MAKE uk
The Manufacturers' Organisation

125 YEARS BACKING BRITAIN'S MAKERS

# DEMYSTIFYING NET ZERO

MakeUK.org

# EXECUTIVE SUMMARY

2021 is a milestone year. Following the Paris Agreement when countries across the world must step up their net zero ambitions, the spotlight is officially on the UK as it hosts the UN Conference of Parties (COP26). This is the time for UK manufacturing to shine and demonstrate it is part of the solution to net zero, and not the problem. The UK manufacturing sector has a key part to play in the transition to a net-zero carbon economy, not only by cutting its own greenhouse gas emissions, but also and more crucially through the innovative products, processes and services that will become an integral part of the green industrial revolution.

The overwhelming majority (98%) of manufacturers are aware of the Government's net zero target. Being aware is one thing. Achieving it is another. Yet, the manufacturing industry is ready to step up to the challenge. Indeed, 77% say net zero by 2050 will be achievable in their business. Manufacturers are taking action, and many are already investing in process and energy efficiency improvements. As a sector we are demonstrating that it is possible to have a competitive sector at the same time as taking meaningful action on climate change.

They will of course however need support along the way. Make UK is committed to supporting its members on this long and challenging journey. We have been supporting members through a series of workshops, providing manufacturers with the basic information they need to get started on or further their journey to net zero and signposting them to guidance and tools as well as encouraging them to sign up to the Government's campaigns on Race to Zero. In the run up to COP26 we want to showcase best practice with innovative companies who are providing solutions to the net zero challenge so that we can bring all manufacturing companies and their supply chains with us as we transition towards a sustainable economy.

The workshops we have held with members to date aim to demonstrate that manufacturers can participate in helping our planet and that many actions can be taken in a cost neutral manner and will ultimately lead to profit and long-term resilience. What we have found during these discussions is that key themes arise.

This paper explores the key considerations for manufacturers as they either start, or accelerate, their net zero journey. It looks at emissions, funding, commitments, and reporting requirements. It also offers recommendations to Government to ensure that the UK manufacturing industry does not just have all the tools and techniques at its disposal, but the right policy environment, with which to achieve net zero, and possibly more.

# INTRODUCTION

## WHY MANUFACTURERS MUST PAY ATTENTION TO CLIMATE CHANGE

In its Net Zero Review (December 2020) HM Treasury acknowledged that 'Climate change is an existential threat to humanity. Without global action to limit greenhouse gas emissions, the climate will change catastrophically with almost unimaginable consequences for societies across the world'.

To tackle the challenge head on, in 2019 the UK became the first major economy to implement a legally binding net zero target to reduce GHG emissions to reach 'net zero by 2050.

Net zero means limiting overall greenhouse gas (GHG) emissions to 100% below 1990 levels across the whole economy. Any remaining emissions which cannot be eliminated in the first place must be balanced by finding ways to absorb an equivalent amount (e.g., off-setting) of greenhouse gases (GHG) from the atmosphere.

In many sectors existing technologies can reduce emissions to actual zero (e.g. electricity generation). Other sectors will face real challenges to get to zero, for example some energy intensive industries, agriculture, and aviation. Therefore, some emissions will remain and will need to be taken out of the atmosphere through natural or technological solutions.

## WHAT DOES IT MEAN FOR THE MANUFACTURING SECTOR?

**In short, action is needed urgently and at scale.**

Industry is one of the largest GHG emitters in the UK, accounting for 21% of emissions, only slightly less than surface transport. The manufacturing sector itself is responsible for 11% of total UK GHG emissions (e.g., about half of the overall industry's emissions). Buildings also account for another significant portion (17%) of the total emissions of which commercial and industrial buildings represent about half.

**THE MANUFACTURING INDUSTRY IS RESPONSIBLE FOR 11% OF TOTAL UK GREENHOUSE EMISSIONS**

In its Industrial Decarbonisation Strategy (March 2021) the Department for Business, Energy, and Industrial Strategy (BEIS) stated some bold ambitions for the manufacturing sector:

**Two thirds (67%) of emissions from the manufacturing sector are to be eliminated by 2035**

**This must increase to 90% by 2050 from 2018 levels**

**For the remaining 10% to be offset by carbon sequestering methods.**

Net zero is fast becoming industry's biggest priority while juggling the existing challenges of Covid-19 pandemic and Brexit. In a workshop of over 100 members from across the country, over almost half (49%) of them said they consider net zero extremely important for their business with a further 42% considering it somewhat important. Just a handful then felt it was unimportant.

**9 IN 10 MANUFACTURERS SAID THAT NET ZERO IS IMPORTANT TO THEIR BUSINESS**

Over three quarters (77%) of manufacturers say they intended to set net zero targets for their business within the next 24 months. These figures represent a major shift in attitude from 18 months ago where there was awareness of net zero but not enough understanding to take decisive action.

