



MISSION: POSITIVE

To net-zero and beyond in the

MANUFACTURING SECTOR

July 2022

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Contents

Introduction

Manufacturing represents a critical piece of the UK’s net-zero puzzle. But beyond simply ‘reducing’, manufacturing firms also have a key role to play in enhancing the environmental and social sustainability of the communities they serve.

Accounting for more than 60% of direct industrial emissions in the UK, manufacturing is an energy-intensive industry and one that has worked efficiently to reduce emissions in line with previous UK climate legislation.

But the transition to net-zero emissions is unprecedented and one that will require manufacturers to not only decarbonise at a quicker pace, but also engineer and spur the market for green solutions like turbine blades and solar PV panels.

As such, the sector will be a catalyst in the wider net-zero movement and one that can unlock new skills and economic opportunities along the way.

This report aims to highlight the optimism in the sector in not only playing a key role in reaching net-zero,

but also contributing to a “net-positive” approach to society, the economy and the planet.

For the second report in this brand new series, edie will explore the drivers, challenges and opportunities when it comes to accelerating decarbonisation, along with the steps that can be taken to embrace a ‘net-positive’ philosophy.

The report has been created in assistance with Verco and uses exclusive results from edie’s sustainability leadership survey of more than 250 sustainability and energy professionals. This manufacturing sector report has also been produced with guidance from in-depth discussions with a steering panel of sustainability experts from some of the world’s most respected manufacturers in the vanguard of sustainability leadership.



***Survey results**

The charts and graphs displayed throughout this report are based on the segmented survey responses from 15 sustainability and energy professionals working for organisations across the UK public sector.

This insight report is published by edie, the industry-leading, purpose-driven business media brand which empowers sustainability, energy and environmental professionals of all levels to make business more sustainable through award-winning content and events.

For more information, please contact lukenicholls@favhouse.com for content and davidgriffiths@fav-house.com for sponsorship opportunities.

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Manufacturing and net-zero

A progress update

Manufacturing is one of the most carbon-intensive sectors in the UK, as well as being the one to hold many of the tools to assist a rapid and accelerated approach to emissions production. For manufacturing, net-zero isn't just about getting your own house in order, but catalysing a much wider impact.



According to the Climate Change Committee, manufacturing accounts for 13% of the UK's emissions and more than 60% of direct industrial emissions, making it a huge factor that will determine whether net-zero emissions can be reached in the country by mid-Century.

The sector can point towards a strong historical approach to decarbonisation, suggesting that it can embrace this radical and ambitious new movement. Between 1990 and 2018, emissions from the sector have decreased by more than 56 million tonnes of CO₂e. Efforts have been turbocharged, with emissions in the sector being slashed by 17% over the last five years. But with the sectors' carbon footprint still totalling more than 61 million tonnes, the road to net-zero will be long and complex.

According to Make UK, which represents UK manufacturing firms, around 85% of emissions from the sector come processes using fuel

combustion – including for high and low-grade heat processes and drying and separation and chemical use – with the remainder coming from a mixture of mining, transport and off-road mobile machinery. Developing innovative alternatives to these processes will be key to reaching net-zero.

Manufacturers have been quick to re-align existing corporate strategies with the wider net-zero movement. Since the UK Government unveiled its net-zero commitment for 2050, some of the world's largest manufacturers have unveiled similar time-bound efforts, including Unilever and Rolls-Royce.

Additionally, many sub-sector industry bodies have developed decarbonisation roadmaps, enabling corporate members to share best practice on the road to net-zero. These include the Food & Drink Federation (FDF) and the British Retail Consortium, both of which have set net-zero targets well ahead of the Government's 2050 deadline.

REPORT: NET-ZERO TARGETS HITTING CRITICAL MASS, BUT 'CREDIBILITY GAPS' MUST BE ADDRESSED

A new report analysing national, regional and corporate approaches to net-zero has found that more than 90% of global GDP is covered by such targets, but that more robust plans and efforts to cut emissions immediately need to be introduced.

Individual firms are also taking action. Of the 2,000 plus companies to have set targets through the Science Based Targets initiative, 75 are from the manufacturing sector in the UK.

However, collaboration will be key to the success of the sector's decarbonisation efforts. Already, the Government is aiming to decarbonise key industrial clusters, with a huge emphasis on the manufacturers operating and refining within these clusters.

Manufacturing and net-zero: A progress update

Just over half of manufacturing emissions come from clustered areas, and the Government is aiming to establish the “world’s first net-zero carbon industrial cluster by 2040 and at least one low-carbon cluster by 2030”, as part of the Industrial Clusters Mission.

Catalysing net-zero

Part of this movement is driven by legislation, but research suggests that the sector can capture wider benefits beyond decarbonisation. Indeed, many manufacturers actually ramped up green initiatives, spending and projects to combat the impacts of the coronavirus, which has hampered the UK economy in recent years.

As part of a survey with UK manufacturers prior to the coronavirus pandemic by Make UK and energy firm E.ON, it was revealed that those prioritising sustainable practices have reported boosted profits and performance. The survey found that 40% of UK

manufacturers had increased profit margins and 30% were experiencing increased competitiveness. Almost 50% of manufacturers see the net-zero transition as a business opportunity and will be looking to prioritise low-carbon practices to stimulate their own performance.

