# Navigate to next

Sustainability and energy optimisation on the path to net zero

## For UK manufacturing

drax

A Drax insight report

# Contents

# Introduction

### Decarbonising UK manufacturing

With an annual output of £192 billion, manufacturing remains central to the success of the UK economy. Though it's often portrayed as a sector in decline, the UK remains the ninth largest manufacturing nation in the world.

When it comes to decarbonisation, UK manufacturing also has a strong track record. From 1990 to 2018, carbon dioxide emissions from the sector decreased from 139 million metric tons to 80.8 million metric tons. This was in part driven by dramatic reductions in overall energy consumption, as well as sharp drops aligned to economic events like the 2008 financial crisis.

See Fig 1.

In June 2019, parliament passed legislation requiring the government to reduce the UK's net emissions of greenhouse gases by 100% relative to 1990 levels by 2050. Since then, some of the largest manufacturers have been quick to re-align their own objectives and commitments with the wider net zero movement.

The Climate Change Committee (CCC) sees emissions from "manufacturing and construction" falling 70% by 2035 and 90% by 2040 from 2018 levels in its central net zero pathway. The government further announced the industrial decarbonisation strategy in March 2021, describing it as an "ambitious blueprint to deliver the world's first low-carbon industrial sector".

Key drivers for this reduction include:

- Accelerating the innovation of low carbon technologies
- Adopting 'low-regret technologies' (relatively low-cost technologies which provide relatively large benefits)
- Adapting building infrastructure
- Continued improvements in resource- and energy-efficiency.

That's because manufacturing is still energy-intensive, and the majority (73%) of industrial energy demand is for heat. This includes low temperature heat processes (such as drying processes) and high temperature processes (such as baking and frying). Steam systems are responsible for approximately 35% of industrial energy demand.

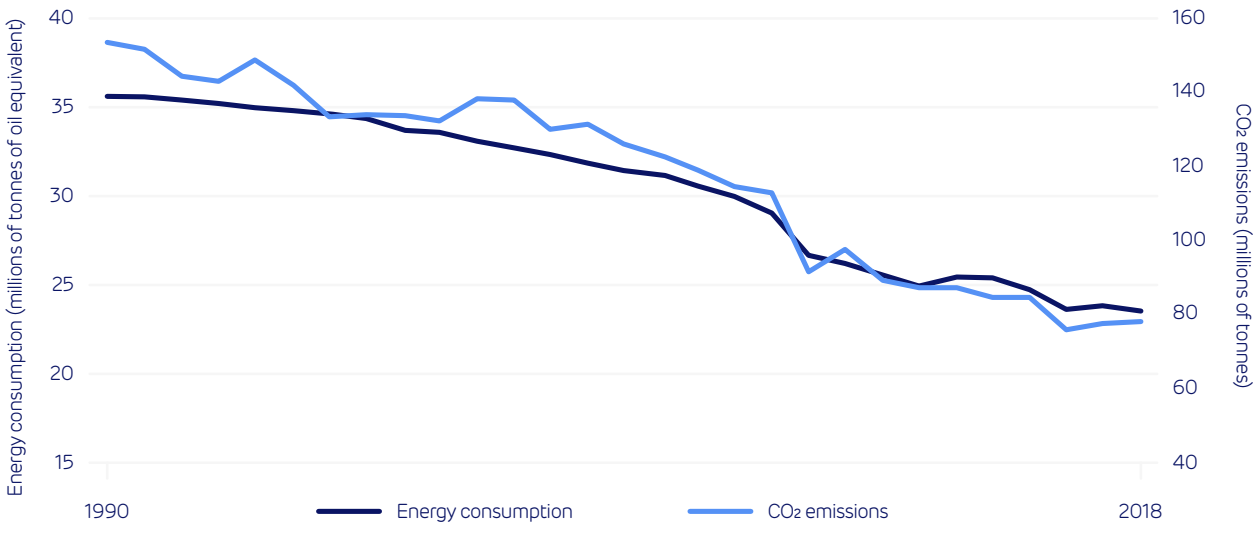
Of course, manufacturing is a diverse sector, spanning the production of iron and steel, through to food and drink. These two sub-sectors represent different characteristics in energy-use. While high-temperature processes account for 60% of energy needs of iron steel sector, low temperature processes are the main driver of energy use in the food, drinks and tobacco sector.

### Why we've carried out this research

At Drax, our goal is to provide customers with greater control of their energy use. In doing so we want to help them reduce their impact on the environment, so that collectively we can achieve a lower cost, zero carbon energy future.

2020 was widely expected to be a transformative year: the UK would leave – and seek a new relationship with – the European Union; the re-elected UK Government under Boris Johnson would implement a new vision and manifesto, including the levelling up

**Fig 1. UK manufacturing energy consumption and $CO_2$ emissions**




*Source: BEIS*

*Source: Statista*

agenda and the opportunity to host COP26; and US elections in November would offer two very different domestic and international visions.

But very few predicted why 2020 would become such a watershed year. The worldwide pandemic (COVID-19) fundamentally changed the world, with short- and long-term socio-economic consequences and global impact on health.

One issue didn't change, however. Climate change, and the focus on a green economy and renewable power.

Rather than the global crisis pushing the green agenda into the long grass, the general public reconnected with the environment during lockdowns. Meanwhile, governments saw the economic benefits of pushing a green recovery with more affordable green technology.

That's why we wanted to speak with a range of different roles, across a spectrum of business-sizes in UK manufacturing, to gain insights to the current state of progress and the challenges they face.

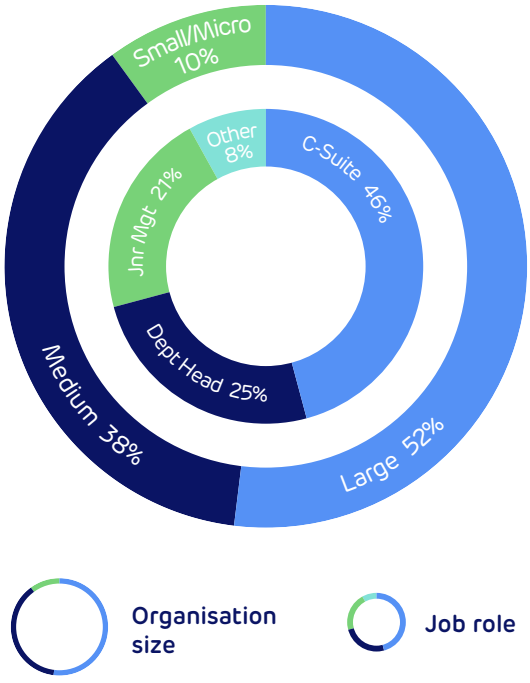
See Fig 2.

