



TOWARDS A NET-ZERO CARBON UK MANUFACTURING SECTOR

#MakeitGreen

The climate change conversation has reached new heights following the July 2019 UK Climate Change Committee's report¹ and the relatively subdued outcome of the last Climate Change Summit in Madrid. As pressure from the public mounts, the inevitability of action is now clear for all.

The global economy is now reeling from the impact of COVID-19, and unprecedented state economic and societal interventions are hugely contracting the economic activity and – in the short term – reducing energy use and carbon emissions.

The UK was the first G7 country to set in law a net-zero greenhouse gas (GHG²) emissions target, and under current plans will be hosting the UN Climate Summit (COP 26) in 2021. The UK being a global leader on climate action, the Government and businesses will come under increasing scrutiny over the coming months in the run-up to the summit.

With the global COVID-19 crisis, our economy will require sustained state intervention for some time to return to full health. This provides a golden opportunity for the UK Government and industry, working together, to implement a green recovery which demonstrates that the transition to a low-carbon economy is not only possible but also makes economic sense. The crisis has proven that we can work in new, more sustainable ways, using less transport and greater technology such as robotics, additive manufacturing and automation to bolster our resilience. We can recover to a new norm where UK manufacturers are at the forefront of producing the innovative goods and services our economy needs to decarbonise, realising the potential for green growth.

Our research, undertaken as part of Make UK's contribution to the Year of Climate Action, and conducted in partnership with E.ON, explores manufacturers' attitudes to the net-zero challenge. It focuses on their approaches to sustainability, including energy efficiency measures and management, and what actions they are taking to meet the key challenges to further and faster action. Please note: despite this research being undertaken shortly before the COVID-19 crisis began, our recommendations remain even more valid and relevant in this context.

Our key findings:

1. Awareness of the 2050 net-zero target is high. 90% of manufacturers are aware of this, and almost half see it as an opportunity. Manufacturers are committed to following through with concrete actions: 20% have already taken some action, with a further 20% considering what action to take.

2. Industrial energy markets are delivering choice. While anecdotal evidence suggests that manufacturers struggle to find new energy deals, this is not what our survey found. 40% of respondents have renegotiated their energy contracts in

the last 12 months, 65% of which were able to get a better deal, nevertheless the high relative price of energy in the UK compared to the EU remains of concern, particularly for energy intensive manufacturers.

3. Manufacturers are investing in energy efficiency measures, and are seeing real benefits from doing so. 30% have made energy efficiency investments in the last 12 months, with the main action being taken in relation to buildings, equipment and manufacturing processes. 40% report increased profit margins and 30% report increased competitiveness as a result.

4. Barriers to further and faster action remain. Upfront investment costs remain the biggest barrier to implementing energy efficiency measures, with half of manufacturers stating insufficient return on investment or too slow payback. The cost of technology is a further barrier, with many companies opting to renegotiate their energy contracts as opposed to introducing more technical measures. A lack of knowledge and advice on what to do and how to do it is also preventing a number of businesses from making progress in this area.

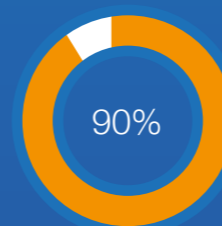
To overcome these issues, a multi-pronged approach is key:

1. As an integral part of the Government's support to manufacturing to recover from the COVID-19 crisis the Government must provide support to manufacturing businesses with simplified and adapted financial grants and better fiscal incentives to enable investments supporting the transition to a net-zero economy.
2. Likewise, the energy industry has a role to play by expanding the use of energy data monitoring and analysis to better understand energy consumption. In addition, its advice to industrial energy users should be more effective and accessible.
3. Together, these will support those manufacturers who will need to place the 'net-zero' target at the heart of their business strategy, acknowledging that government, investors, and customers, will demand action. It will be important for more businesses of all sizes to understand that 'spend to save' investment will be required and to factor this into their capital and/or operational expenditure plans. Businesses recovering from the COVID-19 crisis can take the opportunity to ensure improved sustainability is factored into their future resilience plans.

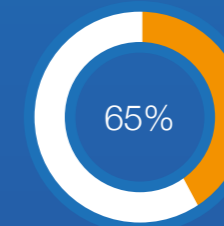
Manufacturers are leading the UK's green recovery and building a sustainable future. Make UK's #MakeItGreen campaign seeks to showcase this, with Make UK and its members ready to step up and take action on this important and global issue.

¹ Progress in preparing for climate change – 2019 Progress Report to Parliament, Committee on Climate Change, July 2019.

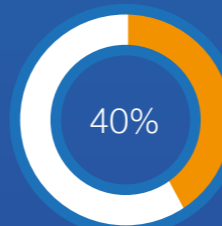
² GHG are carbon dioxide (CO₂), methane (CH₄), nitrogen oxides (NO_x) and fluorinated gases (F-gases) produced by human activities and global temperature rises.



90% of manufacturers are aware of the **2050 net-zero target**



Industrial energy markets are delivering choice: **65%** of the manufacturers who renegotiated their energy contracts obtained a better deal



40% of manufacturers who invested in energy efficiency measures are seeing real benefits from doing so

Upfront investment costs remain the biggest barrier to **implementing energy efficiency**

RECOMMENDATIONS

Manufacturers should:

- place the net-zero carbon target at the heart of their strategy
- accept the need for 'spend to save' investment and factor it in their business and COVID-19 crisis resilience plans.

Government should:

- encourage and reward investment in the green economy by making the grant schemes simpler, fewer, and more accessible to SMEs³; and
- expand fiscal incentives, e.g. tax allowances for investment that support the transition to a net-zero economy and the recovery from the COVID-19 crisis.

Government and the energy industry together should:

- make energy bills clearer and use techniques to better analyse and understand energy consumption
- make the advice for industrial energy users more effective and accessible
- encourage customer focus on consumption levels as the determining factor in overall bills; and
- promote energy supply and/or efficiency services and solutions to deliver lower energy bills by reduced consumption.



Achieving the 2050 target will be highly challenging and will require **further and faster action right across the economy.**

³ SMEs (Small and Medium Enterprises): Micro and Small size: ≤ €10 M turnover - Medium size: >€10M - €50M turnover. Large enterprises: > €50M.

MANUFACTURERS ARE AWARE OF NET-ZERO AND SEE IT AS AN OPPORTUNITY

What is net-zero?

The 2015 Paris United Nations Climate Change Summit reached the agreement to keep global warming 'well below' 2°C, and to 'make efforts' to keep it below 1.5°C.

Greenhouse gas (GHG) emissions need to reach 'net-zero around mid-century' to give a reasonable chance of limiting global warming to 1.5°C.

In many sectors, technologies exist that can bring emissions to actual zero (e.g. electricity generation). However other sectors may never get to zero – e.g. agriculture, aviation – so some emissions will remain and need to be offset/taken out of the atmosphere.

'Net-zero carbon' means limiting overall GHG emissions to 100% below 1990 levels, across the whole economy. GHG emissions should be reduced to zero wherever possible, and any remaining emissions must be balanced by finding ways to absorb an equivalent amount of GHG from the atmosphere.

In 2019, however, following advice from the Committee on Climate Change on what should be done to match the Paris Agreement requirements, the **UK raised its ambition and amended the Climate Act to reduce its GHG to net-zero by 100% by 2050**, thus becoming the first major economy to set this target in law.

Achieving this target will require very significant changes in technology, policy and consumer behaviour, which will have a profound impact on our economy. As both a source of emissions but also an innovative producer of the products needed to decarbonise our economy, the manufacturing sector will have a key role to play in this change.