To gain an informed understanding of the impacts, challenges and opportunities of the net-zero movement on energy and sustainability professionals across a multitude of sectors, edie ran a survey across the month of March 2022. In total, 256 sustainability professionals across all the UK’s key sectors responded to the survey. The organisations represented by respondents spanned all major sectors, including manufacturing, the built environment, retail, utilities and finance. Of those respondents, 25 were from the manufacturing sector.

The survey found that 88% felt their organisation was more committed

“SINCE THE UK GOVERNMENT UNVEILED ITS NET-ZERO COMMITMENT FOR 2050, SOME OF THE WORLD’S LARGEST MANUFACTURERS HAVE UNVEILED SIMILAR TIME-BOUND EFFORTS, INCLUDING UNILEVER AND ROLLS-ROYCE.”

to sustainability compared to the previous year, with the remaining 12% expecting no change in the levels of ambition towards their sustainability strategies. No respondent claimed that their company was lessening their focus on sustainability, despite the ongoing concerns about rising prices in relation to energy and goods and services.

The sector also has a unique role in stimulating other sectors to decarbonise in alignment with the net-zero target. The decarbonisation transition will require a massive uptick in the development of low-carbon technologies and infrastructure, including solar panels, wind turbines and carbon capture infrastructure. Many manufacturers can step into these emerging markets to capture new economic boons. Rolls Royce, for example, has ventured into the small modular nuclear reactors (SMRs) market.

Rolls-Royce [stated in 2020](#) that its ambition is to bring 16 of the SMRs online across the UK by 2025. It touts a 60-year lifespan for each reactor and claims each one is capable of powering more than one million homes.



Editorial credit: josefkubes / Shutterstock.com

Net-zero challenges

The manufacturing sector is eager to embrace the net-zero movement and the benefits and improved resiliency it will bring. However, there are a range of internal and external hurdles that need to be addressed to ensure the sector can decarbonise in an efficient manner.

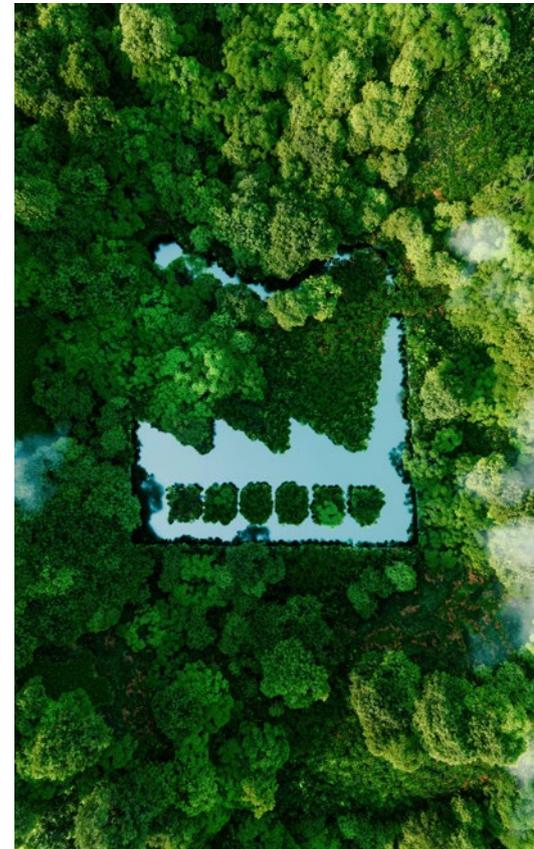
While some sectors have been slow movers on the decarbonisation front, many UK manufacturers have been quick to set net-zero targets. This level of ambition is as welcome as it is required, but there is a big difference between ambition and action, with the latter requiring complexities surrounding policy, infrastructure and company inertia and mindset to be challenged.

During edie’s manufacturing sector focus roundtable, one of the most common challenges that emerged was that of tackling Scope 3 emissions, in particular a lack of access to quality data to help with the formation of Scope 3 targets. Given that Scope 3 can account for up to 90% of a firm’s total carbon footprint this is a priority area of action for a lot of firms.

This is reflected in edie’s flagship survey. While 39% of respondents claimed they were “actively working” with suppliers on decarbonisation, 27% had no target in place for Scope 3 emissions. Additionally, only 18% had science-based targets in place covering their Scope 3 emissions.

While Scope 3 is a long-term area for improvement, manufacturers are also facing up to more immediate challenges that need to be overcome.

According to manufacturing survey respondents, 24% cited investments and costs as the main challenge facing their decarbonisation plans in 2022, second only to behaviour change and employee engagement, which was cited by 36%.



Disinformation surrounding net-zero and the continued fallout from the coronavirus pandemic were also cited as major challenges by respondents.

edie’s surveys shows that net-zero carbon seems to be the direction of travel for the sector. In total, 60% of manufacturing respondents claimed that their organisation had a net-zero target in place.