### Research methodology

Using initial one-to-one interviews for a smaller sample of qualitative findings, we opened up to a wider sample of 162 manufacturers for a quantitative survey, exploring a series of questions related to their organisation's progress towards net zero, and the challenges they face.

Our hope is that, by sharing these insights, they may provide manufacturers with some points of comparison, and maybe lessons, for their own net zero planning.

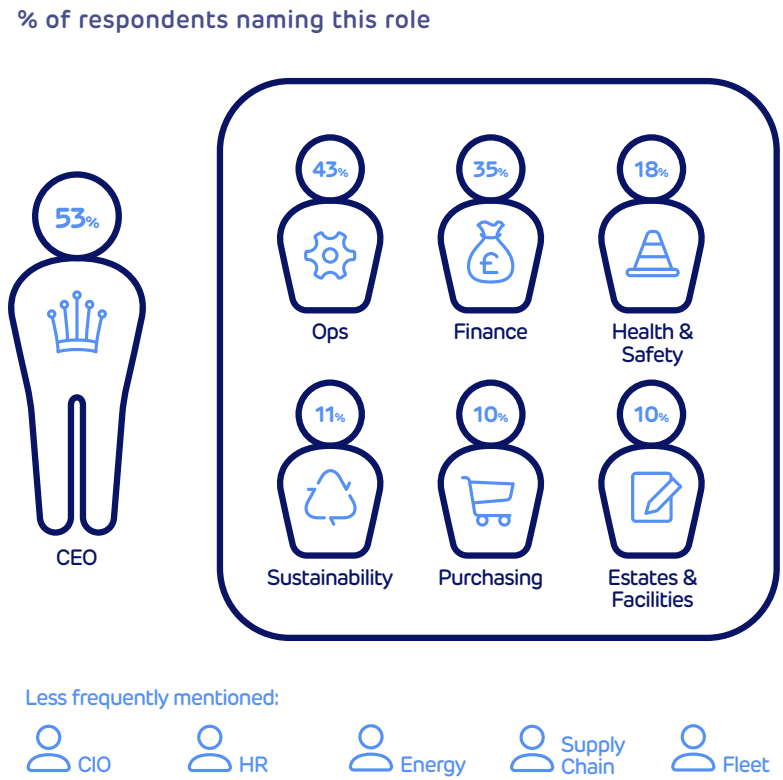
**Fig 2. Respondents: organisation size and job role**




**Sample size. n=162**

# Who's leading the change?

**Fig 3. Most prominent roles driving net zero changes**




As part of the survey, we asked respondents to name the job titles of the most prominent roles driving net zero changes in their organisation. Potentially, this can reveal the degree of priority being given – as well as the mix of skills and knowledge that's typically assembled around the table.

See Fig 3.

### The value of leadership from the very top

More than half of manufacturers said the CEO was leading the change. This is an encouraging demonstration of the importance given by the most senior manufacturing leaders to the mission to reduce emissions.

On the flipside it may also explain why, elsewhere in our research, 40% of respondents said they faced the significant challenge that net zero was not a sufficient priority for their senior team.

### The dynamic trio

The two roles that were most consistently shown along with the CEO in leading the planning and change were an Operations / Engineering role, and a senior Finance role, such as CFO. Again, this ties-in with the upcoming findings about the hierarchy of priorities; an ongoing focus on sustaining operational continuity, and delivering on cost reduction, which come ahead of tackling the three scopes of emissions.

### Sustainability professionals are still a rarity

As we see later in the research, half of the respondents believed that a lack of technical knowledge was a challenge. That gap might be further underlined by the finding here, that just over one in ten of manufacturers named a dedicated sustainability role in their carbon reduction team.

In 2020, UK research by LinkedIn saw a 12% increase in the number of sustainability professionals in the previous year. That's higher than the global average of 7.5%. Demand also grew, with a 32% increase in job postings on LinkedIn for sustainability roles, before the COVID-19 pandemic took hold.

Of course, there are instances when other roles – such as a Chief Engineer - can take on this sustainability mantle. In our interviews, some were exploring continuous professional development (CPD) routes, to add sustainability qualifications to their core expertise. But the growing need for subject-matter depth of knowledge will likely make Head of Sustainability roles more prevalent in manufacturing.

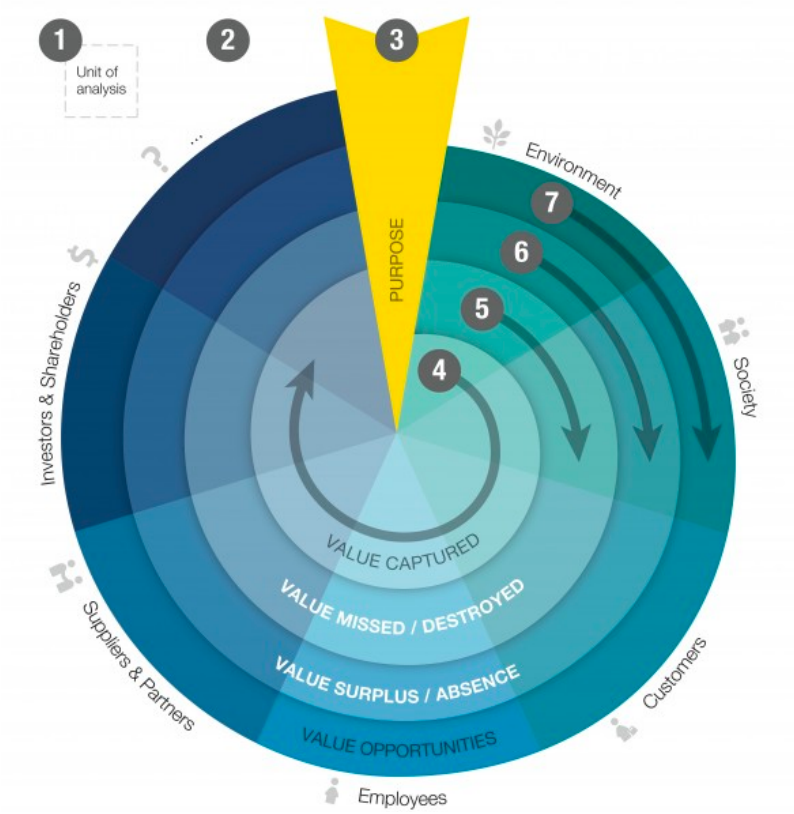
## CPD for sustainability

One academic body providing relevant development is the Institute for Manufacturing (IfM), a division of the University of Cambridge's Department of Engineering. IfM Engage partners with organisations across industry, government and academia to support them in solving complex challenges, and to deliver bespoke courses and open courses, such as 'Sustainable Value Innovation'.

Their webinar content is openly available, with deep-dive case studies like this, hosted by Professor Steve Evans, Head of the Centre for Industrial Sustainability.

