Marshalls' Climate Challenge

One business's attempt to change minds, change an industry and change the future.

Marshalls

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Landscape House
Premier Way
Lowfields Business Park
Elland
HX5 9HT

www.marshalls.co.uk/sustainability

Published July 2021

Marshalls

Contents

3 **Introduction**

7 **The Planet's Carbon Challenge**
The Paris Agreement
Carbon is the enemy
Climate crisis
The path to zero carbon
The heat is on
Security and inequality

17 **The Government's Carbon Challenge**
Tougher measures required
The UK's carbon reduction performance
Towards meaningful change
TCFD reporting standards
A need for leadership
The price of change

25 **The Industry's Carbon Challenge**
Concrete evidence
Putting innovation in the mix
Home truths
Setting standards

31 **Marshalls' Carbon Challenge**
Ambitious targets
Held to the highest standards
Open reporting
The Carbon Trust Standard
Water management
Renewable energy

39 **Our Challenge to the Industry**
Beware of greenwashing
Our carbon challenge to you

“WE CAN HAVE AS MANY MEETINGS AND CONFERENCES AS WE WANT, BUT AS LONG AS WE ARE NOT REALLY TREATING THE CLIMATE CRISIS AS A CRISIS, WE WON’T SEE ANY REAL CHANGES...”

Greta Thunberg,
climate and environmental activist

Introduction

Let’s start with an uncomfortable truth. All construction products have some impact on the environment. Even ours. Whether that’s in the extraction of raw materials, manufacturing, packaging, transportation, site wastage - or right through their lifecycle to disposal or recycling.

As the world battles with an impending climate emergency, businesses have a responsibility to mitigate the damage we do. That means balancing our impact against our responsibility to safeguard the planet we share.

But if we really want to be seen as responsible corporate citizens, we need to go beyond good intentions. We need to instigate change. And we need to do that now.

If we are going to make the progress we need in mitigating the effects of climate change, the leaders within our sector are going to have to think about future construction in a new way.

As the sector works hard to improve its Carbon Disclosure Project (CDP) scores and report carbon performance to stakeholders, the construction sector is challenged to find lower-carbon solutions to fulfil its requirements.

Indeed, if your genuine ambition is to maximise low-carbon opportunities in all aspects of your business, you can achieve big wins in one key area: the materials you specify. And if those materials have been conceived, designed, engineered, manufactured - and PROVEN - to offer the lowest carbon impact in the market, then shouldn’t you choose them?

As you will read in this book, we believe that it's time to think seriously about the climate challenges facing us as individuals, businesses and a society. And part of that requires us to think about the language surrounding climate action.

There is a lot of confusion around the language used to describe the activities that businesses say they take to mitigate climate change. It is in the grey areas between similar definitions that some companies find the wriggle room to make claims that are, at best, misguided and in some cases simply the greenwashing of practices that have little or no impact.

We believe that greenwashing poses a major challenge to reducing our impact on the climate as it prevents people from making properly informed choices. While it is a challenge that we took on at the outset of our own carbon reduction journey, it remains a persistent issue that we are determined to address.

The difference between 'zero-carbon' and 'net zero' is subtle, so it's important to understand precisely what claims are being made.

'Zero-carbon' is pretty straightforward: it means that no carbon dioxide is emitted at any point in the manufacturing process, so no carbon needs to be captured or offset.

'Net zero' is effectively creating a balance between the amount of greenhouse gases which are released into the atmosphere and the amount which are taken out. So any amount of carbon emitted could claim to be 'offset' by carbon removal technology or the planting of trees. However, while the technology to capture carbon from the atmosphere exists, it does not yet exist at a scale big enough to make a tangible difference.

While planting trees will undoubtedly help to slow the rate of climate change, they won't reverse it on their own. If we stopped cutting down trees today, we would reduce our annual emissions by about 10%. Newly planted trees only reach their optimum carbon absorption capability when they are mature, so there is the element of a gamble on saplings taking hold and then living for 100 years without encountering disease, uprooting by wind or land-slips or removal for future development.

Here at Marshalls we are wholeheartedly committed to helping our customers make informed choices that enable them to create better spaces to the highest sustainability standards. We believe that, together, we have the power to transform the climate impact of the industry.

It's a challenge that we take seriously - and you should too.

Our future depends on it.

Note: The standard unit for measuring carbon footprints is the carbon dioxide equivalent (CO_2e). Wherever we talk about CO_2e it is shorthand for CO_2, carbon dioxide and GHG emissions. This enables us to talk about the combined impact of multiple greenhouse gases using a common term. CO_2e denotes the amount of CO_2 that would be required to create the same amount of warming.

“THE BIGGEST THREAT TO SECURITY THAT MODERN HUMANS HAVE EVER FACED.”

Sir David Attenborough, broadcaster, on climate change

The Planet’s Carbon Challenge

Our world is getting warmer and all the evidence points to the fact that human activities are a major contributor to climate change. But our actions have consequences. If humans continue to pursue our activities unchecked, the repercussions are likely to be more severe than the need to reach for the factor 50 more frequently.

Allowing temperatures to rise by as little as 2°C will lead to extreme weather, widespread drought, mass migration, food scarcity, rising oceans, species extinctions and, by the end of the current century, a significant change in the planet we all live on.