1.1 MANUFACTURERS ARE AWARE OF NET-ZERO, WITH MANY SEEING IT AS AN OPPORTUNITY

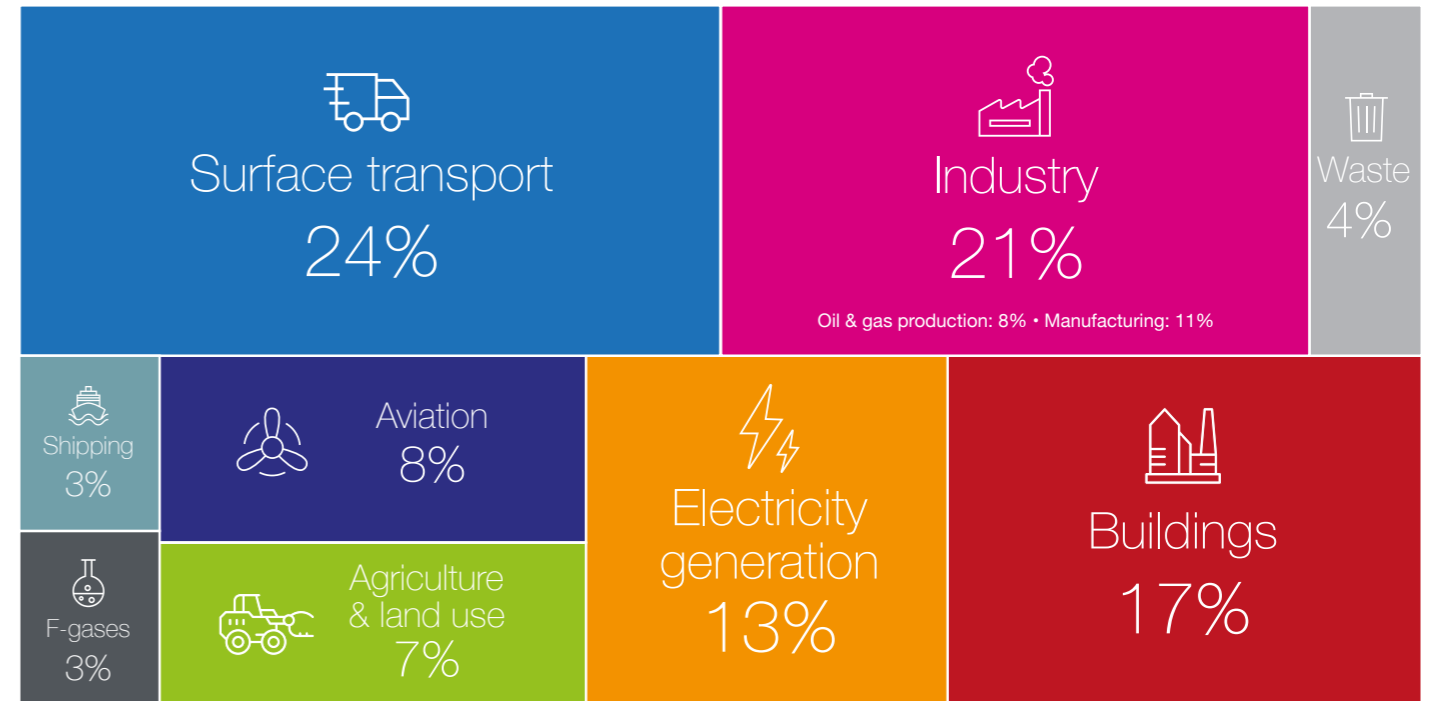
Industry is one of the largest GHG emitters in the UK, accounting for 21% of emissions, only slightly less than surface transport⁵. This means that manufacturing will be significantly impacted by changes in policy and consumer behaviour resulting from the net-zero target.

The UK is one of the top global contributors to GHG accumulation due to its historic use of coal and it issued its first Climate Act in 2008, setting itself a target to reduce its emissions by 80% by 2050, based on the 2°C warming limit. **The UK also became the first country to set legally binding 'carbon budgets'⁴ which restrict the total amount of greenhouse gases that can be emitted over a 5-year period.** Where national emissions rise in one sector, the UK will have to achieve corresponding falls in another. The carbon budgets are reviewed 12 years in advance and the sixth one is due to be set this year for the period 2033-2038. It is also possible that the UK decides to revisit the fifth one (for the period 2028-2032) against the more ambitious net-zero target.

⁴ National carbon budgets were set by the UK government based on the advice of the independent Committee on Climate Change to allow every tonne of GHG emitted between now and 2050 to be accounted for in the global emissions calculations.

⁵ Presented by Committee on Climate Change at Citizens' Climate Assembly, Birmingham (8 February 2020).

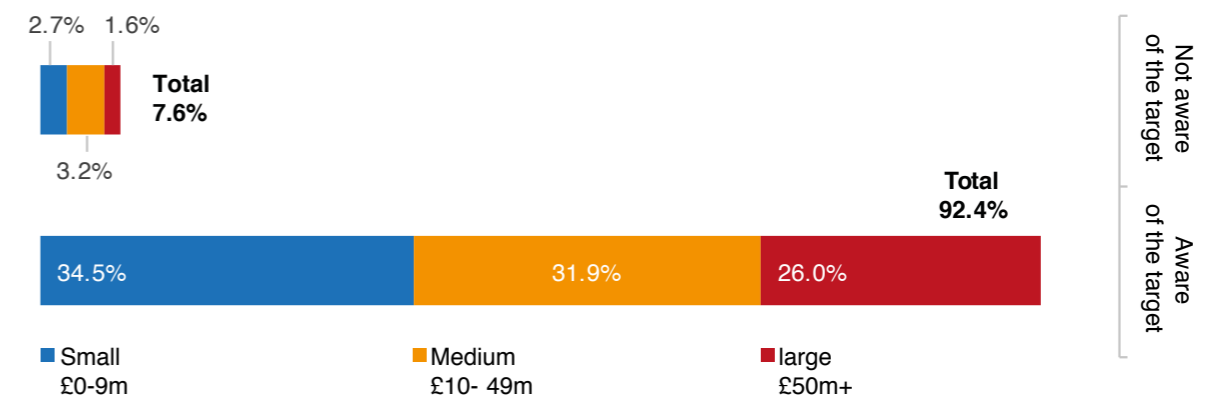
CHART 1: Sector contributions to GHG emissions in the UK



Not surprisingly, given the importance to the sector of the net-zero target, awareness of it is very high (at 92%) in SMEs and large companies alike (Chart 2).

CHART 2: Level of awareness of the net-zero carbon target

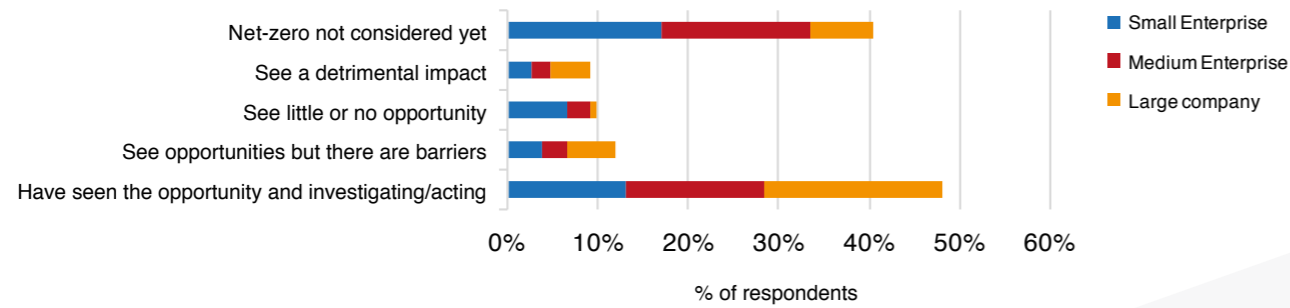
More than 90% of manufacturers are aware of the net-zero target, whatever the size of their business



Almost half of manufacturers (45%) see this as an opportunity for their business, with many (21%) already taking advantage of it and/or already embedding it in their strategy (Chart 3). However, less than half (47%) of all SMEs saw this as an opportunity for their business, almost half the proportion of large enterprises (90%).

CHART 3: Net-zero is seen as an opportunity

Nearly half of UK manufacturers see net-zero an opportunity and many others have yet to consider it



But there is still considerable scope for opportunity, particularly amongst smaller businesses and certain subsectors. 50% of SMEs have not yet considered what action to take (compared to ~10% of big companies).