Manufacturing sustainability: practical steps towards an efficient future looks at converting value from waste at AB Sugar, and the application of the Cambridge Value Mapping Tool.

**Cambridge Value Mapping Tool**



# Who's leading the change? continued

### Where's the marketing director?

Even though more than 75% of manufacturers felt that brand values were a strong driver for change, none of the respondents had a marketing or brand lead as part of the team driving change.

Research by Evian highlights this need. In a recent poll of 2,000 adults they found that:

- 59% are 'disappointed' in those big names who still haven't got their sustainability initiatives right.
- 53% say they would be more likely to change their own environmental habits if brands did more to change theirs.

The top actions Britons would like to see companies do more of include:

- Producing biodegradable packing
- Easily recyclable products
- Reduction of greenhouse gases in production.

In our research, rather than a marketing-lead, it was more likely that HR roles were represented. This is despite respondents saying that employee-expectations were less of a driving force for the pursuit of net zero ambitions.

### Is sustainable procurement yet to arrive?

Whether it's reviewing the criteria for energy suppliers in Scope 2, or the customer-supplier relationships throughout Scope 3, the purchasing or procurement function is likely to have a big role. But only one in ten of our respondents from large and medium manufacturers named this role in the team driving their change.

More than simply including procurement leaders, the purchasing guidelines may need to be adapted to embrace the principles of sustainable procurement. Otherwise the best-laid plans can still falter when ambitions are not aligned with new considerations.

Sustainable procurement is the process of making purchasing decisions that meet an organisation's needs for goods and services in a way that minimises its impact on the environment.

## Sustainable procurement

One way to embrace a more sustainable approach to procurement – perhaps where there is already a use of ISO standards – is to explore the adoption of ISO 20400. It is a sector-specific application of ISO 26000, Guidance on social responsibility, which it complements by focusing specifically on the purchasing function.

In 2017 Balfour Beatty became the first company in the world to be assessed against ISO 20400.

*Source: iso.org*

### ISO 20400

### Operational continuity comes first

See Fig 4.

Efficient and reliable operations, understandably, remain the foremost priority for senior management teams leading change towards net zero.

It's not as though progress towards carbon reduction is inherently disruptive to operations, but it is a change process. These findings are likely to indicate the preference in manufacturing for continuous improvement. That means the more incremental, less-dramatic change associated with kaizen methodologies that have become a widespread practice in UK manufacturing.

### Energy consumption (and cost) comes next

Energy is a vital (and often intensive) input to most production processes and value streams. Reducing energy consumption is often a (welcome) by-product of other continuous improvement activities.

But, by thinking explicitly about unnecessary energy use as a form of "waste," Lean Manufacturing practitioners can significantly reduce costs and enhance competitiveness, while also achieving environmental performance goals.

In our qualitative discussions with manufacturing leaders, it was suggested that there was greater scope for integration of energy management with continuous improvement practices and systems, like Six Sigma, Lean Manufacturing, and TPM.

Rather than a creating a new initiative to pursue decarbonisation, focusing on 'Lean towards Green' could be the way forward.

## Lean towards green: linking lean manufacturing and energy use

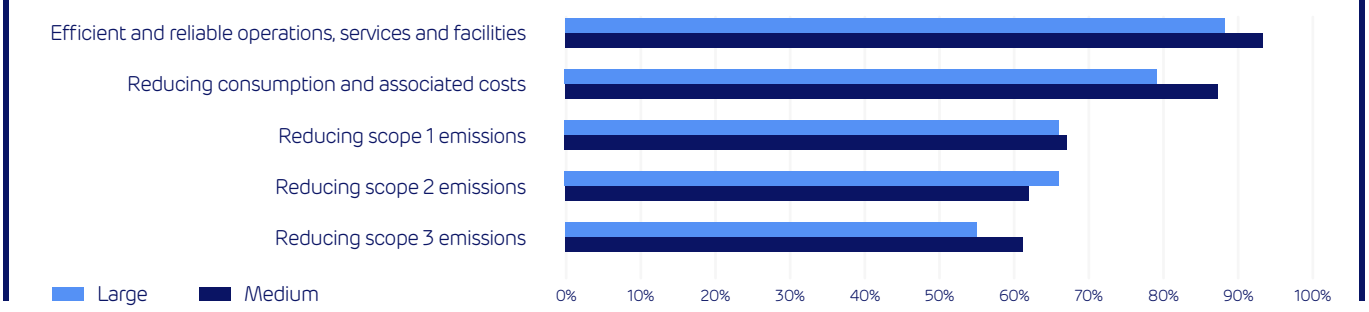
Considerable energy savings typically go hand-in-hand with Lean Manufacturing activities because of Lean's focus on eliminating non-value-added activities (waste).

Without explicit consideration of energy wastes, however, Lean may overlook significant opportunities to improve performance and reduce costs.

Manufacturers such as General Electric, Toyota, and 3M, as well as many others both large and small, have successfully used Lean methods to reduce energy use, risks, and costs.

For more insight, see this guide from the US Environmental Protection Agency (EPA).


**Fig 4. Priorities for senior management teams and boards (% very high/high)**



# What are the net zero priorities? continued

### Scope 1, 2, 3 - In that order

Tackling Scope 3 emissions is the lowest priority, especially for large manufacturers.

