STEPS WITHOUT FOOTPRINTS

ONE YEAR ON

macegroup.com

CONTENTS

FOREWORD

Climate change is the defining challenge of our time. As a generation. As a society. As an industry.

Greenhouse gas emissions are increasing year-on-year. The polar ice caps are melting six times faster than they were in 1990. And the world's tropical forests are shrinking at a staggering rate - the equivalent of 30 football pitches per minute.[i,ii]

Acting now is everyone's responsibility. We all have a part to play - individuals, companies, governments, and particularly our industry.

Almost 40% of carbon emissions come from the built environment. We have a duty and responsibility to challenge ourselves in how we build and operate the buildings we live, work and play in.

Over the next 40 years, it is expected that the world will build 230 billion square metres of new construction. We must dramatically transform how we respond to the needs of communities and governments around the world.[iii]

According to the 2020 UN Global Status Report for Buildings and Construction, the construction industry recorded a drop in global emissions from 11% in 2018 to 10% in 2019.[iv] The prediction is that, in 2020, the industry's carbon footprint will have decreased further, largely due to reduced construction activity and business travel affected by COVID. The key will be to not let emissions creep back up in 2021 – learn from the pandemic and take strides in adopting new technology and working practices.

As the second round of National Determined Contributions (NDCs) are being formulated and submitted in the lead up to COP26, they present an opportunity to include more explicit measures.

As an industry we must prioritise the repurposing of old buildings over the development of new, and where new is the only option, we must commit to designing net zero carbon buildings now.

Our commitment to remain a net zero carbon company supports the London Energy Transformation Initiative which believes that by 2025, 100% of new buildings must be designed to be net zero carbon, and the whole industry will need to step up to the challenge.

The time has passed for small, incremental changes. What is needed is wide-scale transformation and commitments that put carbon ahead of short-term gain.

The construction industry can't stop climate change altogether, but it can have a significant impact on turning the tide. Shifting to renewable energy sources, reducing travel, routinely repurposing existing buildings, adopting low carbon alternatives and actively supporting new technologies - we all have a role to play. The sum of our efforts will be our turning point.

FOREWORD

Reinforcing our commitment

A year ago, when we announced we would become a net zero carbon business in that same year, we had no idea of the turmoil that sat on the horizon. Had we known the world and our industry was about to face an unprecedented struggle, we might have held back to focus on more immediate challenges – taken our foot off the gas or, in this case, hydrogen. I'm pleased we didn't.

I'm proud to confirm that we achieved what we said we would. Despite 2020 being a difficult year that had the potential to derail our plans, we remained committed.

The global pandemic had an impact on our carbon emissions in a way that we couldn't have predicted. It reduced our development work and had a big impact on our business travel. But regardless, we proactively reduced our carbon emissions by a record amount.

The purpose of this report is to show how we achieved a net zero position in one year. From technical trials and new standards, to responsible offsets, and how we developed our strategy to widen our scope and push the boundaries of our ambitions.

As I have said before, we haven't got all the answers but we have the determination and enthusiasm to keep pushing, and we have some of the industry's most experienced and committed experts to lead the way.

I hope this report will serve as useful reading for others who are on the same journey as us – who have the same commitment to drive down carbon emissions but are faced with similar challenges.

Accelerating our journey

Each year, seven million people die across the globe from air pollution, which is primarily generated by fossil fuel combustion. If COVID has taught us anything, it's that protecting lives has to be the greatest focus for our industry.

Becoming a net zero carbon business was just the start. Now we've seen what's possible we're even more committed to push the boundaries of ambition.

Our people won't let us sit back, they will be the driving force as we work towards achieving new and even more challenging targets.

Reducing our carbon footprint further is key to our new business strategy which we launched at the beginning of 2021.

Our strategy includes three priorities, the first of which is to 'pursue a sustainable world'. We will accelerate the built environment's response to the climate emergency by, not only cutting our scope 1 and 2 emissions further, but by incorporating our scope 3 emissions. We will do this by driving change both upstream from the products and transport of our supplies and, downstream from operations, energy in use, decommissioning and disposal.

We cannot do this alone. It requires the entire industry to work corroboratively to address our greatest challenge.

"In an industry that's too often been part of the problems, we're determined to be part of the solutions. No going back. No holding back.

I strongly believe that the ambitions we chase today will build the world we live in tomorrow."

Mark Reynolds, Group CEO, Mace

EXECUTIVE SUMMARY

Carbon reduction

In 2020, Mace carbon emissions reduced by 50%.

A combination of new technology, new methods of construction and new working practices saw us reduce our emissions from 26,000 tonnes to 13,000 tonnes between January and December.

In recognition of the rise in carbon emissions that our people emitted through working from home during the pandemic, we expanded our scope, resulting in an additional 2,500 tonnes which we included in our offsets.

Offsets

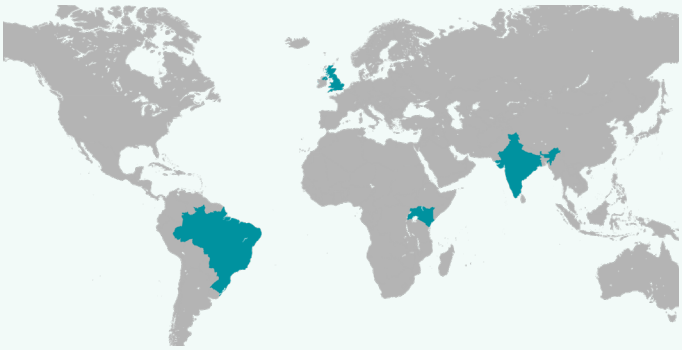
To account for the remaining emissions, Mace offset through Gold Standard programmes that generated additional social value for local communities in areas where we work.