If this sounds dramatic, it’s because it is. 150 years of industrialisation have taken their toll on our planet’s ability to regulate its climate and we are the last generation of humans with the opportunity to prevent irreversible damage that will make life on Earth more difficult for generations to come.

That’s some responsibility.

The Paris Agreement

According to temperature analysis conducted by NASA, the average global temperature on Earth has increased by 1.23°C since 1880, with two thirds of that warming having occurred since 1975, increasing at roughly 0.2°C per decade. Unabated, that increase would, over time, fundamentally change life on earth for everyone.

In Paris, on 12 December 2015, world leaders committed to a historic agreement to tackle climate change. In the face of rising global temperatures, they agreed to restrict the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the rise to 1.5°C.

The intention of the Paris Agreement is to galvanise the world into working together to tackle what is an existential challenge. If we do not seize this opportunity, every person on the planet will be affected. To date, 194 states and the European Union have ratified their signing of the agreement - representing 97.01% of the world's emissions.

The Paris Agreement is a landmark in the multilateral mitigation of climate change. For the first time, a legal agreement binds nations in the most important cause facing humankind: the long-term survival of life on our planet.

To achieve this long-term goal, Agreement signatories commit to reaching the peak of their greenhouse gas emissions (GHGs) as soon as possible, then working towards a net zero world by 2050.

What is clear is that avoiding a dangerous climate crisis requires a considerable drive in the progress we make in reducing our carbon impact.

In order to meet their responsibilities to the Paris Agreement, the government of each country must declare and maintain a Nationally Determined Contribution (NDC) to the reduction in GHG emissions that it intends to achieve. They must also communicate the actions they will take to reduce those emissions *and* communicate the actions they will take to adapt and build resilience to the impacts of rising temperatures.

As an indicator of progress, it is intended that each country's successive NDC will be increasingly stringent and reflect its highest possible ambition. All well and good.

But the scale of the challenge becomes clear when you realise that, as things stand - despite best efforts - it is anticipated that if all current NDCs were successfully achieved, it would still lead to a 3°C rise in temperatures.

Carbon is the enemy

Despite best international efforts, GHGs have increased 1.4% per year since 2010 - and by a more rapid 2.6% in 2019 due to a significant increase in forest fires.

Carbon dioxide (CO_2) is the dominant greenhouse gas. Accounting for 65% of total global emissions, it's the major driving force behind the growth in GHG emissions. Data from the UN Emissions Gap Report 2020 states that, in the preceding year, a record high of 52.4bn tonnes of CO_2 ended up in our atmosphere.

On our current trajectory, if we are aiming to limit the temperature increase to below 2°C, the successful achievement of all current unconditional NDCs by 2030 is estimated to still result in a carbon reduction shortfall of 15bn tonnes of CO_2. Based on the 1.5°C scenario, it was calculated last year that a successful achievement of all current NDCs would leave us 32bn tonnes short.

As things stand, current NDCs remain seriously inadequate to achieve the climate goals of the Paris Agreement - and would lead to a temperature increase of at least 3°C by the end of the century.

And, even though the USA - the world's second largest emitter of CO_2 - has stepped back into the climate change arena and recently announced its new NDC, the Climate Action Tracker shows the emissions gap would only be reduced by 12-14% - a forecast shortfall of over 20bn tonnes.

What is clear is that we need what the UN Emissions Gap Report 2020 describes as 'a dramatic strengthening of ambition' if our carbon reduction goals are to be achieved.

And the proof of that ambition comes not from words, but from real action.

Climate Crisis

Greenhouse gas emissions from human activity are changing the fundamental nature of the planet we live on. 2010-2019 was the hottest decade on record with the average global temperature 1.1°C higher than pre-industrial levels. Unabated, increasing temperatures leave us facing not only a global climate breakdown, but also an ecological, social and economic breakdown too.

Already, human-caused climate change is wreaking havoc with the components that balance the environment we live in. Since the early 90s, the earth has lost 28 trillion tonnes of ice - from glaciers, sea-ice and polar ice sheets. All of this melted ice ends up in the oceans which will cause the level of the sea to rise by 1 metre by the end of the 21st century. And every country is vulnerable to that level of increase.

Chris Harrop OBE, Marshalls' Group Sustainability Director, has seen the impact first hand:

> " I understand acutely that our planetary window for doing 'business as usual' is closing rapidly. I have seen for myself, vividly, the environmental degradation which is a result of climate change.'
>
> "In April 2017, I travelled to the North Pole to help me make sense of the statistics that I was reading. To see the open water which at that time of the year should have been thick ice, to see the thin layers of ice which should have been metres thick and to truly understand the scale of the melting ice caps is indelibly etched into my memory."

In addition to rising sea levels, the oceans have absorbed up to 30% of total carbon dioxide emissions resulting from human activity - that's 10.8 billion tonnes per year. The result is that the acidity of surface ocean waters has increased by about 30% since the beginning of the industrial revolution. A further 2°C increase in global temperatures would also decrease oxygen levels, increasing the risk of 'dead zones' that can't support life.

Ultimately, the planet is facing a biodiversity crisis, with a third of all species facing extinction if we continue on our current trajectory. For example, a 2°C rise in temperatures will kill 90% of all coral reefs on Earth - and reefs are home to a quarter of all marine life. It's a domino effect: the collapse of one ecosystem accelerates the collapse of associated ecosystems: and what happens when the last of the dominoes fall is too grave a prospect to contemplate.

