

NET
ZERO
AND
BEYOND

HOW WE'RE DOING IT AND HOW YOU CAN TOO

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1. FOREWORD

2021/22 was a momentous year for both Crystal Doors and for myself. Not only did we bounce back from the pandemic with our most successful year of business to-date, we also broke through onto the national stage as trailblazers in sustainable manufacturing and the race to net zero emissions.

We received more environmental awards than I knew what to do with, including the big one – the Queen’s Award for Sustainable Development – which continues to open new doors to us nearly a year later.

Personally, I have enjoyed near-endless opportunities to share our progress on sustainability and climate action and, far more importantly, help others on their way. I’ve addressed hundreds of fellow businesses; spoken to college students and young people in Rochdale; shared the stage with leaders from the likes of Unilever and L’Oréal; met Chris Packham and HRH The Prince of Wales; was featured on BBC Breakfast; and was even invited to contribute to a book on green manufacturing! At the very least, no one can accuse me of resting on my laurels.

Of course, all this hard work and recognition does not take away from the knowledge that our society and planet remains in dire straits. I was lucky enough to attend COP26 in Glasgow, and although I found it uplifting to meet so many passionate people there, I left somewhat deflated and more convinced than ever that if we are going to fix this crisis, we need to do more than just wait for change to happen.

The final deal agreed between world leaders in Glasgow is simply not good enough to bring us in line with a habitable future. Already, scientists believe we could breach the crucial marker of 1.5C of global warming within the next few years. If we stay on this course, it’s difficult to imagine how terrible the future may end up for future generations and all other living things.

We are entering a risky era of ‘commitment making’, where greenwash lurks around every corner. Long-distance goals are being thrown around by corporate giants and governments like confetti, with very little (sometimes no) substance behind them.

And yet the more I learn, and the more my network grows, I find hope in people. Progressive, small organisations like Crystal Doors are showing up the corporates and politicians. We can move far faster and more boldly if we are willing to stand up and take responsibility as guardians of people, place and planet. The others will have no choice but to catch up.

As you’ll read in the following pages, every business can take action without breaking the bank. But what’s really important is not to act in isolation. Businesses belong to an ecosystem just like any other part of nature, so we need to use our voices and connections as well as our chequebooks.

Leveraging our influence – however small – with customers, suppliers, employees, communities and local leaders is arguably the most valuable thing we can do. Some call this our carbon ‘shadow’, and as you’ll read later, it’s something we all have control over. Just remember that although things seem bleak, when it comes to the climate and nature emergency every thousandth of a degree matters, as does every conversation. So don’t give up.

Let’s get to work.

Richard Hagan
Managing Director



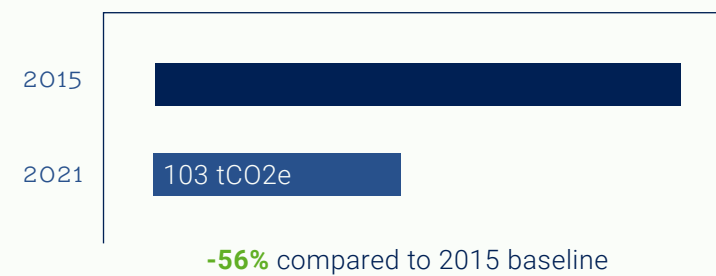
2. PERFORMANCE AT A GLANCE



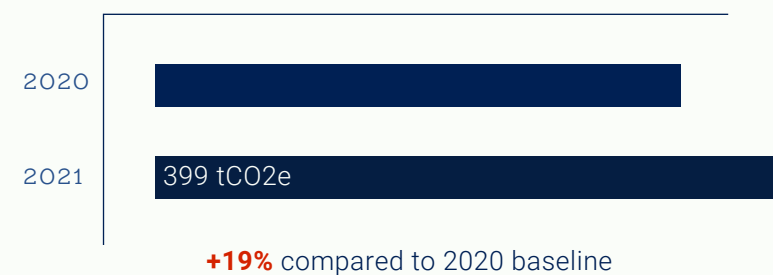
SCOPE 1 EMISSIONS (heating/transport)



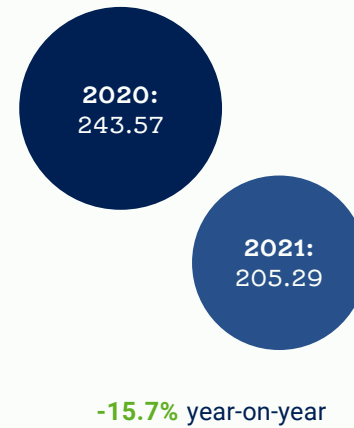
SCOPE 2 EMISSIONS (electricity)



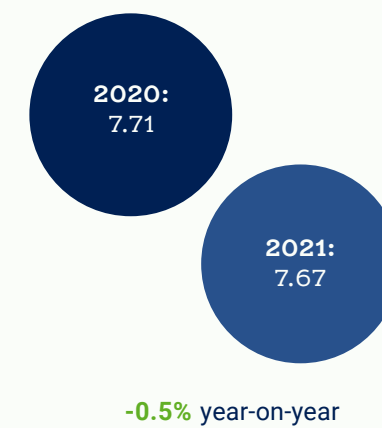
SCOPE 3 EMISSIONS (supply chain)



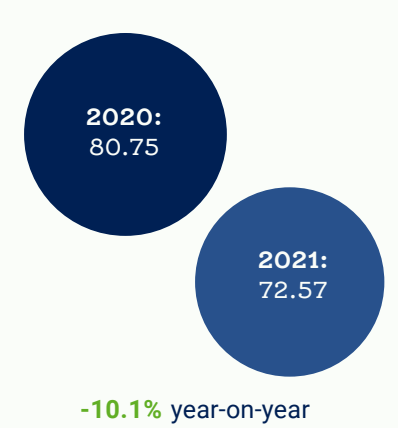
ELECTRICITY INTENSITY (kWh per £'000 turnover)



FUEL INTENSITY (ltrs consumption per £'000 turnover)



CARBON INTENSITY (Scope 1+2 kgCO2e per £'000 turnover)



7
Major environmental awards

18
Keynotes, talks and interviews by Richard Hagan

68
Pieces of climate action media coverage

THOUSANDS
of businesses engaged through talks and media coverage



100% RENEWABLE HEAT
Maintained

ZERO INDUSTRIAL WASTE TO LANDFILL
Maintained



CARBON NEUTRALITY
Achieved

100% RENEWABLE ELECTRICITY
Achieved

3. A ROYALLY GOOD YEAR



THE QUEEN'S AWARDS
FOR ENTERPRISE:
SUSTAINABLE
DEVELOPMENT
2021

In 2021, Crystal Doors became the first ever Rochdale business to win the Queen's Award for Enterprise for Sustainable Development in recognition of our positive impacts across carbon and waste reduction through innovation, collaboration and behavioural change.

The Queen's Awards for Enterprise, established in 1965, are the most prestigious honour that can be bestowed upon a business in the UK. As an award winner, Crystal Doors can use the esteemed Queen's Award emblem until 2026.

Only 33 companies in the North of England have been recognised in the Sustainable Development category since it was introduced in 2000.

The award was officially presented at a special ceremony at the factory on 24 November 2021 in front of our team and some of the experts who have helped us on our sustainable development journey since 2015.



"The Queen's Award is the most prestigious award given for business performance; they are not easily earned. It gives me great pleasure to congratulate Crystal Doors on behalf of Her Majesty for their remarkable achievement. I've got nothing but admiration for everything Crystal Doors has achieved"

Ian Sandiford
Deputy Lieutenant of Greater Manchester



"The North of England has enormous potential to use its industrial expertise to drive a green industrial revolution and green recovery in the UK. Congratulations to Richard and Crystal Doors for their well-deserved Queen's Award win and for showing us all what's possible"

Sir Tony Lloyd
MP for Rochdale



"Officially receiving our Queen's Award in front of the whole team and some of those who have supported us on our journey was so important because none of it would have been possible without their efforts. I feel very proud and privileged to have such a great network around me"

Richard Hagan
Managing Director of Crystal Doors

Other Accolades In 2021/22



Special Achievement Award for
Contributions to Sustainability
Richard Hagan
Kbbreview Retail and Design Awards 2022

kbbreview

kbbreview.com

Sustainable Manufacturing Finalist
The Manufacturer MX Awards 2021

THE MANUFACTURER

themanufacturer.com

Business Leader of the Year, Richard Hagan
edie Sustainability Leaders Awards 2022

edie
empowering sustainable business.

edie.net

Regional Winner, Energy & Sustainability
Make UK Awards 2021

MAKEuk
The Manufacturers' Organisation

makeuk.org

Small Business of the Year
edie Sustainability Leaders Awards 2021

edie
empowering sustainable business.

edie.net
"Crystal Doors is a shining example
of what's possible for all SMEs"

Manufacturer of the Year
BusinessGreen Leaders Awards 2021

BusinessGreen

businessgreen.com
"Crystal Doors provides an inspiring
template for smaller businesses all
across the UK to follow"





4. OUR APPROACH



4.1. OUR THERMOMETER / ROADMAP

THE BEGINNING

Conducted our first systematic environmental review and started taking early sustainability actions.

CLIMATE EMERGENCY DECLARATION

Declared a climate emergency and brought forward our carbon neutral target to 2022. Began aligning purpose and principles to UN Sustainable Development Goals.

CARBON NEUTRAL/INITIAL STAGE NET ZERO

Neutralised greenhouse gas emissions across Scopes 1, 2 and 3 using high quality UK-based offsetting and switching to 100% renewable energy supply.

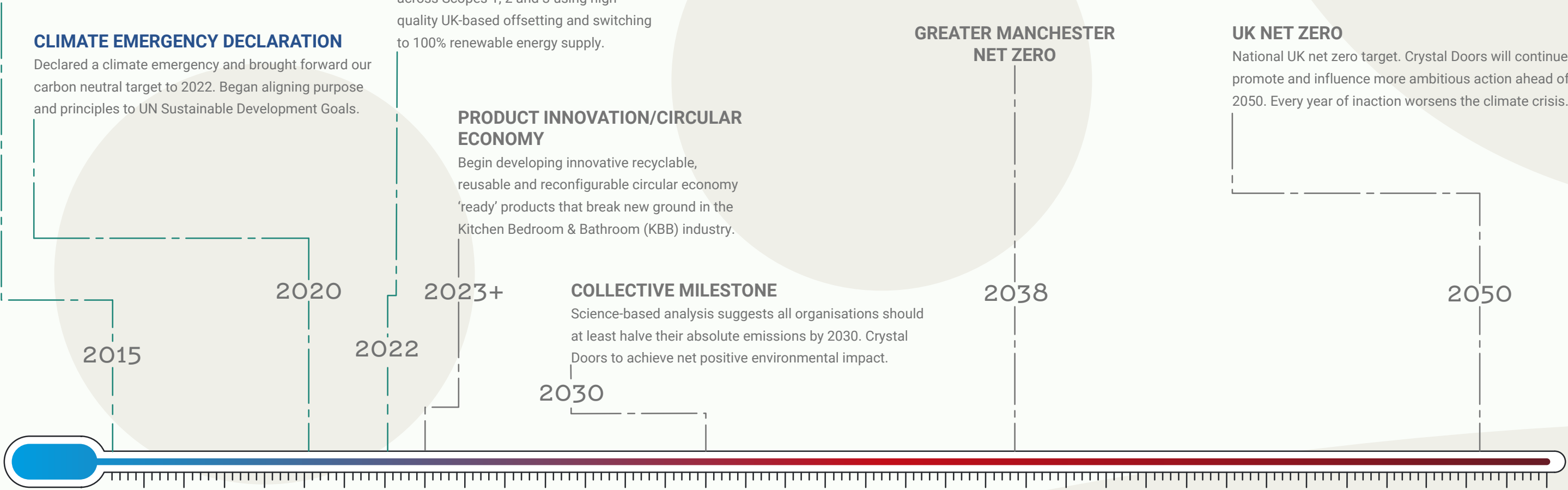
PRODUCT INNOVATION/CIRCULAR ECONOMY

Begin developing innovative recyclable, reusable and reconfigurable circular economy 'ready' products that break new ground in the Kitchen Bedroom & Bathroom (KBB) industry.

GREATER MANCHESTER NET ZERO

UK NET ZERO

National UK net zero target. Crystal Doors will continue to promote and influence more ambitious action ahead of 2050. Every year of inaction worsens the climate crisis.



GETTING OUR HOUSE IN ORDER

Radical transformation of operations, investing £1.5m in a range of energy saving and smart technologies. Set a carbon neutral target of 2030.

TRUE NET ZERO

Reduce absolute Scope 1 and 2 emissions by at least 90%, remainder to be offset using high quality UK-based projects. Formal target year to be established during 2022.