Manufacturers will need to transform themselves into industry 4.0 facilities, which requires them to become sustainable, efficient and innovative across manufacturing lines. Most manufacturers (75%) understand the benefits of digitalisation. Monitoring power with Industrial Internet of Things (IIoT) sensors analyses each phase of the production process, indicates actual energy performance, highlights consumption pain points, while taking actions to optimise costs, energy consumption, and actual CO₂ footprint.

These measures can all lead to, or be part of, the accreditation to standards such as the ISO 50001 standard for Energy Management.

More fundamental operational/business models can also be put in place for long-term sustainable and commercial benefits, changing the way products are marketed (leasing/hiring instead of selling) or produced (collecting and re-using packaging, raw materials, water, waste). More radical management decisions could be made to concentrate all facilities in the same area, streamlining operations and logistics. Infrastructure can also be improved by connecting the facilities to local power networks, private wire electricity contracts or district heating schemes.

Whole energy efficient solutions tailored to businesses of all sizes may combine any of the above approaches.

We explore in more detail what manufacturers are doing, and the barriers to further action, in section 3 of this report.

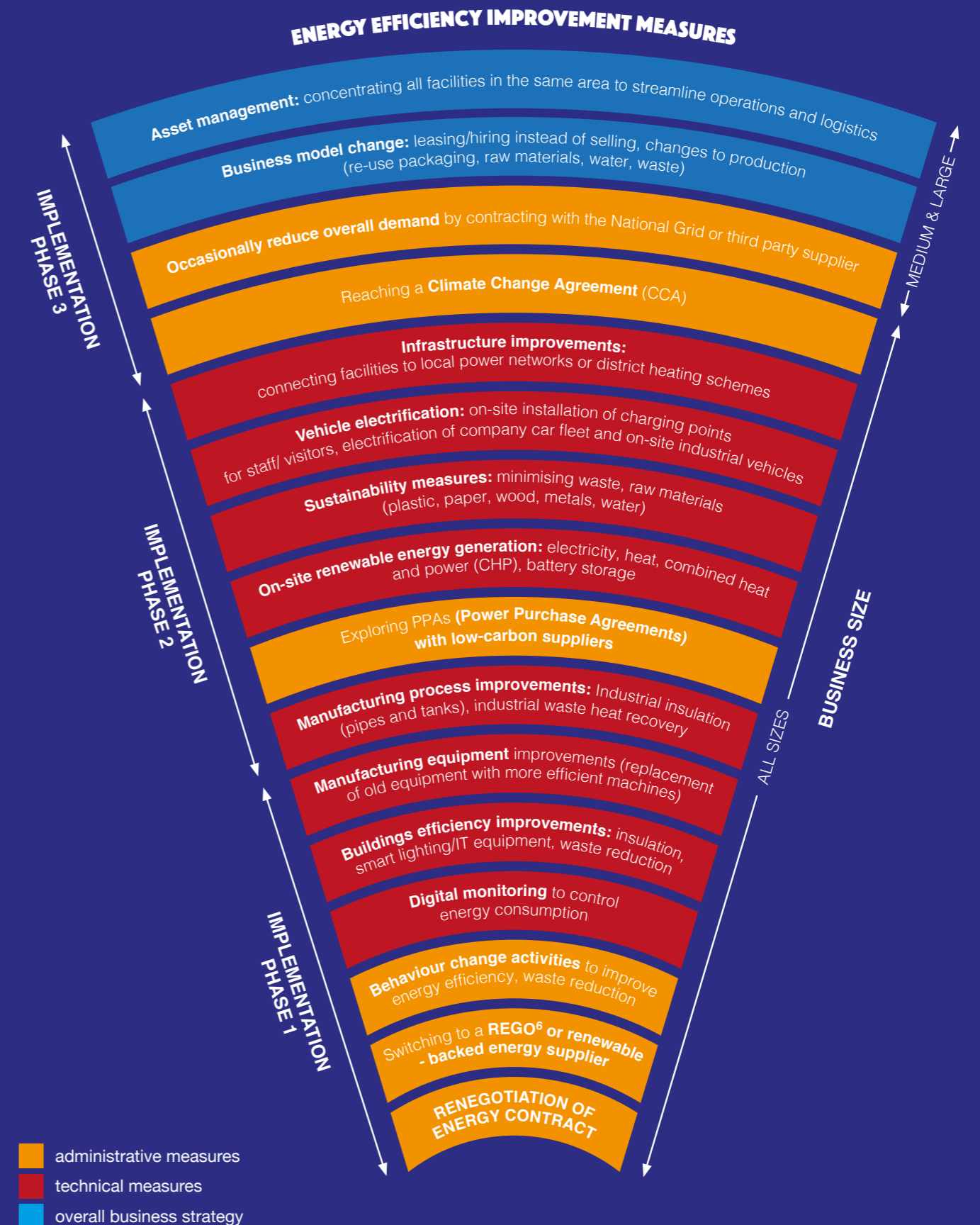
1.2 ACTION IS BEING TAKEN, BUT THERE IS STILL SOME WAY TO GO

This study has looked in some more detail at the particular actions that manufacturers have taken in order to respond to the net-zero target. For the purposes of this report, we have concentrated on **energy efficiency measures**, as these **are the most obvious steps for a manufacturer to take, as they should reduce GHG emissions as well as costs.**

Energy efficiency measures can be ‘administrative’ (relating to energy supply arrangements) or more ‘technical’. These technical measures may include:

- generating part or all of a facility’s energy on-site,
- investing in more efficient equipment, or to improve the energy efficiency of the manufacturing process or of buildings,
- behavioural change activities to persuade employees to improve energy efficiency measures.

Diagram 1



⁶ REGO = Renewable Electricity Guaranteed Origin.

EXAMPLE 1: SOLAR ENERGY FOR COMMERCIAL BUILDINGS

Working with The Arena Convention Centre (ACC) Liverpool Group for over nine years, an energy solutions adviser and supplier helped them to generate £20,000 to £25,000 worth of renewable energy and save 130 tonnes of carbon every year.

As well as providing all its electricity and gas, they helped them make the most of the business opportunities energy provides, turning expenses into sustainable profits.

Since opening, more than six million visitors have come through The ACC Liverpool Group's doors, for more than 3,000 events. That demands a lot of energy. As a service business they rely on everything running smoothly and that extra attention to detail to keep their customers happy.

The results were:

- £20,000 - £25,000 renewable energy generated each year
- 130 tonnes of harmful carbon gases saved each year
- One of the most sustainable venues of its kind

“E.ON HAVE BEEN OUR ENERGY PROVIDER FROM DAY ONE AND THEY’RE A HUGE PART OF OUR ONGOING DRIVE FOR EVER GREATER SUSTAINABILITY.”

Gerald Andrews, Finance Director at ACC Liverpool

EXAMPLE 2: SMALL OFFICES CAN MAKE IMPRESSIVE ENERGY SAVINGS BY ADJUSTING STAFF HABITS

An energy supplier and a global real estate adviser came together to run an innovative behavioural science experiment, to test how businesses can encourage their employees to do their bit and reduce their energy use. These small and unobtrusive changes had little or no impact on day-to-day business activities but saw:

- energy use fall by an impressive 26%
- over a year, savings in a small office represented enough energy to run 81 laptops for a year or boil a kettle nearly 54,000 times

The four-week experiment run in the city centre office revolved around employees, comparing the behaviour of two sides of the office: one with a series of behavioural science inspired ‘nudges’ to prompt responsible energy behaviours, with the other running as a control group without any interventions, to monitor energy use over the same period.

Nudges are small interventions designed to prompt people into a different pattern of behaviour, such as switching a light off that they may have left on. These make use of behaviour change techniques to guide employees into more sustainable choices – for example habit formation and creating social norms where individuals change their behaviour to fit in with the group.

Given that particular office already had its own building management system in place with energy efficiency measures such as pre-set timers for lighting which could not be controlled by staff, the experiment offered an opportunity to explore other ways that a business can save energy and the important contribution individual employees can play.