United Nations Secretary-General António Guterres said:

> "Humanity is waging war with nature. This is suicidal. Nature always strikes back - and it is already doing so with growing force and fury. Biodiversity is collapsing. One million species are at risk of extinction. Ecosystems are disappearing. Human activities are at the root of our descent towards chaos. But that means human action can help to solve it."

The path to zero carbon

As outlined in the Paris Agreement, the total amount of carbon dioxide that the world can emit and still limit warming to 1.5°C by the end of the century is called our carbon budget. And it gets smaller by the day.

The science tells us that global CO_2e emissions need to fall to net zero by mid-century to avoid 1.5°C of warming - and restricting temperature rise to 1.5°C is possible if we create no more than a total of 300bn tonnes of CO_2e.

But if we exceed that figure and release 420bn tonnes of CO_2e into the atmosphere, our chances of limiting the temperature increase to 1.5°C reduce to 67%. And if we release 580bn tonnes, that falls further to a 50% chance.

Given that we currently emit around 40bn tonnes of CO_2e a year, continuing at current rates will see us burn through our entire carbon budget by 2030. Facing that likelihood, the only way to stay within our carbon budget is to reach 'peak emissions' as soon as possible - then reduce emissions to zero as fast as we possibly can.

The UN Emissions Gap Report tells us that, in order to meet the goals of the Paris Agreement, it was crucial that global emissions peaked by 2020. Analysis says that this is now not likely even by 2030 - and failure to significantly reduce global emissions by 2030 will make it impossible to keep global warming below 1.5°C.

According to the UN, in order to prevent global temperatures from rising by more than 1.5°C by the end of the century, global greenhouse gas emissions in 2030 would have to be 55% lower than they are today and be at net zero no later than 2050.

As such, the global annual emissions reductions required to meet 2030 targets have increased significantly: up to four times what they would have been had serious climate action started in 2010. Had we acted earlier, we could have planned a gradual reduction in emissions over time. But we didn't. Thus we are compelled to undertake a dramatic, rapid reduction to avoid a climate calamity.

As a benchmark for the scale of the challenge, 2020's global COVID-19 lockdown - in which the number of flights fell by 71%, road traffic reduced by 73% and global manufacturing fell by almost 20% - delivered only a 7% reduction in CO_2e emissions - the equivalent of 2006 levels. Effectively, turning the clock back just 14 years.

This reinforces the need for sustained reductions in emissions required to reach net zero and stave off the worst potential impacts of global warming. For us to stay on track to limit temperature rise to 1.5°C, we would need to reduce emissions by 7% year-on-year for the next nine years - effectively requiring a change of global lockdown proportions for a decade.

Which puts the reality of our situation into stark context.

The heat is on

The difference between a 1.5°C rise in temperatures and 2°C may seem negligible. But that half a degree is the difference between change we can mitigate and the risk of severe global damage from which there would be no return. And if the increase reaches 2°C, there are few aspects of life on Earth that wouldn't be severely compromised by that half degree increase.

Climate change is a story of extremes. On one hand, the world will get wetter. The warmer it gets the more water-vapour is created and more water-vapour in the air results in heavier downpours. This is amplified by the fact that warmer air changes the movement of air currents, which creates new and more severe storms.

On the other hand, the world will get hotter and dryer. With 2°C of warming, up to 270 million more people would be at risk of water scarcity than if the increase is limited to 1.5°C. But it's not just those living in extreme environments who face this impact.

A 2°C warming would also see 61 million more people in urban areas worldwide exposed to severe drought.

Studies show that the extreme heatwaves that occurred across the northern hemisphere in 2018 were made over two times more likely due to human-induced climate change. Heatwaves will become more severe and more common, leading not only to droughts, but also to a growing threat of extreme forest fires, driven by changing wind patterns.

Reports have shown that just a 1°C increase in warming will result in more extreme weather events. If we stay on our current trajectory we can expect things to get much worse, as we run the risk of creating a climate feedback loop where the negative impacts of climate change accelerate recurrence and exacerbate the severity of extreme weather events.

We can see the impacts of this right now. Climate change is already driving human migration away from environments rendered uninhabitable by changing weather patterns causing flooding, drought and rising sea-levels. The cruel fact is that those exposed to the most severe impacts of climate change are some of the most vulnerable people on the planet - and, often, those who have contributed least to the crisis.

Security and inequality

The United Nations sees climate change as much more than just an environmental problem. It sees it as the harbinger of economic disruption and a humanitarian crisis on a scale not seen since the end of the Second World War, calling it 'the greatest threat to global security'.

The UN believes that an unstable climate will amplify tensions, conflicts and instability in some of the world's more volatile regions, threatening not just the security of individual nations, but the collective security of all of us in our increasingly interdependent world.

It may sound alarmist, but climate change has consequences that reach the very heart of the global security agenda. Flooding, disease, famine - all resulting in human migration on an

unprecedented scale in areas of already high political tension. Drought and crop-failure, leading to intensified competition for food, water and energy in regions where resources are already stretched to the limit.

Secretary-General of the UN António Guterres called climate change 'a crisis multiplier that has profound implications for international peace and stability', going on to describe the impending climate emergency as 'the defining issue of our time'.

And the UN warns that those most vulnerable and least able to cope will be the first to suffer, saying:

> "There is no choice between a stable climate and the fight against poverty - without the first, the second will certainly fail."