	2019	2020	Reduction
Energy	8,522	4,855	43%
Embodied carbon	7,600	2,353	69%
Business travel	10,163	3,171	69%
Waste and water	55	40	28%
Working from home	*	2,500	-

Values in tonnes

* Not in scope

GLOBAL OFFSETTING ACHIEVEMENTS



Rainforest protection and treeplanting

4,000

tonnes offset

Brazil and UK

Borehole rehabilitation

3,000

tonnes offset

Uganda

Community wind

2,500

tonnes offset

India

Large scale solar

2,500

tonnes offset

India

Clean cooking

1,000

tonnes offset

Kenya

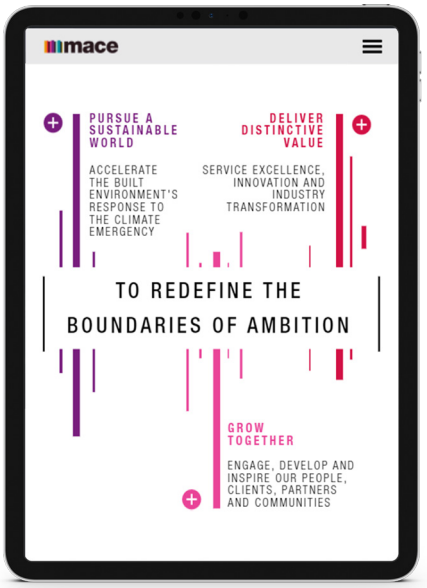
EXECUTIVE SUMMARY

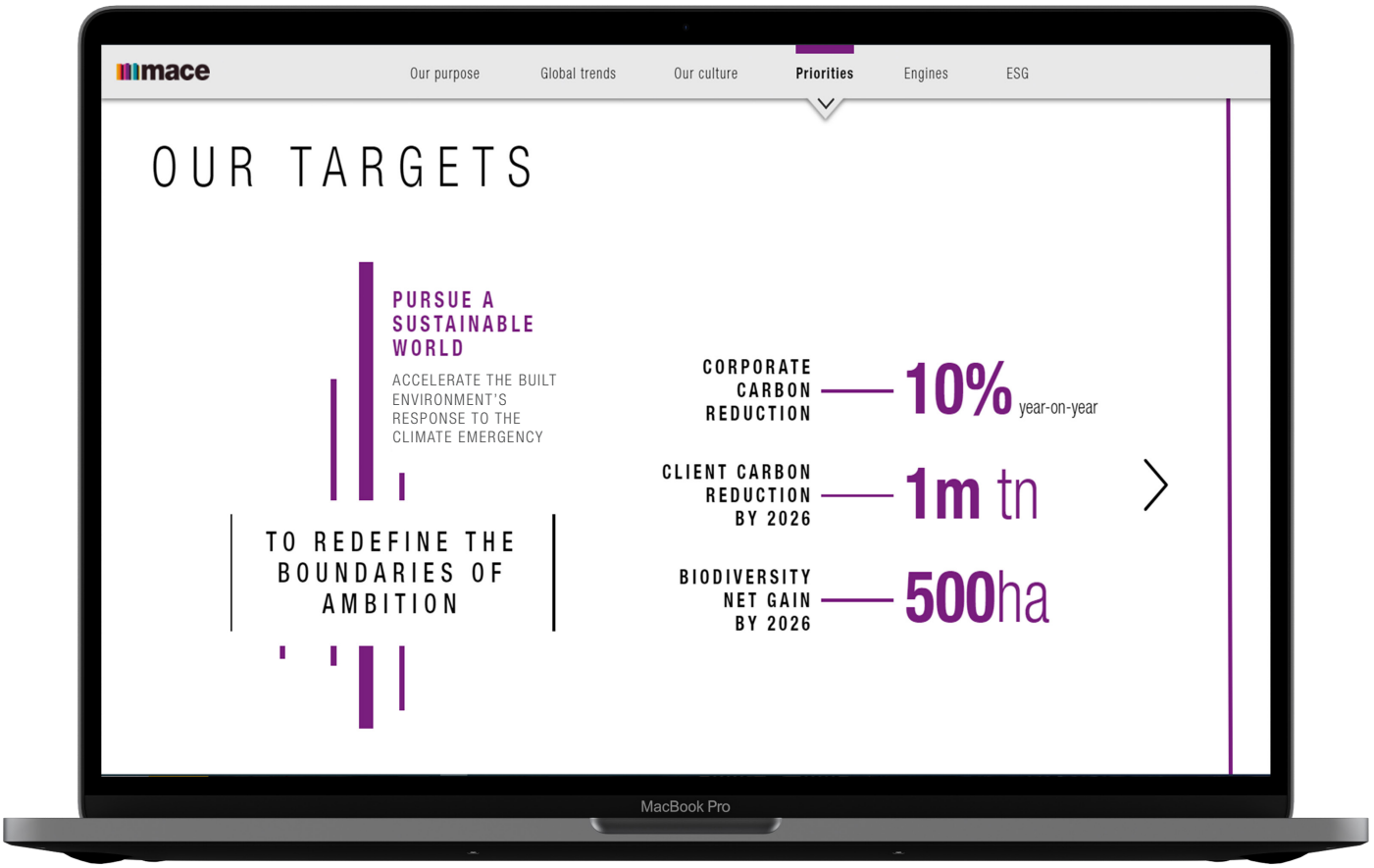
Next steps

Our net zero carbon target was the first step in our carbon reduction journey. Our Steps Without Footprints strategy spans many years as we look to reduce our carbon emissions year-on-year and continue to trial and embed new technology and products along the way.