As is the case with most organisations though, there is a gap between these net-zero targets and the tangible efforts in place to help decarbonise. Less than half (48%) of respondents revealed that their organisation had set science-based targets while 44% had put targets in place to procure and use 100% renewable energy at facilities and offices.

What do you believe will be the biggest challenge for sustainable business over the next 12 months?



Net-zero challenges

Some organisations are struggling to get buy-in on even the target setting phase. Just 53% of manufacturing sector respondents to the survey had set science-based targets, while only 33% had made a 100% renewables commitment.

Measures such as carbon offsetting, transitioning to electric fleets and aligning with the recommendations and reporting requirements of the Task Force on Climate-Related Financial Disclosures were (TCFD) were also being explored by one-fifth of respondents but more best practice and examples need to be shared across the industry if these measures are to reach critical mass.

External pressures

Manufacturers are having to operate in a challenging environment that has seen green policies questions – and in some cases outright removed – while still grappling with the economic and health impacts of the coronavirus pandemic.

Manufacturing was not immune to the impacts caused by Covid-19 and the subsequent lockdown. As restrictions on travel were issued across the UK and the rest of the world, many factories were forced into temporary closure, production of certain products stopped, and many workers were made redundant or placed onto governmental furlough schemes.

edie ran a survey in 2020 exploring the sector’s response to the pandemic. Of the respondents representing the manufacturing industry, only 18% delayed or postponed sustainability announcements. Additionally, 28% of respondents had seen their organisation place energy or sustainability staff onto the Government’s furlough scheme. While this showcases an immense appetite for sustainability has a cost-saving driver, the current energy cost crisis has only heightened the need to act, with many manufacturers looking at low-carbon solutions to decarbonise and save energy.

What solutions are available to the sector, however, remains a challenging labyrinth to navigate to ensure companies are investing in cost-effective and energy-saving technologies that can help with the journey to net-zero.

According to Make UK’s own net-zero roadmap, a “deeply or fully decarbonised power supply, reliable, in sufficiency and at a reasonable cost” is one of the essential drivers that needs to be introduced to ensure the sector can reach net-zero.

Make UK notes that this would need to include the development of a clean hydrogen network. Given that 95% of all hydrogen produced derives from fossil fuels, there is concern amongst the industry that policy isn’t enabling decarbonisation at a faster enough pace by allowing firms to switch to innovative, low-carbon fuel supplies and networks.

Manufacturing also has a unique infrastructure challenge that must be addressed. While hydrogen and clean energy networks are being developed across the UK’s industrial

WHICH OF THE FOLLOWING DECARBONISATION PATHWAYS HAS YOUR ORGANISATION TAKEN SO FAR?



“IN TOTAL, 60% OF MANUFACTURING RESPONDENTS CLAIMED THAT THEIR ORGANISATION HAD A NET-ZERO TARGET IN PLACE.”



Net-zero challenges

clusters, dispersed manufacturing sites account for just under 50% of the sector’s emissions. These dispersed sites often consist of lots of SMEs that will likely face major cost and resource barriers to decarbonisation. As such, any reliable power supply and network must be affordable and scalable across these dispersed sites.

As part of Make UK’s net-zero roadmap the organisation has also outlined key recommendations that need to be introduced to

help facilitate decarbonisation for manufacturers.

Make UK members agreed that the sector needed support in the form of new funding streams that incentive low-carbon initiatives such as switching to renewables, electrifying fleets and process and improve raw material efficiency.

Policy and skills gaps also need to be addressed. Make UK notes that there is an absence of policy to prevent carbon leakage across the manufacturing value chain, this requires an collaborative internal effort however, with some companies looking to relocate to nations where production costs are not “impacted by emission constraints”.

On skills, Make UK notes that the sector needs more qualified workers

with a bigger focus on digital and greener applications. This, in turn, would enable the sector to manufacture low-carbon solutions that would help reduce emissions across other sectors, notably the built environment and transport. We’re already seeing examples of this in transport, with vehicle manufacturers such as Ford selling off traditional ICE development arms to focus solely on electric vehicle (EV) production.

Make UK notes that more sub-sectors within manufacturing need to adopt this approach, with more specialist development and innovation on carbon capture, utilisation and storage (CCUS) being required to help lower emissions at industrial clusters and for carbon-intensive processes. Again, progress has started here, but needs to be accelerated, as is discussed in the next section of this report.

READ MORE: UK’S CCS DEPLOYMENT LACKING ‘COMPREHENSIVE’ PLANNING ON NON-CLUSTER SITES

The UK’s net-zero transition is lacking a “comprehensive regulatory framework” to overcome challenges to “dispersed” sites that would be suitable for carbon capture technology (CCS) but that aren’t located in industrial clusters.



“DISPERSED MANUFACTURING SITES ACCOUNT FOR JUST UNDER 50% OF THE SECTOR’S EMISSIONS. THESE DISPERSED SITES OFTEN CONSIST OF LOTS OF SMEs THAT WILL LIKELY FACE MAJOR COST AND RESOURCE BARRIERS TO DECARBONISATION.”