**77% OF MANUFACTURERS INTEND TO SET NET ZERO TARGETS IN THE NEXT 24 MONTHS BUT ONLY 2 IN 10 ARE CLOSE TO ACHIEVING THIS**

**The scale of the issue is clear, but the sense of urgency is somewhat lacking.**

Clearly Covid-19 has taken much of the immediate priority for businesses, but these good intentions will be meaningful if impactful action is taken very shortly after the targets are set. If not tackled early, climate change will reach a tipping point, becoming impossible or very difficult and very costly to reverse. The later we start, the bigger the risk and the more costly it will be. In fact, if implemented without delay, net zero will cost less than 1% of the UK annual projected GDP over the period to 2050[1,2].

The long-term 2050 goal seems far away still, but what we do this next decade will determine whether we will be successful in achieving it. The 2030s is 'the defining decade' and to achieve what is needed in 2030, we need to be well on our way in the next 5 years.

**Turning threat into opportunity will be key to achieving net zero in the manufacturing industry.**

Embracing net zero will play a key role in boosting resilience in manufacturing businesses. The pandemic has demonstrated that manufacturers who had built sustainability into their businesses were better able to weather the storm of the pandemic and begin to recover faster – we have heard this from several manufacturing businesses.

If planned and implemented carefully, net zero is a major opportunity to build back better. Through their low carbon products and services, manufacturers hold the key to helping others transition to the low-carbon economy. Net Zero will drive the green and digital industrial revolution, not just domestically, but also internationally as other countries awake to the need for these green technologies, products, and services, all of which can by supplied by the UK to its trading partners across the globe.

**Long-term climate resilience is inherent to 'going net zero'**

The good news is that the shorter-term measures taken to build resilience against future pandemics are part of what is needed to build the longer-term resilience against climate change.

The next part of this paper is looking at the considerations for manufacturers to press ahead on their net zero journey including emissions, value chain, funding and commitments and reporting.

[1]The Sixth Carbon Budget - The UK's path to Net Zero, Committee on Climate Change report December 2020 (pp.21, 239) '[The CCC's] estimates of annualised resource costs have fallen to less than 1% of GDP for the entirety of the period 2020 to 2050. That is lower than [the CCC's] 2019 estimate for the cost of reaching Net Zero emissions ([the CCC] previously expected cost to rise to 1-2% of GDP by 2050)'.
[2]https://www.instituteforgovernment.org.uk/explainers/net-zero-target

# EMISSIONS

Net zero is firstly about reducing and eliminating as much GHG emissions as possible, and only then offsetting the remainder that cannot be abated. So, what then do manufacturers need to consider when it comes to emissions?

The first step is to select a baseline[3] (e.g. measure or calculate the last two years' emissions) and to set a target to reduce carbon emissions that is relevant to the business, possibly guided by a sectoral target (net zero by 2050 or earlier).

Carbon emissions will come from the three areas of operations of a business -upstream, core direct company, and downstream activities- and they will be accounted for three 'scopes'[4].

**Scope 1 emissions (directly generated by a manufacturing operations)** are under the business's direct control so energy and process efficiency management are key to reducing them.

**Scope 2 emissions (indirect, from purchased energy)** will depend on the carbon intensity of the energy supplier, so mostly on the choice of supplier.

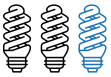
**Scope 3 emissions (value chain):** are likely to constitute the bulk of the emissions, and are not directly under the business's control, so more difficult to manage. They are however, influenced by supplier selection, supplier development, product design and marketing. The first step is to make an inventory of these emissions and deal with them at a later stage, although there are actions that can be taken immediately depending on the level of the organisation's commitment.

[3]Choice of baseline year: 2020 is an exceptional year where most businesses' emissions from company fleets have dramatically decreased. As travel resumes post Covid emissions may increase again (although likely never to previous levels again). Therefore, a commentary might need to be provided to explain that 2020 was an exceptional situation and that what the new norm will become clearer in time. It is possible to not choose 2019 as the base year, but 2020 instead (e.g. the new normal) or it is possible to normalise the years 2019 and 2020.
[4]According to the definitions from the Greenhouse Gas Protocol (the most widely used accounting tool for carbon reporting):
**Scope 1** emissions are the ones directly generated by your owned or controlled sources e.g. heating fuel, company car fleet fuel, commercial vehicle fuel, fugitive gases, onsite generators). **Scope 2** emissions are the indirect ones from the generation of purchased electricity, steam, heating, and cooling including electricity for your EV fleet, district heating, green tariffs, and Power Purchase Agreements or PPAs). **Scope 3** emissions are the ones generated in your supply chain, from your upstream and downstream activities. There are 15 main scope 3 categories (not all of these may be relevant to your business). Upstream: spend on services and capital goods, third party logistics (distribution), waste disposal, employee commuting by car/public transport and home working, leased assets, storage of cloud data by data centres. Downstream: product processes, use and disposal, franchises, and investments.