RADICAL DISRUPTIVE TRANSPARENCY

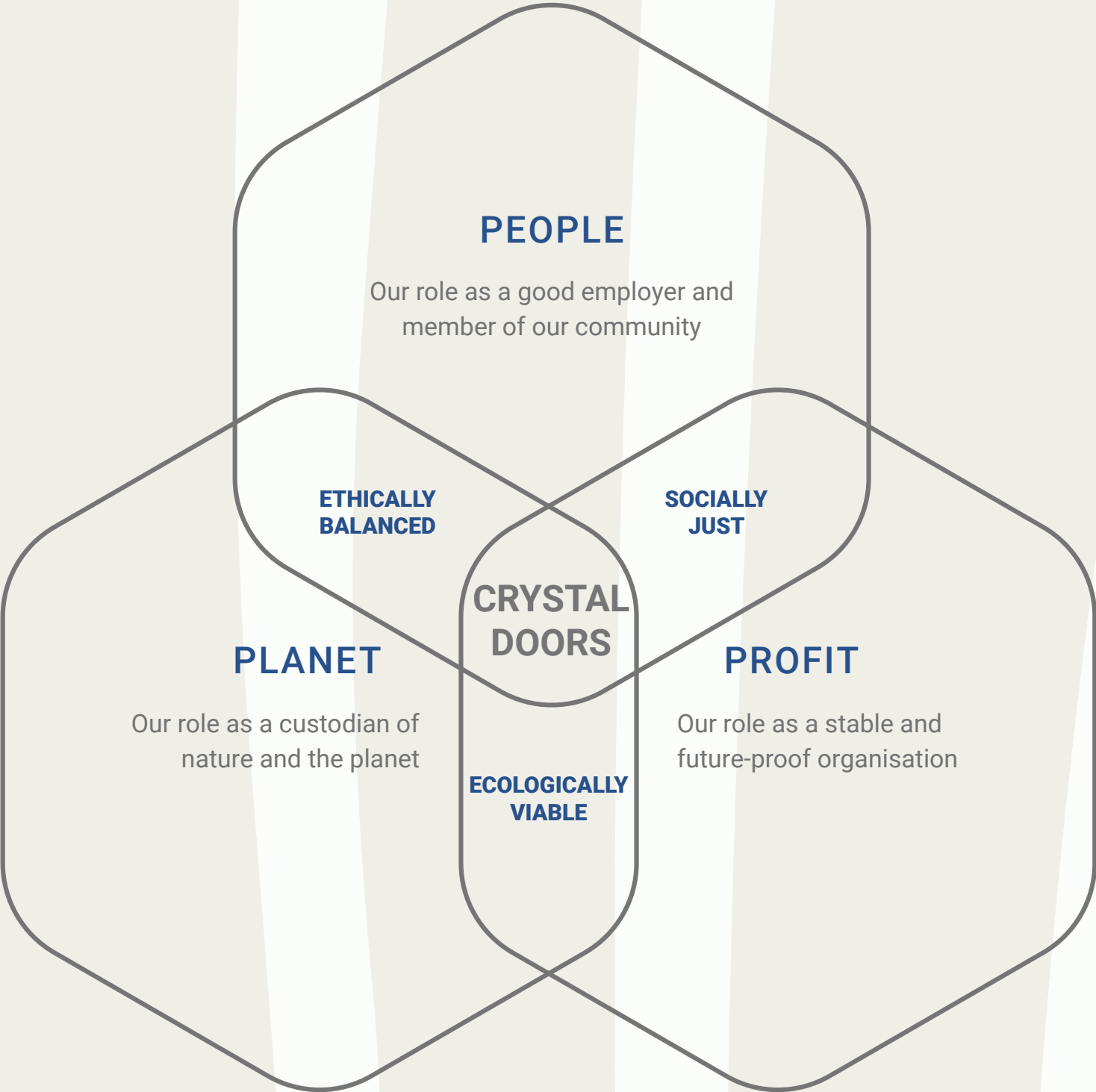
Began reaching out beyond our direct operations, engaging with our supply chain and building partnerships to share learning, evidence our achievements and influence climate action.

4.2. OUR PURPOSE AND PRINCIPLES

At Crystal Doors, our purpose is to work in harmony within three pillars: **People**, **Planet** and **Profit** (also known as the triple bottom line). In other words, we believe our future viability as a business depends not only on our financial performance but also on supporting our employees, local community, supply chain and wider society; and helping to mitigate, and build resilience to, the climate and environmental emergency.

In existing for people and planet rather than just profit, we recognise that our role in inspiring change is far more powerful than financial gain. That is why we are not only transforming our own business to net zero and beyond, but also engaging our entire supply chain and partnering with other organisations to openly share our journey and help others on theirs. Our Managing Director Richard Hagan calls this principle **Radical Disruptive Transparency**.

Want to learn more?





4.3. SUSTAINABLE DEVELOPMENT GOALS

The UN's 17 Sustainable Development Goals (SDGs) are the internationally recognised blueprint to ending poverty, protecting the planet and improving the lives and prospects of every individual in society.

Using the 17 goals as markers, we can ensure we are taking a suitable array of different actions that support sustainable development in as many ways as possible. All the SDGs are proudly displayed in our factory as a constant reminder of the importance of sustainable development. This report is also a guide – you will find the icons referenced in key places throughout this report.

Where possible we try to incorporate the principles of all relevant goals in our activities. However, a third-party materiality assessment of our business concluded that there are 4 primary goals where we can make the biggest impact:

Want to learn more?



Urgent action to combat climate change and its impacts

Relevant targets:

- 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters.
- 13.2 Integrate climate change measures into policies, strategies and planning.
- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.



Affordable, reliable, sustainable and modern energy for all

Relevant targets:

- 7.2 Increase substantially the share of renewable energy in the global energy mix.
- 7.3 Double the global rate of improvement in energy efficiency.



Sustainable consumption and production patterns

Relevant targets:

- 12.2 Achieve the sustainable management and efficient use of natural resources.
- 12.5 Substantially reduce waste generation through prevention, reduction, recycling and reuse.
- 12.6 Encourage companies to adopt sustainable practices and to integrate sustainability information into their reporting.



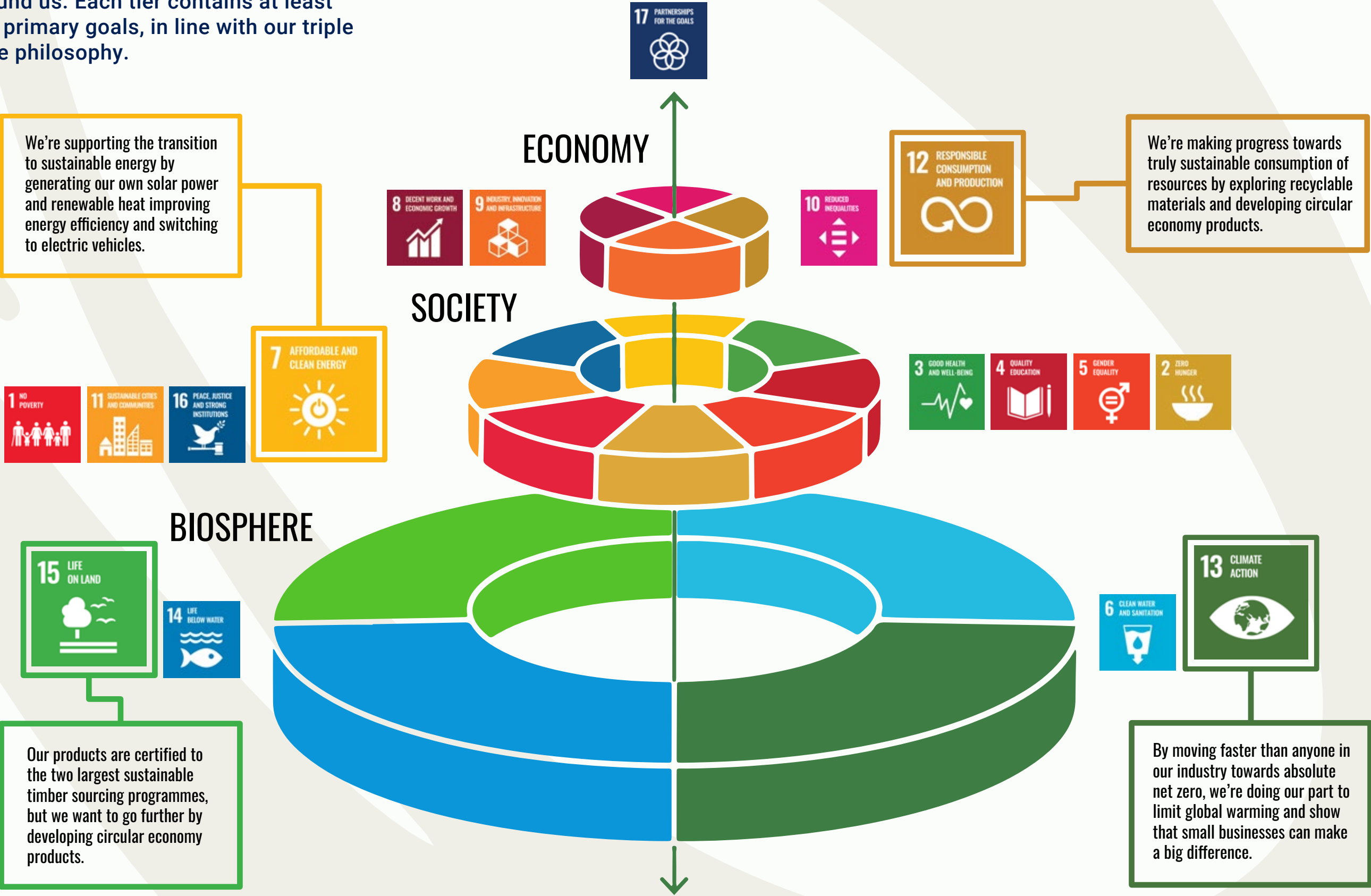
Protect, restore and promote sustainable use of terrestrial ecosystems

Relevant targets:

- 15.1 Ensure the conservation, restoration and sustainable use of terrestrial ecosystems and their service, in particular forests.
- 15.2 Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.



Viewed as a wedding cake, the SDGs can be organised into separate economic, social and ecological tiers, each an embedded part of the planet around us. Each tier contains at least one of our primary goals, in line with our triple bottom line philosophy.



The SDG wedding cake, adapted from Azote for Stockholm Resilience Centre, Stockholm University (CC BY 4.0)

Progress On Other Goals



Crystal Doors supports Rochdale homelessness prevention charity Sanctuary Trust, and every employee earns above minimum wage.



Crystal Doors provides decent, rewarding jobs in our local community. Our entire factory-based workforce lives in Rochdale on average within three miles of our factory



See goal 1



MD Richard Hagan is a vocal advocate of Industry 4.0 and green manufacturing, working in partnership with programmes such as Made Smarter, IN4.0 Group and GC Business Growth Hub, and we work closely with academic partners on product innovation.



Our Wellbeing Fund offers staff £150 annually to put towards personal development and wellbeing. Crystal Doors also supports Jolly Josh, a Rochdale charity that supports children and carers of children with complex needs, and Q Gardens, a nearby community project helping people to grow their own food.



Crystal Doors is a disability confident employer and promotes inclusivity for all, irrespective of age, sex, disability, race, ethnicity, origin or religion.



As well as supporting employees' continuous personal development, our MD Richard Hagan is also an enterprise advisor at nearby Hopwood Hall College. Crystal Doors also works with local organisations to provide work experience opportunities (See Goal 9).



We support sustainable development by supporting community projects Q Gardens and Rochdale in Bloom, in addition to local peatland restoration through Lancashire Wildlife Trust and afforestation through Manchester City of Trees.



Crystal Doors ensures equal pay and equal opportunity for all (See Goal 10).



See Goal 6



Our environmental policy and clean technology investments ensure minimum disruption to the Rochdale Canal that runs alongside our factory.



Our MD Richard Hagan is an active campaigner holding local and national institutions to account and promoting corporate transparency, and Crystal Doors is a formal signatory to several national and international campaigns.



Crystal Doors has joined forces with a huge range of business organisations, media outlets and NGOs across the UK to promote sustainable development and green business, including Chambers of Commerce, the IoD, IEMA, Make UK and many more.



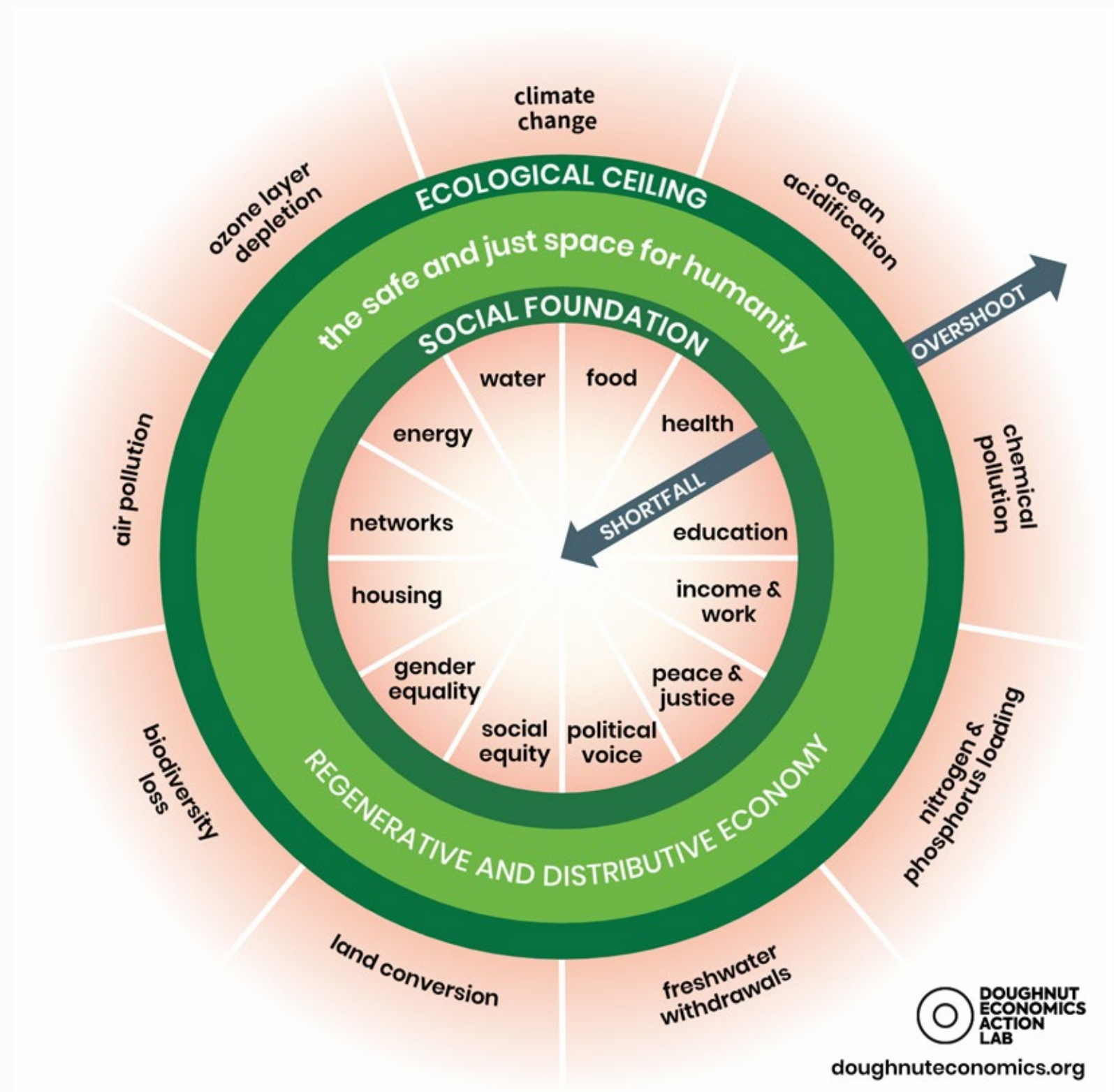
4.4. KEEPING WITHIN PLANETARY BOUNDARIES

For us, true sustainability means an ability to thrive without damaging Earth's life-supporting systems, while at the same time ensuring that everyone has access to a good quality of life. One of the best methodologies to describe this visually is Doughnut Economics, developed by the economist Kate Raworth.