Net-zero opportunities and priorities

Despite the challenges surrounding access to funding and infrastructure, there is a widespread belief across the manufacturing industry that net-zero is not only achievable, but that the sector can help catalyse decarbonisation across other areas of the economy.



SPOTLIGHT ON NET-ZERO INDUSTRIAL CLUSTERS

Under the 2050 net-zero ambition, the UK Government has committed to fully decarbonising at least one industrial cluster by 2040. This has spurred a race between clusters in the North West, Teesside, Humberside, Grangemouth, South Wales and Southampton to become the first to do so.

As part of the [Industrial Clusters Mission](#), the Government opened [two innovation funds in October](#) aimed at helping businesses located in key industrial clusters to plan and deploy technology to help reach net-zero emissions by 2050. Up to £140m could be accessed by successful applicants.

Drax, Equinor and National Grid published a roadmap fleshing out their plans to create the world's first zero-carbon industrial hub in the Humber region by 2040. The roadmap sets out proposals to build a [demonstration hydrogen production facility](#) in the region by 2025 and install carbon capture equipment on one of the four biomass units at Drax's power station in Selby two years later.

BP, Eni, Equinor, Shell and Total have all signed up to spearhead the development of the Net-Zero Teesside project, which focuses heavily on the use of [carbon capture, utilisation and storage technology](#) (CCUS).

The [North West Energy & Hydrogen Cluster](#), led by the University of Chester and Manchester Metropolitan University, will create a skills roadmap to develop the "complementary" skill sets of oil and gas works to harness new low-carbon technology such as hydrogen and carbon capture.

The Liverpool and Manchester mayors and Cheshire & Warrington Local Enterprise Partnership (LEP) are working with the North West Business Leadership Team (NWBLT) to develop a decarbonised cluster that could deliver 33,000 jobs and save 10 million tonnes of CO2 per year.

With manufacturing organisations and sub-sector coalitions notably pointing to a lack of policy guidance and access to low-carbon, cost-effective solutions, it is abundantly clear that manufacturing organisations are looking to collaborate to deliver a rapid transition to net-zero emissions.

Many coalitions representing different sub-sectors of the manufacturing industry, such as food and drink, steel, cement and retail-orientated manufacturers have outlined steps to reach net-zero emissions that focuses on organisations working in unison to share best-practice.

At the start of 2022, Make UK's manufacturing members, in partnership with Inspired Energy, published the final report of the

first roadmap to net-zero for the manufacturing sector. The roadmap was created to help "inform the Government of the manufacturing industry collective position and its needs, and support delivery of the Industrial Decarbonisation Strategy".

The roadmap outlines how companies and their sub-sectors will contribute to the establishment of four low-carbon industrial clusters by 2030 (see the role of green policy section for more details) and the decarbonisation of mini-clusters at dispersed sites.

The roadmap, which is backed by Make UK members, notes that the industry "overwhelmingly supports" the Government's enshrined targets to achieve a 67% reduction in Scope 1 and 2 emissions by 2035.

Net-zero opportunities and priorities

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MANY COALITIONS REPRESENTING DIFFERENT SUB-SECTORS OF THE MANUFACTURING INDUSTRY, SUCH AS FOOD AND DRINK, STEEL, CEMENT AND RETAIL-ORIENTATED MANUFACTURERS HAVE OUTLINED STEPS TO REACH NET-ZERO EMISSIONS THAT FOCUSES ON ORGANISATIONS WORKING IN UNISON TO SHARE BEST-PRACTICE.
 ”



It is through these collaborative initiatives that manufacturers can de-risk the upfront costs and concerns associated with green innovation.

Nowhere is this more evident than across the UK's industrial clusters, where many carbon-intensive manufacturers currently operate. Firms such as Drax, Equinor, BP and Total are all collaborating through regional partnerships to help decarbonise key industrial clusters that would enable manufacturers to tap into solutions such as hydrogen and carbon capture and storage that aren't yet commercially viable for individual firms.

While collaboration is the priority to help manufacturers decarbonise their own operations and value chains, the sector also has a unique opportunity to boost revenues through the low-carbon transition.

Many manufacturers may feel that there is an opportunity to pivot towards the create of new low-carbon products and provide services. Research from the Global Commission states the development of low-carbon solutions could generate \$26trn in economic benefits through to 2030 and companies that

invest in specialised manufacturing teams and services for solutions like wind turbines, batteries, hydrogen and electric vehicles could generate huge new sources of revenue.

This movement has been widespread across transport manufacturers. The UK Government has asked the nuclear industry regulator to begin the approval process for Rolls-Royce's small modular nuclear reactors (SMRs), which will enable the manufacturer to tap into a [£210m funding pot for SMRs](#) from the Government.

Other manufacturers are also looking at how reducing the carbon and climate impacts of their products can enable other firms to reduce emissions, namely those that are embodied in the construction sector.

Major businesses including Volva and Iberdrola are the latest to sign up to the Climate Group's initiative to using 100% net-zero emission steel for products by 2050. SteelZero represents businesses from all parts of the steel value chain. By [signing up to SteelZero](#), companies commit to procuring, specifying, stocking, or producing 100% net-zero steel across all operations by 2050 at the latest.