**What is the route to get to net zero?**

There is no single route, and it will be an iterative process as emission reductions are tracked and reviewed over time. Make UK is working with Inspired Energy Plc to produce a roadmap for the manufacturing sector to get to net zero. However, there are some starting blocks, that manufacturers can begin to build on:

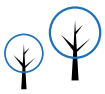
**Introducing low-cost energy and process efficiency measures** such as automatic door closures, variable speed drives, LED lighting with motion sensor and small process changes (e.g., programming temperature controls)



**Changing behaviours** (e.g., not lighting the whole factory up when not needed or making sure that idling engines are turned off)

**Creating a 'green fund'** with the savings made over the first two years to use for the medium/high-cost investments such as process improvements, equipment replacement (e.g., compressors, boilers, pumps, ventilation/cooling systems), or onsite generation which will reduce carbon emissions more significantly.

**Focusing on building improvements** which are important but can be a challenge particularly when leasing buildings and sites which may require permissions for on-site generation (solar panels) or even when owned in the case of very big old spaces[5].



**Carbon offsetting should be done as a last resort,** when all the other measures to reduce the emissions have been exhausted.

Most manufacturers have already taken measures contributing to reducing their carbon emissions, even if they were not necessarily intending to tackle net zero in the first place. Many members tell us they are replacing or upgrading equipment, conducting energy surveys, submetering, and a handful some are already under a SECR[6] or ESOS[7] obligation.

Net zero will inevitably reduce costs in some areas, indeed it should be possible to see quite short paybacks (i.e. six years) even for major investments as new financial products and models emerge. However, cost cutting should not always be the motivator because some of the major benefits can only be reaped after more substantial investments.

**Data is king: only what is measured can be managed**

Collection of data and keeping records is essential to the net zero journey.

Particularly for scope 1 emissions, the data collected will be exactly what is reported. It is therefore in a manufacturer's interest to have the best quality data possible to inform decisions correctly. Metered data will always be more accurate than estimated cost data and sub-metering with half-hourly meters is one of the less costly and easiest way to obtain more granularity and in depth understanding of the process and of the energy consumption. Sub-metering, which is quick and easy, is however not being deployed fast enough.

Depending on the size and complexity of the installation, cost can be a barrier. This is likely to be exacerbated with many companies still suffering from the Covid-19 pandemic.

[5]The challenges for buildings: 1. For leased buildings, the lessee cannot plan for the long-term and/or must negotiate with the landlord to make any significant improvements to the buildings or install solar panels. This is a barrier as it can be very time consuming and complicated. It would help if standardised contracts were available for these purposes to streamline the process, but it would take the relevant body (e.g., National Landlords' Association) to set these up. 2. For owned buildings, and specifically the old ones with very big spaces (e.g., old mills/forges/warehouses), insulation can be very onerous and there does not seem to be much help under these circumstances.
[6]The Streamlined Energy and Carbon Reporting (SECR) came into effect on 1st April 2019. It is a requirement for quoted companies, large unquoted companies, and Limited Liability Partnerships to report within their company reporting obligations GHG emissions and energy use from electricity, gas, and transport. They must also report energy efficiency actions and at least one intensity ratio. Eligible organisations are companies or LLPs with 2 of the following criteria: larger than 250 employees, over £36M turnover and over £18M balance sheet total. Note that SECR does not require the identification of energy savings opportunities.
[7]The Energy Savings Opportunities Scheme (ESOS 3) is a four yearly reporting scheme, with Phase 3 due in 2023. Eligible organisations (with more than 250 employees or a turnover greater than €50m and an annual balance sheet greater than €43m) will need to review their total energy consumption, including buildings, industrial processes and transport, and undertake assessments to identify energy saving opportunities. This is not just for large manufacturers and smaller companies that are part of a group which contains a qualifying company will also need to comply, as will qualifying companies who are registered in the UK but have an oversees parent.

**The installation of half-hour submetering could be one of the simplest things that the government could help with to get manufacturers started.**

Once waste (heat, water and air from engines/boilers, compressors, pumps, cooling/ventilation systems) is detected, plant managers will be compelled to make corrections to their processes and programming, change behaviours (e.g. switching machines off when not needed), repair leaks, and replace old less energy efficient equipment. More accurate data will also avoid double counting (e.g. the electricity required to charge an EV fleet which is already comprised in overall's the building's electricity consumption).

Digital technologies such as the Internet of Things, automation, robotics, Additive Manufacturing (3-D printing) can be significant enablers of net zero and other sustainability measures by contributing to (big) data collection, process efficiency, and enabling new business models including circularisation. This potential should be emphasized through awareness building as too many plant operators still see them as only tools to increase productivity.

Scope 2 being indirect purchased emissions that are not directly generated by operations, managing behaviours for how energy is used (e.g. switching lights and machines off when not needed, business car fleet mileage), and programming to minimise consumption are the best ways to control these. Data must be stored in an understandable format and be extractable to go into accounting software.