The UN's Intergovernmental Panel on Climate Change (IPCC) says that limiting global warming to 1.5°C, compared with 2°C, could reduce the number of people exposed to climate-related risks and extreme poverty by 'several hundred million' by 2050.

Ultimately, the 'global wealthy' bear the greatest responsibility. The UN Emissions Gap Report 2020 shows that the combined emissions of the richest 1% of the global population accounts for more than twice the combined emissions of the poorest 50%.

Meeting the 1.5°C goal of the Paris Agreement will require limiting emissions to a global per capita footprint of around 2–2.5 tonnes of CO_2e by 2030. To meet that target, the richest 1% will need to reduce their footprint by a factor of 30. In comparison, the poorest 50% would actually have to increase theirs by around three times their current level to achieve parity.

Preventing a global climate crisis comes down to one simple fact: without dramatic change, the world we live in - and the way we live in it - is no longer sustainable. Arresting the impacts of climate change doesn't only come down to each of us changing deeply ingrained socio-economic norms such as the way we build, the way we travel, the way we eat.

It also depends on what Sir David Attenborough refers to as 'a change in moral attitude'.

The need for a genuine desire to do the right things, for the right reasons, in the right way.

“THIS IS NOT A SUBJECT FROM WHICH WE SHOULD SHY AWAY... BECAUSE CLIMATE CHANGE IS A GEOPOLITICAL ISSUE EVERY BIT AS MUCH AS AN ENVIRONMENTAL ONE.”

Boris Johnson, UK Prime Minister and UN Security Council President, February 2021

The Government’s Carbon Challenge

So how will the UK achieve what looks like an increasingly challenging target?

The Government’s 2008 Climate Change Act set a legal framework for reducing greenhouse gas emissions. The Act originally committed the UK to cutting its emissions by at least 80% below a 1990 baseline level by 2050.

In May 2019, the Cabinet Committee on Climate Change (CCC), a non-departmental public body that advises the Government on the climate, recommended that - in order to keep the UK in line with the commitments it made as part of the 2016 Paris Agreement to keep global warming under 2°C - the UK should aim to be net zero on all greenhouse gases by 2050.

A month later the Government increased the UK’s target for GHG reductions from at least 80% to at least 100% by 2050. This made the UK the first major economy in the world to pass laws committing to a legally binding target of net zero emissions by 2050 and end its contribution to global warming.

Indeed, this very law was used in February 2020 when the UK Court of Appeal deemed that the Government’s policy statement in favour of Heathrow expansion was unlawful.

Tougher measures required

The UK is one of 126 countries that have pledged carbon neutrality by 2050 - but one of only six to have passed laws formally establishing net zero targets. The UK was also the first G7 nation to put its net zero ambitions into legislation. But even with China now pledging to achieve zero emissions before 2060, it leaves only half of the world’s carbon dioxide emissions covered by a net zero commitment.

So there remains much to do if a climate crisis is to be avoided.

Under the terms of its own Climate Change Act, the UK government must set - and adhere to - its carbon budgets as part of a staged pathway that takes the UK from current emissions levels to net zero in 2050.

Thus far, the UK has met its first two targets, with the third carbon budget for 2018-2022 also likely to be achieved. But on current performance, the UK is expected to miss its fourth and fifth carbon budget targets if stricter action isn't taken.

To remain on track, the path to achieving net zero emissions by 2050 required a steeper reduction in emissions than was legislated in carbon budgets. Following advice on the CCC's sixth carbon budget covering the period 2033-37, the Government set a new legally-binding target to cut the country's greenhouse gas emissions by 78% by 2035 compared to 1990 levels.

That would be a reduction of 60% on today's levels: one of the strongest legally-binding targets in the world and one of the few national targets imposed to keep global temperature rise below the Paris Agreement's 1.5°C limit.

But as a global leader in carbon reduction, just how well is the UK performing?

The UK's carbon reduction performance

Between 1990 and 2019, CO_2e emissions dropped by 40%, with significant reductions occurring in 2009, brought on by the global recession. Since then, emissions have fallen more rapidly, dropping by approximately 30% between 2010 and 2019.

One of the main reasons for the dramatic reduction in the UK's CO_2e emissions is the decline of coal use in the UK's electricity production. In addition, the share of electricity generation in the UK from low-carbon sources has been increasing in recent years, and now accounts for more than half of the country's power mix.

But the United Kingdom still emits 365m tonnes of CO_2e a year. The four biggest culprits are transportation, energy generation, the commercial use of electricity and heating residential homes. Together these account for around 78% of current emissions.

Between 2008 and 2018 the UK reduced its GHG emissions faster than any other G20 economy, but if we are to meet our net zero emissions target we cannot rest on our laurels.

From 2008 to 2018 emissions fell by an average of 19.2 million tonnes CO_2e each year. To achieve net zero, they must continue to fall by an average 15.5 million tonnes of CO_2e each year for the next 29 years.

And it's going to be a long, challenging journey. As an indication of how hard it's going to be, the UK - which has cut its GHG emissions faster than any other G20 economy since 2008 - has failed on 19 out of 27 of the CCC 's progress indicators.

Chris Griffiths, Marshalls' Head of Product Sustainability says:

> "My concern is that the Climate Act says all the right things, but the Government is never going to do enough.
>
> While it demonstrates that they've done a good job of understanding the issues, they're fundamentally driven by economics. The worry is that they'll push things as much as they can without upsetting the economic applecart - but that won't be far enough, hard enough or quick enough to drive results."