READ MORE:
QUORN TURNS TO GREEN HYDROGEN TO DECARBONISE MANUFACTURING

Plant-based food brand Quorn will explore how green hydrogen technology could help to decarbonise its manufacturing operations, as it works towards net-zero operational emissions by 2030.

Iberdrola and Vattenfall BA Wind both operate in the renewables sector, namely with a focus on wind, while Siemens Gamesa builds, develops and supplies wind turbines. Volvo Cars is the first automotive manufacturer to join Steel Zero.

All four companies have set targets of using 50% low-carbon steel by 2030, which will build towards the overall aim of using net-zero steel by 2050.

Elsewhere, some of the world's largest cement and concrete manufacturers have committed to reduce the emissions intensity of their products by up to 25% this decade, as the industry works towards a shared net-zero vision for 2050.

The sector views net-zero as an achievable transition. Many companies like Ibstock and innocent are already operating or building towards carbon-neutral manufacturing processes and the hunger to collaborate and share best

practices will only help address the challenges that net-zero poses.

During 2022, Make UK surveyed more than 130 UK-based manufacturers to examine the priority areas of the sector moving forward.

Almost half (46%) of the respondents said that their company is already implementing decarbonisation plans, with a further 25% intending to start the implementation progress within 12 months.

More than half of the respondents agreed that the rising cost of energy has increased their motivation to reduce emissions. Three-quarters of the respondents see improving energy efficiency as the main focus of their decarbonisation plans, as this is a quick way to reduce bills as well as emissions. 42% of respondents are planning to install new or upgraded equipment with the intention of improving energy efficiency, others may look to behaviour-change-based or digital-tech-based solutions.

As edie's survey shows many manufacturers believe that embedding sustainability across the wider business will help in delivering progress against sustainability targets.

When given a choice of attributes to rank in terms of importance to sustainable action, 48% of manufacturers listed "sustainability credentials being built into all products and services" to be the most important, second only an "alignment between core values and purpose (51%). Transparency and accountability also generated a lot of positive responses (respondents were able to list three attributes).

Fortunately, manufacturers have made strong inroads in embedding sustainability internally. As the graph below shows, chief executives, research and development teams and the comms specialists are all very engaged on the sustainability agenda.

PLEASE RATE THE LEVEL OF ENGAGEMENT THAT EACH OF THE FOLLOWING DEPARTMENTS HAS WITH SUSTAINABILITY AND CSR IN YOUR ORGANISATION

SILO	VERY ENGAGED WITH SUSTAINABILITY	SOMEWHAT ENGAGED WITH SUSTAINABILITY	NEITHER ENGAGED NOR DISENGAGED WITH SUSTAINABILITY	SOMEWHAT DISENGAGED WITH SUSTAINABILITY	NOT ENGAGED AT ALL WITH SUSTAINABILITY
CHIEF EXECUTIVE	18	7			
CORPORATE BOARD	13	11	1		
CORPORATE COMMS	15	8	1	1	
FINANCE	5	7	10	3	
HR	5	10	7	3	
IT	2	6	13	1	3
LEGAL	3	11	8	2	1
MARKETING	11	11	2	1	
R&D PRODUCT DEVELOPMENT	12	8	3	2	
SUPPLY CHAIN PROCUREMENT	9	11	3		2

The role of green policy

The UK Government's net-zero strategy is an umbrella commitment that has seen numerous new strategies and policy frameworks introduced, all with an overarching aim to decarbonise every sector of the UK economy.

Manufacturers will find themselves flitting across The Ten Point Plan for a Green Industrial Revolution, which points to hydrogen, CCS and renewables as the cornerstone of decarbonisation efforts, as well as smaller funding pots and frameworks to access capital for low-carbon spending opportunities.

Prior to the net-zero target, manufacturers were very much aligned with the goals of the Industrial Decarbonisation Strategy, which set ambitious carbon targets for industrial firms and sectors.

The Strategy features a headline commitment for industrial emissions to be reduced by 66% by 2035 and then at least 90% by 2050. The Government believes that up to 3Mt of carbon could be captured through CCS technologies, with the sector also procuring around 20TWh of clean energy through low-carbon fuels by 2030.

However, many existing Government strategies tailored to manufacturers predate the net-zero commitment and it remains uncertain as to whether manufacturing policy is up to the standards required to enable the sector to spur a green recovery and reach net-zero emissions by 2050 at the latest.

The UK Government's target to reach net-zero emissions is well-intentioned, but landmark policy announcements have only scratched at the surface of what is required to give manufacturers the confidence to invest in and build towards net-zero solutions.

Since the net-zero target was legislated the Government has confirmed plans to establish the "world's first net-zero carbon industrial cluster by 2040 and at least one low-carbon cluster by 2030", as part of the Industrial Clusters Mission. These clusters can access up to £170m in funding as part of the wider Industrial Decarbonisation challenge, which now has spinoff deployment roadmaps set up, to help invest in CCS and hydrogen.