“THE RESULTS AT THE END OF THE FOUR WEEKS SHOW WE CAN ALL DO MORE TO SAVE ENERGY. WE’LL USE THE RESULTS TO SUPPORT OUR OWN SUSTAINABILITY TARGETS, AND TO INFORM OUR ADVICE TO CLIENTS. WITH ENERGY PRICES AT AN ALL-TIME HIGH WE KNOW THAT REDUCING CONSUMPTION CAN MAKE A REAL DIFFERENCE TO A COMPANY’S BOTTOM LINE, AS WELL AS TO ITS CARBON FOOTPRINT.”

Anna Kuzniar, Associate Director at Savills

EXAMPLE 3: A NEW HEAT AND POWER SYSTEM FOR MANUFACTURING FACILITIES

In a demanding climate for UK manufacturing, the UK's leading independent manufacturer and supplier of roof tiles, needed to reduce manufacturing costs and maximise their competitive advantage as a leader in sustainability and responsible sourcing. They achieved this by improving the efficiency and reliability of their on-site energy generation and management. E.ON designed, built and installed a sustainable 240kW combined heat and power (CHP) system and a new boiler, which provides Russell Roof Tiles with 100% of their thermal needs and around 70% of their electrical demand.

This resulted in cost savings of £72,000 in the first year, and a £1.2 million of cost savings predicted over a duration of 15 years.

“THE RELATIONSHIP WITH E.ON HAS BEEN SEAMLESS ALL THE WAY THROUGH THE PROCESS. AND WITH THE EXPERTISE THEY BROUGHT TO OURSELVES, BEING AN INNOVATOR IN THE ROOF TILE MARKET, WE FEEL THIS REALLY HELPED THE BUSINESS GROW AND SET US UP FOR FUTURE GROWTH.”

Andrew Hayward, Managing Director at Russell Roof Tiles



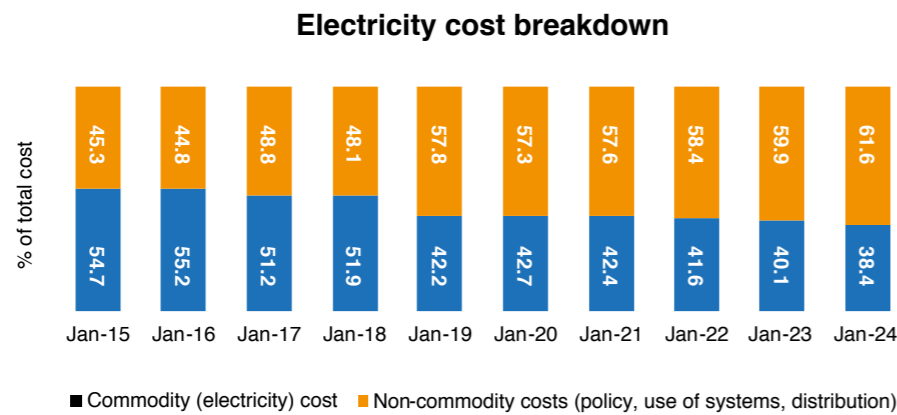
INDUSTRIAL ENERGY PRICES AND MARKETS

2.1 ENERGY PRICES REMAIN A CONCERN FOR MANUFACTURERS

While of course energy costs are determined by both the unit price and the amount consumed, we know that unit costs remain of concern to manufacturers. Indeed seven in ten

manufacturers say that reducing energy costs in line with the European average would make the UK a better place to do manufacturing⁷. Against a backdrop of concerns about the relative cost of energy in the UK compared to the EU, we were keen to understand the contemporary experience of UK manufacturers.

CHART 4: Electricity cost breakdown (historical and projected 2015-2024): commodity prices have remained flat for a decade, while other costs have increased



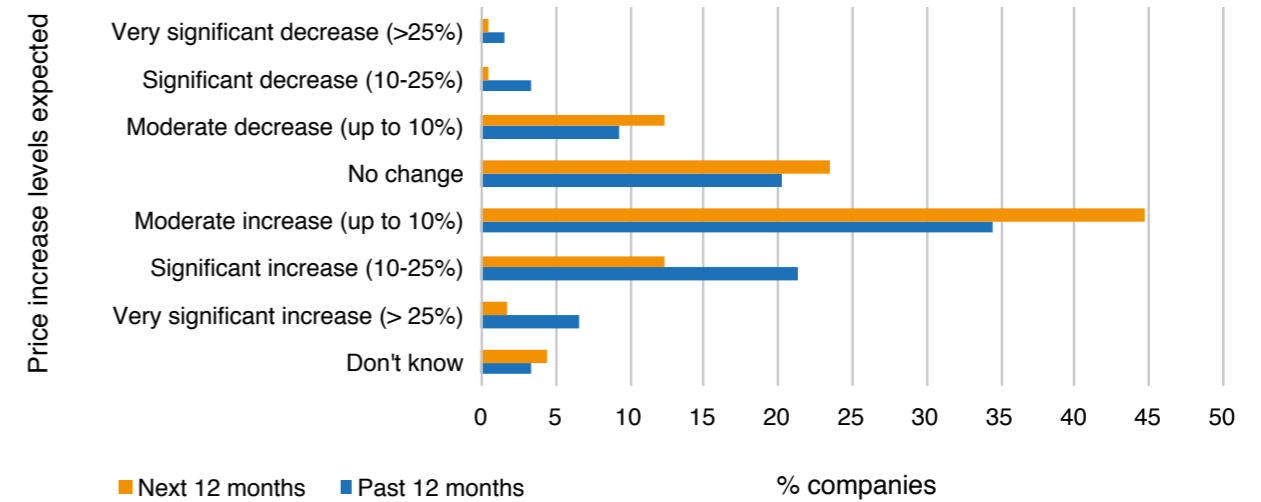
Over the last decade the commodity price of electricity has been relatively flat, while the non-commodity cost part of the electricity bill has very significantly increased as a portion of energy bills, from around 45% of a total bill in 2015 with projections of hitting 60% of the total by the middle of this decade (Chart 4). The non-commodity costs are comprised of the use of systems (e.g. transmission

network and distribution), the balancing services and the policy costs. The policy costs have increased with the introduction of government schemes including Feed-in Tariffs (FiTs), Renewables Obligation Certificates (ROCs), Contracts for Difference (CfDs), the Climate Change Levy (CCL) and Capacity Market (CM).

⁷ Make UK (2020) Trade Negotiations Survey.

CHART 5: Energy price expectations and expected level of rises

Manufacturers expect energy prices to continue increasing



Around 60% of manufacturers have seen an increase in their energy bills in the previous year, and as many expect to see a further increase in the next 12 months (Chart 5). However, the rate of increase is mostly expected to be relatively modest, with 43% expecting prices to rise by less than 10%.

Unsurprisingly, higher energy use sectors, which constitute 42% of manufacturers, were the most concerned. Sectors such as chemicals (16% out of all sectors), metal products (18%) and rubber and plastics (20%) feel particularly impacted by energy costs.

2.2 ENERGY MARKETS ARE DELIVERING CHOICE AND LOWER PRICES

Given concerns about unit costs, a significant number of manufacturers (40%) have decided to renegotiate their energy contracts in the last 12 months. Of those, two thirds (65%) managed to secure a better deal. This shows that choice is available in the market for a significant majority of those who have decided to look for a better solution.

However, simply searching for a lower price doesn't improve sustainability or decarbonisation in itself. UK manufacturers still face prices significantly higher than those paid by their EU competitors. Manufacturers need to look beyond simply securing the lowest unit price, and look for new ways of reducing energy costs by reducing energy consumption. This will also have the benefit of improving their carbon emissions and sustainability. Energy companies should differentiate their offers not just on price, but increase the clarity of their billing with regard to consumption information and look to provide a combination of energy and energy efficiency services to help industrial users reduce costs in the most environmentally acceptable way.