Towards meaningful change

The UK will host the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow in November 2021 - putting climate change front and centre of not only the environmental agenda, but the UK's broader political agenda too.

In bringing parties together to accelerate progress towards meeting the goals of both the Paris Agreement and the UN Framework Convention on Climate Change, focus will be on the actions the world's governments will take to effect meaningful change.

At COP26, nations will be required to share plans for their carbon reductions over the next 10 years. These Nationally Determined

Contributions to carbon reduction are crucial to the fulfilment of commitments made in the Paris Agreement, but there are fears that plans from most countries will fall short of the aims of the Agreement.

Certainly, the UK Government's stringent targets would require a major change in the way we live our lives. They would require a major shift towards electric cars, low-carbon heating, and renewable electricity - and a significant reduction in the consumption of meat and dairy products. And as, for the first time, climate law will be extended to cover international aviation and shipping, it's likely that flying will become more expensive.

In a report to Government in April 2021, the Climate Change Committee indicated that around 1% of GDP would have to be spent on moving away from fossil fuels over the next 30 years.

Its chairman, Lord Deben, said:

> "If policy is not scaled up across every sector, if business is not encouraged to invest, if the people of the UK are not engaged in this challenge - the UK will not deliver net zero by 2050. The 2020s must be the decisive decade of progress and action."

TCFD reporting standards

If it's true that you can't manage what you can't measure, then there needed to be a way to quantify and report progress.

The Financial Stability Board's Taskforce on Climate-related Financial Disclosures (TCFD) was formed to place businesses' environmental performance under scrutiny and create common standards against which it can be benchmarked against financial performance. It also compels them to document the potential risks of the climate emergency on their businesses.

In November 2020, the UK Chancellor of the Exchequer, Rishi Sunak, announced new regulations that make climate-related financial reporting to TCFD standards mandatory for publicly quoted companies, large private companies and Limited Liability Partnerships in the UK.

The regulations state that full mandatory climate-related financial disclosures will come into force across the UK economy by 2025 - with all companies listed on the stock market compelled to report climate-related data by 2022.

A need for leadership

In its 2020 Progress Report, the Cabinet Committee for Climate Change says that, in key areas, budgets pledged by the Government are not enough to match the scale of the challenge, that the coverage of policies is too narrow and that progress has been too slow.

The CCC also says that, in manufacturing, there is still no strategic approach to drive change at the required scale and pace. They recognise that progress since net zero became law has come from beyond central and devolved government, including significant new commitments to reduce emissions to net zero by private companies.

While that progress demonstrates the willingness of businesses to take action, they still need the backing of clear policy frameworks if they are to deliver the changes required. What is clear is that the Government needs to set out a long-term approach to driving changes in manufacturing and construction at sufficient scale and pace to hit targets without compromising competitiveness.

This has been the experience of Jo Holmes, Sustainability Stakeholder Lead at Marshalls, who says:

> "Marshalls has had to find its own way - there is no roadmap. Businesses have taken the lead here. We have internal conversations comparing what we see and what we read - but the guidance is sometimes lacking."
>
> "It feels like a wave of organisations all forging together and you either choose to be with them or not - and we are. Because it's the right thing to do."

This is echoed by the CCC, which compelled the Department of Business Energy & Industrial Strategy to publish the UK's industrial decarbonisation strategy for the next decade in March 2021.

In the meantime, if businesses are taking the lead on the transition to net zero, are they also expected to foot the bill?

The price of change

It seems apparent that the next major step in carbon reduction will require significant investment in technology, so surely a funding mechanism to help offset some of the capital investment in 'clean' assets such as electric fleets or on-site power generation would enable businesses to make big strides faster.

In line with that, the CCC recommends that the Treasury should not only develop a plan for funding costs associated with decarbonisation in both short- and long-term, but also that it reinstates funding for a climate adaptation support service for businesses. Indeed, stimulus for recovery from COVID provides a unique opportunity for Government to use the net zero transition to actually shape how we 'build back better'.

The Cabinet Committee for Climate Change does report that the Treasury has begun to review how the transition to net zero will be funded. But while initiatives like the £40m public-private Clean Growth Fund will help 'clean tech' start-ups develop pioneering solutions to reduce carbon emissions, established sectors such as manufacturing and construction shouldn't be left to shoulder the cost of their efforts to create 'clean industry'.

So has the Government abdicated responsibility to businesses to lead UK plc into a low-carbon future?

Chris Frankland, Marshalls' Marketing Communications Director thinks they have:

> "Without a doubt. They've effectively said 'it's your problem'. No-one from Government is actually leading or taking this agenda forward. It's been left for businesses to find a way forward with very little guidance."

> "I think there could be a lot more leadership from the Government - not just to try and force businesses to do this, but to help and guide on it. There's some mandate there, but in reality I don't think anyone is being held to task over it. It's creating a situation where the bare minimum is being done by a lot of businesses. And that's leading to a significant amount of greenwash out there."

With no clear roadmap and businesses left to their own devices, the advent of a 'clean construction industry' feels like a distant aspiration. With a recent report from the United Nations Environment Programme revealing that, worldwide, emissions from the construction industry reached their highest ever level in 2019 - accounting for 38% of total global CO_2e emissions - it feels like a sector crying out for leadership.

Note: The Devolved Administrations in Scotland and Wales have their own statutory emissions reduction targets that contribute to achievement of UK-wide targets.