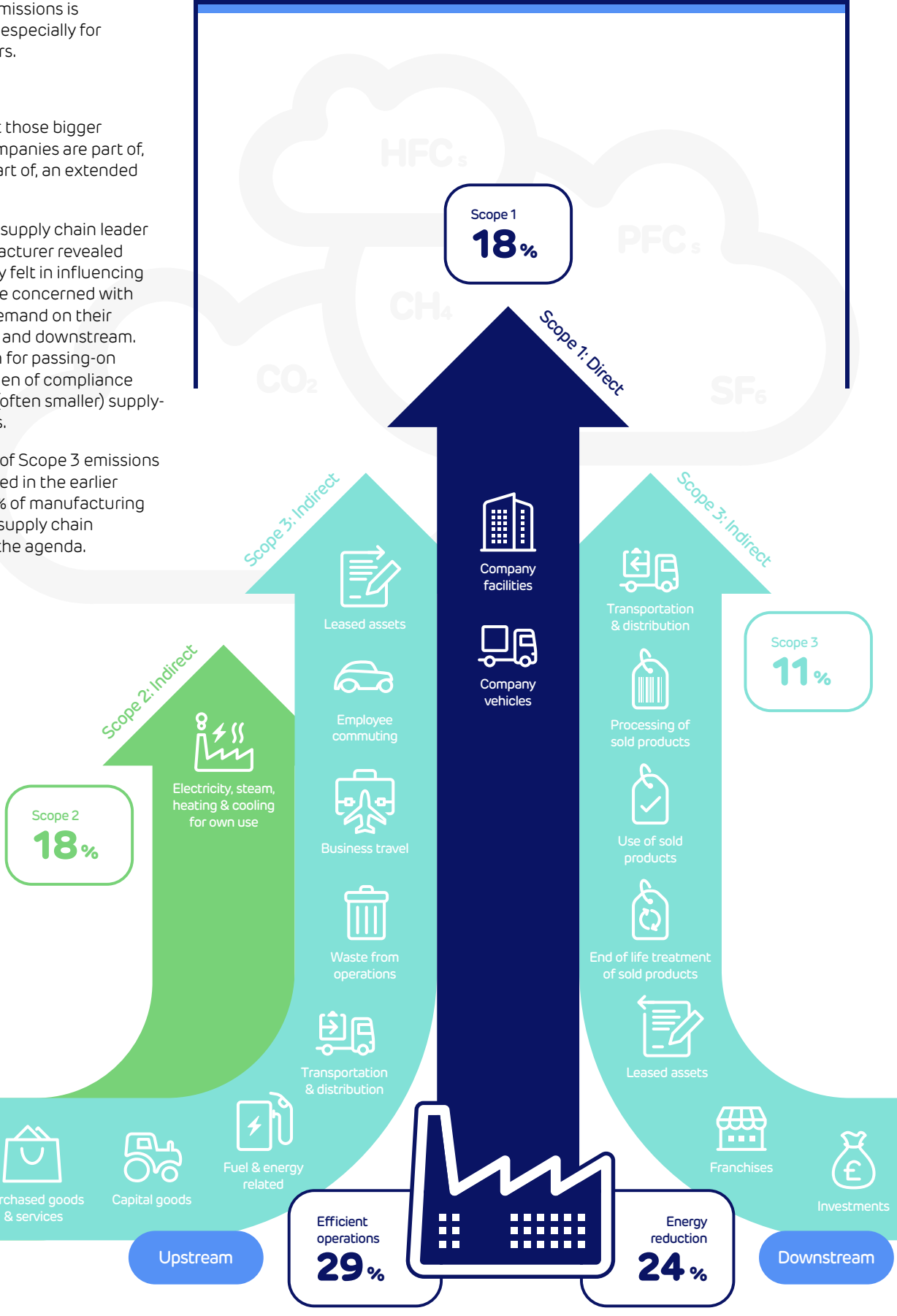
See Fig 5.

It likely follows that those bigger manufacturing companies are part of, if not the largest part of, an extended supply chain.

Discussions with a supply chain leader in one such manufacturer revealed the reluctance they felt in influencing changes. They were concerned with inflicting further demand on their partners upstream and downstream. It shared a concern for passing-on the additional burden of compliance standards to their (often smaller) supply-chain counterparts.

The de-prioritising of Scope 3 emissions may also be reflected in the earlier finding that only 5% of manufacturing respondents have supply chain leadership driving the agenda.

**Fig 5. Relative priorities for large manufacturers**



## One scope at a time or all together?

In manufacturing, as with many sectors, Scope 3 emissions (indirect emissions, upstream and downstream in the company's value chain) typically make up the majority of a company's inventory.

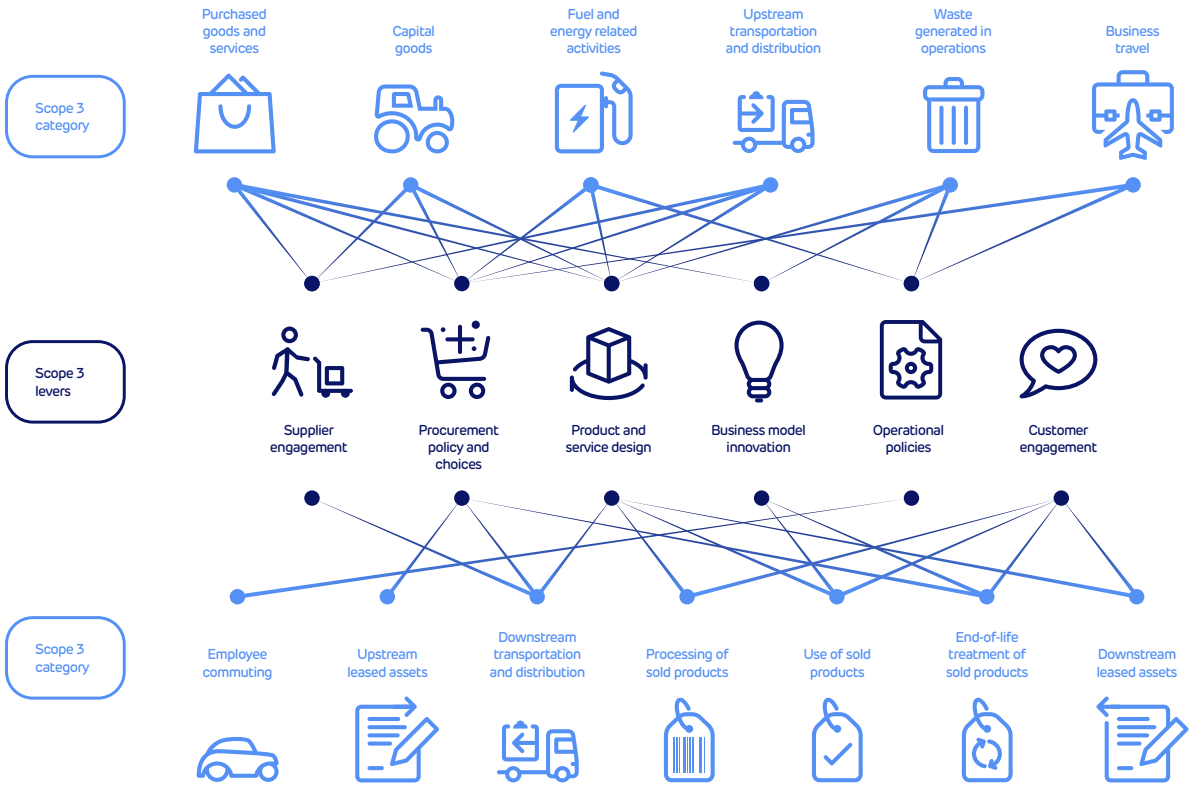
Yet currently, as with the findings here, most companies have been focusing on reducing emissions under their direct ownership or operational control (scope 1) and from their purchase of electricity, heat and steam (Scope 2).

Of course, any roadmap of reductions has to start somewhere, and Scope 3 emissions may appear harder to reach. The data may be more difficult to collect and tackling them might involve new collaborations with supply-chain partners to take shared responsibilities for changes.

Despite these challenges, addressing Scope 3 emissions not only has huge potential to prevent the worst impacts of climate change, but it can also lead to the cost-savings that are themselves a constant priority.