This concept encourages society to operate within a doughnut-shaped 'safe space' between the planet's ecological ceiling and the minimum social foundations required for a happy, healthy society. Overshoot the ecological ceiling and we contribute to the degradation and destruction of the planet. Fall short on social foundation and we contribute to human deprivation.

The Doughnut comprises 9 planetary boundaries identified by Earth-system scientists that form the ecological ceiling, and 12 social indicators that form the social foundation. They roughly map across to the UN Sustainable Development Goals.

[Want to learn more?](#)



The Doughnut of social and planetary boundaries (Credit: Kate Raworth and Christian Guthier. CC BY 4.0) For educational purposes only.

ACCORDING TO SCIENTISTS, SOCIETY IS OVERSHOOTING AT LEAST 4 OF THE 9 PLANETARY BOUNDARIES:



CLIMATE CHANGE
OVERSHOOTING

Excessive greenhouse gas emissions are causing global heating, resulting in rising temperatures, sea level rise and more extreme weather that will be catastrophic if we do not take radical action.



BIODIVERSITY LOSS
OVERSHOOTING

Mass species extinction is causing irreversible changes to ecosystems, reducing resilience in nature and undermining Earth's ability to sustain life.



LAND CONVERSION
OVERSHOOTING

Converting land for human use (including deforestation) is depleting Earth's carbon sinks, destroying wildlife habitats and disrupting natural cycles we all depend on.



AIR POLLUTION
POTENTIALLY OVERSHOOTING

Smoke, dust, pollutant gases and microparticles being emitted into the air are harming humans and other living organisms.



NITROGEN AND PHOSPHOROUS LOADING
OVERSHOOTING

Excessive use of nitrogen and phosphorous in fertilisers is causing significant damage to natural ecosystems.



CHEMICAL POLLUTION
POTENTIALLY OVERSHOOTING

Toxic pollutants and materials such as plastics that survive in the environment for a very long time are having effects that may be irreversible.

Where We Can Make A Difference

A third-party assessment of our operations to identify where our activities have the most material impact and influence has concluded that there are 5 primary planetary boundaries where we should focus our efforts (complementing our 4 primary SDGs). Human society is currently overshooting, or potentially overshooting, all of these boundaries.



CLIMATE CHANGE

The climate emergency is the single biggest crisis facing society. Crystal Doors can play its part by not only reducing our own direct emissions (particularly through clean energy and operational efficiency improvements in our factory), but more importantly by using our experience and lessons learnt to help other small businesses.



AIR POLLUTION

Crystal Doors burns factory wood waste to provide 100% renewable heating. This removes significant amounts of material from our waste stream and means we are not dependent on natural gas for heating, but we also need to carefully manage air emissions to the local vicinity. Our small fleet of diesel vans also contribute to air pollution.



LAND CONVERSION & BIODIVERSITY LOSS

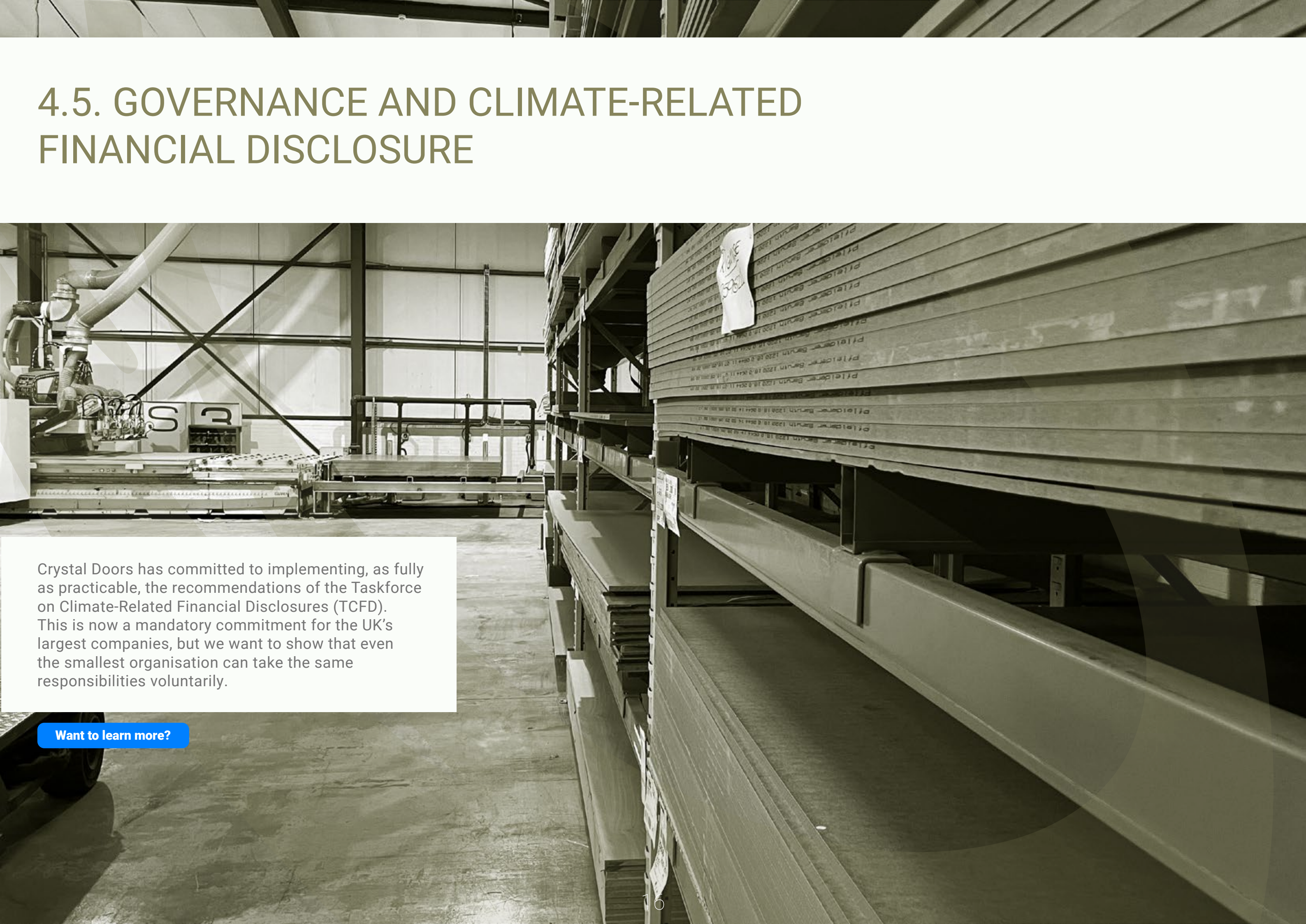
Society is overshooting Earth's ability to cope with loss of natural habitats. As an intensive user of forestry products (MDF is our largest raw material), Crystal Doors has an important role to play in minimising waste, supporting sustainable forestry and preventing deforestation.



CHEMICAL POLLUTION

Plastic pollution is a pressing global concern. PVC vinyl is our 2nd largest raw material and is currently non-recyclable as well as one of the largest single contributors to our carbon footprint, so Crystal Doors has a responsibility to explore opportunities to minimise its use and find alternatives.

4.5. GOVERNANCE AND CLIMATE-RELATED FINANCIAL DISCLOSURE



Crystal Doors has committed to implementing, as fully as practicable, the recommendations of the Taskforce on Climate-Related Financial Disclosures (TCFD). This is now a mandatory commitment for the UK's largest companies, but we want to show that even the smallest organisation can take the same responsibilities voluntarily.

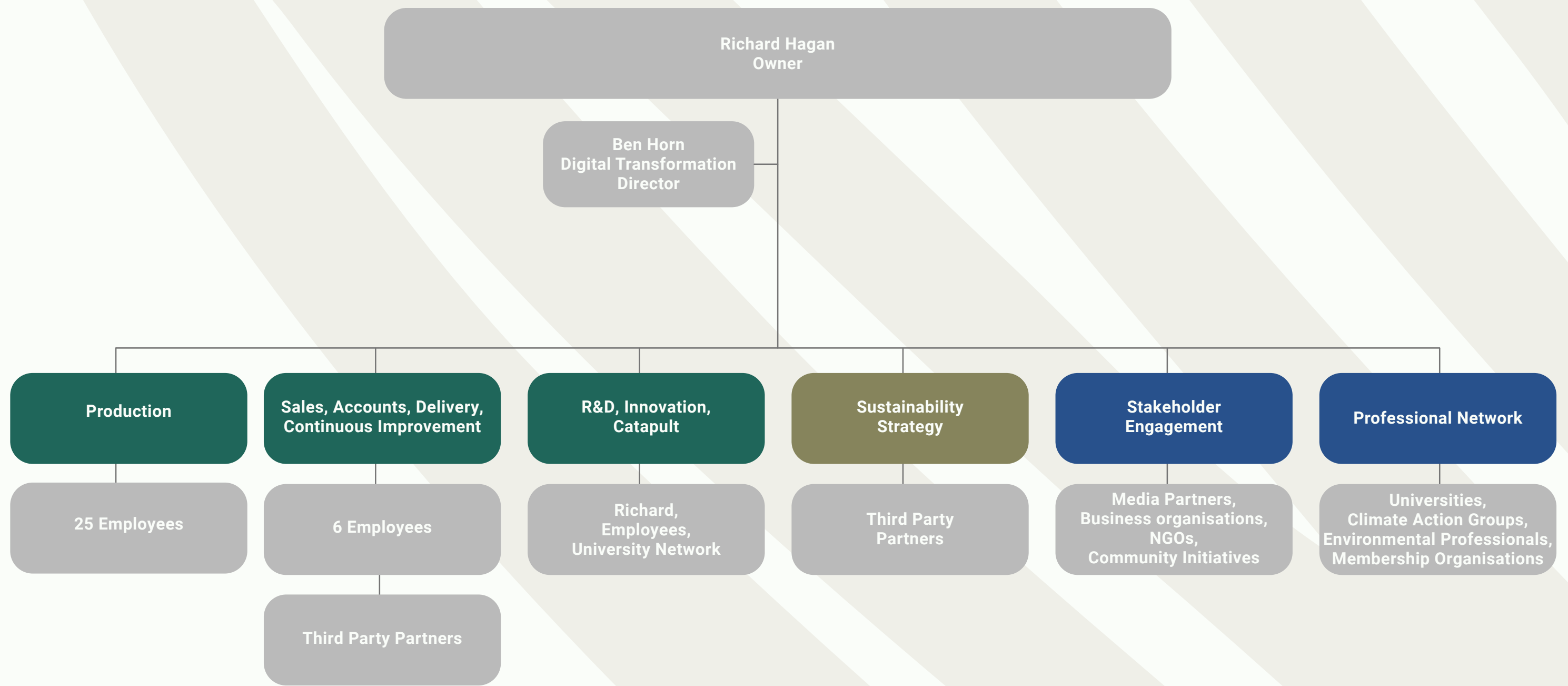
[Want to learn more?](#)

Governance & Risk Management

Managing Director Richard Hagan has ultimate responsibility for sustainability decisions, investments and climate-related risks. To ensure a balanced and informed decision-making process, he works closely with staff, independent consultants and a range of external partners who all support Crystal Doors’ vision and ambitions.

To manage and minimise the financial risk of investments, Crystal Doors prioritises a cashflow neutral or cashflow positive approach, using cost savings from energy efficiency and renewable energy measures to cover finance repayments. This strategy has been extremely successful to date, with many of the investments made since 2015 having already paid back on initial investment.

- Employees
- Consultants
- External Supporters



The direct and indirect impacts of climate change have the potential to impact our business in the short (<2 years), medium (2-5 years) and long-term (5-10 years). This includes both ‘physical’ risks of climate change and ‘transition’ risks associated with the shift to a lower carbon economy.

While many of these risks are not currently impacting our business, we expect them to do so this decade, and therefore they will continue to be monitored, evaluated and mitigated.