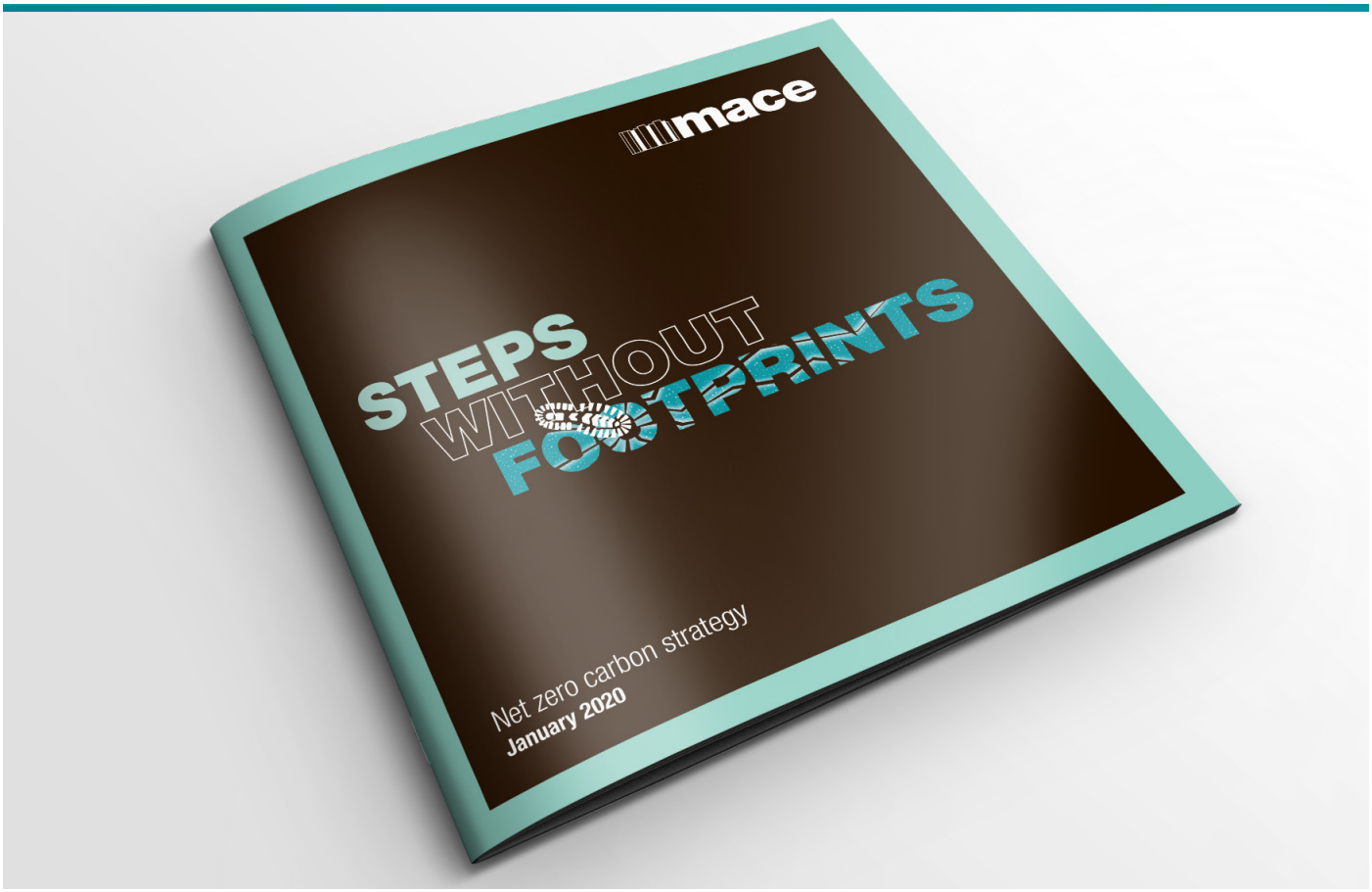
In February 2021 we launched our new six-year business strategy.

Central to that strategy is our priority to 'pursue a sustainable world'. Our aim is to accelerate the built environment's response to the climate emergency with some bold targets that look beyond Mace's direct responsibility and into our scope of influence – greatly expanding our remit on our scope 3 emissions.





STRATEGY OVERVIEW



When we set our ambitious target in January 2020 it was the strongest commitment we had made to working sustainably and protecting our planet.

Taking such a bold step was bound to attract attention. We knew the industry would be interested in how we were going to become a net zero carbon business in one year so we shared our strategy.

From the outset, we felt strongly that climate change isn't an opportunity to compete, it's an opportunity to collaborate – to come together and find solutions, share learning and make change happen together on a grand scale.

Our strategy remains available on the Mace website. It doesn't include all the answers, although we wish it did, but we hope it will continue to serve as a useful and inspiring guide for others, wherever they are on their carbon reduction journey, to push the boundaries of their ambitions.

Alongside our strategy we led a programme of shared knowledge throughout 2020, publishing articles on how the sector needs to build back better, and bringing our industry together with networking and a programme of virtual events throughout the year.

In September we ran our first carbon survey and in October launched a comprehensive findings report which shed insight into the industry's progress and common challenges.

Strategy approach

Our strategy was developed across four stages.

Reduce	Become more energy efficient by continuing to reduce our energy consumption, travel less for business and generate less waste.
Transform	Change our business activities by adopt new technologies, pilot new materials and specify low carbon energy and diesel alternatives to ensure that we play our part in responding to the climate emergency.
Investigate	Continue to position ourselves at the forefront of research and development opportunities – working with technology clients, designers and suppliers to trial innovative low carbon solutions.
Influence	Encourage and enable our clients, partners and suppliers to embrace low carbon solutions and understand the benefits of net zero carbon.