For example, a food manufacturer whose largest source of Scope 3 emissions is in their contracted logistics operations might make changes to product packaging to increase the volume per shipment, and in doing so also reduce costs.

**Levers for reducing emissions by Scope 3 category**



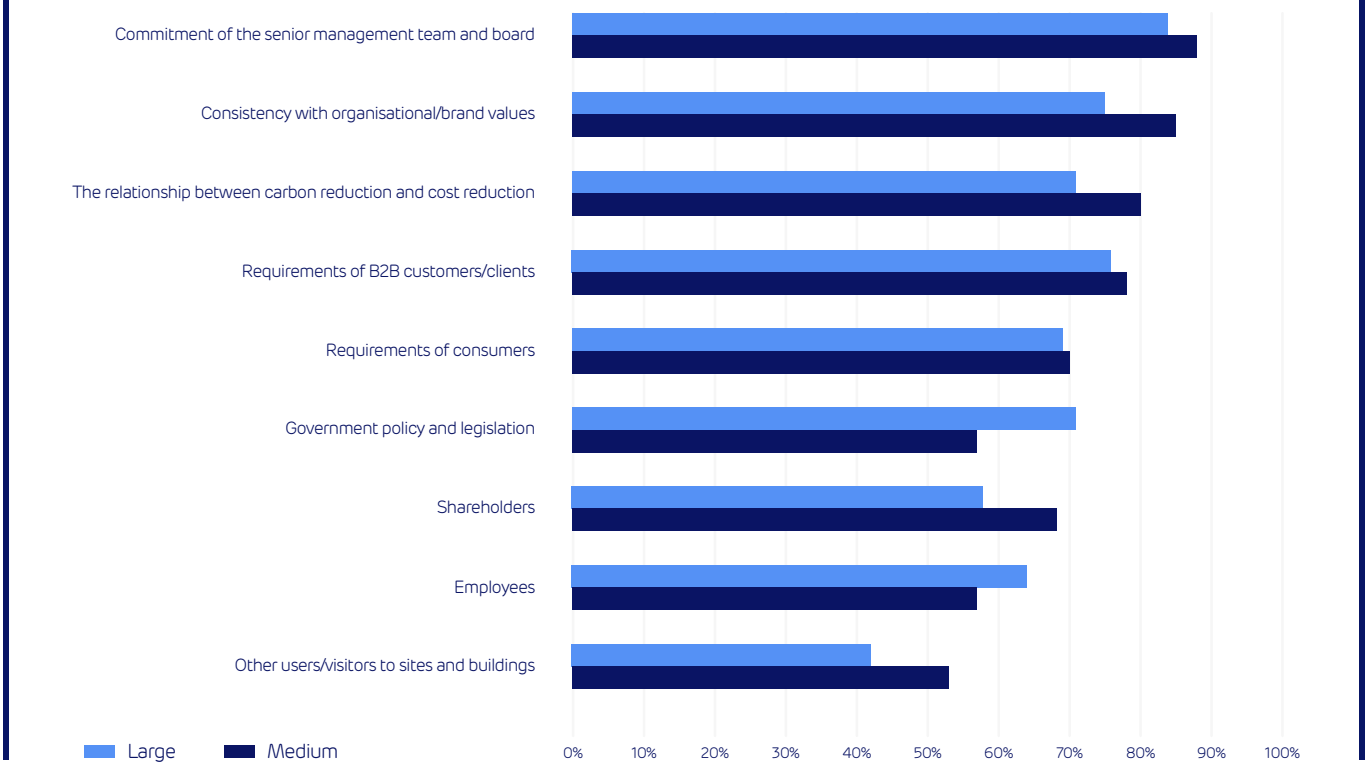

*Source: Adapted from Science Based Targets, Value Chain Report*

# Who drives these priorities?

Priorities can be driven by different influences. Understanding those influences can help with stakeholder-mapping for leadership teams, as well as providing insights on how to best communicate plans and progress.

See Fig 6.

**Fig 6. Drivers of carbon reduction (% very strong/strong)**




## Brand purpose-driven

Almost alongside the commitment of senior leadership, it's interesting to note the role of organisational and brand values in strengthening the resolve of manufacturers to pursue net zero ambitions.

Early leadership has been shown in the bold commitments from some high-profile manufacturers of consumer brands, such as Unilever, who have set a firmly brand-led goal to achieve net zero emissions from all products by 2039.

## The 'clean label' challenge of brand to consumer communications

Interviewing the Sustainability Director for a leading consumer brand manufacturer revealed one of their challenges was finding a clearly, and simply, understood on-pack form of communicating their net zero ambitions.

Sustainability declarations can take many forms and finding space on-pack is always at a premium, so delivering a singular message and avoiding a collection of claims or endorsements is critical for brands. Evian, shown below, has adopted the Carbon Trust endorsement to communicate a commitment to becoming certified carbon neutral.

### Evian


***"The impact of on-pack messaging is clear in the fact that half of the consumers who choose the food/ drink products they buy based on sustainability efforts refer to on-pack information when making decisions."***

*Mintel, "Food Packaging Trends" 2019*

*Image credit: Evian*

### Customers, clients, consumers

Manufacturers, in our interviews, said they felt a degree of sensitivity in 'passing on' increased demands for carbon reduction to their own suppliers. It may be that they are absorbing the pressure to make changes, as responses here suggest that more than three quarters are experiencing those same demands from their customers.

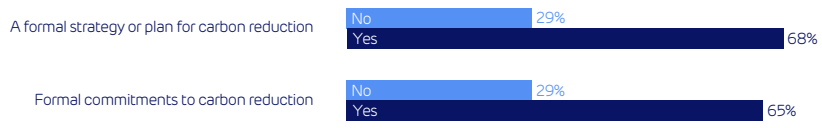
When paired with the fifth-ranked driver of 'consumer requirements' this perhaps adds emphasis to the previous suggestion, that more manufacturers could consider a place for supply-chain leaders and brand / marketing directors in the team driving change.

# Turning priorities into plans

Along with understanding the hierarchy of priorities, we learned how easily manufacturers found converting these into formal plans of action.

See Fig 7.

**Fig 7. Our organisation has...**




### Almost a third still haven't got a plan

When we asked if their organisation has a plan – a formal strategy for carbon reduction - more than two-thirds answered positively, but 29% of manufacturers said they did not.

Some of the comments in our research reveal that, for some, the idea of creating a strategy is either seen as unnecessary, or is a burden in itself:

"We have as yet not had the time to formulate a strategy."

"We have an intention to improve, but nothing formal."

"Because we are constantly striving to reduce our carbon emissions...we don't plan too much in advance."

Another recent study of UK manufacturers similarly found some had no plan, but further learned that 23% of respondents admitted to not having any future plans to introduce one.