## RECOMMENDATIONS FOR GOVERNMENT:

**Government should impart the sense of urgency by providing a more defined direction and more coherent policy:** The PM's announcement Ten Point Plan was a landmark demonstrating political will and setting the overall direction. Since then, however, key strategies (hydrogen, net zero, buildings, treasury's net zero review) however, are still missing to this date, and the ones already published ones (energy, industrial decarbonisation, transport, infrastructure) lack definition in terms of budget. This leaves us with an uncertain, incomplete, and incoherent picture where neither the financial political discourse not the budget match the net zero ambition. Net zero will touch every aspect of our life and economy and there are many interdependencies between sectors, so a holistic approach is needed from the start, like the one taken by the Committee on Climate Change (CCC), which brings all the different strands together to form a clear picture. **A central point in Government should be set up to ensure true cross-department coordination to achieve maximum coherence and efficiency in setting up the right policy framework to progress the net zero agenda a pace.**

**Government should work with manufacturers and other sectors so that net zero is truly achievable:** The importance of the role of manufacturing in the Green Revolution and the need for support particularly during the first few years to help kickstart the transition has now been recognised. Working with manufacturers is fundamental, to ensure that their specific needs are understood and the policies to fast-track their transition to net zero match these needs, particularly regarding fuel switching. This means not just prioritising the high emitting clustered industries, but to ensure that the 25% of emissions produced by the less energy intensive and/or dispersed-site industries are tackled with equal thoroughness and urgency. It not, there risks being disengagement from the bulk of SMEs who are being requested to clean up their plants and processes and eager to do so, but not given the means to do so.

Many sectors have now developed their own roadmaps or are in the process of doing so. Before publishing all the missing net zero strategies in time for the COP26, the work and commitments already made by industry should be considered.

# VALUE CHAIN (SCOPE 3) EMISSIONS

The interdependency of all actors in the value chain has been highlighted by net zero, just as the Covid-19 pandemic has done. Scope 3 emissions are those of the value chain, both upstream and downstream. They usually constitute the largest proportion of an organisation's emissions. Scope 3 emissions will always be someone else's scope 1 and 2 emissions. Conversely every company reporting on its own carbon emissions is key to the overall net zero objective because once everyone has dealt with their scope 1 and 2 emissions, it will become more straightforward to access scope 3 information.

**Why manufacturers should engage with their value chain**

The low-carbon economy is one of the most significant opportunities for manufacturers to innovate and create new products and services to help all the players in the value chain. Although they are outside a manufacturer's direct control they can be influenced, hence the importance of dealing with them too.

Managing scope 3 emissions will drive suppliers, customers, and employees towards the low-carbon economy, enabling manufacturing businesses to maximise mutual benefits and reduce costs throughout a like-minded and therefore effective value chain. For this, engagement with the value chain is necessary.

However, this can be a daunting prospect given the sheer size of the value chain. During a workshop with manufacturers, we found that only 14% of members are engaging with their value chain- 1 in 5 (22%) still not. Moreover, six in ten manufacturers do not think that their carbon footprint has any influence on their ability to conduct their sales activity. This may be because the green economy is still in its infancy. Encouragingly though, 90% of those polled said that, once they had understood the importance of scope 3 emission, they were more inclined to engage with their suppliers and customers.

**Pressure from the value chain is already starting**

Major manufacturers who will have themselves made net zero commitments and made changes to their own operations to help bring everyone along the line to achieve net zero, will be relying on their value chain data to inform their own scope 3 emissions. So, for those supplying these key customers, being able to respond to their request for information will be key to maintaining their competitivity.

ONLY **14%** OF **MANUFACTURERS** ARE **ENGAGING** WITH THEIR **SUPPLY CHAIN** AND **6** IN **10** DO NOT THINK THEIR **CARBON FOOTPRINT** INFLUENCES THEIR **ABILITY** TO **CONDUCT SALES ACTIVITY**

HOWEVER **20%** OF **MANUFACTURERS** HAD **ALREADY** BEEN **PROMPTED** FROM THEIR **VALUE CHAIN** TO PROVIDE THEIR OWN **CARBON FOOTPRINT**

And when prompted by their supply chain to provide their carbon footprint, they have subsequently been able to confirm that their footprint had an influence on their ability to conduct their sales activities.

Measuring and publishing scope 3 footprint provides more transparency and credibility of net zero goals than just committing on the company's own (scope 1 and 2) activities.

Given the challenge, once scope 1 and 2 emissions are being tackled, scoping the value chain emissions inventory is a good start. This means determining which of the 15 sub-categories of scope 3 emissions are relevant (material) to the business, and initially using a 'spend based' method to roughly estimate the corresponding emissions. Over time, the methodology can be improved to increase the accuracy of the data collected, and the impact on carbon footprint can be tracked and reported[8].

## RECOMMENDATIONS FOR GOVERNMENT:

**Government can strengthen the pull from the value chain to tackle scope 3 emissions.** Policies are being introduced that already impose mandatory reporting of emissions for actions taken by large listed and non-listed companies and LLPs. Extending their scope to ensure that companies of every size measured their carbon emissions would accelerate the understanding of the value chain. To minimise the administrative burden for the smaller players, less stringent criteria (e.g., only measuring, and self-certification with no or simplified reporting) could be applied.