RISK TYPE	RISK	WHAT WE ARE DOING TO MANAGE IT
TRANSITION	<p>Policy and legal</p> <ul style="list-style-type: none">Legislative and regulatory pressure to reduce greenhouse gas emissions in the UK and overseas is very likely to increase over the next decade.Expected impacts include rising energy, materials, waste and transport fuel costs and increasing environmental compliance requirements.	<ul style="list-style-type: none">Crystal Doors’ strategy is to exceed environmental regulations wherever possible. Our net zero ambitions put us years ahead of UK climate policy.We have had zero waste to landfill status since 2015.To reduce our reliance on energy from the grid, we have invested over £1.5 million in energy efficiency and renewable energy.To mitigate rising fuel costs, we now have two electric cars and plan to electrify the rest of our fleet over the course of this decade.We are conducting R&D projects and working with suppliers to identify/develop lower environmental impact materials and products to minimise impacts of future regulations on the materials we use. Identify/develop sustainable, recycled and recyclable materials that support the circular economy.
	<p>Market</p> <ul style="list-style-type: none">As society adapts and reacts to the climate and environmental emergency, consumer behaviour will shift towards lower impact goods and services.Increasing demand for electricity due to the electrification of heating and transport will increase electricity prices.	<ul style="list-style-type: none">Crystal Doors holds Chain of Custody Certification to the two largest global sustainable timber sourcing certification programmes to ensure that all timber we purchase is sourced from well-managed forests.We are taking action to lower the impact of our product portfolio by conducting R&D projects and working with suppliers to

RISK TYPE	RISK	WHAT WE ARE DOING TO MANAGE IT
TRANSITION	Market <ul style="list-style-type: none"> Natural resource depletion is expected to reduce availability and increase the cost of raw materials. 	<ul style="list-style-type: none"> We have invested over £1.5 million in on-site energy efficiency and renewable energy projects to minimise our reliance on imported energy and increase resilience to rising energy costs.
	Corporate reputation <ul style="list-style-type: none"> Shifting public sentiment about climate change risks damage to brand value in the case of poor environmental performance, increased customer pressure down-stream in the supply chain and increased concern amongst stakeholders, including existing and prospective employees. 	<ul style="list-style-type: none"> Crystal Doors is committed to being a world leader in social and environmental responsibility. Our net zero aspirations makes us one of the most ambitious manufacturers of any size in the UK. To ensure this level of performance is replicated throughout our supply chain, we have begun an active engagement programme with both suppliers and customers. From 2022, if we deem a supplier or customer is failing to make progress or reflect our principles, we will take steps to remove them from our supply chain.
PHYSICAL	Extreme weather – Local <ul style="list-style-type: none"> Climate change is expected to increase the frequency of extreme weather events. In the UK, this is likely to result in increased frequency of flooding. Although Crystal Doors' property has not been directly affected by flooding and is at low flood risk, the wider Rochdale area suffered significant flooding during the Boxing Day floods of 2015. 	<ul style="list-style-type: none"> By supporting the employment of local residents, over half of Crystal Doors' employees have the ability to walk to work, reducing the risk of transport disruptions in the event of extreme weather. Our 245kW of solar panel system and self-supplied biomass heating ensures resilience against disruption to power lines. EPC rating B insulation in the property will help to ensure resilience against extreme hot or cold weather in future.
	Extreme weather – Global <ul style="list-style-type: none"> Globally, climate-related extreme weather and natural disasters have the potential to cause significant disruption to supply chains. 	<ul style="list-style-type: none"> Our supply chain is continuously under review to ensure that we are partnering with companies that are able to demonstrate sustainability and environmental resilience. We were able to secure supply and continue operating during the COVID-19 pandemic, which has acted as a good stress-test for the resilience of our supply chain against global natural disasters.

Key Metrics

We currently use a number of KPIs to measure and manage climate-related risks and opportunities, which are verified by independent consultants. More KPIs will be added in future reporting cycles as data availability increases.

THEME	METRIC	UNIT
GREENHOUSE GAS EMISSIONS	Scope 1 (direct)	tonnes CO2e
	Scope 2 (indirect energy)	tonnes CO2e
	Scope 3 (indirect)	tonnes CO2e
RESOURCE USE	Grid electricity consumption	KWh
	Diesel fuel consumption (transport)	litres
	Industrial wood waste (biomass)	tonnes



5. HOW WE'RE DOING

AN UPDATE ON OUR PROGRESS
2021/22



5.1. OUR FOOTPRINT

We now calculate our full Scope 1, 2 and 3 carbon footprint in line with the internationally-recognised GHG Protocol Standard. In an attempt to be as transparent and as thorough as possible, we are including a wider range of emissions sources in our calculations than is required by most standards and certifications.

As our access to data is improving every year, these figures remain changeable and we will update them as and when new insights come to light. Our confidence levels for each emissions source is indicated over the following pages.

Want to learn more?

YEAR	SCOPES 1&2 DIRECT & ENERGY	SCOPE 3 SUPPLY CHAIN	CARBON INTENSITY kgCO2e/£'000 (SCOPES 1&2)
2015	290 tonne CO2	—	182.04
2016	261 tonne CO2	—	137.87
2017	218 tonne CO2	—	150.42
2018	202 tonne CO2	—	121.73
2019	224 tonne CO2	—	86.10
2020	164 tonne CO2	334 tonne CO2	80.75
2021	171 tonne CO2	399 tonne CO2	72.75
2022 (TARGET)	70 tonne CO2	—	—

Scope 1 (2021)

Scope 1 emissions are those directly emitted from sources we own or control. Crystal Doors’ Scope 1 emissions are generated from our small fleet of diesel vans and from our heating, which is provided via our 980kW biomass burner that is fed entirely by wood dust and unusable offcuts from our production process.

TRANSPORT

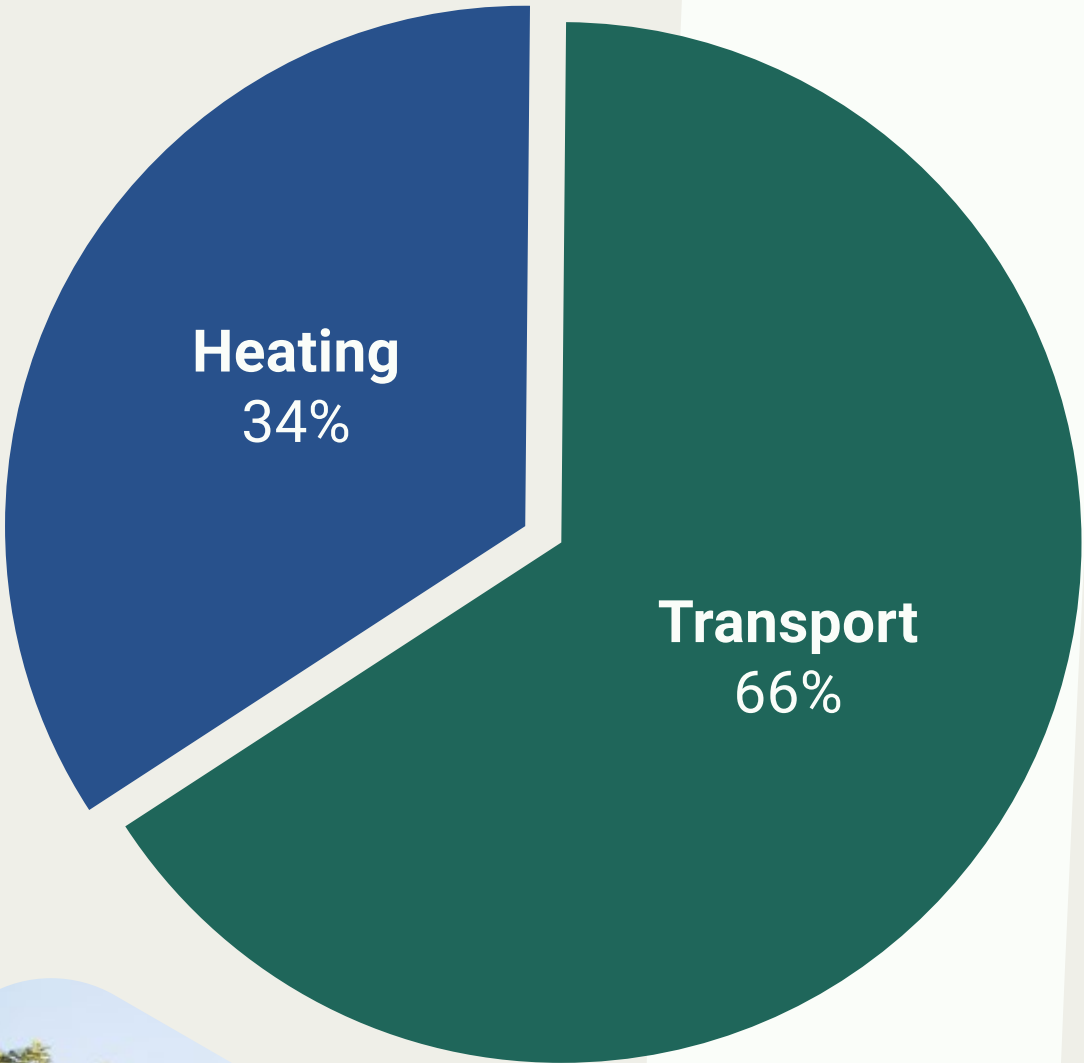
45.38 tCO2e (actual data)
18,064 litres of diesel consumed

Transport is responsible for the lion’s share of our Scope 1 emissions and accounts for 26.5% of our total Scope 1 & 2 footprint. We are taking measures to reduce these emissions through vehicle monitoring technology and plan to transition to electric models over the course of this decade.

BIOMASS HEATING

23.02 tCO2e (medium confidence)

Heating our factory accounts for an estimated 13.5% of our total Scope 1 & 2 footprint. The biomass burner ensures that heating is 100% renewable and off-grid as well as eliminating hundreds of tonnes worth of wood waste from our waste stream every year. (Figures are currently estimated based on weight of wood waste consumed annually; we intend to be in a position to collect direct data by end 2022).



Scope 2 (2021)

Scope 2 comprises the indirect emissions Crystal Doors is responsible for through the electricity we consume from the grid. Excluding the embedded carbon emissions in the materials we use (which is reported in Scope 3), electricity is Crystal Doors' largest source of emissions, responsible for 60% of our Scope 1 & 2 footprint.

ELECTRICITY

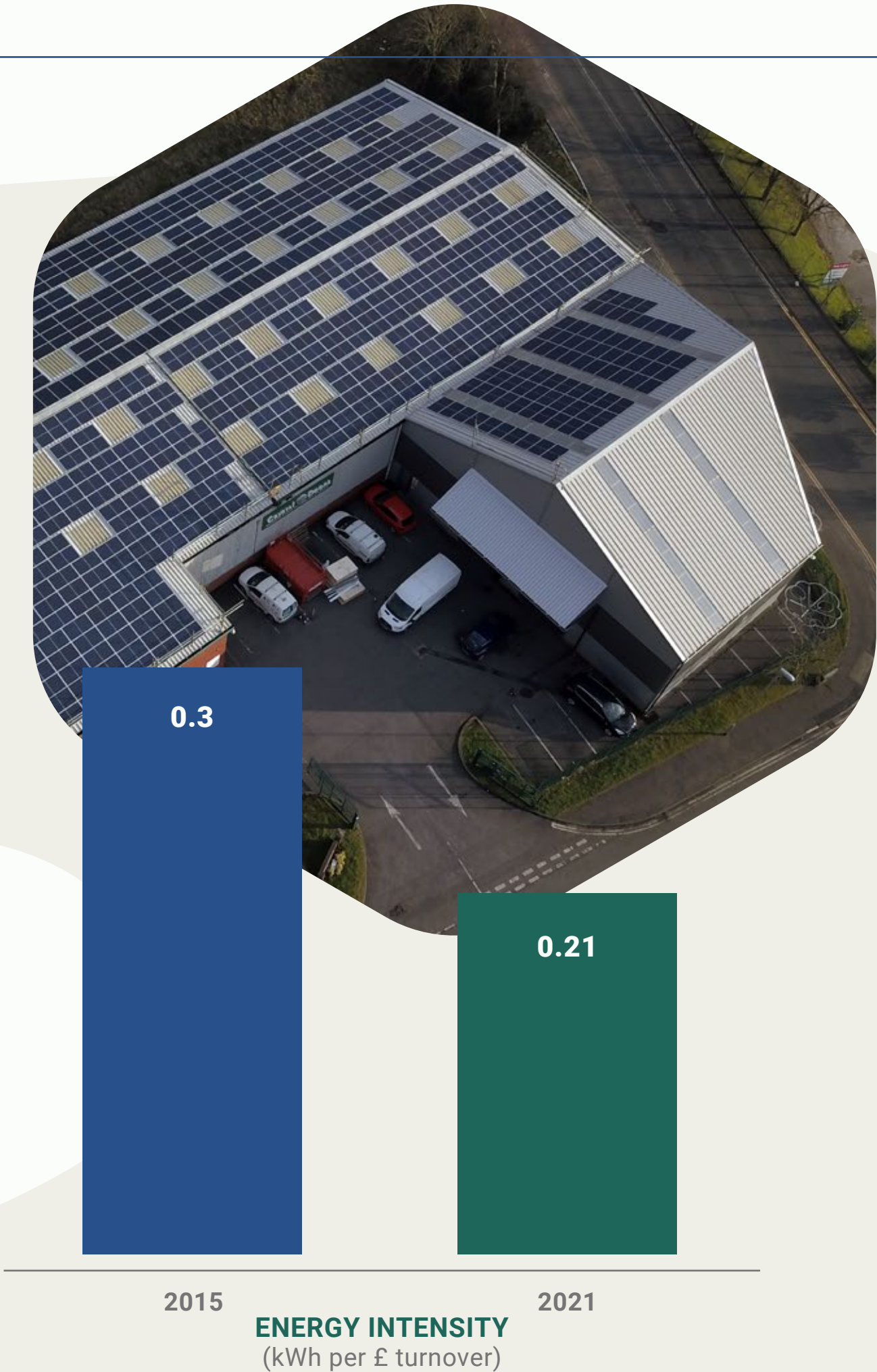
102.71 tCO₂e (actual data)
483,718 Kwh consumed

We have invested nearly £2 million in energy-related improvements to our factory since 2015, which are detailed in full in section 6.2. Energy saving measures have reduced the energy intensity of our product process significantly. Our 246kW solar PV system also provides a sizeable proportion of our electricity needs and is capable of powering the factory entirely on its own on some sunny afternoons.