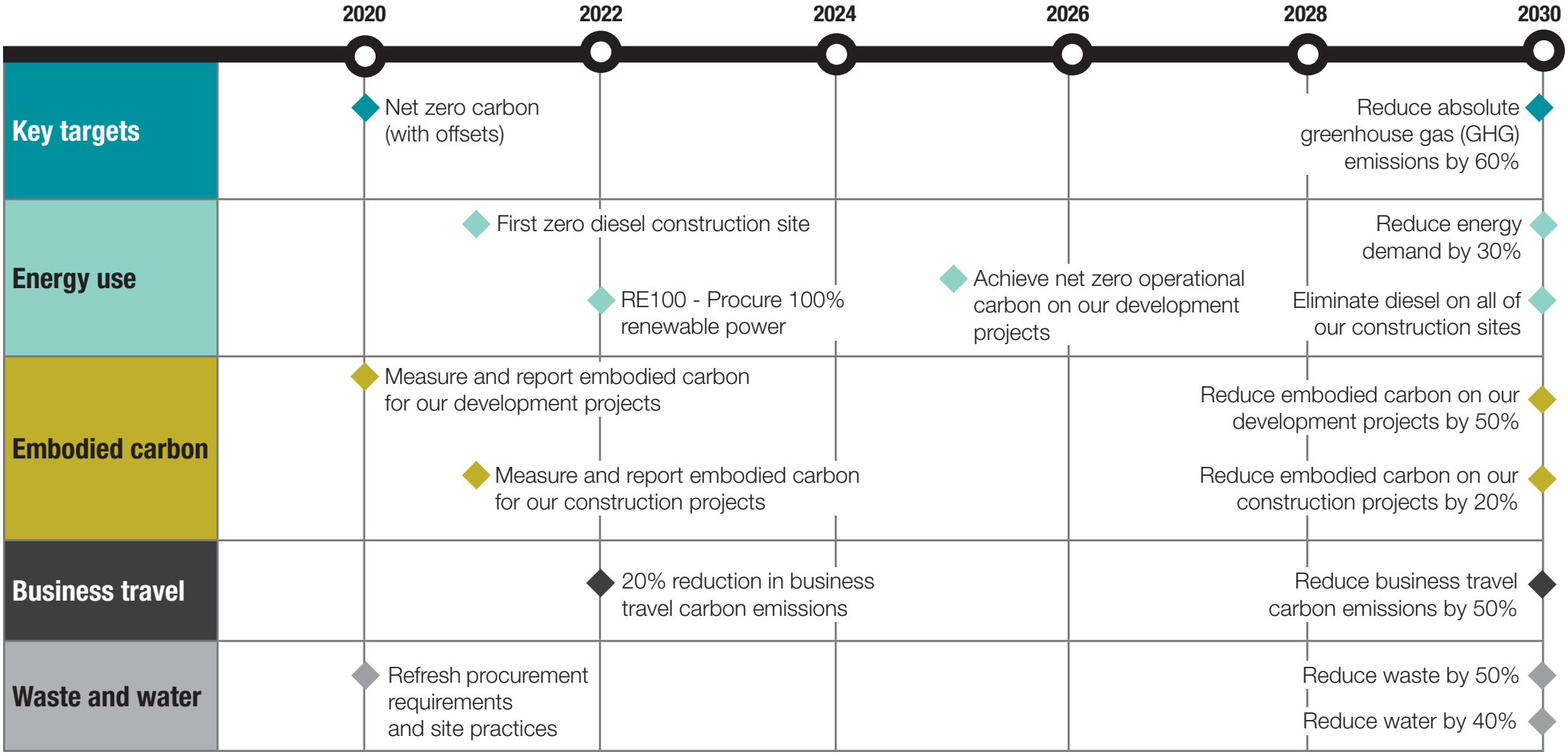
STRATEGY OVERVIEW

Timeline

The timeline below sets out our net zero carbon commitment in the scope of a wider plan that will see us further reduce our emissions associated with our energy use, embodied carbon, business travel and waste and water usage.

Having achieved a net zero carbon position in 2020, we will continue to drive down our carbon emissions and reduce our reliance on offsetting.

In 2021 we will complete our first zero diesel construction site and consistently measure and report on the embodied carbon that we generate on our construction projects, as we currently do on our development sites.



STRATEGY OVERVIEW

Update on actions

The table below details some of the actions that we said we would take in January 2020 to deliver our low carbon commitment.

The COVID pandemic was disruptive. There is no denying that it affected our business and reduced our activity for a period of time. It meant that some of the low carbon actions we had planned were delayed, particularly those associated with our development business. While others, such as flexible and agile working and our investment in virtual conferencing technology, were expedited.

	Energy use	Embodied carbon	Business travel	Waste and water
Reduce	Continue to implement energy efficiency solutions in our workplaces.	Consistently adopt lean construction techniques and pre-fabrication.	Make more low carbon travel choices available.	Optimise materials and reduce waste through design.
	Maximise adoption of modern methods of construction.	Reduce virgin concrete use by specifying cement replacements and low carbon concrete.	Incentivise low carbon choices.	Reduce water used in commissioning.
Transform	Procure 100% renewable electricity	Increase use of cross laminated timber (CLT).	Invest in electric vehicles and fleet.	Adopt circular economy model.
	Specify hybrid and electric plant and equipment	Diesel-free construction.	Invest in new teleconferencing facilities.	Update waste procurement to incentivise minimisation.
Investigate	Alternatives to HFCs.	Embodied carbon calculation tools and integration with BIM.	Zero carbon rail, aviation, and taxi providers.	Investigate new commissioning processes.
	AI and IOT platforms.	Develop partnerships. e.g. ultra-low carbon cements.	Workplace teleconferencing and connectivity digital solutions.	Design for disassembly.
Influence	Clients adopt and implement low carbon strategies.	Manufacturers and suppliers provide embodied carbon data of materials and equipment.	Share benefits of flexible and agile working.	Designers
	Suppliers to provide low carbon solutions.	Challenge structural designs and material choices.	Identify low carbon business travel vendors (e.g. airlines, hotels, car hire).	Suppliers
	Landlords to provide improved data from services offices we occupy.			Waste contractors and logistics partners.

Key Completed | On track | Needs more focus in 2021

THE STEPS WE TOOK

Energy

In scope: the electricity, gas and diesel we purchase and the diesel that our supply chain use on site.

Since 2017 Mace has been a member of RE100, a global initiative driving companies to switch to 100% renewable energy procurement by 2050. However, always wanting to push the boundaries, we pledged to reach this milestone by 2022.