“FIRST LIFE, THEN SPACES, THEN BUILDINGS: THE OTHER WAY AROUND NEVER WORKS.”

Jan Gehl,
author of ‘Cities for People’

The Industry’s Carbon Challenge

The UK construction industry faces a challenging decade of carbon reduction if it is to meet Whitehall’s strenuous targets. To understand the scale of the challenge, you have to look realistically at the impacts of the sector. And it makes sobering reading.

The construction industry directly accounts for 19% of the UK’s total greenhouse gas emissions - and the buildings it creates have an impact on 47% of all emissions.

Construction is also the UK’s biggest consumer of natural resources, using 420m tonnes of construction materials every year. Just transporting these materials accounts for 30% of all UK road freight - by our calculation that alone produces 3.8m tonnes of CO_2e. 100m tonnes of the materials used end up as waste. This extraordinary level of construction waste accounts for over a third of the UK’s total yearly waste.

But, for all of this, construction activity remains essential. We have to build homes, improve infrastructure and create a public realm that is safe and practical to use. Given how central construction is to the lives we lead, it‘s even more important that we find ways to build that reduce our impact on climate change.

Concrete evidence

Concrete is the go-to material for the construction industry worldwide. But its ubiquity comes at a price. Concrete is the most widely used man-made material in existence, second only to water as the most-consumed resource on the planet. And every tonne of concrete used produces 7.2% of its own weight in CO_2e.

Concrete's key ingredient is cement. Cement production has increased thirtyfold since 1950 - and fourfold since 1990, to the point where it is source of 8% of the world's CO_2e emissions. In 2019, the UK produced 9.08m tonnes of cement, emitting nearly 7.5m tonnes of carbon dioxide. But the UK uses more cement than it produces. Between 2014 and 2019 the UK's consumption of cement increased from 12.4m tonnes/year to 15.2m tonnes/year. In comparison, the world's biggest cement producer is China which produces 2.2bn tonnes/year. That's 242 times as much as the UK.

Putting innovation in the mix

In order to get anywhere near the requirements of the Paris Agreement, annual emissions from cement will need to fall by at least 16% by 2030 - so it's vital that the industry investigates the development of reduced-cement alternatives.

Thinking specifically about concrete construction products, we believe that reducing their carbon footprint needs innovative new product development that will not only reduce the amount of cement in the concrete mix, but will also increase the amount of repurposed content such as recycled concrete or fly-ash.

Take concrete paving as an example. The less cement used in its manufacture, the better it is from a carbon perspective. But the challenge here is achieving that without sacrificing quality or longevity, both of which are important to a product's overall carbon performance.

Marshalls' Group Sustainability Director Chris Harrop OBE explains:

> "A product's carbon footprint shouldn't just take into account the carbon emitted extracting the raw materials and in its production process. The true measure of its carbon footprint needs to take into account the function of that product, how long it lasts - and how it's disposed of at the end of its life."

> "For us, creating products is a balance between ensuring the lowest possible carbon footprint at the start against the longest life. That then allows the carbon impact to spread over a period of time. "The mix itself is fundamentally important - in particular, the reduction of cement. Over the last 10 years, we've successfully reduced cement in some of our products by 60% and that's had to go hand in hand with products that will still last 60 years."

Home truths

The UK's housebuilding sector faces a major challenge. The UK Government has committed to net zero carbon emissions by 2050, but it has also set the sector a target of building 300,000 new homes per year by 2025.

Given that scenario, the housebuilding sector cannot meet both its building targets and its required reduction in embodied carbon in the materials it uses if it continues to use conventional fired clay bricks.

Consider this: the average house uses over 8,000 bricks and there were 195,000 new homes built in 2019. Of the 1.4bn bricks used in UK housebuilding, 91% of which were made from clay and fired in gas kilns at temperatures c. 1,100°C - an extremely energy-intensive process.

So what's the alternative? In our new low-carbon world, concrete bricks provide the only viable way for UK housebuilders to meeting both their building and climate change obligations.

28% less carbon is produced in the manufacture of concrete bricks. Their major advantage is that they don't require firing. Instead, the majority of the heat required to cure them comes from the exothermic chemical reaction of their ingredients. With a cement content now as low as 8% and no need to burn huge amounts of gas, fewer than 5Kw hours of energy are consumed for every tonne of concrete bricks produced. That's a huge CO_2e saving over clay bricks.

In an ideal world, switching from fired clay bricks to concrete bricks would effectively halve the embodied carbon in the face of every house built in the UK. We calculate that's 2.4 tonnes of CO_2e saved over the lifetime of every single house built from concrete bricks rather than fired clay.

To put that in context, if UK housebuilders switched to concrete bricks for all the houses built in just one year, the lifetime CO_2e savings would be equivalent to taking 300,000 cars off the road.

Setting standards

While manufacturers wrestle with the challenges of improving the carbon performance of their products, the sector faces other issues down through the specification chain.

In line with the latest recommendations from the Green Construction Board, The Royal Institute of British Architects (RIBA) has built carbon reduction into its own Chartered Practices and into its recommendations to Government for future Building Regulations requirements. RIBA recommends that project teams design buildings that reduce operational energy demand by at least 75% and reduce embodied carbon by at least 50-70%. RIBA insists that these targets are essential if architects are to contribute towards mitigating climate change and limiting the rise of global temperature to below 1.5°C.