REPORTING FROM 2022

In 2021, the electricity we purchased reflected the UK's national energy mix. We therefore calculate our emissions based on the standard emissions factor for UK electricity, which is also known as the 'location-based method'.

As of 2022, we purchase 100% renewable electricity through SSE Energy Solutions, which sources its power entirely from its own wind power. This means we can begin reporting zero emissions under what is known as the 'market-based method'. However, we will continue to also report our location-based Scope 2 figure, which provides an important incentive to continually improve energy efficiency.

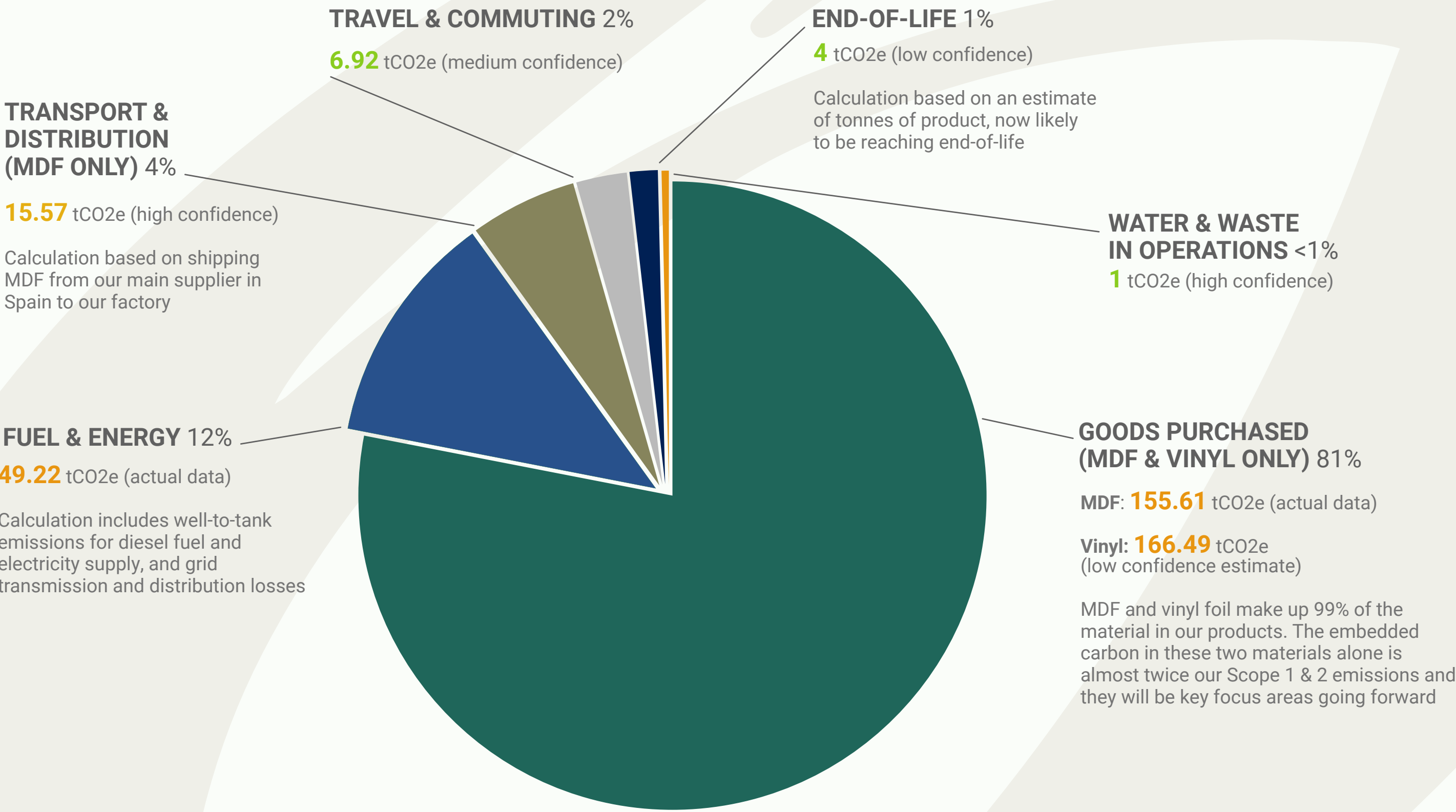


Scope 3 (2021)

Scope 3 takes in all the other sources of emissions Crystal Doors is responsible for from activities outside our direct control. We are reporting on as many of the 15 recognised Scope 3 categories as possible in the knowledge that this is where the majority of our environmental impact is generated. The more we know, the more influence we can have to change things.

UPSTREAM ACTIVITIES	DOWNSTREAM ACTIVITIES
<div><div></div><div>PURCHASED GOODS AND SERVICES Embedded carbon of goods and services purchased (not otherwise reported elsewhere), from the extraction of raw materials through to the point of receipt PARTIALLY REPORTED (MDF and vinyl only)</div></div>	<div><div></div><div>DOWNSTREAM TRANSPORTATION & DISTRIBUTION Transportation of goods and services downstream to the customer using vehicles and facilities not owned or controlled by Crystal Doors NOT YET REPORTED (insufficient data)</div></div>
<div><div></div><div>CAPITAL GOODS Embedded carbon of any capex investments NOT YET REPORTED (insufficient data)</div></div>	<div><div></div><div>PROCESSING OF SOLD PRODUCTS Emissions related to the processing or assembly of Crystal Doors' products by the customer downstream NOT APPLICABLE (negligible impact)</div></div>
<div><div></div><div>FUEL AND ENERGY-RELATED ACTIVITIES Extraction, production and transportation of fuels through to the point of use, and losses in the generation, transmission and distribution of electricity REPORTED (high confidence)</div></div>	<div><div></div><div>USE OF SOLD PRODUCTS Emissions related to the use of Crystal Doors' products NOT APPLICABLE</div></div>
<div><div></div><div>UPSTREAM TRANSPORTATION & DISTRIBUTION Transportation of goods and services upstream using vehicles and facilities not owned or controlled by Crystal Doors PARTIALLY REPORTED (MDF only)</div></div>	<div><div></div><div>END-OF-LIFE TREATMENT OF SOLD PRODUCTS Emissions from the disposal and treatment of Crystal Doors' products that have reached the end of their life REPORTED (low confidence)</div></div>
<div><div></div><div>WASTE GENERATED IN OPERATIONS Emissions from the disposal and treatment of waste generated in our operations REPORTED (high confidence)</div></div>	<div><div></div><div>DOWNSTREAM LEASED ASSETS Emissions from the operation of assets leased to others NOT APPLICABLE</div></div>
<div><div></div><div>BUSINESS TRAVEL Transportation of employees for business-related activities REPORTED (high confidence)</div></div>	<div><div></div><div>FRANCHISES Emissions from the operation of any franchises NOT APPLICABLE</div></div>
<div><div></div><div>EMPLOYEE COMMUTING Transportation of employees between their homes and Crystal Doors REPORTED (medium confidence)</div></div>	<div><div></div><div>INVESTMENTS Emissions from the operations relating to any equity and debt investments NOT APPLICABLE (but exploring pensions investments)</div></div>
<div><div></div><div>UPSTREAM LEASED ASSETS Emissions from the operation of any leased assets NOT APPLICABLE</div></div>	

Scope 3 Breakdown (2021)





Offsetting (2022)

Unfortunately, it isn't currently possible to achieve net zero without some form of carbon offsetting. As of 2022, we now offset our Scope 1, Scope 2 (market-based) and Scope 3 emissions on a rolling monthly basis. We are strongly against the practice of purchasing carbon credits to cover up a failure to take direct action to reduce emissions, so this will remain a temporary measure until we are able to undertake the steps needed to eliminate our emissions entirely.

We currently purchase high quality carbon credits generated by Caledonian Climate from peatland restoration in Scotland, procured through our offsetting partner Zellar. For more information on our approach to offsetting, see section 6.5.



5.2. OUR SHADOW

As a small manufacturer, the impact of our operations on the environment is relatively modest. We still have a responsibility to reduce (and ultimately reverse) this impact, but what’s even more important is using our voice, our networks and our choices to drive change beyond our own walls.

Whereas our carbon ‘footprint’ can show us whether we are walking the walk when it comes to climate action in our own operations, our ‘shadow’ demonstrates how we are contributing to change for people and planet in a way that cannot be recorded on a spreadsheet.

[Want to learn more?](#)

Sharing Our Story

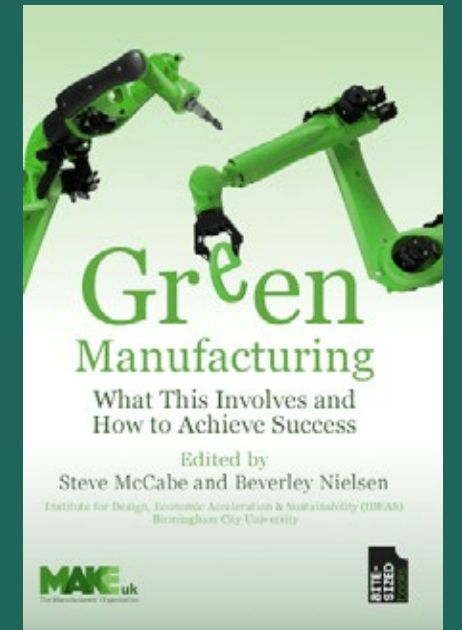
Since 2015, our Managing Director Richard Hagan has been documenting our journey from environmental crisis (failing to gain planning permission for our biomass burner) to national sustainability champions. By sharing this story across as many mediums as possible - webinars, keynote talks, podcasts, radio interviews, magazines and of course our own website – Richard has helped inspire hundreds of other businesses to take action and shown that, despite starting as a beginner, everyone can do it.

Over the course of 2021/22, Richard was invited to speak to regional and national audiences by the likes of BBC News, the British Chambers of Commerce, the IoD, The Manufacturer, Planet Mark, IEMA and edie. He has also personally advised several larger businesses directly, including FootAsylum and QBS Technology.

"Richard is a total inspiration - a great leader and a man on a mission to truly bring about necessary and radical change"
The Marketing Society

"To meet Richard Hagan is to come face-to-face with a passionate manufacturer on a mission to change not only the way his company operates but also the way the industry operates"
The Manufacturer

Richard contributed a chapter to the 2021 Bite-Sized Book, **Green Manufacturing: What This Involves and How to Achieve Success**, detailing our efforts on energy efficiency and digital transformation.



Feedback box on website

"[Crystal Doors'] policy pages are a good example of how far you can go with communication. They've really adopted a fully transparent approach with significant information on their struggles and challenges, and the business benefits of their journey too. It's all written in plain English and is easy to follow. Follow what they do and you won't go far wrong!"
Small99

Feedback on social media

"Since I heard you speak at the Ricoh Festival Net Zero Conference, I have told many people to check out the way you have transformed your business in a force for good and inspiration for others"

"Listening to you speak with such passion at the forum earlier this month was an utter pleasure"



Richard speaking to BBC Breakfast on the eve of the COP26 climate summit in Nov 2021.

To support this work we have partnered with kbbreview, our industry's leading media outlet. Richard Hagan is kbbreview's official Climate Change Champion, has a monthly column in the publication's magazine and regularly appears on its award-winning podcast.



Our climate change champion Richard Negan, managing director of consultants, says that small companies can lead the way in the quest to save the planet

Green light for LEDs

RED FACES FOR SHEDS

SOMETHINGS we can fall into a trap of believing that large companies hold all the power. But when it comes to sustainability, I have found the opposite to be true.

Large UK companies are required by law to disclose their greenhouse gas emissions, and many are under more pressure than ever before to go further, as pension companies and investors demand more detail on their environmental impacts.

Powerful companies are struggling to come to terms with the fact that the 'golden era' of enjoying obscene profits, while hiding their damage to the environment, is coming to an end.

However, for small and medium-sized businesses, the situation is very different. We may not be required by law to disclose our environmental impacts, but it is only a matter of time before the time and energy it takes for larger companies.

Make the pledge

Pledging to become carbon neutral before 2050 – something we all must achieve – is a comparatively simple undertaking, and publicly committing yourself to it already makes you a green company, an average corporate. You can then spend a year gathering data for your first carbon footprint, which can be calculated in just a day by an efficient accountant.

Small companies can lead the way

Crystal Doves undertook our first carbon footprint in 2015, from which I took out a strategic and financial money investment roadmap to be carbon-neutral. For me, environmental actions were not a tick box exercise, which is now what large companies see it, replaced cost with value, where every decision took into account the balance of environmental considerations and saving money. We installed LED lights with a three-year payback and solar panels with a six-year payback without impacting cash flow. We switched to 100% electric cars and changed motives to more efficient motorway drives.

Finding low value

This year, Crystal Doves is asking all stakeholders to make a carbon-neutral pledge. This will reduce our indirect carbon footprint, but more importantly will prove that our entire value chain is taking action. Companies will not be large enough to have accountants only count numbers. But smaller, independent SME suppliers can adapt flexibly quickly, and collectively our environmental impact exceeds that of the sheds where profit for shareholders drives their business.

We have just a few years left to avoid Earth's tipping point to climate disaster. Act now – base all with red LEDs will be large enough to make an accumulated wealth has been at the cost of our planet.

To support this work we have partnered with kbbreview, our industry's leading media outlet. Richard Hagan is kbbreview's official Climate Change Champion, has a monthly column in the publication's magazine and regularly appears on its award-winning podcast.

COMMENT AND OPINION Richard Hagan

We're introducing a regular column that addresses an issue bigger than coronavirus – sustainability and the environment. In his monthly column, **Richard Hagan, MD of Crystal Doors –** a pioneer in this field – will highlight how you can run a sustainable business and still make a profit

How can KBB industry Manufacturers can lead the way on SUSTAINABILITY

Sustainability [/səsteɪnə'bɪlɪti/]

/noun 'Meeting the needs of the present without compromising the ability of future generations to meet their own needs'

Every day my mind is fixed on ideas to improve my understanding and engage with others to address the climate emergency. This is not a typical business owner's daily routine.