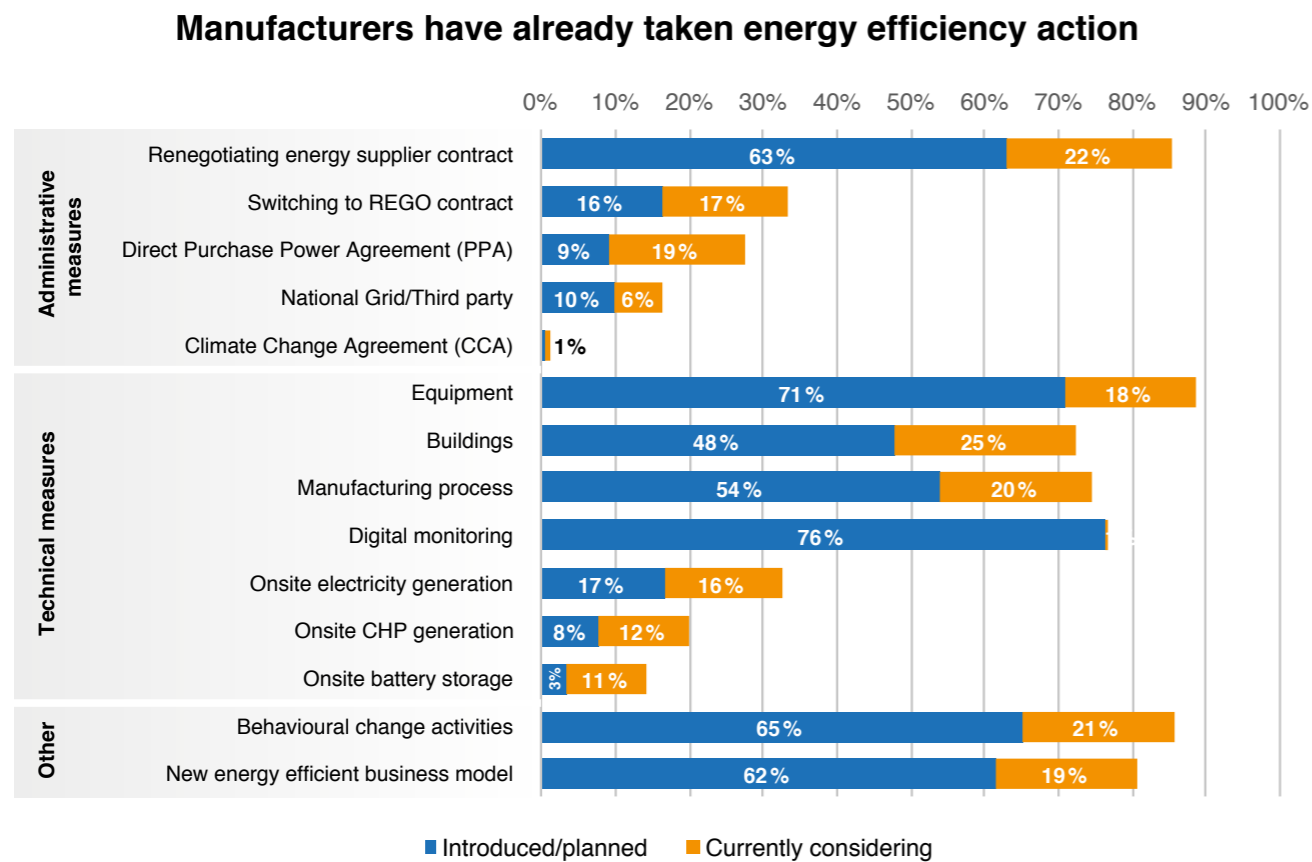
WHAT ACTIONS ARE MANUFACTURERS TAKING AND WHAT ARE THE BENEFITS?

3.1 MANUFACTURERS ARE TAKING ACTION TO IMPROVE ENERGY EFFICIENCY

The majority of manufacturers have already taken action in some way or other to improve their energy efficiency. Almost

two-thirds (63%) have taken administrative measures. Two in five have invested in technical measures, and another fifth are currently considering investment in these (Chart 6).

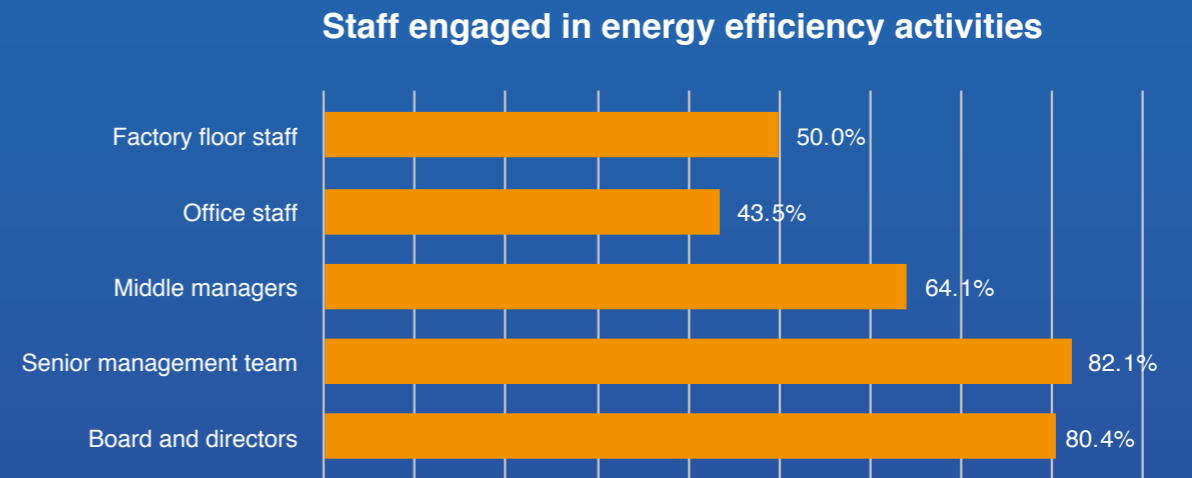
CHART 6: Energy efficiency measures taken/planned and considered by manufacturers



Although the main driver for implementing energy efficiency measures remains by far cost reduction, other drivers are the desire to improve the company ethos and the strong direction provided by the board. This was consistent across manufacturers, regardless of company size. It is telling that

management stated that more than 80% of board directors and senior management are engaged in energy efficiency (Chart 7), up from 50% in our previous survey⁸.

CHART 7: All levels of staff are increasingly engaged in energy efficiency activities



This is also now much more visible at the shop floor level where 50% of staff (again across companies of all sizes) are actively engaged as energy management strategies are being translated into concrete actions.

It is interesting to note that office staff are the least engaged (43%) given that buildings alone (domestic and commercial combined in roughly equal proportion) contribute to 17% of carbon emissions in the UK and that office staff too can contribute to net-zero through basic measures (such as switching lights and IT equipment off using motion sensors, reducing catering waste, minimising paper use by programming two-side paper photocopying, keeping windows shut or having (remote controlled) thermostats in each room). This is likely to reflect a lack of awareness of the significant impact in absolute terms that these day-to-day activities have on carbon emissions. Taking these actions would at least combat perceptions that office staff cannot make any significant difference in energy-intensive organisations.

Almost two-thirds (65%) of manufacturers have already introduced or are planning to introduce behavioural change activities to convince their employees to improve energy efficiency, and a further 20% are currently considering them. This reflects the importance of involving all the levels of the organisation, with clear direction from the board and senior managers.

3.2 WHAT MEASURES ARE MANUFACTURERS TAKING?

Administrative measures:

From the suite of options that companies have to improve their energy efficiency and management, the most popular choice is to re-negotiate contracts with their energy provider. This is unsurprising as it is the most easily quantifiable action in terms of energy bills and the one requiring the least resource, both in time and money. This was used in particular by the metals/metal products sector, who are relatively high users of energy and therefore more impacted by the cost of energy. However in itself, it does not translate into reduced carbon emissions.