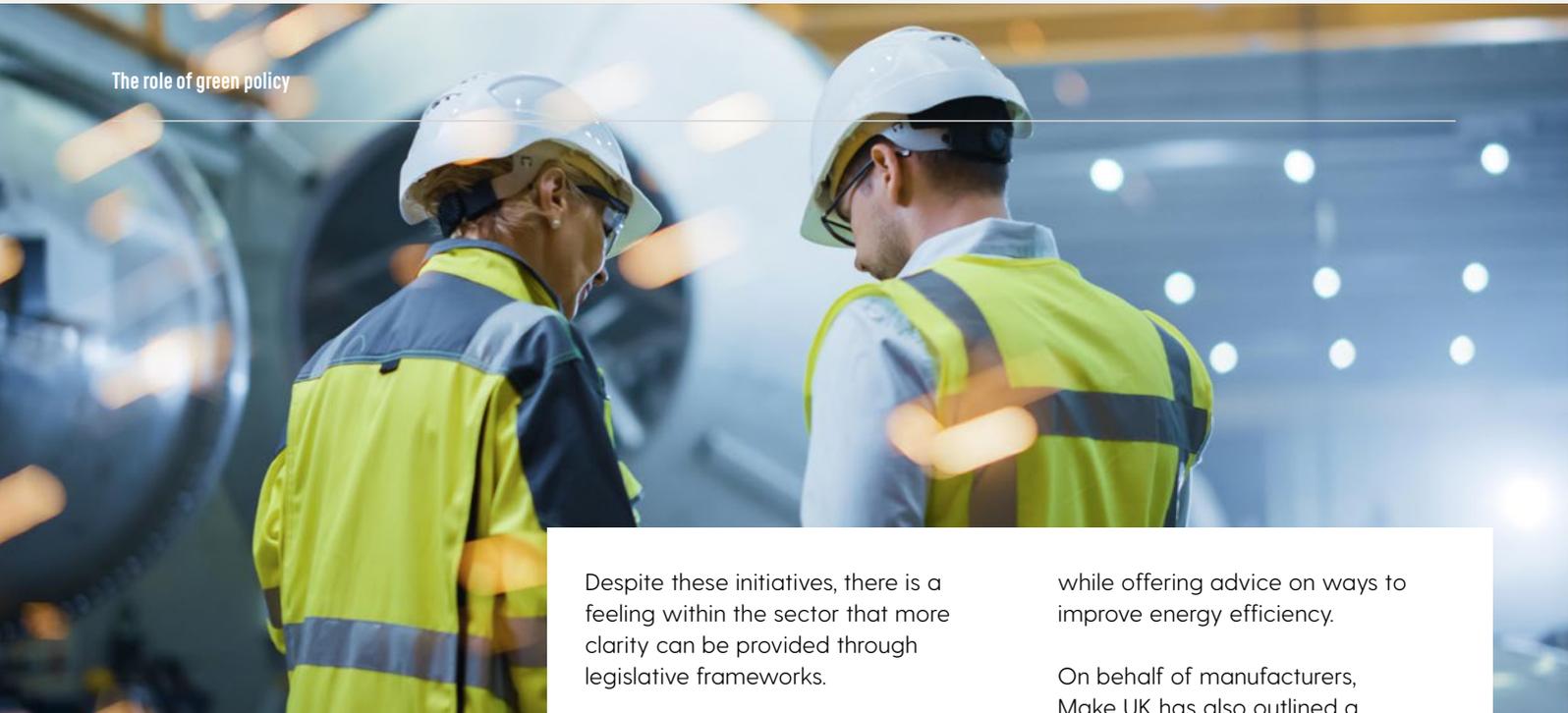
However, with just under half of manufacturing emissions coming from dispersed sites, the Government has set up some bespoke funds and grants that can be accessed.

The Manufacturing Made Smarter Challenge has seen around £300m channelled into 34 applications ranging from digital solutions that help reduce emissions. Manufacturers have also been able to access the BEIS Industrial Energy Transformation Fund, Clean Heat Grant, the BEIS Industrial Energy Efficiency Accelerator and CCUS Innovation 2.0 Competition and the BEIS Industrial Fuel Switching Competition, to name just a few funding frameworks.



“THE GOVERNMENT SHOULD ALSO INTRODUCE POLICIES THAT ENABLE THE ENERGY SECTOR TO EXPAND ITS USE OF DATA ANALYSIS FOR MANUFACTURERS, IN A WAY THAT MAKES ENERGY COSTS CLEARER WHILE OFFERING ADVICE ON WAYS TO IMPROVE ENERGY EFFICIENCY.”

The role of green policy



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 ”

Despite these initiatives, there is a feeling within the sector that more clarity can be provided through legislative frameworks.

In a Towards Net-Zero report published with support from E.ON, Make UK members were surveyed on the viability of government policies to support decarbonisation in the manufacturing sector. The report found that frameworks such as the Renewable Heat Incentive (RHI), which has recently been extended until March 2022, were being utilised by less than 6% of manufacturers, with 60% not even aware of the scheme. In addition less than 3% of manufacturers were taking part in the Industrial Heat Recovery Support Programme (IHRS).