The difficulty was all down to a world of information overload – a jangling stream of opinions of green, social, scientific evidence and global companies fighting to hold on to their empire. In 2015, I faced the issue of Crystal Doors when our local council needed planning permission for a 3000sq footed former an environmental grounds. Our factory is situated only 10 miles away from Rushmore Park and Natural England was adamant that the resulting emissions couldn't be mitigated. To avoid, I researched the latest, reviewed and passed thousands to address every possible environmental question for the next three years (myself was passed). I had to change to achieve or lose 20 points otherwise. This is the acute reality of the climate emergency that ultimately forces every company whether you like it or not. We all need to change to survive. Thankfully, we had named as director of a £2 million business company was that every bit change saves money and contributes to carbon emission reductions. Should I write it three that years of continuous improvement under my belt and Crystal Doors had

become a leader in sustainable business.

In 2020, Crystal Doors was UK rated for sustainable manufacturing of The Manufacture MIA Awards, alongside global brands such as BMW and Airspace. Without hesitation, my goal was to win the following year, knowing that small companies are age and can adapt very easily.

The 2020 MIA Awards were postponed, but Crystal Doors has since been recognised in several other award schemes. This included meeting the Bar of England in the Carbon and Energy Transition Award from BBA – the UK professional body for environmental professionals, that looks much more about how things than me.

Finding green opportunities
In 2020, companies of all kinds experienced a year of unprecedented disruption, where leaders had to adapt to survive, engage with new technologies and communicate effectively with their customers.

Change can happen easily – those who adapted effectively and efficiently, transferred to the new normal and found new sales opportunities.

Businesses built with innovation and through vision, strategy and engagement. The topic of sustainability and net zero carbon emissions is no different, but it can be confusing to know what to do, what will cause a difference and how to plan.

Join the race to net zero
The race to net zero carbon emissions has been set by UK Government for 2050, and over 80% of the world's governments have set similar targets. But the question didn't start fast enough. I have converted Crystal Doors to achieving net zero by the 2050 – less than a year ago. We started this journey in 2015, addressing our energy supply and then, one year on, we began our 2020 plan, which achieves the same by 2030.

TOP TIPS

Here are five TOP tips to get you on the road to net zero, even more of which I will be sharing over the coming months.

1 SET A TARGET

Independent retailers are generally much less green than big food or big retailers, so to be best for a 2030 carbon-neutral target and about about your commitment to all your stakeholders.

2 MEASURE

Measure and record your emissions in an annual carbon footprint report so you can track your progress and demonstrate it to others. Start simple – transport, heating, lighting and emissions are likely to be your biggest offenders, so focus on them.

You can save free online carbon footprint calculators to help you, like the Carbon Trust calculator for SMEs (https://www.carbontrust.com/resources/uk-small-business-carbon-footprint-calculator)

3 REDUCE

Identify quick-win measures to reduce your emissions, such as LED lighting or insulation, and build up from there by reviewing your savings one project at a time.

4 SHARE

Celebrate each and every achievement you take to become more environmentally aware and share it with your employees, suppliers, customers and other stakeholders. Encourage others to join you on your journey and over time you will create a tribe of supporters who will help you and cheer you on. 3/22

* Find out more about Crystal Doors and its environmental journey by visiting crystaldors.co.uk or by listening to session two, episode four of the recent podcasting *Millennium*. You can also by searching 'Millennium' in your preferred app of choice. Thank you! But at the moment, remember as well as how to subscribe and leave a review.

Opening Our Doors

We believe it's important for people to be able to see 'under the bonnet' when it comes to seeing sustainability in action, which is why we regularly host factory tours for businesses, students and our local community.

We partner with various organisations to share learning, including the Rochdale Development Agency, and The Growth Company in Greater Manchester through their Made for Manufacturing and Journey to Net Zero courses for local businesses.



Richard talking to students from Hopwood Hall College, Oct 2021

"[Crystal Doors is] one of Rochdale's most forward-thinking businesses. Richard is a great ambassador for sustainable manufacturing, and for business in our borough"

Paul Ormerod,
Chair of Rochdale Development Agency

"Working with Crystal Doors towards their carbon neutral goal has been one of our biggest success stories. They're without doubt one of the most ambitious companies I've come across, and we regularly point to Crystal Doors as an example of best practice"

Rebecca Chedd,
The Growth Company



Factory tour for Rochdale businesses in partnership with Perfect Sense Energy and Rochdale Development Agency, Apr 2022

Backing Others

Crystal Doors is proud to offer its financial backing to several local initiatives, as well as formally support important campaigns attempting to drive change at a national level.

Here are just a few of the initiatives we backed in 2021/22:



The Wildlife Trust for
**Lancashire
Manchester &
North Merseyside**



"A massive thank you for helping to make the future of our peatlands, nature and our climate look brighter"

The Lancashire Peatlands Initiative



"Crystal Doors fits right into the ethos of Rochdale in Bloom. His company has to be one of the most environmentally conscious in our region. The Rochdale in Bloom group can learn so much from Richard's experience and how we can move forward as a group"

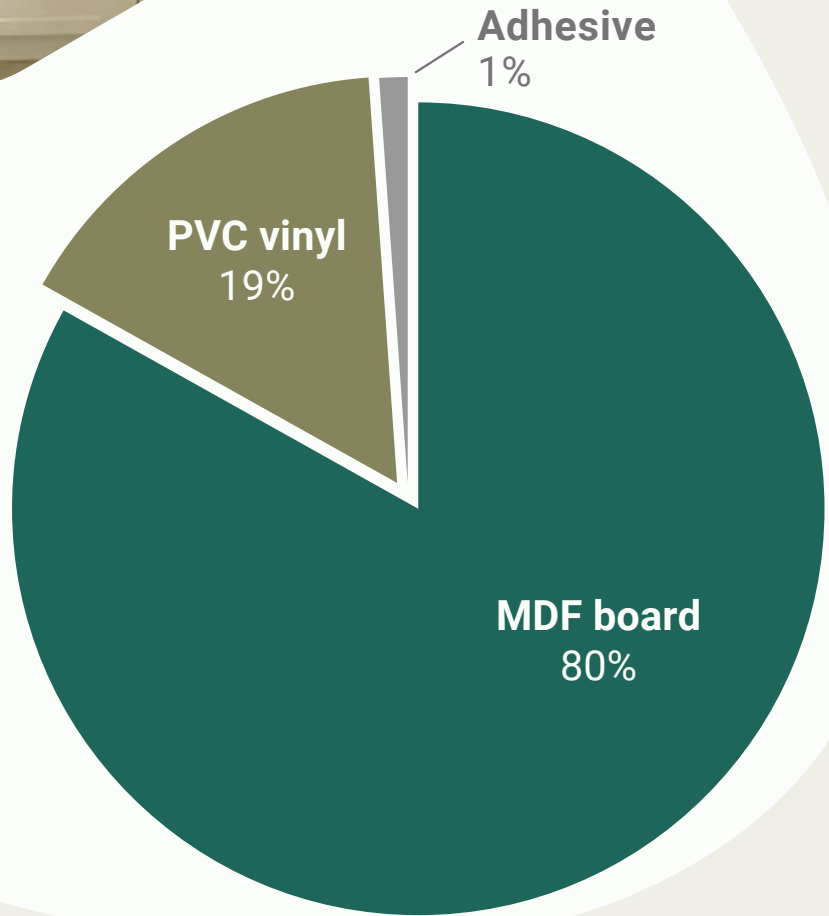
Roy Down, Rochdale in Bloom

5.3. CIRCULAR ECONOMY

Now that Crystal Doors is at the final stages of transforming its direct operations, the next phase of our net zero roadmap is to transform our products themselves. As the carbon footprint in this report shows, our biggest impact actually comes from the raw materials we use. Our long-term plan is to create sustainable solutions that support the circular economy – products that are designed for long-life, reuse and recycling, where use of natural resources is minimised and nothing goes to waste.

To explore the impact of our products further, in 2021/22 we partnered with Salford University’s School of Science, Engineering and Environment to conduct an independent lifecycle analysis of a standard 715x496mm kitchen cabinet door. With the help of a group of MSc students, who had the opportunity to put their learning to practice in a real-world environment, we now have a much better understanding of where our future priorities lie.

Want to learn more?



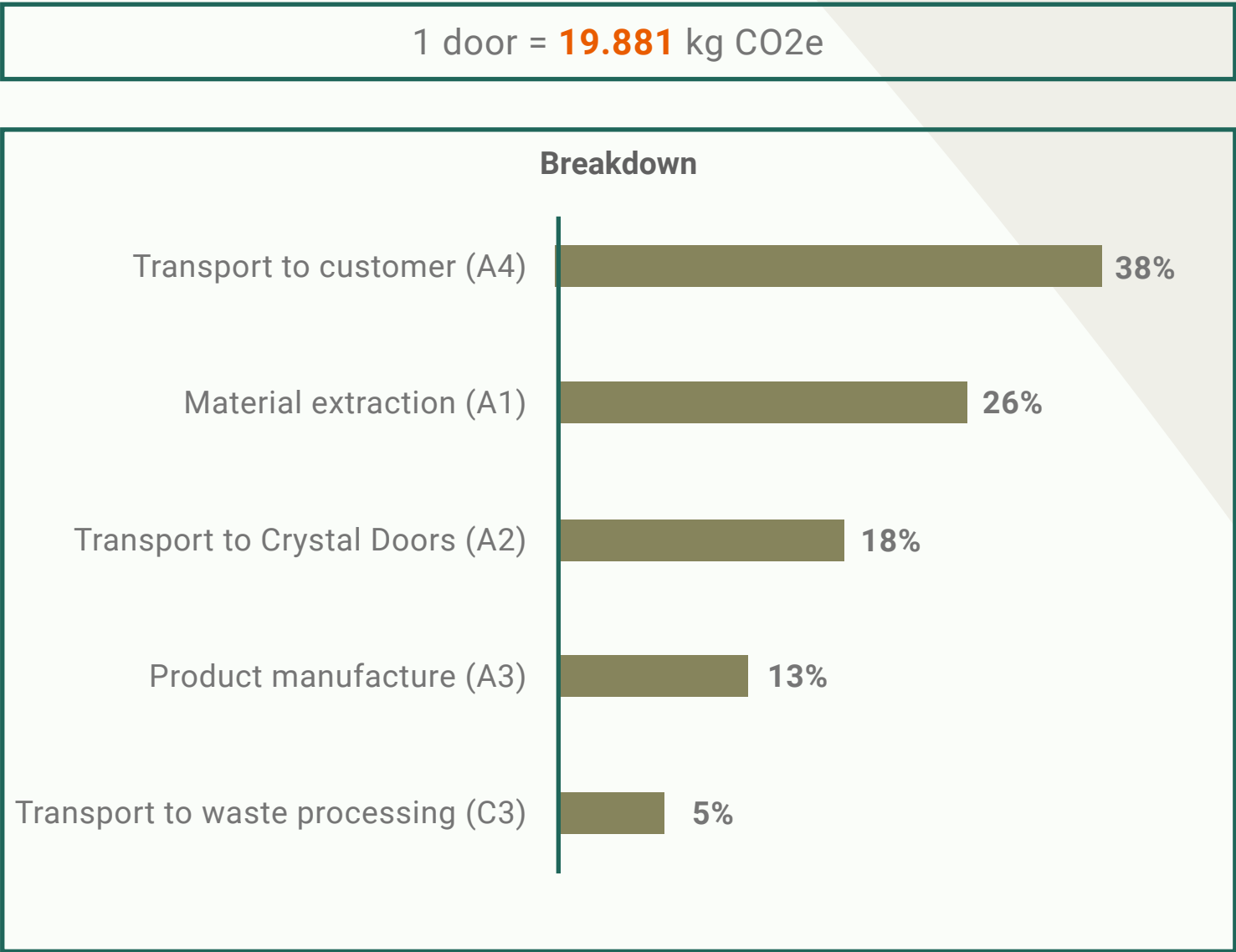
Kitchen cabinet door (by mass)

Enviromental Product Declaration

The resulting Environmental Product Declaration (EPD) breaks down the kitchen door’s carbon footprint (kg CO2e) from raw material extraction and processing (A1), transport to Crystal Doors (A2), product manufacture (A3), delivery to customer (A4) and transport to waste processing facility at end-of-life (C2).

The results show that raw materials and the delivery of our final products have by far the largest impact overall. Solutions in these areas will be our focus going forward.