Other administrative options such as exploring direct power purchase agreements (PPAs) with low-carbon generators were being considered by almost a fifth (18.6%) of businesses. Other measures included contracting directly with the National Grid or a third party energy supplier, or switching to a renewable-backed or REGO electricity supply. These were until recently less accessible and/or restricted to larger consumers, which explains why at least 60% of manufacturers, certainly in the smaller segments, did not consider these options. But some energy suppliers now offer smaller businesses 100% renewables-backed power at the point of renewal, bringing scale to this rapidly evolving market. Climate Change Agreements (CCAs) are designed for energy intensive sectors or facilities but are also open to SMEs if they qualify, and indeed one large company in the electric equipment sector did negotiate a CCA.

⁸ Make UK survey, July 2019, 'Manufacturing: Stepping Up to the Sustainability Challenge'.

Technical measures

Two in five manufacturers have already invested in more technical improvements such as improving the energy efficiency of their buildings, manufacturing processes and equipment. One in ten (11%) are currently considering generating their own on-site renewable energy, with a further 5% planning to implement this. However, a fifth have rejected this option altogether.

Data analysis is seen as a helpful tool to manage energy use by 85% of companies. The majority (90%) already collect their energy usage data which is then analysed in 75% of cases, usually by a third party. Over half (55%) of companies have a smart meter and another 20% plan to get one.

Manufacturers see many benefits from this, including the ability to identify opportunities for energy efficiency improvements; being able to measure and forecast their energy consumption more accurately and the ability to optimise their manufacturing processes to take advantage of lower cost energy (for example at certain times of the day).

Some government schemes which are available to companies of all sizes seem to be underused, such as the Renewable Heat Incentive (RHI, to support renewable heat systems - fewer than 6% of companies have used it and over 60% are not aware of it) or the Industrial Heat Recovery Support Programme (IHRS, to support investment in heat recovery systems - fewer than 3% of companies have used it and over 70% are not aware of it).

30% of manufacturers are already aware of the announced Industrial Emissions Transformation Fund (IETF) which could be applicable⁹ to SMEs with projects of a certain size or the future Business Energy Efficiency Scheme focused on SMEs.

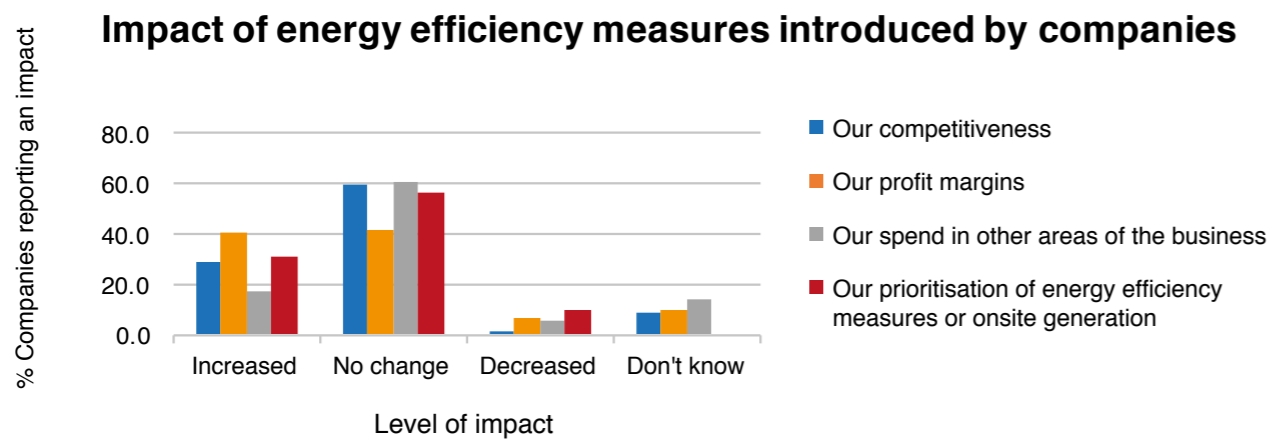
Only a very few companies saw capacity markets and demand-side response measures (when energy users are provided with a financial incentive to reduce demand at peak times) as helpful to them. Fewer than 4% used them in the past year and over 75% haven't considered them at all.

3.3 ENERGY EFFICIENCY MEASURES ARE IMPROVING PROFIT MARGINS

Manufacturers are seeing positive commercial benefits as a result of making energy efficiency investments (Chart 8). 40% of manufacturers reported increased profit margins. And three quarters of these also experienced increased competitiveness. This is particularly noticeable in the sectors which are higher energy users such as basic metals/metal products and electrical equipment. Almost one in five (17%) of manufacturers reported that energy cost savings had released resources for expenditure in other areas of the business.

Only a very small number of manufacturers (6%) reported a decrease in profit margins as a consequence of the energy efficiency measures they introduced.

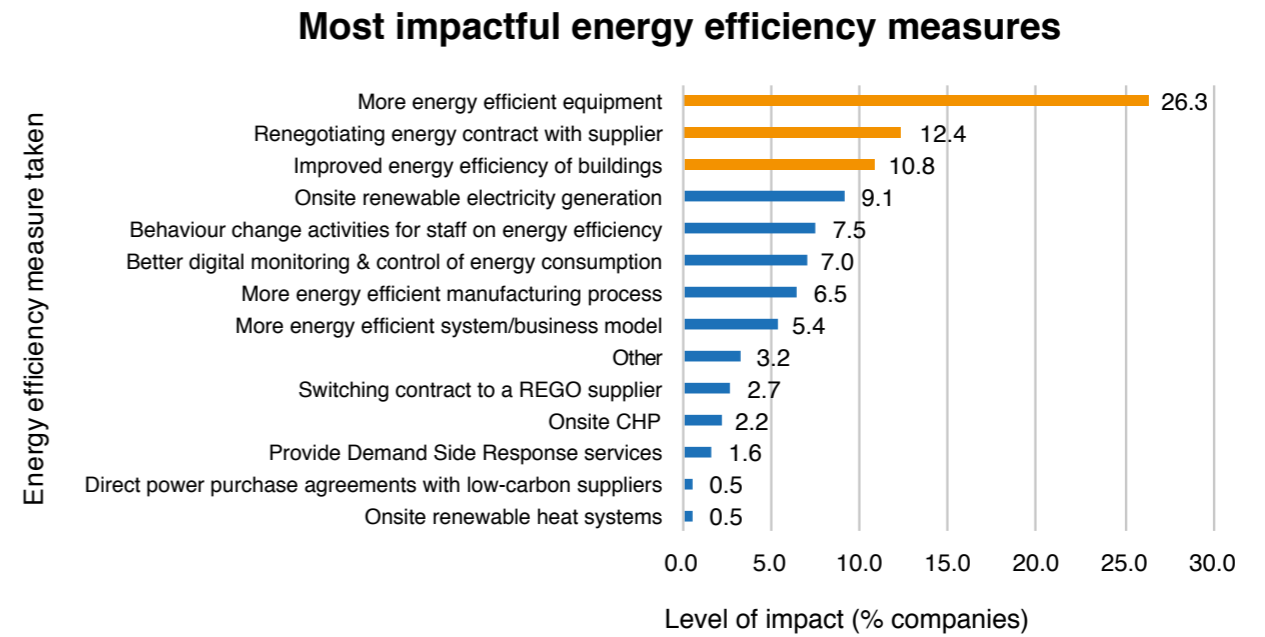
CHART 8: Energy efficiency measures have positive impacts



The most impactful measure reported by more than a quarter (27%) of manufacturers was installation of more energy efficient equipment, followed by renegotiating of contracts with the energy supplier for a lower price (13%), improving the energy efficiency of buildings (11%) and generating on-site renewable electricity (9%) (Chart 9).

This demonstrates that investment in energy efficiency and energy management measures is worthwhile and as a result, more than 30% of manufacturers have decided to prioritise energy efficiency improvements as part of their strategy and their business plans.

CHART 9: Most impactful energy efficiency measures



Some of our members explained that energy efficiency improvement and /or carbon emissions reduction does not necessarily imply major investments. They pointed to simple and low-cost measures such as ensuring they buy their energy from renewable sources, switching to LED lighting and control or replacing outdated fans and pump systems. They are also adopting measures such as sensors on the production line to ensure conveyers only run when needed or adopting energy recovery technology to capture the heat generated by the production area to heat water, removing the need to separately heat water for heating the factory itself.