Fewer than 4% of manufacturers were also exploring how capacity markets and demand-side response mechanisms could be used to financial and decarbonisation benefits. In response, manufacturers are looking for the Government to provide simplified grant application processes to enable a financial recovery from Covid-19. Decarbonisation should be heavily incentivised as part of this process. The Government should also introduce policies that enable the energy sector to expand its use of data analysis for manufacturers, in a way that makes energy costs clearer

while offering advice on ways to improve energy efficiency.

On behalf of manufacturers, Make UK has also outlined a series of recommendations to the Government that it believes will assist the sector with ongoing efforts to reach net-zero. This includes making more grant schemes simpler to access for SMEs, namely by expanding fiscal incentives.

Make UK also recommends that the recent 130% investment super-deduction should be extended beyond its current 2023 deadline, while also extending the 12-month tax relief for industrial building improvement to beyond 2024. Make UK also documented a broad lack of awareness of how to access Government funding for decarbonisation schemes. 31% of survey respondents said they did not have access to sufficient funding, externally and/or internally.

Yet less than one-fifth of respondents said their firm is aware of – and using – tax reliefs available to all energy users. Of those falling within the requirements for tax reliefs for energy-intensive companies, 38% were unaware of the opportunity. And, on government grants and funds, just 10% of survey respondents said their firm has made a successful application. 25% are intending to apply within 12 months.

Beyond zero

Net-zero is the journey for many manufacturers, but already a select few have set targets that stretch beyond this and focus on “carbon negative” ambitions, while others are realising the potential that closed-loop systems can have in improving planetary prosperity.



As shown throughout this report, manufacturers are striving to make net-zero emissions a reality, but even as they attempt to reduce the emissions of their operations, products and services there is an understanding that wider benefits for the planet and society can be generated along the way.

With the UK still feeling the impacts of the coronavirus pandemic, many manufacturers continue to pivot production lines to assist with the development of protective equipment that is still present in consumer-facing applications.

More broadly, however, there is a belief within the sector that it can act as a catalyst for the green recovery, one that boosts the economy and job growth through green products and services.

A report from the Manufacturing Technologies Association (MTA), for example, claims that manufacturers that embrace greener and more energy-efficient processes could unlock an extra £8bn in GDP for the

UK. This, in turn, would help deliver between 400,000 to one million green jobs. Indeed, research suggests that the manufacturing sector could be one of the primary drivers for job growth in the UK, enabling its existing workforce to pivot to green roles, while upskilling those moving from carbon-intensive industries.

New analysis published by UK100, a group of over 100 mayors and local government leaders, suggests that up to 1.2 million jobs could be created across manufacturing and construction if the UK Government were to commit to a green recovery.

UK100 estimates that more than three million jobs are expected to be created as part of a national shift to the green economy, with these two sectors accounting for the majority of job opportunities.

While turning research into reality will require enabling policy frameworks, there is also the need for manufacturers to focus on value creation through sustainability and decarbonisation, which in turn will

“
THE NET-ZERO
TRANSITION IS NOW
ABOUT IGNITING A
CULTURE CHANGE
ACROSS A BUSINESS THAT
WILL UNCOVER NEW
PROCESSES AND UPSKILL
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TO ENABLE NOT JUST A
GREEN TRANSITION, BUT
A JUST AND FAIR ONE.
”

deliver competitive advantages. This will help businesses meet impending regulatory requirements on climate disclosure while also tackling that longstanding challenges of the supply chain.

The fact that many manufacturers are part of another firm’s scope 3 also means they can drive wider levels of decarbonisation through their actions, assisting consumer-facing firms and those operating in the built environment with their decarbonisation plans.

Closed loop and carbon negative
Many manufacturers are also realising the synergy that exists

Beyond zero

WHY THE CIRCULAR ECONOMY IS PRIMED TO IMPROVE SOCIAL SUSTAINABILITY AND VALUE CHAIN RESILIENCY

The coronavirus pandemic has highlighted the fragility of both society and the sprawling value chains that the economy relies on. Shifting nations to a circular economy could be key in delivering a green recovery that champions sustainable income and environmental stewardship.

between decarbonisation and the circular economy. By embracing closed-loop, recycled and bio-based materials, many manufacturers are also decarbonising while easing the pressure of the planet's finite resources and reducing waste.

In June 2022, Danish brewer Carlsberg unveiled plans to trial the performance of 8,000 fibre-based beer bottles, in a move that could help the company reduce the carbon emissions and improve

recyclability. The company joins other manufacturers, notably Coca-Cola and Absolut in working on the Paper Bottle Community to rollout bio-based solutions and alternatives to single-use bottles.

Then there are the firms that are looking beyond net-zero. Carpet tile manufacturer Interface has long been in the vanguard of sustainability leadership and is now forging ahead with its [Climate Take Back strategy](#), which is also filled to the brim with ambitious actions. It focuses on “reversing global warming and rethinking carbon as a resource”, transforming dispersed materials into “products and goodness” and creating supply chains that benefit all life and “factories that are like forests”. Interface has committed to becoming [carbon negative by 2040](#).

Capturing these wider benefits will require a new types of sustainability leaders to emerge. When edie surveyed manufacturers, we asked them what skills and traits would be the most important to help deliver a sustainable future, with respondents able to choose up to three key traits.