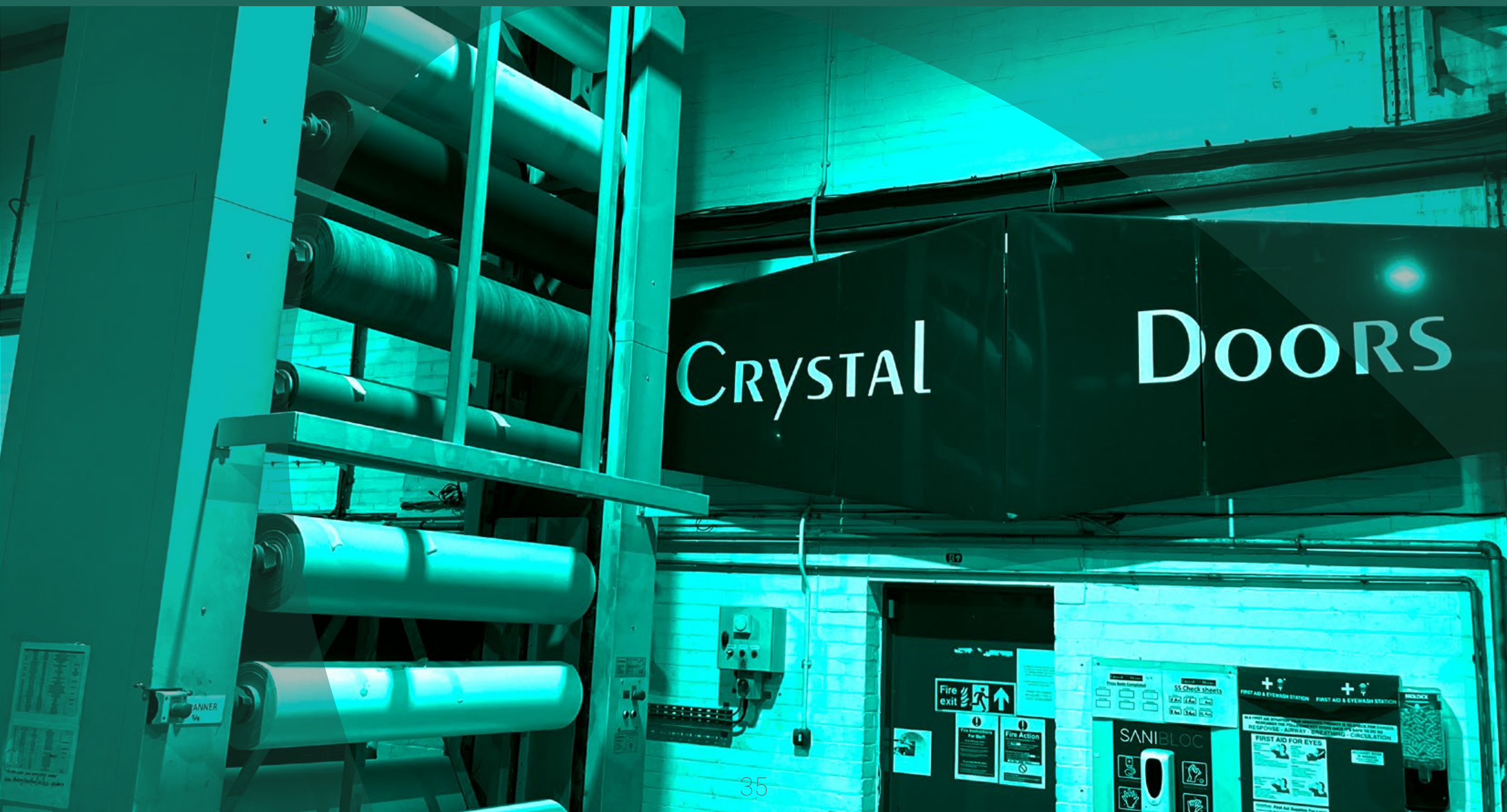
Product stage	A1	Material extraction	X
	A2	Transport to Crystal Doors	X
	A3	Manufacturing	X
Construction stage	A4	Transport to customer	X
	A5	Construction	
Use stage	B1	Use	
	B2	Maintenance	
	B3	Repair	
	B4	Replacement	
	B5	Refurbishment	
	B6	Operational energy use	
	B7	Operational water use	
End of life stage	C1	Destruction	
	C2	Transport to waste processing	X
	C3	Waste processing	
	C4	Disposal	
Recovery stage	D	Reuse, recovery, recycling	



“Thanks again for the opportunity you gave us to see the process behind the Crystal Doors product manufacturing. It has been amazing working with Crystal Doors”

MSc student at University of Salford

6. HOW WE'RE DOING IT



6.1 RADICAL DISRUPTIVE TRANSPARENCY

When I started on my sustainable journey several years ago, I was lucky enough to receive a huge helping hand from people with the skills and knowledge to paint a picture of what was possible for Crystal Doors. Without them, I would have been lost.

The steep learning curve would have been made so much easier if I had just been able to learn directly from other businesses like mine who had done it all, or seen with my own eyes what a green factory actually looks like.

That's why I think the most important thing I can do, and Crystal Doors can do as a company, is what I like to call 'Radical Disruptive Transparency'. To open our doors to the world, and call out those who hide behind theirs.

We need leaders that have kind hearts and the energy to support others, and we need strong partnerships to create and tell good sustainability stories. Getting out of our siloes and talking to each other is essential. We need to go greener and go faster, and that can only be achieved in networks.

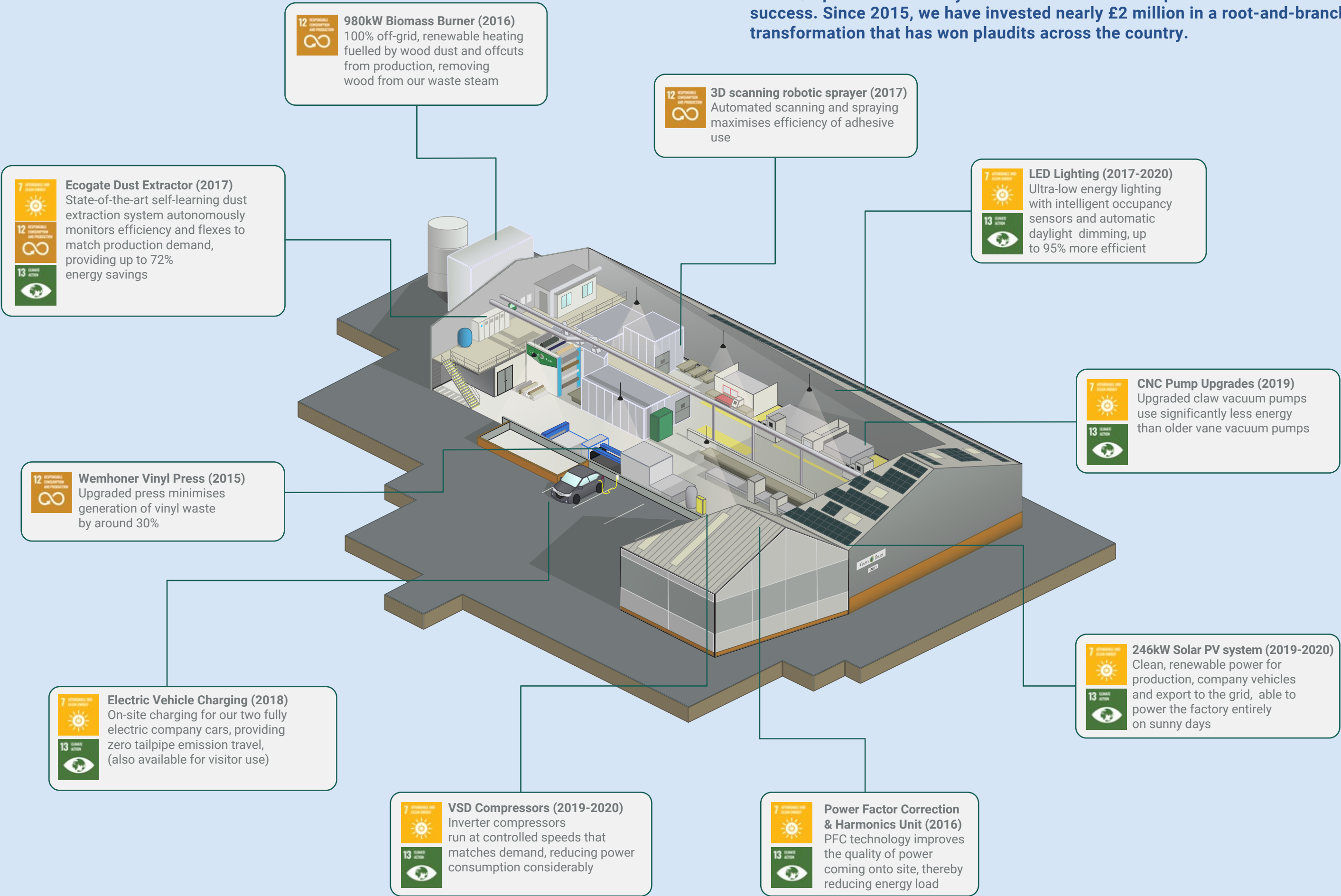
Radical Disruptive Transparency has become my personal mission, and this report is one of the many ways I'm doing it. Over the following pages, you can read all about what we've done at Crystal Doors, how and why we did it, and how you can do it as well. My only request is that when you start achieving your green goals, you share your learning with others, too.

Richard

[Want to learn more?](#)

6.2. SUSTAINABILITY IN THE FACTORY

Our 24/7 production facility in Rochdale is the centre point of our sustainability success. Since 2015, we have invested nearly £2 million in a root-and-branch transformation that has won plaudits across the country.



Energy use in the factory has been completely transformed since we began our sustainability journey. The building has risen from an EPC rating of D in 2015 to A+ (making it one of the most energy efficient commercial buildings in the UK) and energy intensity by turnover has dropped by 30%.

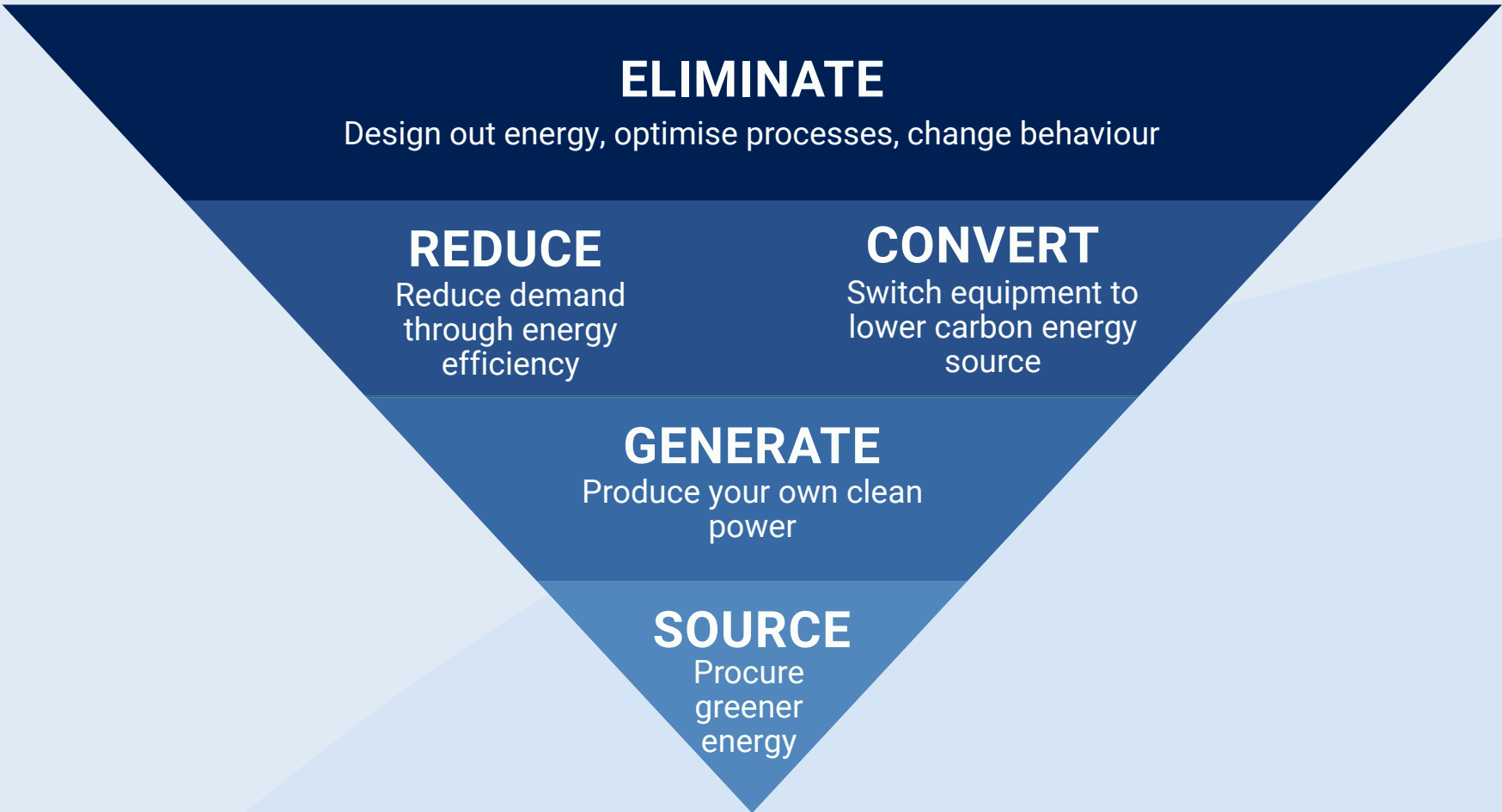
Following professional advice from our long-time supporters, GC Business Growth Hub, we have always taken an ‘energy efficiency first’ approach, focusing first on eliminating energy from our process and reinvesting the savings in further improvements. As energy prices continue to increase, our investments look more astute with every month that passes.

[Want to learn more?](#)

 100% RENEWABLE HEATING

 100% RENEWABLE ELECTRICITY

 SELF-SUPPLIED SOLAR POWER



The Energy Hierarchy (Credit: GC Business Growth Hub)

OUR APPROACH TO INVESTMENT

Our £2 million outlay may sound significant, but most of our investments are actually cashflow neutral or cashflow positive – using energy savings to cover loan repayments. We are proof that lack of funds is no barrier to net zero.

OUR APPROACH TO ELECTRICITY TARIFFS

In 2022, we chose SSE Energy Solutions as our energy supplier because they guarantee we are purchasing genuine, 100% renewables – no greenwash.

[Want to learn more?](#)

Talking Green Buildings with Perfect Sense Energy

Gary Brandwood is Managing Director of Perfect Sense Energy, which has been supporting Crystal Doors for over four years with our energy saving and renewable energy projects.



What first step should every business take when improving their building?

Always start by analysing your energy consumption data via your energy supplier. This will highlight your exact consumption pattern during the whole year, which can sometimes throw up anomalies that help to target actions to eliminate waste and identify opportunities to save energy.

How can greener buildings avert the cost of energy crisis?

With many businesses facing 100% increases in their energy bill or more in 2022; buying better, using less from the grid and generating your own free on-site renewable energy can all play their part. Most energy-saving LED lighting projects now pay back within a year, and for energy-intensive businesses solar PV can often pay for itself within 2-3 years. Minimising consumption and generating your own also helps with financial forecasting and de-risks a large proportion of your energy supply.