But their good intentions are undermined if a client or an architect specifies a low-carbon product, but - for whatever reason - it's substituted further down the specification chain. The scale of that issue becomes apparent when, as reported by the Construction Products Association, almost half of all specifications get changed at some point.

This issue is compounded by the lack of consistent, commonly recognised standards. Chris Harrop explains how misleading information and vague narratives only serve to undermine progress:

> "If a manufacturer offers a product that has a worse carbon footprint than one measured against a standard methodology like the one used within PAS2050 to calculate carbon footprints, it's easy for them to simply create a methodology for 'validating' that product."

Indeed, you can count on the fingers of one hand those businesses in the construction products sector that work with the Carbon Trust to calculate the carbon footprint of their products using the life-cycle assessment methodology that's specified within PAS2050.

Harrop's colleague, Head of Product Sustainability, Chris Griffiths agrees:

> "The biggest single thing that would make it easier to make an informed decision is consistency. We need to get to a state where everybody is on an even playing field, where everybody is open, honest, transparent and consistent about what they're measuring. But there are plenty of examples where people are being opportunistic and using disingenuous claims to gain a short-term commercial advantage."

For example, they might pledge to plant more trees rather than cutting their emissions. But this is just a gesture given that a tree has to be planted, grow and survive for 100 years in order to absorb just one tonne of CO_2.

Indeed, short-termism runs counter to combatting climate-change. Government horizons seldom stretch further than the next general election. In industry, businesses seeking returns for shareholders are, by nature, run on a short-term outlook. Companies plot three to five year strategies; boards want ROI in two or three years.

In a world where carbon targets need a longer term view, can directors really be held accountable when they know they're only going to be there for limited time? Are directors going to sanction significant investment right now when they have to deliver dividends to shareholders? Can they credibly say 'we'll be net zero by 2050' knowing that they might not even be around in two years?

If it feels hard to hold people with a short shelf-life accountable for an outcome due in 30 years, consider this: we have only 11 years and eight months before the earth reaches the 1.5°C increase. And that will pass in a blink unless all businesses engage with tackling our climate challenges.

“THE OLD ENVIRONMENTALIST LINE IS ABOUT ‘SAVING THE PLANET’. WELL IT’S NOT ABOUT SAVING THE PLANET. THIS IS ABOUT HUMANS AND HUMAN LIFE. IF WE DON’T SUCCEED, IT’LL BE REALLY DIFFICULT TO BE A HUMAN ON PLANET EARTH. ”

Chris Harrop OBE, Group Sustainability Director, Marshalls plc

Marshalls’ Carbon Challenge

At Marshalls we have been working on reducing our emissions for a long time. We published our first carbon data back in 2004 and, since 2008, we have reduced our total carbon footprint by 50% - and that is a real, validated number. Our ongoing commitment is to reduce our emissions per tonne of production by a further 40% by 2030 in line with the Paris Agreement’s ambitious target of keeping any temperature increase well below 2°C.

For longer than any other business in our industry, Marshalls has been keenly focused on playing our part in addressing the risk of climate change and the protection of the environment. Our carbon reduction strategy is built on our vision of creating better spaces - and better futures - for everyone.

While we may have halved the total CO_2e of the business - including transport - we refuse to sit on our laurels. On the back of work undertaken in 2020 to re-calibrate our targets from a 2018 baseline, our new targets are to reduce absolute emissions by 15% by 2025 and 27% by 2030. In doing so, we are the only company in our sector to have an independently approved target to reduce our carbon to keep us on track for meeting our 2030 commitment.

That target has been approved by an organisation backed by the UN and WWF called the Science Based Targets initiative (SBTi). A science-based target is defined as ‘doing what the science says needs to happen in order to look after the world’. The gold-standard in carbon reduction, SBTi approval confirms our targets as being consistent with levels required to meet the goals of the Paris Agreement.

We believe that addressing climate change is not something to be done half-heartedly. Marshalls' own Energy and Climate Change Policy clearly confirms our commitment to reducing the energy and carbon impact of our business, but we measure our success against the highest regulatory and accreditation standards we can find.

Ambitious targets

Decarbonisation is a commitment that Marshalls takes seriously. By aligning our GHG emission reduction targets with the most ambitious goals of the Paris Agreement, we make it clear that positive action towards a net zero future by 2050 makes responsible business sense.

We use a 'carbon intensity ratio' of tonnes of CO_2e per tonne of product to define emissions data in relation to our business. This allows us to benchmark ourselves, give context to stakeholders and allows to align carbon reduction with business growth. In terms of tonnes of CO_2e per tonne of product, our reduction targets are 23% by 2025 and 40% by 2030: all in line with science-based targets.

While our targets are ambitious, we believe that we should be judged by our actions.

Key to meeting our targets is fully understanding the potential impacts of our operations, products and services. That's why we monitor, measure and manage our all of our carbon data. To do that, we work with - and report to - recognised national and international standards, with all of our carbon and energy data BSI audited and openly available.

Held to the highest standards

The Carbon Disclosure Project (CDP) is an international non-profit organisation that gathers information on climate risks and carbon performance from the world's largest companies. Like us it believes that measurement and transparency are essential to the effective management of carbon and climate change risk. This is why we voluntarily disclose our carbon emissions data to the CDP on an annual basis - receiving a B rating for our most recent submission.