[8]Note: those minded setting a Science Based Target (through the SBTI) will be required to reporting scope 3 emissions if they represent more than 40% of your organisation's total carbon emissions

# FUNDING

Manufacturers are innovative and want to be part of the green industrial revolution. Today, we have a markedly different and encouraging picture from just 18 months ago with over half (51%) of manufacturers already having acted specifically on net zero. In addition, amongst those who had no intention to do anything about net zero, the vast majority have in fact already taken measures which could be contributing to reducing their scope 1 and 2 emissions (reducing their energy intensity by increasing their energy efficiency).

Having engaged with many manufacturers on this topic over the last few months, we have found for the most part manufacturers felt more inclined to engage with their value chain on their scope 3 emissions and many have been inclined to explore net zero in more depth.

However, apart from the lack of knowledge, the other main barrier to taking action is access to finance, and this is particularly the case for SMEs, who are already burdened by the financial consequences of the Covid-19 crisis and the new EU Trade and Cooperation Agreement (TCA) conditions.

About 40% of carbon emission reductions for the manufacturing sector are expected to come purely from the deployment of efficient and best available technologies, so investing in energy efficiency and process improvement is very important. This can be done by applying for grants and loans or by taking advantage of tax incentives.

**Grants and loans**

**National funds:** one of the most important of these is the Industrial Energy Transformation Fund (IETF), open to businesses of any size in England, Wales or Northern Ireland and targeted at existing industrial process energy efficiency and deep decarbonisation projects in the manufacturing sector. It is designed to complement other government programs of innovation and early demonstration support[9] with feasibility studies and deployment projects of technologies proven to work and ready for commercialisation[10] on industrial sites.

Other national funds such as the **Industrial Energy Efficiency Accelerator**[11] exist to help resource low-carbon innovation and efficient technology processes, the Heat Networks Investment Project[12] to help connect buildings to a centralised heating system, and manufacturing technology that contribute to the green economy (Innovate Smart Grants[13] for collaborative supply chain ideas, Low Carbon Heating Technology Innovation Grant Scheme).

Our members however continue to tell us that the projects providing a route to commercialisation are the ones for which they lack the most support, rather than the earlier innovation projects. Indeed, the current EITF eligibility criteria, although recently adjusted to include smaller companies (250 employees), still deny access to many SMEs because the project size must be over £100,000 per site. Also, the fact that the fund is accessed via a competition is deterring many.

Despite the myriad of regional funds available (which are somewhat unevenly distributed), SMEs often do not have the resource to investigate each one of these and to identify the one that is right for them.

If we are to succeed in decarbonising the bulk of our manufacturing sector, which is composed of 80% of SMEs, what is needed is a streamlined national funding system, accessible to all companies of all sizes and from any region, covering smaller 'close to commercialisation' projects (in the order of the £10,000s), as long as they aim to reduce carbon emissions or improve energy efficiency (of their processes, buildings).

Not only these funds should be accessible to energy intensive (dispersed) sites, but we also need to ensure that these funds help the *less energy intensive* SMEs in

[9]e.g. Energy Innovation Programme and the Industrial Strategy Challenge Fund
[10]e.g. technology readiness levels 8 and 9 for energy efficiency and technology readiness levels 7 to 9 for decarbonisation. These include insulation of efficiency electric motors and heat pumps to replace natural gas boilers and steam turbines, installation of highly efficient boilers and furnaces, engineering studies to replace natural gas with hydrogen fuel in various industrial processes and technologies, process optimisation and control to improve the energy efficiency of fans, pumps, variable speed drives, compressors and condensers, and installation of highly efficient heat recovery technologies to generate electricity for use in manufacturing processes.
[11]£10m fund- Phase 1 competition due August 2021, with projects starting in December 2021.
[12]Grants or interest-free loans of up to 49% of the CAPEX incurred for the construction of the project (final application round in October 2021).
[13]For industry-specific funding (e.g., automotive, fishing, pharma) for commercially viable widgets/gadgets/batteries manufactured for low-carbon supply chains, start by 1 November 2021). Short and long projects (£25K to £500K/£2m) must be collaborative (e.g., supply chain engagement required). Not specific to energy efficiency.

dispersed sites, the all-important non-foundation industries such as automotive, food and drink, electronics, which according to the Industrial Decarbonisation Strategy still emit 25% of industry's total emissions.

- **Environment levies**[14] have been increasing significantly as the UK moves away from fossil fuels but for large emitters from energy intensive industries[15] there are exemptions and compensations for these costs. Smaller but still high (but not necessarily intensive) emitters (e.g., metal processing) are not eligible to these compensation schemes and as a result are unfairly penalised without any recourse to any alleviation. These SMEs are essential to maintain a thriving value chain in the country and need as much help as they can to decarbonise their operations.

  Even for those who do not qualify for these compensation schemes, it is worthwhile going through their historical billing to check for overpayments as there are many billing errors which can be significant amounts and that can be refunded.