What are your predictions for the future?

Energy prices are set to remain very high over the next 2-3 years. Predictions beyond that are tricky to predict, but one thing that is certain is that the low energy prices of the past are highly unlikely to return.

Legislation will require commercial buildings to improve their energy efficiency significantly over the coming years. Monitoring energy and generating renewable power will be the foundation of how energy will flow through buildings. We'll also start to see artificial intelligence being used more to integrate solar with battery storage, electric vehicle charging and the electrification of heating through heat pumps and other technologies.



[Want to learn more?](#)

Zero Waste



Crystal Doors has maintained zero industrial waste to landfill for many years. Thanks to our purpose built Ranheat biomass burner, all of the waste MDF from our process is collected by our smart extraction system and recovered for heating the factory. This provides 100% renewable heat that warms the air space and keeps moisture levels low to protect products from temperature variations.

The adhesive we use to foil our products with vinyl covering is applied by our 3D scanning robotic spray system, which is designed to maximise efficiency with minimal to no wastage. Any excess vinyl is trimmed away, collected and sent off to be recycled into other PVC products.

"We have worked with Richard since 2015 to put the right groundwork in place through resource efficiency and lean manufacturing. As a result, Crystal Doors has an excellent platform to push on with even more transformational improvements through digitisation and product innovation, which is really exciting to see"
Geoff Crossley, GC Business Growth Hub



6.3. SUSTAINABILITY IN THE SUPPLY CHAIN

While our own operations are important, like most businesses it is our supply chain that has the biggest impact. As part of our net zero plan, we have begun engaging with our end-to-end supply chain to cut emissions and put purpose over profit.

We are asking our suppliers to demonstrate they share our values by making their own net zero pledge. If we deem a supplier is failing to make adequate progress, we commit to removing them from our supply chain as soon as possible.

Crystal Doors is also strongly committed to supporting local and independent suppliers wherever possible, both to minimise our Scope 3 emissions and to maximise social value in our region.



70% of core products sourced from businesses operating within 50 miles of our factory in 2020/21



63% of core products sourced from UK-owned companies in 2020/21

Talking Carbon Footprints With GC Business Growth Hub

Rebecca Chedd is an Environmental Business Advisor at GC Business Growth Hub, a support organisation for small businesses in Greater Manchester that has helped us on our sustainability journey since 2015.



What first step should small business take on their sustainability journey?

A good place to start is understanding your baseline resource consumption and carbon footprint. Understanding how big your footprint is, and where your emissions come from, will help you to understand how your activities contribute to climate change, and where to prioritise your focus.

What can small businesses do about the environmental impact of their supply chain?

Map out your supply chain and identify your key strategic suppliers. Speak to them about their green credentials and let them know you want to reduce your supply chain emissions – try to make it a collaborative effort so it's a win-win for everyone involved. Having good communication and relationships with your suppliers is key.

What are your predictions for the future?

Climate change issues will certainly become a greater priority. Increasingly, businesses of all sizes are facing pressure to report their carbon footprint from customers. Even if you aren't being asked for it right now, it's likely to become more common in the near future.

Sadly, climate change is happening now and we'll see more global supply chain issues linked to events such as flooding and extreme heat waves. It will become more important to keep aware of climate issues specific to certain global regions, so mapping out your supply chain will be helpful in managing potential risks.

What support do you offer businesses?

We run a fully funded online programme called Journey to Net Zero, which is exclusively for SMEs in Greater Manchester that want to get on the path to net zero, but aren't sure where to start.



[Want to learn more?](#)



Support and Collaboration

We recognise that supply chain sustainability is an ongoing process and that we are all ultimately working towards the same goal. Managing Director Richard Hagan offers advice and guidance to suppliers if they require support, with the ultimate aim of creating a community of likeminded companies we can work with.

We also know that innovation will be crucial to achieving our goals, so we are seeking to work with suppliers who we can build productive R&D partnerships with. We have already had some success trialling innovative new solutions, but we know there is lots more to do.

What Crystal Doors has achieved has inspired us to follow in their footsteps. We're planning to install solar, purchase electric vehicles, train our staff in carbon reduction and become a B Corp as a result of their achievements

Mark Reed, Stellafoam (key MDF supplier)

Crystal Doors were the first company in the UK to successfully trial and use Bonlex foil made from recycled consumer waste PET and were a driving force in its development. It is a privilege to continue to work with Crystal Doors to reduce the carbon footprint associated with products made for our industry

Chris Green, Plastribution (key vinyl supplier)

6.4. SUSTAINABILITY THROUGH DIGITALISATION

Running side-by-side with Crystal Doors' sustainability efforts is a drive towards smart, digitally enhanced manufacturing, also known as Industry 4.0. One of the major benefits of digital technologies like the Internet of Things and Artificial Intelligence is the ability to cost-effectively collect and present untapped data that can reveal 'golden moments' to improve efficiency cut environmental impacts.

Led by our Digital Transformation Director, Ben Horn, we are building a factory-wide network of sensors that will allow us to track efficiency, energy consumption and carbon emissions on a publicly available dashboard, providing a clear online visualisation of how the factory is performing in real-time.

[Want to learn more?](#)

"By capturing data from all your operations, you can create a full picture that is not just estimation or guesswork, but cold hard facts that allow you to make informed decisions that enable a more efficient factory"

Ben Horn, Crystal Doors Digital Transformation Director



Talking Transparency with our Digital Transformation Director



Ben Horn is our Digital Transformation Director. He is responsible for guiding Crystal Doors' vision and strategy for digital technology adoption and managing the various digital projects we are undertaking to make our operations more efficient and sustainable.



What does 'digital transformation' mean?

Digital transformation is about evolving the way businesses operate through the adoption of cutting edge digital technologies such as robotics, artificial intelligence, the internet of things, data analytics and cloud computing.

What has digital transformation got to do with sustainability?

Digitalisation is crucial to our pursuit of 'lights-out', fully sustainable manufacturing. The data analytics available through our digital systems allows us to analyse not only our factory efficiency but also its carbon impact.

Being able to measure the footprint of each area of our operations, in real time, allows us to identify where we need to focus our efforts. Digitalisation also plays a key role in directly reducing emissions by increasing factory efficiency, reducing waste, and unlocking new capabilities such as creating circular economy products.

How are you incorporating sustainability into your projects?

One of our most important digital projects for 2022 is the development of our carbon dashboard. We are collecting live data on all the major areas in which we create carbon emissions, and the dashboard will bring all these data streams together in one place so the big picture can be visualised in real time. As a publicly accessible tool, it will ensure that we remain accountable for our environmental impact and consistently achieve our goal of net zero.

How can small businesses get started with 'green digitalisation'?

Don't try to make the journey alone – get connected with local organisations that support SMEs with digitalisation, like Made Smarter. Try not to be distracted by buzzwords and fancy technologies – start with your core systems and get your data flow organised. Only once you have control of all your data can you then begin to leverage the power of new technologies.

Made Smarter



Support programmes for SME manufacturers like Crystal Doors are an important starting point on the road to digital transformation. We are lucky enough to have benefitted from the Made Smarter initiative, which has catapulted us towards our vision of a smart, digital factory.

In 2020, we employed our now-director Ben Horn and a digital intern, part-funded through Made Smarter, who both played a crucial role in kick-starting our digitalisation projects.

In 2022, Richard Hagan and Crystal Doors featured in 'Made Smarter's For The Makers' advertising campaign to encourage technology adoption across Greater Manchester.

"The fourth industrial revolution is not just an opportunity for manufacturers to be smarter, but also to be greener. We were delighted to pair Crystal Doors with a graduate through Made Smarter's digital internship programme. It was fascinating to hear about Crystal Doors' follow-on vision to create an online dashboard dedicated to sustainability, where everyone will be able to see how well the company is performing in terms of energy use, efficiency and carbon in real-time. That's a brilliant example of digital transformation in action"

Alain Dilworth, Made Smarter

"Crystal Doors has some very exciting plans for the future, and it is fantastic to be part of that journey, capturing and displaying real time data analysis for the first time, supporting the betterment of the company, and playing a role in reducing carbon emissions"

Lewis Cookson, graduate intern

[Want to learn more?](#)

A photograph of a person wearing a blue puffer jacket, holding a large clump of bright green moss in their hand. The background is a vast field of dry, golden-brown grass under a cloudy sky. The image is used as a background for the text on the left side of the page.

6.5. SUSTAINABILITY WITH NATURE

Ultimately, going 'net zero' is not enough to avert the climate and ecological emergencies. As businesses we need to strive to become 'net positive' by giving back more than we take. This requires working with the planet through nature-based solutions such as creating and expanding green spaces and restoring natural environments.

However, today far too much attention is being paid to cheap, low quality carbon offsetting instead, which serves neither climate nor nature. Too many organisations' net zero goals are reliant on this flawed and greenwashed approach, and scientists are already warning that nature cannot handle the growing demand for cheap carbon credits.

Crystal Doors invests in carbon offsets over and above the emissions we have not yet been able to eliminate, making sure that we only support the highest quality, UK-based projects. But all businesses should be clear that this is only a temporary measure – not a permanent fix. It is also important that businesses play their part in restoring nature more broadly through other initiatives that matter to them.

One of the nature-based projects supported by Crystal Doors in 2021/22 is Lancashire Wildlife Trust's Peatlands Initiative, after we recognised that important work to restore these vital habitats is not getting the attention it needs.

Talking Peat with Lancs Wildlife Trust



Jenny Bennion is Communications Officer for the peatlands team at the Wildlife Trust for Lancashire, Manchester and North Merseyside. Crystal Doors is a supporter of the Trust's Natural Carbon Capture Scheme.

Why is peat so important to the climate emergency?

Despite only covering around 3% of the Earth's surface, peatlands contain at least 550 gigatons of carbon – more than twice that stored in all forest biomass. However, as soon as they are damaged in any way, that carbon gets released, significantly contributing to the climate emergency.

Why are our peatlands in trouble?

Our peatlands have seriously suffered at human hands. These once pristine habitats have been drained and the peat extracted for use as fuel, for the horticultural industry or to be converted to agricultural land. In total, 98% of lowland raised peatlands have been lost here in the North West and 80% of peatlands are seriously damaged across the UK as a whole.

What is the Wildlife Trust doing to help?

We need to act now to save these precious habitats, so we are working hard to restore the remaining fragments of lowland peatland in our region. Simply by re-wetting the peat we can significantly reduce carbon emissions, and once the right vegetation has been restored they will act as carbon sinks – actively removing carbon from the atmosphere and locking it away in their peaty soils for millennia.

How can businesses and individuals help?

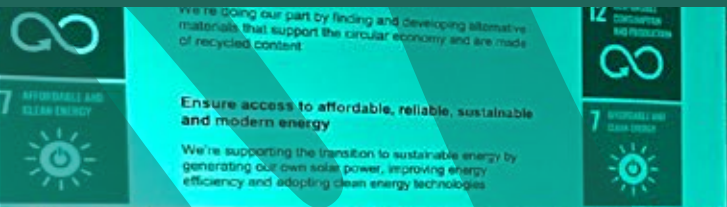
Huge amounts of effort, and expense, goes into securing land for restoration and the extensive rewetting and re-vegetating works required to put them back on the path to recovery. Making a donation or becoming a member of your local Wildlife Trust is a really great way to help support us.

Spreading the word about the importance of protecting and restoring peatlands is also absolutely vital. The more people who understand, care about, and take action for, our peatlands, the more chance they have.

[Want to learn more?](#)

7. WHAT WE'RE DOING NEXT

BEYOND NET ZERO



Plans For 2022/23

ACCELERATE ENGAGEMENT

Our Managing Director Richard Hagan will continue to act as a driving force for sustainability in the KBB industry and beyond, targeting a wider group of stakeholders that have real power to enact change – from pension providers to the forestry management certifications we hold. We will also continue to expand the tools and resources available to all on our website, and form new partnerships with organisations to amplify our message.

TAKE TRANSPARENCY TO NEW LEVELS

As our digital transformation continues to gather pace, we will gradually expand and build upon our virtual Carbon Dashboard so that anyone can see sustainability in action in real-time, to a level of transparency no UK manufacturer has tried before.

KICK-START INDUSTRY-CHANGING INNOVATION

In light of our findings about the impact of the raw materials we use, we are taking a step back and re-thinking what a kitchen could be. We are at the beginnings of a new concept for a circular economy kitchen that can be continually adapted, repurposed and upgraded – a 'kitchen for life'. This is no mean feat, but it is a necessary next step in our evolution as a business and as an industry. A rapid transition to a circular economy in the forestry sector could halt global biodiversity loss and save 280 million hectares of forest by 2050.*

THIRD-PARTY VALIDATION

We will be working with a range of partners to validate and certify our progress to the most rigorous of international standards for environmental leadership, including our goal of verified B Corp status – joining the growing list of forward-thinking companies that are formally balancing profit with people and planet.

* Tackling root causes: Halting biodiversity loss through the circular economy, Sitra (2022)

8. RESOURCES & SUPPORT

CARBON FOOTPRINTING

Business Carbon Calculator

Compare Your Footprint

Zellar

GHG Protocol Emissions Calculation Tool

ENERGY EFFICIENCY AND RENEWABLE ENERGY

Perfect Sense Energy

SSE Energy Solutions

DIGITAL TRANSFORMATION

Made Smarter

IN4.0 Group

COMMUNICATING SUSTAINABILITY

Flamingo C&C

The Purpose Project

SUPPORT IN GREATER MANCHESTER & LANCASHIRE

GC Business Growth Hub

Chamber Low Carbon

OTHER USEFUL RESOURCES

SME Climate Hub

Zero Carbon Business

Small99

BCC Net Zero Hub

Make UK Net Zero Hub

edie.net

CERTIFICATIONS

Planet Mark

B Corp

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