In 2020 we made great strides - achieving 71% renewable energy procurement across the globe.

As well as focusing on delivering 100% renewable electricity across our construction sites, we have been driving change internationally. In November 2020 our Spanish office was the latest of our international offices to achieve the switch to 100% renewable electricity.

Diesel use remains a challenge but with new equipment coming to market we partnered with innovative providers of diesel alternative equipment. Our policies now ban the use of diesel generators, and in 2020 we reduced diesel use by 40%, saving 2,560 tonnes of carbon.

Our efforts to reduce carbon emissions extended beyond our direct business operations. In 2020 we actively engaged with over 40 of our Business School supply chain members and are supporting them to set and achieve their own net zero carbon commitments. All of our supply chain partners must have a strategy in place by December 2022.

Embodied carbon

In scope: manufacturing and transporting the materials used in the buildings we develop and own.

In our Develop business we undertook more detailed analysis of the embodied carbon footprint of our projects under construction. Using our baseline we have established a method to reduce the embodied carbon and we have forecast the footprint of our upcoming town centre development in Stevenage which is being used to support the next phase of designs.

Additionally, we have developed a Sustainable Development Brief that will shape all of our future developments with forward looking targets that meet the embodied carbon standards proposed by the LETI Climate Emergency Design Guide. Our design brief gives our designers and contractors flexibility to propose innovative low embodied carbon solutions.

In 2020 we made great strides - achieving...

71%

renewable energy across the globe.

In 2020 we reduced diesel use by...

40%

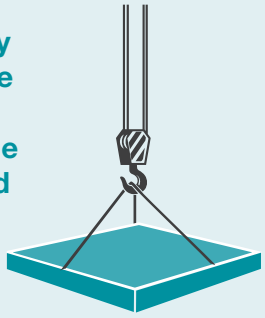
saving...

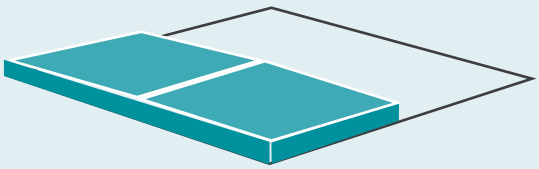
2,560t

of carbon.

Mace Tech has led the way in developing an innovative ultra-low carbon floor cassette which reduces the superstructure's embodied carbon by...

75%





Mace Tech, our construction to production business, has led the way in developing an innovative ultra-low carbon floor cassette which reduces the superstructure's embodied carbon by 75%.

THE STEPS WE TOOK

Business travel

In scope: our flights, trains, taxis, cars and hotel accommodation.

Unexpectedly, the new working patterns brought about by COVID meant that carbon savings through reduced business travel were achievable. In total Mace's business travel reduced by 70% in 2020.

The challenge will be to make sure that unnecessary travel doesn't creep back up in the coming years. Our business travel and expenses policies have been updated to embed a low-carbon mindset when considering any travel plans, and we've selected suppliers who offer lower carbon services.

The rollout of Microsoft Teams has enabled a long-term alternative solution to face-to-face meetings and our sites and design teams are utilising Realwear headsets to carry out remote inspection tests.

The significant increase in the number of people working from home in 2020 was unplanned. While the COVID pandemic had a positive impact on business travel reduction targets, we were mindful of an increase in carbon emissions caused by individuals working at home, rather than in a controlled Mace workplace. To account for this, we estimated an additional 2,500 tonnes of carbon which we added to our offset.

Waste and water

In scope: the water we use and waste we send to landfill.

In the last year we have re-invigorated a waste and circular economy working group, where business leaders have committed to driving change through pre-defined plans. In addition, our plastics working group continued to push our 'Time To Act' campaign with a focus on further supply chain collaboration and training.

Our ambitious target of 100% waste diversion from landfill saw us achieve 99.21% in 2020.

In 2020 we strengthened our partnership with the social enterprise Community Wood Recycling. By working with them on our construction projects, we diverted 200 tonnes of waste timber to other uses, saving 100 tonnes of carbon emissions.

At our Battersea Power Station project, we worked with our supplier, Excel Networking, to reduce the use of single-use plastic. The company switched their single-use plastic packaging to paper-based and undertook a comprehensive review of the requirement for any packaging needed. In total, 20 million plastic bags (equivalent to 40 tonnes) were saved.

A major Mace project in Dubai subsequently worked with the same supplier and reduced its single-use plastics by 95,000 bags to date, prompting further conversations across the region.

At one of our London construction sites, we worked with RMP Installation to use refurbished raised floors. As a result we saved 15 tonnes of carbon and 30% on cost. Following the successful pilot, we are now progressing this solution on a number of other projects.

We offset...

2,500t

of carbon to account for the increase in carbon emission from people working from home in 2020

In 2020...

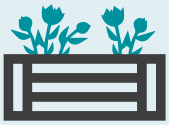
99.21%

of our waste was diverted from landfill

In partnership with Community Wood Recycling, in 2020 alone...

200t

of waste timber were diverted to other uses



THE STEPS WE TOOK

First zero diesel site

Our 78 St James Street construction project in London is due to complete in 2021 and will be our first large scale project to be built without the use of diesel.

Through early supply chain engagement we identified which activities would require diesel use, and together searched for alternative plant. Our subcontractor, J Coffey, switched to 100% electric excavators, electric mini dumpers and electric breakers for structural alteration works.

The biggest challenge was ensuring sufficient renewable mains power and charging infrastructure, as the electric dumper alone required an eight hour charge for an average day's work.

In addition to eliminating carbon emissions, these clean tech options also improved air quality and noise, compared to traditional diesel alternatives.

By 2026 we are aiming to eliminate diesel use across all of our construction sites.