In fact, the majority of energy efficiencies and carbon emission reduction can be achieved through cost-effective or lower cost measures, with reasonable pay-back time.

(Diagram 1) Only the last few percentages of carbon emissions usually require more technically challenging and/or costly solutions. Digitising is a key ally in the transformation of businesses but it is not always necessary to introduce a major new technology to revolutionise the way business is conducted. Staff training and awareness building are also essential to ensure full engagement at all levels.

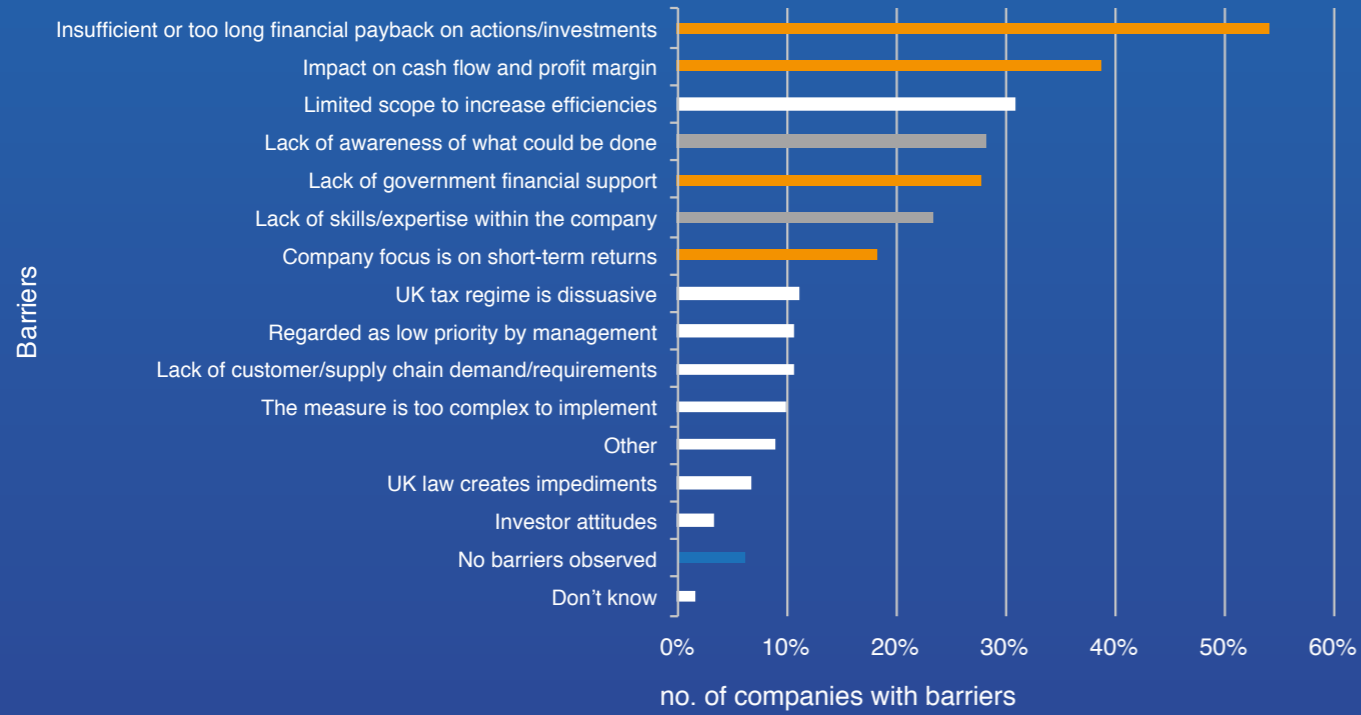
3.4. Manufacturers still face barriers to taking further and faster action

However, an overwhelming majority (95%) of manufacturers say that they are facing a number of barriers to taking further and faster action. The biggest barriers to introducing energy efficiency improvements that manufacturers reported were: insufficient return on investment (55%); a perception that the required technology was too expensive (55%); and lack of knowledge or advice on what actions they needed to take (25%). **Any successful move to a net-zero economy will need to recognise this and take action to overcome them.**

⁹ IETF - details of eligibility to be published in April 2020, likely to open in Q2 of 2020.

CHART 10: Barriers to manufacturers implementing energy efficiency and energy management activities

Barriers to further investment in energy efficiency measures



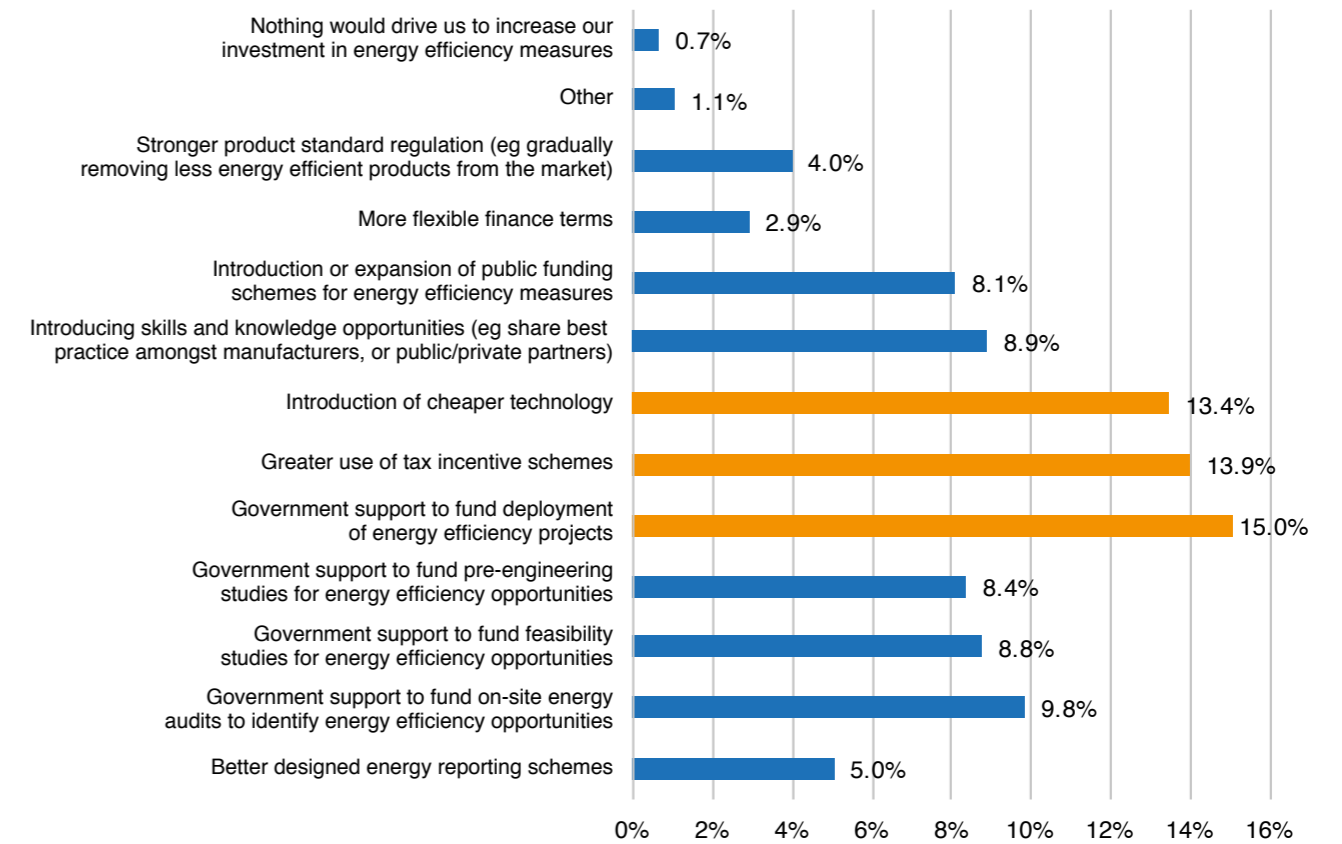
We also asked manufacturers for more detail on why they had not made use of borrowing or grant schemes. One in five (20%) were reluctant to use bank finance, and felt they did not qualify for green finance initiatives. They also felt that existing grant schemes were not suitable for their needs, or that the landscape was too complex.