  It is also possible to earn revenue from energy management, by engaging in demand side flexibility, if the operations allow the ability to control energy usage at short notice, or to generate energy to balance the supply and demand of the National Grid and the District Network Operators. However, this is complex and specialist help is advised to ensure the adapted solution is found.

- **Tax incentives for net zero projects:** Changes to the capital allowances scheme were introduced in the Budget which will help with net zero projects. *The £1M annual investment allowance* was extended to December 2021 so it is worth accelerating investments to fit them into 2021 to take full advantage of the extension. The *130% super deduction* was introduced on main rate pool assets and qualifies for the £1M investment allowance. In addition, *the loss relief carry-back has been extended from 1 to 3 years. A 50% first year allowance for Special Pool assets*[16] e.g., all plant and machinery, integral building structures was also introduced. These can be claimed even for projects involving some grants[17] (although the grant element itself cannot be included in the claim).

  The **130% super-deduction** has been welcome and Make UK's analysis from earlier this year suggests that a quarter of companies will bring forward investment plans in light of the new super-deduction and a further quarter will increase investment plans. That said, it is of limited help as it is in place for only two years, which does not match the longer investment cycles needed for this type of capital expenditure (e.g., for plant machinery or other technologies) which usually last at least 10-20 years. If a piece of equipment has not reached its end of life before the term of the scheme and provided the expected return on investment there will be no or little incentive to replace it.

- Manufacturers have welcomed the **R&D Tax relief**[18] for scientific or technological projects with no obvious scientific or technological solution and more projects could be eligible than at first glance: while buying and installing of capital equipment does not qualify for R&D tax relief, if its installation involves engineering challenges[19] which have no existing solution, then it may well qualify.

- The **Patent Box scheme**[20] gives access to a reduced corporation tax rate of 10% on relevant intellectual property profits (e.g., sales of products/components, licences…).

  However, there has been some criticism that this system stifles innovation across the board, as inventions which could help accelerate net zero are not shared for the benefit of all.

[16]e.g. solar panels, lighting, heating/air conditioning/cooling systems, hot and cold water systems, external solar shading, first or second-hand non-commercial/industrial EVs), but excluding leased assets e.g. buildings, doors, gates, land and structures, and items used for business entertainment)
[17]Before you take a grant, which supports capital expenditure (e.g., IETF) you will need to ensure that you understand whether the grant support is more effective for the company against the capital allowance expenditure.
[18]provides 25% relief for SMEs in profit and 33.35% cash-back for loss-making SMEs and covers staffing costs, raw materials, software, subcontractors, externally provided workers.
[19]Typically any project aiming to reduce environmental impact e.g. waste treatment/minimisation/elimination or energy reduction to integrate various forms of energy into the mains (e.g. to link solar panels to the mains wiring system or waste incineration into the main grid), or replacing hazardous raw materials (e.g. lead or chromium VI in galvanisation baths) could qualify.
[20]for companies registering patents with the UK International Patents Office (UKIPO) and the EU Patents Office (EPO).

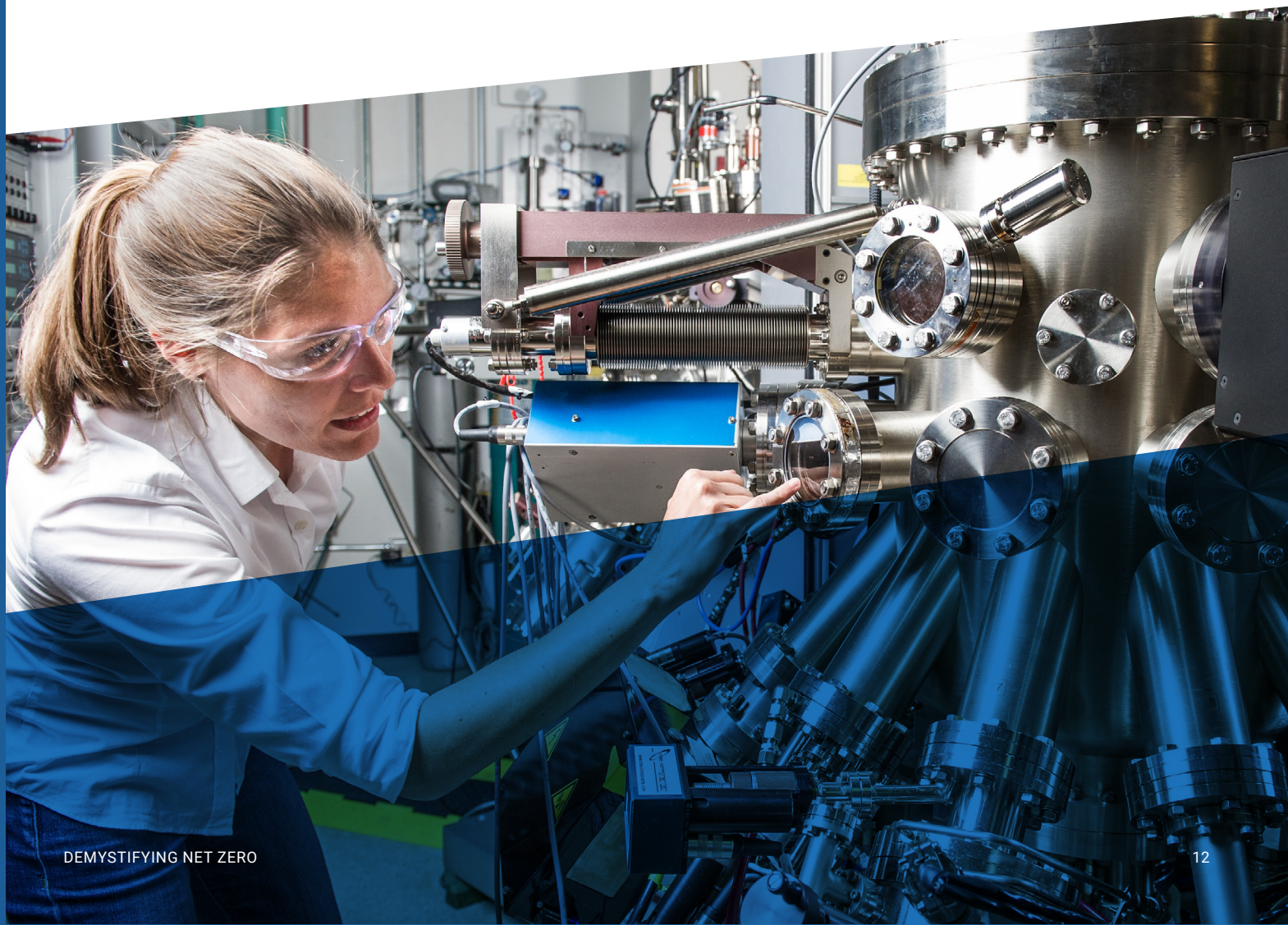
## RECOMMENDATIONS FOR GOVERNMENT:

**Specialised expertise is much needed to get manufacturers on the right and fast track:** Government could therefore create a centralised point of reference for information in net zero (e.g., a net zero official government website) including where to find the little-known funding and tax credit opportunities that can apply to manufacturers in their net zero efforts e.g., to understand whether they qualify and help them with their applications.

**Funding opportunities must have full geographical coverage:** there are a wide range of schemes available (as we have outlined above), however not all are available to every business. Therefore, funding opportunities should be national to eliminate any inequalities between regions and prevent manufacturers from being unable to access what is needed.

**Funding cycles must mirror investment cycles:** The financial support that is available to manufacturers must match the needs of the sector including being longer-term. Manufacturers have long investment cycles when it comes to plant and machinery or investing in digital and green technologies. The sector should be consulted on to ensure any financial instruments meet their requirements.

**Incentives for lesser but still high energy users to electrify their operations:** Government should work with industry to explore how it can offer incentives to help high energy users who are not energy intensive enough to benefit from the current compensation schemes to electrify their operations.



# REPORTING AND COMMITMENTS

**The case for making a commitment**

Making a net zero commitment makes a business truly credible. It also sets the process of aiming towards net zero in motion and gives the understanding what the journey entails. Reporting formalises the commitment, giving it context and structure, and doing it publicly drives accountability. Therefore, as soon as some action has been taken, it should be reported and communicated, and for those who have already acted before the baseline years but not communicated anything about it, there is nothing to stop them from reporting their good progress to date.

**Commitments are mostly voluntary**

From our discussions with manufacturers we have found that **most businesses are driven to implement a carbon reduction plan mainly to build or maintain their reputation and keep their competitive edge** depending on the market sensitivity to carbon emission reduction, combined with some mandatory emissions reporting.

Indeed, customers are increasingly expecting businesses they work with to address their impact on the environment and mandatory schemes[21] (e.g., SECR3[22] or ESOS4) put the company's emissions directly in the public eye, although these only apply to a small number (albeit larger) of emitters.

The choice of scheme under which the reporting will be done depends on whether carbon emissions are measured or not: science-based targets (e.g. quantitative data) are required by some initiatives (mainly the SBTI[23] and B-Corp) while qualitative information is sufficient for the Carbon Disclosure Programme (CDP). Scopes 1 and 2 are the only the ones legally required so this is where the focus should be to start with. There is no legal enforcement mechanism if companies do not reach their target, but it is in their interest to build their sustainability credentials to maximise their competitive edge.

**There is an also a clear direction from government** (despite the lack of coherence) **as the policy landscape is rapidly being adapted to cover net zero,** through the introduction of new policies or by expanding the scope of existing ones to include more companies[24]. Finally, rising carbon and fossil duel/transport costs are also a significant driver for businesses to move away from fossil fuels.