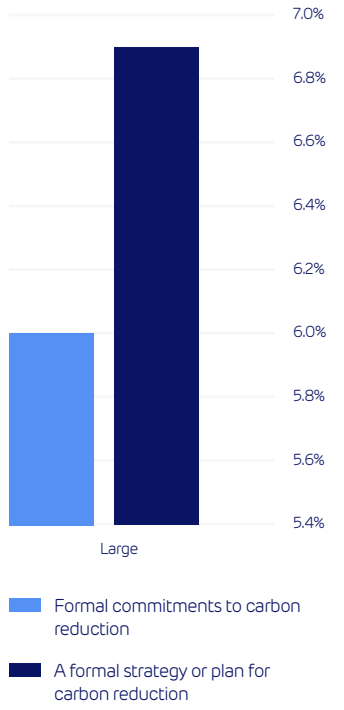
### Plan first, commit later?

If some feel hesitant in developing a plan, then there is even greater caution in making a commitment. The findings here – that there are more plans than commitments - is possibly also a reflection of a "measure twice, cut once" thoroughness. Thereby making sure that any commitments are grounded in credible strategies.

This is even more pronounced for large manufacturers, indicating that their increased scale and visibility may make the stakes even higher when it comes to making commitments.

See Fig 8.

**Fig 8. Yes, we have...**




The finding contrasts with responses to the same question from the Public Sector, where the results are reversed – there are more commitments (76%) than formal plans (67%).

## Ambitions, grounded in science

There at least two reasons why scientifically established and measurable plans should come ahead of commitment-making.

Firstly, credibility and coherent action is more likely. And secondly, there are still problems around defining statements of net zero.

***"Corporate net zero* targets are being approached inconsistently, making it difficult to assess these targets' contribution to the global net zero goal. A close examination shows that corporate net zero targets to date differ across three important dimensions: (1) the range of emission sources and activities included (2) the timeline, and most importantly; (3) how companies are planning to achieve their target.***

***Without a common understanding, today's varied net zero target setting landscape makes it difficult for stakeholders to compare goals and to assess consistency with the action needed to meet our global climate and sustainability goals."***

*From: FOUNDATIONS FOR SCIENCE-BASED NET ZERO TARGET SETTING IN THE CORPORATE SECTOR by SBTi (Science-Based Targets Initiative)*

**The IPCC (Intergovernmental Panel on Climate Change) defines net zero as that point when: "anthropogenic (originating from human activity) emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period". The Paris Agreement sets out the need to achieve this balance by the second half of this century.*

SBTi

# What are the most important elements of those plans?

To explore the activities that are the current focus of planning for manufacturers, we offered a long list of possible topics, and asked respondents to acknowledge which ones applied to them.

See Fig 9.

### Data, data, and more data

There are some interesting differences between large and medium-sized manufacturers, when we asked for the most important ingredients of their carbon reduction plans.

However, the one consistent element is "Energy consumption monitoring, data analysis, and benchmarking", further reinforcement that when manufacturers are planning, they are both:

1. Taking a thorough, rational and measurable approach to plans, and energy in particular

2. Using a continuous improvement methodology, at least as part of their path to net zero.

**Fig 9. Top 5 most important features of current plans**

**Large manufacturers**

| | |
|---|---|
| **Carbon reduction in supply chain** | **87%** |
| Energy consumption monitoring, data analysis and benchmarking | 85% |
| Participation in compliance systems (e.g. ISO 14001) | 78% |
| Carbon capture and storage | 76% |
| Capital investment in fixed assets that are more energy efficient | 76% |

**Medium-sized manufacturers**

| | |
|---|---|
| **Energy consumption monitoring, data analysis and benchmarking** | **85%** |
| Investment in knowledge and training | 85% |
| Procurement of low carbon consumables | 85% |
| Switching to an energy provider that provides renewable or low carbon energy products and services | 85% |
| Behaviour change campaigns | 83% |

### People power or machine power?

For the other elements, medium-sized manufacturers are more likely to look to human factors – such as behaviour change and training (perhaps in the belief that this is a less capital-intensive and more affordable route to change). There is also evidence that many have yet to switch to a renewable energy provider.

Large manufacturers are more likely to see the capital investment route as important, as well as the ambitious avenues of CCS (carbon capture and storage), and supply chain carbon reductions (which contrasts with the earlier Scope 3 priorities).

## Industrial CCS - how close is a solution?

The Intergovernmental Panel on Climate Change (IPCC) highlighted that, if we are to achieve the ambitions of the Paris Agreement and limit future temperature increases to 1.5 degrees, we must do more than just increasing efforts to reduce emissions.

We also need to deploy technologies to remove carbon from the atmosphere. CCS is one of these technologies and can therefore play an important role in tackling global warming.

**How does CCS actually work?**

There are three steps to the CCS process:

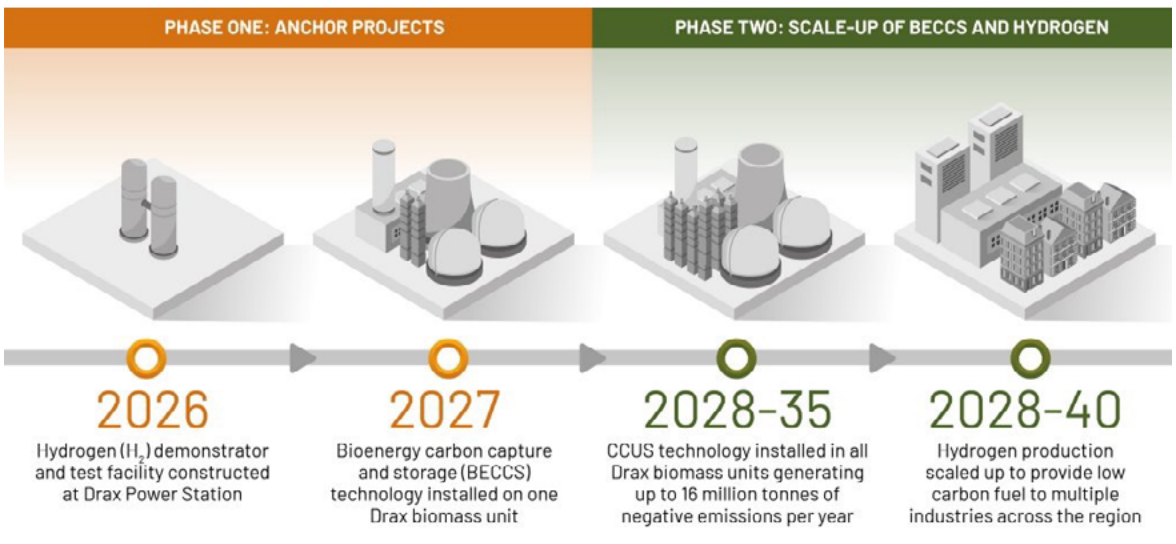
- **Capture:** the $CO_2$ is separated from other gases produced in industrial processes, such as those at coal and natural-gas-fired power generation plants or steel or cement factories.
- **Transport:** the $CO_2$ is then compressed and transported via pipelines, road transport or ships to a site for storage.
- **Storage:** finally, the $CO_2$ is injected into rock formations deep underground for permanent storage.

