT Refused	2	

ASK ALL

And thinking about <[A5=1 your site] [A5>1 these sites], does your company own the buildings or rent them?

Own the building	1	
Rent / tenancy agreement	2	
Own some and rent some of the buildings	3	
Other (write in)	4	
DO NOT READ OUT Don't know	5	
DO NOT READ OUT Refused	6	

Which of these best describes your business?

Sole Trader or Partnership A sole trader or partnership is/are responsible for running their business and for meeting the legal requirements that come with it. As a sole trader or partnership, you can keep (or share in the case of a partnership) your profits after tax; however, you are also personally responsible for any debts of your business. A sole trader can employ staff	1	
UK ownership – Public Limited Company (PLC)	2	
Non-UK ownership – Public Limited Company (PLC)	3	
Private Company Limited by Guarantee	4	
Private Company Limited by Shares	5	
Private Unlimited Company	6	
Other (write in)	7	
DO NOT READ OUT Don't know	8	
DO NOT READ OUT Refused	9	

ask all

Roughly what percentage of what your business produces is sold abroad?

write in percentage

WRITE IN [DS ALLOW 0 TO 100]		
We do not sell any products abroad	1	
Don't know	2	
Refused	3	

if sells produce abroad (a11 > 0%)

Other than the UK, where does your business usually sell what it produces? Please tick all that apply.

read out. multi code

Europe	1	
North America	2	
South America	3	
Asia	4	
Africa	5	
Oceania (incl. Australia)	6	
DO NOT READ OUT Don’t know	7	
DO NOT READ OUT Refused	8	

if sells produce abroad (a11 > 0%)

Which of these costs has the biggest impact on your ability to compete with your competitors abroad? If possible, please select one response. If more than one cost has the joint biggest impact, then select no more than 3 responses.

RANDOMISE. read out. multi code (max. 3)

Electricity costs	1	
Gas costs	2	

Fuel costs (other than electricity or gas)	3	
Labour costs (including wage and non-wage costs, such as employer contributions to pensions)	4	
Transportation costs	5	
UK Emissions Trading Scheme (formerly EU Emissions Trading Scheme)/Carbon costs	6	
Regulatory Administrative costs	7	
Trade-related costs (e.g. import duties)	8	
Other (please specify)	9	
DO NOT READ OUT Don’t know	10	
DO NOT READ OUT None of these	11	
DO NOT READ OUT Refused	12	

ask all

What is your Companies House Reference Number (CRN)?

ANSWER TO BE VALIDATED USING SAMPLE INFORMATION

WRITE IN		
DO NOT READ OUT Don't know	1	
DO NOT READ OUT Refused	2	

ask all

A14. Finally, it is sometimes possible to link the data we have collected with other government surveys or datasets to enable further statistical analysis, for example via the address of your industrial site or Companies House Reference Number. Would you be happy for this to be done?

ADD IF NECESSARY: Your confidentiality will be maintained, and linked data will be anonymised and only used for statistical purposes.

do not read out. single code.

Yes	1	
No	2	

THANK AND CLOSE

ask all

E1 We are now at the end of the survey. Thank you very much for taking the time to speak to us today. Would you be willing for us to contact you again regarding this particular study – if we need to clarify any of the information:

single code

Yes	1
No	2

IF AGREE TO RECONTACT e1=1

H6 Can I just confirm your details so that we can contact you, as we just agreed?

INTERVIEWER: CORRECT OR BLANK ANY INCORRECT INFO.

DS: PRE-POPULATE WITH SAMPLE VARIABLES. ALLOW BLANK RESPONSES.

Name: WRITE IN	<CONTACT>
IF H1 = 1 OR H2 = (1 OR 2): Email address: WRITE IN	<EMAIL>
IF H1 = 1 OR H2 = (1 OR 2): Phone number: WRITE IN	<PHONE NUMBER>

SAY TO ALL (TELEPHONE only)

H7 I hereby confirm that this interview has been carried out in accordance with the rules of the Market Research Society's Code of Conduct.

Yes	1	

ASK ALL

H8 THANK AND CLOSE EXIT PAGE

You have now reached the end of the survey. Thank you again for taking the time to complete the Energy Efficiency Survey for Manufacturing Businesses, your contribution to this research is very much appreciated.

The information you have provided will be used by BEIS for research purposes only.

If you have any queries about the survey or how the data will be analysed, please email IFF Research at IFFMailbox_EnergyManufacturing@iffresearch.com or phone 0808 169 9380. Alternatively you can email BEIS at industrialenergy.survey@beis.gov.uk.

Just to confirm, we'll be keeping your responses to the interview for analysis purposes and if you'd like a copy of your data, to change your data, for your data to be deleted or to lodge a complaint, then please follow the process outlined on our webpage http://www.iffresearch.com/gdpr/.

ADD IF NECESSARY: You also have a right to lodge a complaint with the Information Commissioners Office (ICO) and you can do so by calling their helpline on 0303 123 1113.

THANK RESPONDENT AND CLOSE INTERVIEW

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