Earth Friendly Concrete

Embodied carbon describes the greenhouse gas (GHG) emissions generated to produce a built asset, including extraction of materials, manufacture/processing, transportation and assembly. It can also include asset maintenance, replacement, deconstruction, disposal and end-of-life considerations.

An effective way to reduce embodied carbon is to replace cement which accounts for ~8% of global carbon emissions.

In 2020, we, along with Keltbray, explored the benefits of Earth Friendly Concrete (EFC) which is a traditional concrete that doesn't use Ordinary Portland cement (OPC).

EFC uses a geopolymer binder system made from the chemical activation of two industrial waste by-products - blast furnace slag and fly ash.

On one site we used 655m3 EFC for five thrust blocks, underpinning and back blinding the footings and all blinding of permanent works. The mix reduced embodied carbon in 1m^3 concrete by 220kg, saving 144 tonnes of carbon.

We found the engineering and construction properties of EFC to be equal to and surpass OPC in some areas. For example, it has greater durability, lower shrinkage, earlier strength gain, is 30% higher in flexural tensile strength and has increased fire resistance.

SteelZero

In December 2020 Mace became one of the first companies to sign up to SteelZero.

The traditional manufacture of steel (one of the most widely used materials in construction) generates a huge amount of global carbon each year, also ~8% of global carbon emissions.

SteelZero is a global initiative aimed at driving market demand for net zero steel. It requires organisations to make a public commitment to transition to procuring, specifying or stocking 100% net zero steel by 2050.

Targeting net zero steel from the demand-side of the supply chain makes this the first initiative of its kind, with the potential for it to have significant impact on investment, policy, manufacturing and production in the sector.

Mace has pledged to reach 100% net zero steel by 2040 and placed interim targets of 50% low embodied carbon steel by 2026.

We are working closely with our supply chain to help deliver these targets. Since making the commitment we've met with a number of steel suppliers to see how Mace can support and speed up the rate of innovation to make the steel industry Net Zero Carbon prior to 2050.

THE STEPS WE TOOK

Offsetting

Every organisation, every individual, has a carbon footprint. Even with the most determined efforts to cut emissions at source, we are all still responsible for some carbon dioxide and other greenhouse gases going into the atmosphere.

Until new technologies are developed and carbon free alternatives are readily available, we will continue to generate carbon emissions through our daily lives and business activities.

In 2020, we reduced our carbon emissions as far as we could, and the remaining, unavoidable emissions, were offset.

We also offset an additional, 2,500 tonnes of estimated carbon emissions to account for Mace people working from home during the COVID pandemic.

Our outstanding carbon emissions were offset through Gold Standard and Verified Carbon Standard (VCS) programmes across the globe.

Verified Carbon Standard

The offsets were divided across a range of projects. We selected each one because of its location (based in countries where Mace operates) and the wider social benefits it offers in addition to carbon reduction, such as improving biodiversity or community health in developing countries.

Forestation from Brazil to the UK

Almost 17% of the Amazon Rainforest has been lost to deforestation in the last 50 years.

This project plants trees in the UK while also helping to protect the Amazon Rainforest. For each carbon reduction equivalent (tCO_2e) offset, one tree is planted in the UK and an additional tCO_2e is offset through the Brazilian Amazon Verified Carbon Standard (VCS) Reduced Emissions from Deforestation and Degradation (REDD) project to guarantee the emission reductions.

In the UK, the majority of trees are planted in school grounds, bringing further educational benefits to the next generation.

Safe water

In northern Uganda, access to safe water is scarce.

Our offsets are supporting a local community project that identifies and repairs broken boreholes. As well as providing easy access to water, communities no longer need to boil it before drinking which saves firewood and prevents the release of carbon emissions.

Prior to some of the boreholes being drilled, women typically spent over three hours each day collecting water from a distant unsafe water source

THE STEPS WE TOOK

Fuel efficient cookstoves

In Kenya we have doubled the size of a project that is equipping families with stoves that don't use non-renewable biomass.

The cookstoves have replaced the need to collect firewood. With forest resources depleting in recent years, costs and conflict had increased and women and girls were venturing up to 13km three times a week to harvest the necessary fuel wood.

The offsets have covered the costs of new fuel-efficient stoves, training for women and paid for beneficiaries to keep the costs affordable.

Solar power

India is one of the world's largest consumers of coal.

The Ghani Solar Power project has installed 500MW of solar generation in Andhra Pradesh, India, replacing over 1TWh of power per year that would otherwise have been generated by coal fired power stations.

Our offsets are supporting local employment and investment in cheap, clean power and improvements in air quality through reduced burning of fossil fuels.

Additionally, through community engagement activities with the local government, the project team has supported several initiatives including tree planting, water wells, communal toilet facilities.

Wind based power

In India, where energy production is based on imported coal or oil, becoming more self-sufficient with alternatives such as wind power is important to the country's economic growth.

Our offsets are contributing to the installation and maintenance of 82 wind turbine generators in the Maharashtra state.

Aside from the benefits of generating electricity without producing carbon emissions, the installation of the wind turbines is generating many new job opportunities.

ACCELERATING OUR AMBITION

Our planet has now reached a tipping point. The built environment holds many of the keys to a sustainable world, but bold action is needed – and fast.

Our industry has been slow to adjust. Over the next five years we have committed ourselves to bigger, bolder goals so that we, our clients and partners are all part of creating a world where communities thrive now, and for generations to come.