**Where are carbon emissions stored in CCS?**

Drax is a leading a partner in a large-scale pilot CCS project in the UK called Zero Carbon Humber (ZCH). For this pilot, the storage solution is a saline aquifer named 'Endurance', which is located in the southern North Sea, around 90km offshore. Endurance is approximately 1.6km below the seabed and has the potential to store very large amounts of $CO_2$.

As part of the wider infrastructure, it will include bioenergy with carbon capture and storage (BECCS), at Drax Power Station near Selby, from 2027, scaled up to become the world's first carbon negative power station by 2030.

**Zero Carbon Humber projects timeline**

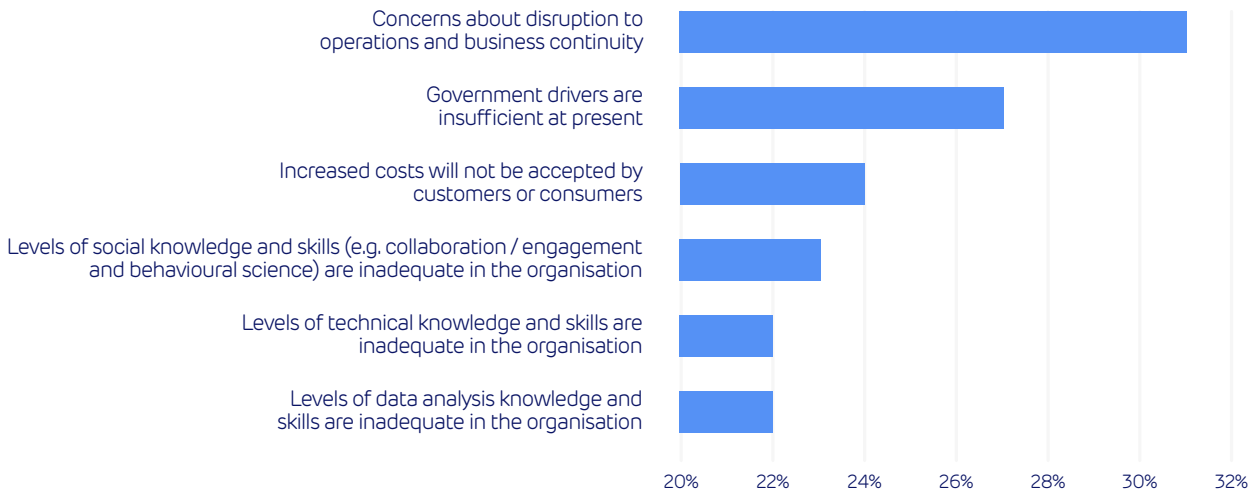


# What are the biggest challenges?

For those with a plan, respondents are either anticipating, or already experiencing, speedbumps or more substantial barriers on their roadmap. The highest-ranking obstacles for manufacturers are:

See Fig 10.

**Fig 10. Biggest challenges**




### Business (not) as usual

Concerns, whether grounded in reality or simply the weight of anticipation, about disruption to normal operations dominate the challenges.

It's a signal, perhaps, that leaders need to be change-agents – able to balance the internal narrative of burning platform with the opportunity-horizon of green revolution. Especially with the added expectation that change will mean increased costs, which can make it seem competitively disadvantageous to be a first mover.

### Bigger government?

The findings indicate that manufacturers are waiting for our national commitments to become a firmer mandate directed to business. This would potentially catalyse the change, and concerted planning across manufacturing towards net zero, so that businesses are seen to 'move together'.

### Skills, skills, skills

The research points to three categories of skills challenges;

1. Data analysis skills – to make good use of the increased data-capture capabilities mentioned earlier
2. Technical knowledge – to make good choices for long-term, sustainable capital assets
3. 'Softer' influencing skills – which will undoubtedly be a feature in Scope 3 supply-chain changes, for example.

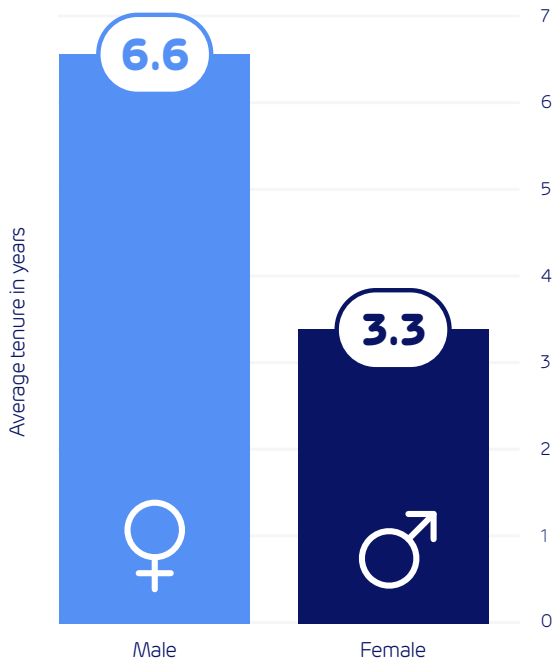
## Leadership for long-term roadmaps

A constant feature of the findings is the leadership role from the very top. The transition to net zero emissions is bringing about a transformation of unprecedented scope and pace. As crucial leaders of the economy, CEOs have a critical role to play in driving the race to net zero—within their own businesses, among their peers, along their value chains, and in relation to the broader ecosystem of investors and governments.

Those who act early can capture major opportunities and build a competitive advantage. CEOs who align their businesses to a net zero future not only shield themselves from risks but also position their businesses for growth in new green markets.

There might be a challenge of ensuring continuity, over the medium to long term. Net zero roadmaps are ultimately measured in decades, when the average tenure of CEOs is much shorter, and decreasing.