In total, 60% of respondents voted for “a genuine passion for the cause”

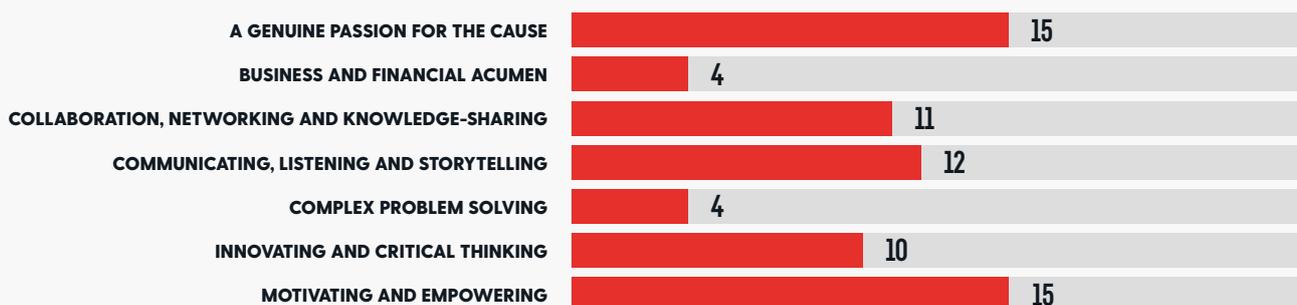
amongst the top three traits, equal with “motivating and empowering” (also 60%) and followed by “communicating, listening and storytelling” at 44%.

With reports suggesting that net-zero targets have reached “critical mass” amongst major European firms, the net-zero transition is now less about getting buy-in and top-down interest for sustainability, but igniting a culture change across a business that will uncover new processes and upskill entire workforce to enable not just a green transition, but a just and fair one.

CAN BUSINESS MODELS ACT AS CARBON SINKS TO REACH NET-ZERO?

Interface's head of sustainability Jon Khoo reflects on the company's own ambitious Climate Take Back strategy, as well as discussing how business mindsets and models can “act like carbon sinks” to transform corporates into zero-impact organisations.

WHICH OF THE FOLLOWING SKILLS AND TRAITS DO YOU BELIEVE TO BE THE MOST IMPORTANT FOR FUTURE BUSINESS LEADERS?



EXPERT
VIEWPOINT

ACHIEVING NET-ZERO MANUFACTURING: IT'S ALL IN THE PLANNING

MANUFACTURERS ARE OFTEN A POINT OF CONVERGENCE FOR VAST DISTRIBUTED SUPPLY CHAINS WHICH MAKE THEM KEY PLAYERS IN THE TRANSITION TO NET-ZERO. UNSURPRISINGLY, MANUFACTURERS ARE FEELING PRESSURE TO SET AMBITIOUS CLIMATE GOALS WITH NET-ZERO TARGETS BECOMING MORE COMMONPLACE.



ANDREW TODD
DIRECTOR – CORPORATES
VERCO

Ambition must stand up to scrutiny

This should be welcomed but companies need to be mindful that the ambition of their targets is matched by equal levels of transparency and integrity in order to stand up to scrutiny. It is important that companies are able to clearly explain what is included within their target boundary along with the short, medium and longer term interventions required to deliver the reductions.

Short-term plans will be consistent with good continuous improvement approaches

The good news is that often short-term plans for net-zero are consistent with the incremental changes delivered by existing energy efficiency or renewable energy plans. However, things start to become less clear when more transformational changes are required.

Decarbonisation of heat is a complex challenge

One area of particular challenge for manufacturing companies is likely to be the decarbonisation of thermal processes.

There is uncertainty around how to decarbonise heat and because of the complexity, a patchwork of technologies will need to be considered. This might include electrification technologies such as heat pumps, low carbon fuels such as green hydrogen or biogas or process innovations changing the type of heat required.

It is difficult for manufacturing companies to develop plans with high levels of confidence when there are still many questions around technology maturity, future direction of policy and expected availability of low carbon fuels before both the capital and operation costs can be considered.

As there is often plenty for companies to be getting on with to reduce their carbon in the short-term, it can be tempting to park these issues and make progress on what can be done. That is a pragmatic approach to take until you are faced with replacing a boiler house, furnace, pasteuriser or any other significant heat user. Taking the wrong decision today risks locking in high-carbon heat sources for the life of the equipment which can typically be 20 years.

Strong progress is possible with a strategic approach

Our clients are seeing the value in developing a heat strategy for their operations. They first review how heat is used to inform a future concept which will incorporate some flexibility of the final technology or low-carbon fuel source. Whilst the company may not wish to implement these technologies straight away they can start specifying any new equipment with the future heat supply in mind.

Using the concept to then inform all new design or retrofit measures allows them to avoid investing in equipment which will become redundant or incompatible with the low-carbon heat solution and it also reduces future integration costs.

Although there is lack of clarity around technical solutions, market drivers and the policy landscape which make a plan difficult, action and progress are possible which will leave you in a strong position.

Visit our website for further information and resources to help you achieve zero: <https://www.vercoglobal.com>