**Communication is critical**

The reasons for companies to communicate are multiple, e.g. being under mandatory compliance obligations (SECR[25], ESOS, TFCD), wanting to make public statements for PR reasons (in reaction to something or to lead/follow others, including roadmaps), voluntarily as this makes good business sense (e.g. Race to Zero). We found that over a quarter (28%) manufacturers planned to disclose their net zero ambitions and progress and that they communicate (or want to communicate) mostly with their customers and employees, followed by capital providers (lenders/investors,) and then their suppliers.

Potential employees, and particularly the younger generation at looking at prospective employers' environmental credentials, so it is vital to communication these to attract talent. Sharing internally the company's net zero plans, engaging staff[26] and encouraging behaviour change are all key success factors, but whatever is communicated must be backed-up by real data.

**Without culture change, nothing happens**

Culture change takes time and requires real engagement with people. It works best when net zero is embraced by the top levels of management and embedded in everything the company does. In many big organisations, it is now quite common for executive remuneration to be linked to environmental performance. It is essential to involve staff directly, so they are engaged at a personal level. Data are key to demonstrate to the employees the impact of their efforts, gaining their trust and understanding.

[21]Mandatory schemes such as SECR and ESOS will help although they do not capture all company sizes nor are they 'complete'. The ISO50001 standard will meet the carbon emission reporting requirements if it covers all the company sites, but accreditation is a major undertaking requiring a very significant cultural and organisational investment and culture change.
[22]Note SECR can also be done voluntarily.
[23]SBTI – Science Based Target Initiative
[24]The UK-ETS is currently reserved to large combustion facilities and power plants over 20.MW thermal input - however, there is a consultation to expand the scheme to medium sized-companies in future. Similarly, the Task Force for Carbon Disclosure (TFCD) is considering making it mandatory to include climate reporting into company annual reports and the Government plans to extend the TFCD to all companies by 2025.
[25]Note SECR can be undertaken voluntarily.
[26]sustainability champions should be nominated; setting loose environmental KPIs as part of employee development plans, ensuring that they understand the reasons why the KPIs are being introduced, what exactly they mean and how they can be achieved. Sub-metering, flashboards displaying the carbon emissions reductions in real time, competitions between different production lines or sites. Posters are available on the internet showing how to turn thing. Data is the key here.

Make UK is backing manufacturing – helping our sector to engineer a digital, global and green future. From the First Industrial Revolution to the emergence of the Fourth, the manufacturing sector has been the UK's economic engine and the world's workshop. The 20,000 manufacturers we represent have created the new technologies of today and are designing the innovations of tomorrow. By investing in their people, they continue to compete on a global stage, providing the solutions to the world's biggest challenges. Together, manufacturing is changing, adapting and transforming to meet the future needs of the UK economy. A forward-thinking, bold and versatile sector, manufacturers are engineering their own future.

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Inspired Energy PLC provides expert insight and consultancy to optimise the energy strategy of over 500 manufacturers and energy intensive clients.

With UK businesses facing increasing pressure to get serious about sustainability, we create their own perfect-fit utilities management solution, helping them reduce the price they pay, as well as reducing their consumption.

Our solutions create a clear and actionable long-term plan, making investment easier to obtain and carbon reductions quicker to realise. Net zero is a challenge but with the right support and advice, can present businesses with a range of commercially and operationally beneficial opportunities.

Inspired Energy PLC values its own role in meeting the UK's target and we will continue our drive to achieve net zero by 2035. We have 550 experts located throughout the UK and Ireland, giving us a depth of experience and expertise that is reflected by our position as the UK's number one advisor by Cornwall Insight (2018-2021).

If you need advice on creating and delivering your energy strategy, Inspired Energy PLC can advise you on how best to start and how we can support your decarbonisation journey.

Contact our expert team on **01772 689 250** or you can email **makeuk@inspiredenergy.co.uk**

ABGI UK helps its clients accelerate their innovation activity by identifying and securing appropriate forms of innovation funding, such as grants, tax incentives and commercial loans. With 200 staff across 28 countries the team manages in excess of £1.6 billion of grants and tax incentives each year for some of the world's best-known brands, including Hermes, Fiat and General Electric. More importantly, in the UK last year we helped companies access £35million in innovation incentives.

The government's commitment to achieving "net zero" by 2050 sets a challenge to UK manufacturing, and ABGI is here to help Make UK members access the necessary resources to be able to meet that challenge, through a wide range of integrated services including:

- **Grant Search and Proposal Writing Service** – helping you to find the most appropriate grants to meet your needs, giving you the best chance of success in your applications;
- **R&D Tax Relief Services** – Optimising your tax benefit through robust compliant claims, including managing the interplay between the R&D tax relief scheme and other innovation incentives;
- **Capital Allowances** – ensuring your business maximises the tax benefit from capital investment, reducing the overall cost of investments;
- **Patent Box Services** – helping you access a reduced rate of corporation tax (10%) on relevant profits from eligible patents or other qualifying intellectual property (IP) rights your company holds.

**This range of services will benefit:**

- companies facing technical challenges in developing clean technologies,
- companies making capital investments in clean technologies and,
- companies grappling with the challenges of process innovation to reduce their environmental impact.

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