When asked what incentives would help them overcome a reluctance to invest, manufacturers pointed in particular to grants, particularly for the *deployment*¹⁰ of energy efficiency projects (for 61%), tax incentives (57%) and funding for on-site energy audits (40%).

¹⁰ as opposed to feasibility studies or initial planning

CHART 11: Incentives which would drive increased energy efficiency investment

Drivers for increased investment in energy efficiency



CONCLUSIONS AND RECOMMENDATIONS

There is an extremely high awareness of the Government's target of a net-zero carbon economy by 2050, and a broad recognition by manufacturers that this represents an opportunity. The sector is embracing this ambition, with significant levels of buy-in and engagement at all organisational levels. Manufacturers are already also achieving improved levels of profitability and competitiveness – as well as delivering substantial reductions in greenhouse gas emissions.

However, achieving the 2050 target will be highly challenging and will require further and faster action right across the economy. Financial and knowledge barriers remain: and these will need to be addressed by Government, manufacturers and the energy industry if our sector is to make the most of the opportunities for green growth. As Government considers how to support manufacturing to recover from the COVID-19 crisis, and businesses consider their own plans in the light of recent events, there is a great opportunity to deliver a 'green recovery', demonstrating that economic and environmental goals can be achieved together.

To do this, we recommend that:

Manufacturers should:

- Accept that 'spend to save' investment will be required and factor that into their capital/operational expenditure plans; and
- Acknowledge that government and customers will demand action and place the net-zero carbon emissions target at the heart of their planning.

Government should:

- Encourage and reward investment in the green economy by simplifying the range of grant schemes to ensure that these are more flexible and accessible by small and medium sized businesses; and
- Expand fiscal incentives, such as reinstating additional tax allowances for investments that support the transition to a net-zero economy.

Government and the energy industry together should:

- Encourage greater clarity of energy bills and use of techniques such as energy monitoring to better understand and analyse energy consumption
- Review the advice available to industrial energy users and look at ways of making it more effective and accessible
- Encourage customers to focus more on consumption levels, not just unit price, as the factor in determining overall bills; and
- Promote packages of energy supply and energy efficiency services and solutions to deliver lower energy bills and reduced consumption at the same time.

E.ON VIEWPOINT

Net-zero: we have the tools, now we need the ambition
Michael Lewis, E.ON UK CEO.

The UK has an ambitious – and legally binding – target of net-zero emissions by 2050, the first country in the world to do so. And it is the actions of industry in general, and manufacturing in particular, that will define our success in delivering on this.

That is a significant task for an industry dealing not only with the challenges and the aftermath of the COVID-19 crisis, but also global competition and a drive to improve productivity. And yet during the crisis, UK manufacturers have demonstrated their resilience and adaptability, not least in rising to the challenge of answering the nation's call for help in making vital medical equipment.

I am in no doubt we will overcome this. But while the response to COVID-19 rightly remains the priority for most in the short term, the UK's net-zero target remains the key challenge for our future. It is heartening to see from this research, undertaken shortly before the COVID-19 crisis fully emerged, that industry awareness of net-zero is high, that manufacturers are investing in energy efficiency and seeing the commercial benefits. The fact 40% of manufacturers report increased margins, and 30% increased competitiveness, as a result of sustainability initiatives vindicates the case for green investment to spur the sector's post-COVID recovery and proves that energy must be a strategic decision – for the board room, not just the plant room.

But there is progress to be made, which requires overcoming barriers to further investment as reported by manufacturers, notably cashflow and profit margin impacts, as well as payback periods on investments.

A strategic imperative

These barriers are being more keenly felt more than ever before and if our economy is to recover in a way that supports the UK's net-zero target, both Government and the energy industry must find a way to remove the barriers and address concerns about the impact on competitiveness. The crisis has demonstrated that collaboration and cooperation across government, industry and society can transform how our economy operates, working together to implement a green recovery which demonstrates that the transition to a low-carbon economy is not only possible but also makes economic sense.

Some solutions may be relatively straightforward: ending increases to business rates caused by investing in decarbonisation technology, for example. Others may be more complex; ensuring industry can create value from the positive impacts they can have on the energy system with new technologies.



The first step is being clear the UK remains on a long-term trajectory to net-zero emissions which is not going to be abandoned or ignored and will provide a competitive edge for those who change and adapt soonest.

With these policies and the public's consciousness of the climate crisis growing industry leaders must embrace the fact 'spend to save' investment will be required and factor this into their capital, or operational expenditure, plans.

Our industries, together, have a pivotal role

It is positive to note so many manufacturers continue to secure better deals by renegotiating energy contracts, but it remains the case that focusing on unit rates is only half the issue. The bigger emphasis still needs to be on managing overall costs – that means the volume of energy you consume rather than the simpler pence-per-unit.

This report also underlines a greater role for the energy industry in tackling a lack of expertise among customers on what is possible through energy efficiency. This remains one of the key barriers preventing businesses from making progress in this area and will become more important in the future energy world of smart and personalised solutions.

Whatever the size of your business, and your progress in becoming more sustainable, there is much that can be done. We now offer 100% renewables-backed electricity to business customers of all sizes, which for some might be a vital first step towards that more sustainable and personalised energy system.

From there solutions scale rapidly; from high-efficiency LED lighting, HVAC upgrades and building management systems through to solar panels and battery storage, electric vehicles, and heat pumps.

By working with energy providers, manufacturers can improve sustainability, and minimise operational expenditure. On-site generation can mean greater flexibility, not only greater security of supply but also an extra income stream through supporting the grid at times of high demand.

We must hold our gaze firmly on the net-zero target and deliver a green recovery. Manufacturers will need to play their part as end customers and supply chain partners look to improve and decarbonise. Now is not time to down tools, but to advance the effort to reach net-zero by 2050.



About Make UK

Make UK works for the success of more than 2.7 million men and women employed in UK manufacturing. Representing member companies – from small businesses to multinationals – across every industrial sector, we are the most influential voice of manufacturing, enabling our members to connect share and create opportunities together.

We stimulate success for manufacturing and technology related businesses, enabling them to meet their objectives and goals. We empower individuals and inspire the next generation.

We create the most supportive environment for UK manufacturing growth and success and we represent the issues that are most important to our members, working hard to ensure UK manufacturing remains in the government and media spotlight.

Our extensive knowledge of manufacturing that means we're able to influence policy-making at local, national and international levels. We push for the policy changes that our members want to see. We are the voice of manufacturing.

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About E.ON

E.ON is leading the energy transition: providing smart, sustainable, personalised solutions for customers, whether they're individuals or families, big and small businesses, even entire towns and cities.

Our core businesses mirror the major changes that are happening today – creating a new energy world that is decentralised, green, and interconnected.

For UK manufacturing, the need to maintain a competitive advantage has never been more important, given the uncertainty of European and global economies. Reducing cost per unit produced is a key measure for all manufacturers, and this is where E.ON can help. But it is not just the bottom line that is driving changes in manufacturing.

The UK has a net-zero carbon target by 2050, meaning every business must act to reduce their emissions. When it comes to climate change, there is much that the energy industry can do, beginning with renewable energy supplies, energy efficiency and smart technologies, helping customers to reduce their environmental impact by using less energy or generating and storing it themselves.

Whether manufacturers want to connect their buildings, optimise their energy use or generate on-site to reduce their carbon impact, E.ON can help. Working together we can help businesses to improve productivity and competitiveness.

More than 350,000 businesses across the UK choose us to meet their energy needs, making us one of the leading energy providers in the UK. As part of E.ON Group we are also one of the foremost energy companies in the world. For more information visit <https://www.eonenergy.com/business/industries/manufacturing.html>