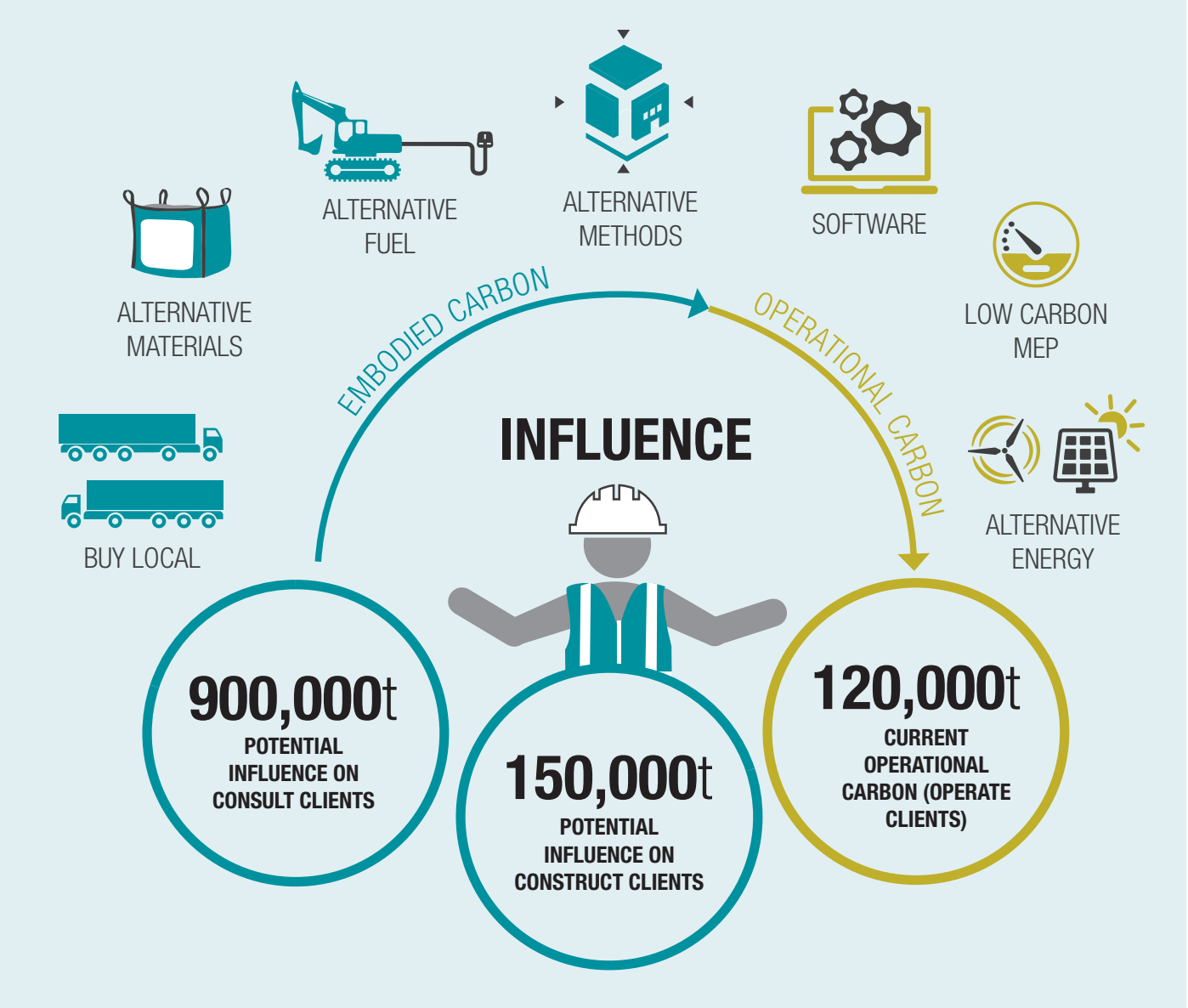
Our new business strategy, sets out a 10% reduction in carbon emissions year-on-year which we will continue to deliver through our Steps Without Footprints strategy.

We have additionally committed to 500 hectares of biodiversity net gain by 2026. Although Mace doesn't hold land ownings directly, we anticipate working with clients and third sector partners to deliver the target through a range of means, such as the creation of community woodland.

Client carbon reduction

Our Steps Without Footprints strategy included some of our scope 3 emissions but we're now being much more ambitious.

The infographic below gives an indication of how much carbon sits in the projects and programmes we deliver for our clients.



ACCELERATING OUR AMBITION

Mace's scope of influence is significant. As a global business, providing property and infrastructure to communities, we have a responsibility to lead sustainable construction from the front, be a voice for change and share our knowledge to help our clients realise and achieve their ambitions.

By looking at whole life-cycle carbon (WLC) emissions, which result from the construction and the use of a building over its entire life, including its demolition and disposal, we have been able to build a true picture of a building's carbon impact on the environment and identify where the industry as a whole generates the highest amount of carbon emissions.

Between 2021 and 2026 we have committed to reduce our clients' carbon by one million tonnes through transformational change programmes that look at education, behaviours, procurement and the latest innovations.

This target dramatically builds on the carbon reduction programmes we are currently delivering for clients across the world.

ACCELERATING OUR AMBITION

Our work with clients

UK Government department

We are managing delivery of a major solar farm and electric vehicle charging point programme for a UK Government department. Over the course of a year, we will manage installation of an initial 17 ground mounted and 45 roof mounted solar arrays, and 250 electric vehicle charging points across 56 sites enabling a move to electric fleet vehicles. The programme of interventions will save 15,000 tonnes of carbon emissions over their lifespan, and generate 265 GWh of energy with a return on investment of less than six years.

Global bank

Mace is providing energy, carbon and water management services for a global bank portfolio of 100+ buildings as part of our facilities management role. Since 2018 we have delivered 45 low carbon capital projects with an average 3.5-year return on investment. The programme of capital projects have reduced the bank's global energy use by 37%, global carbon emissions by 33%, and global water use by 43%. Together amounting to ~10,000 tonnes of carbon savings.

London developer

We are working collaboratively with a developer and their design team to help deliver substantial embodied carbon savings in three new buildings. We have progressed the scheme designs to reduce embodied carbon through a range of structural and façades solutions including use of Earth Friendly Concrete in building foundations, low carbon structural steel and cemfree floor cassettes. Work is ongoing to refine our low carbon façade options. Early Stage 3 embodied whole life carbon calculations show that we are on track to achieve significant carbon savings, aligning with the LETI (London Energy Transformation Initiative) 2025 best practice benchmarks.