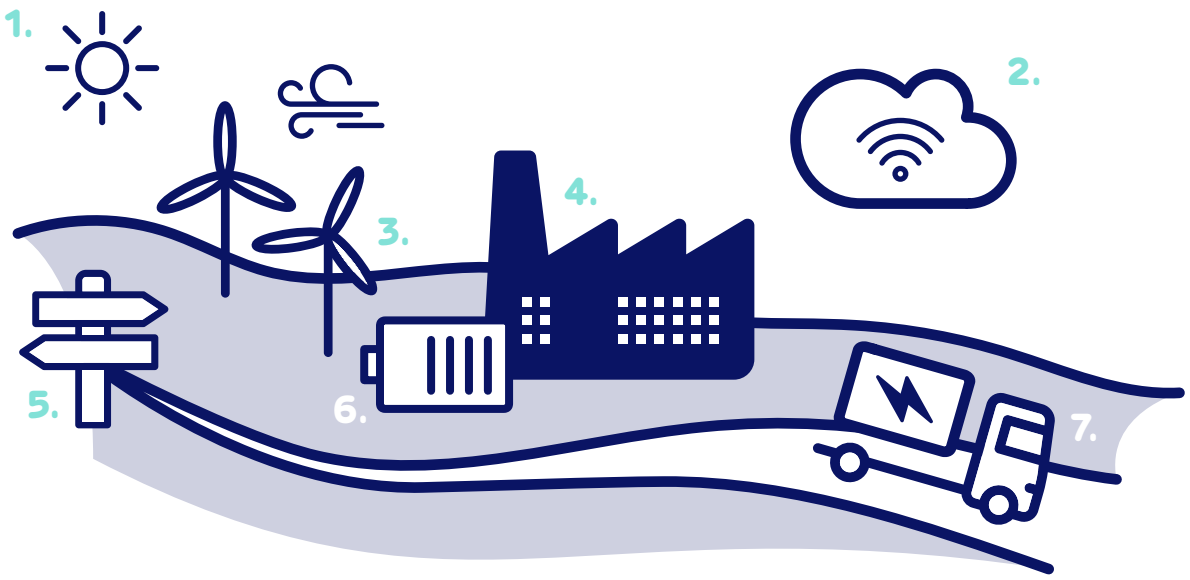
**Tenures**




The trend towards shorter tenures of CEOs is unlikely to change. This makes the challenge of ensuring continuity of net zero plans, which will span many successions of the leadership role.

# What are the most needed energy solutions?

**Fig 11. Most desirable energy solutions**




1. Renewable energy supply
2. 'Smart' factory
3. 'Local' energy supply
4. Energy efficient assets
5. 'Traceable' energy supply
6. Onsite storage
7. Fleet electrification

See Fig 11.

### Renewable plus

Unlike the lower-ranked desire for onsite generation of electricity, there is a clear need for renewable energy supply (also shown in many manufacturers' published roadmaps – like this from Quorn Foods - which show the priority of efforts to switch to 100% renewable electricity in the early stages).

The proximity of energy-sourcing also matters; there's a desire for local supply, together with the traceability that adds clear reassurance (as well as potentially adding to the claims to customers and consumers).

## All ROC, no roll

Renewables Obligation Certificates (ROCs) are green-energy certificates issued for eligible renewable electricity generated within the UK. The latest (2018-19) data on renewables certificates redeemed by suppliers shows Drax is the UK's largest B2B renewables supplier. Some of this power comes from a network of over 2,300 generators - businesses that sell self-generated renewable electricity through Power Purchase Agreements (PPA)

### Optimising onsite infrastructure

After renewable energy, a series of infrastructure elements are in the wish-list of manufacturers.

More energy-efficient assets can dramatically impact overall energy consumption. For example, if a bread-baking operation moved to infrared ovens, they can be 50%-80% more efficient than conventional ovens. This is because the baking process does not heat up large volumes of air. Also, they can help to cut down on baking time by nearly half.

### Fleet electrification

With 56% of new road-going vehicles purchased by fleets, fleet electrification not only offers emissions (and cost) benefits, it also adds impetus to the wider adoption of electric vehicles (EVs) in the UK. This in turn helps underpin the economics of EV charging infrastructure.

### Smart factory

Beyond sub-metering, a greater level of intelligence on energy performance of the whole factory can be gained by adopting Industrial Internet of Things (IIoT) technologies, connected to the cloud.

At one level, this is connecting the factory in the way that our homes are increasingly connected. Smart lighting, learning thermostats and sensor-based HVAC systems of the new generation are designed to automatically maintain the perfect conditions in spaces and keep energy use at the optimum level.

## Fleet electrification: Finding a partner for the EVolution

Fleet electrification can cut down a significant portion of Scope 1 emissions.

Utilities provider, SES Water, began electrifying its 120 vehicle-strong fleet with the help of Drax. A suitability assessment proved that starting the EV switch was a no-risk opportunity, with cost parity and carbon reduction benefits.

10 vehicles switched initially in a trial to build the business case. In the space of 14 months, the fleet saw a 56% reduction on running costs (electricity versus fuel) and saved 18 tonnes of carbon.

SES Water charges their electric vehicles with 100% renewable electricity, which also keeps their Scope 2 emissions lower than using electricity from fossil fuel sources.

***"The trial has started to change attitudes within the business: three years ago, EVs weren't on the radar at all but now people are asking for their next company vehicle to be electric."***

*- Henrietta Stock, Energy and Carbon Manger, SES Water*

## Optimising infrastructure

Finding flexibility in your operations and usage of electric assets can bring risk-free, fixed savings on your energy and monthly bill.

Energy partners like Drax will analyse electric machinery, equipment, and other assets to find savings and generate value. They'll also look for operational inefficiencies that could be improved, with cost benefits.

Agricultural manufacturer, Sundown Products, enlisted Drax's help to identify how much of their electricity demand was flexible.

By simplifying complexities in their on-site processes and machinery, Sundown Products reduced its energy costs by £35,000 per year. This saving was predicted and guaranteed up-front.

***"The optimisation combined with 100% renewable electricity supply is a very significant benefit to us... We've been delighted with the results of the partnership so far."***

*- David Cubitt, Managing Director, Sundown Products.*

Equipped with different sensors (light, movement, humidity, $CO_2$ level, etc.) these systems can dynamically adjust the regimes depending on the changing conditions and avoid using energy in potential waste points.

With further connectivity, energy demand can be better regulated and balanced, including the integration of onsite storage.

### Onsite storage

Battery energy storage systems are becoming more prevalent, and the technology continues to develop. Lithium-ion batteries, often sized like shipping containers, are today's dominant form. The ability to store and discharge electricity at will provides stakeholders on and off the grid maximum flexibility to manage power flows – and to potentially make money. For remote sites, storage also helps provide energy security and limits the need for expensive, polluting diesel generators.

# Drax - sustainability as standard

Drax Power Station provides 11% of the UK's renewable power, and is the largest decarbonisation project in Europe

We're the biggest supplier (by annual consumption) of renewable power to UK businesses

Drax's ambition is to be carbon negative by 2030

We have partnerships with over 2,300 renewable generators across the UK

Our Bioenergy Carbon Capture Storage (BECCS) trial currently captures 1 tonne of $CO_2$ daily

## Find out more

energy.drax.com

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