Education is key

Our people are the driving force behind such bold ambitions, but the world of climate change is complex and our success will depend on our people really understanding the breadth of opportunity and feeling empowered to lead the way.

We want our leaders to be courageous disruptors for our industry. And we want our entire workforce to be part of the transformation.

Over the next year we will be upskilling our entire workforce on the importance of pursuing a sustainable world and how everyone at Mace can support our ambitions.

Another aspect of our responsibility is to provide opportunities for people to get involved and have their voices heard, especially where working from home is considered.

None of what we want to achieve is going to be possible without the support of our supply chain, designers and clients. The Mace Business School will play a significant role over the next few years in creating a platform for greater support and collaboration.

Climate change remains the number one priority and the number one opportunity to bring our industry together as we all strive to create better places for people to live, work and play sustainably.

CALL FOR INDUSTRY ACTION

Every tonne of carbon that is released into the atmosphere will have to be removed at some point. If we don't take immediate action, we're simply passing the problem onto the next generation.

Every year that we fail to reduce carbon emissions the pressure mounts on new technology being developed to take carbon out of the atmosphere. That's a big gamble. We are counting on future generations cleaning up after us but we're not yet sure how they're going to do it. That's a big ask.

We have many carbon challenges to overcome in our industry. Retrofitting existing buildings, understanding the full lifecycle impacts of new buildings and tackling embodied carbon. We must work together.

We know that actions can, and need to be, taken today to deliver change.

The table below presents what we believe everyone can do today, and also highlights future considerations to track.

	2021	What to start planning for
Data	• Understand and measure all sources of your carbon emissions to establish a clear baseline. • Set targets aligned to science-based targets and sign up to global commitments such as RE100, EP100 and Race to Zero. • Publicly share your data e.g. annual CDP disclosure.	• Use baselines to make data-driven decisions on carbon reduction. • Improve accuracy of Scope 3 emissions data capture.
Governance	• Establish corporate governance for carbon e.g. make board members accountable for emissions and develop a Carbon/ Responsible Business Board that has executive authority. • Implement commercial models to incentivise and reward measurable carbon reductions. • Offset residual carbon emissions.	• Apply Taskforce for Climate-change-related Financial Disclosure (TCFD) principles to assess your business risks. • Add climate change risk to financial reporting. • Incorporate carbon pricing within business cases/cost plans.
Energy	• Buy renewable power via green tariffs or power purchase agreements (PPA), or where not available use renewable energy certificates (RECs). • Specify zero emissions generators. • Specify low emission (e.g. hybrid / electric) equipment.	• Install large-scale onsite renewable energy solutions. • Commit to using large-scale diesel-alternative construction equipment. • Adopt demand-side response and smart building technologies to balance energy demands.
Transport	• Accelerate the shift to zero emissions vehicles for fleets and commercial vehicles by 50% by 2025 and 100% by 2030. • Use 2020 as the baseline year for business travel emissions and maintain remote working and business travel behaviours. • Incentivise low carbon travel for business travel and commuting.	• Develop a transition plan to non fossil fuel heavy goods vehicles. • Maximise off-site manufacture and improved onsite logistics, reducing waste and transport demand to sites

CALL FOR INDUSTRY ACTION

	2021	What to start planning for
Buildings & infrastructure	• Use technology to optimise building performance and act upon the findings • Establish energy use intensity targets for existing and new build properties (e.g. LETI guide benchmarks) • Challenge yourselves, your designers and delivery teams to radically go beyond compliance and deliver a zero carbon built environment. • Roll-out established, affordable low carbon solutions at pace (e.g. LED lighting and BMS controls) across existing estates and infrastructure. • Reduce embodied carbon emissions by designing out materials and use low embodied-carbon alternatives (e.g. cement replacements, recycled materials)	• Phase out fossil fuel heating and power generation on existing estates. • Rapidly repurpose existing portfolios/ estates to avoid unnecessary embodied carbon impacts of new construction and reduce operational carbon emissions. • Incorporate green infrastructure to reduce urban cooling demands and climate change risks. • Adopt modern methods of construction, including *design for disassembly* to reduce embodied carbon impacts, avoid waste and improve operational building efficiency. • Tag all BIM assets with embodied and operational carbon data to allow better benchmarking. • Replace high global warming potential refrigerants with alternatives in both new and existing estates.
Collaborate and support	• Sign up to industry initiatives (e.g. SteelZero) and declarations of climate emergency. • Openly share best practice and innovation with wider industry, including costs and benefits of their adoption. • Adopt and support existing best practice guides (e.g. LETI) rather than creating new standards, and act. • Specify lower carbon materials and certifications e.g. EPDs • Empower your people to do things differently, and recognise and reward effort and change.	• Establish alliance partnerships to ensure all parties share ownership and accountability for driving change.

We have many carbon challenges to overcome in our industry. Retrofitting existing buildings, understanding the full lifecycle impacts of new buildings and tackling embodied carbon. We must work together.

The industry needs to take a big step forward together in 2021, and to quickly plan to respond to the next phase of carbon commitments that will impact how we work.

If, like us, you have the drive to disrupt our industry for the greater good, come and talk to us about how we can transform our industry together.

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References

i. https://www.theguardian.com/environment/2020/mar/11/polar-ice-caps-melting-six-times-faster-than-in-1990s#:~:text=The%20average%20annual%20loss%20of,for%2060%25%20of%20that%20figure.

ii. https://www.wired.co.uk/article/climate-change-facts-2019

iii. https://www.unep.org/news-and-stories/press-release/buildings-and-construction-sector-grows-time-running-out-cut-energy#:~:text=%E2%80%9COver%20the%20next%2040%20years,efficiency%20in%20buildings%3A%20how%20to

iv. https://www.worldgbc.org/sites/default/files/2019%20Global%20Status%20Report%20for%20Buildings%20and%20Construction.pdf