Ultimately, all of our actions are guided by the United Nations Global Compact. As the world's leading corporate sustainability initiative, it leads the way for responsible business. Marshalls has been a participant in the UN Global Compact since 2009.

In relation to mitigating the effects of climate change, we align with UN Sustainable Development Goal 12 on Responsible Consumption and Production and Goal 13 on Climate Change. We do this by carbon labelling all of our products, setting science-based targets for carbon emissions reduction, investing in more sustainable ways of making our products and setting targets for reducing waste, plastic and packaging.

In fact, Marshalls has reduced plastic consumption by over a third since 2017 and significantly reduced thickness on all remaining plastic, with a target of reducing the amount of non-essential plastic in our packaging by 85%.

Open reporting

In order to be as transparent as possible about our approach to climate related risks, Marshalls supports the Taskforce on Climate-related Financial Disclosures (TCFD). In doing so, we have already started reporting with reference to TCFD guidelines in terms of governance, strategy, risk management, metrics and targets - a year ahead of it becoming mandatory.

This includes reporting Scope 1 and 2 emissions in line with TCFD recommendations. For Scope 3, we have also committed that 73% of our suppliers by emissions - including purchased goods and services, upstream transport and distribution - will have science-based targets by 2024. This is allied with the move to implement Euro 6 emissions standards across the whole of the Marshalls fleet.

Reporting in line with the Government's Streamlined Energy and Carbon Reporting framework (SECR) is also a mandatory requirement for Marshalls. In complying, we report annually on our energy use, greenhouse gas emissions, emissions intensity ratio, methodology and energy efficiency actions – which helps keep us on track and provides greater transparency for stakeholders.

The Carbon Trust Standard

The Carbon Trust introduced its Carbon Trust Standard in 2008 to combat what it describes as 'business greenwash' and to recognise organisations that demonstrate leadership in reducing their environmental impact.

Given a rigorous third-party assessment by what is a leading global authority on developing plans for a sustainable, low carbon future, Marshalls is proud to have achieved this prestigious standard - and we are confident that we will continue to be a Carbon Trust Standard Bearer when we are assessed again in 2021.

We have also worked with the Carbon Trust to calculate our products' carbon footprints. In doing so we became first in the industry to be able to provide a carbon footprint for every product in our range.

Our next step in managing our impact on climate change is environmental profiling, scoring and reporting by individual site and by region. Using validated third-party data, Marshalls has begun analysing climate risk data. This better enables us to mitigate climate change-related risks and enables us to assess opportunities to further improve the carbon performance of our processes and products. Our full climate risk report will be published in 2021.

Water management

While Marshalls works to combat the future effects of climate change, we are also mindful enough to know that we require resilience strategies to help society cope with its current impacts.

The most noticeable effect of climate change here is that the UK is getting warmer and wetter. The ten warmest years on record have occurred since 2002 and more heavy rain events have been recorded in the most recent decade than in any previous decade.

Extended periods of extreme weather are now seven times more likely and the amount of rain falling on extremely wet days has increased by 17%. Such prolonged or intense rainfall increases the run-off of excess water which can lead to street drains being overwhelmed and the increased risk of flooding.

To help increase resilience against the impacts of such extreme weather, we are continually developing our range of water management products including permeable paving and sustainable drainage systems (SuDS) that alleviate flooding by enabling rainwater to drain where it falls.

As a member of the Construction Industry Research and Information Association (CIRIA), Marshalls works collaboratively with other members to share knowledge and ideas and drive forward the development of sustainable drainage solutions.

In fact, every time there's a storm event in the UK, the amount of Marshalls permeable paving already installed has the capacity to prevent 620,000m^3 of water from flooding homes, businesses, schools and hospitals.

Renewable energy

As we strive to protect our planet and preserve the natural resources we use, we have a responsibility to manage our energy use as sustainably as possible. We are guided in this by our Energy and Climate Change Policy which requires us to monitor and analyse all fuel use to target energy efficiency opportunities and procure energy, products and services, where possible, that are zero or low carbon rated.

As part of our ongoing review of building management systems, the installation and upgrade of heating management systems at several sites saved 1,272 tonnes of CO_2e. Changing the fuel we use for heating applications (production, curing, comfort heating and hot water) delivered an additional reduction of 403 tonnes of CO_2e per year.

Even on the road, the ongoing upgrade of vehicles in our fleet to comply with Euro 6 standards will limit the emission of harmful pollutants and improve fuel economy. We even provide the SAFED (Safe and Fuel Efficient Driving) driver training programme that promotes safer driving and reduces our fuel consumption.

Our big carbon reduction came from switching to 100% renewable electricity across the business. That saved 8,000 tonnes of CO_2e in a single swoop. But there's much more to do. One area we are

actively exploring is the generation of renewable power - whether that is through on-site generation or direct connection to a renewable power source.

Having already installed solar arrays at two sites we have assessed all sites for solar energy suitability, with a commitment to implementing one major solar energy project per year. We are also committed to reducing the energy consumption at all of our sites, with a target to reduce the kWh per tonne of concrete produced by 3% year-on-year.

Marshalls' energy performance is reported to the Energy Savings Opportunity Scheme (ESOS) - an energy assessment scheme for large UK businesses. It requires us to review, audit and report on at least 90% of our energy usage to The Environment Agency every four years, which plays a huge part in leading the UK towards a higher level of energy security. In fact, 97% of Marshalls' UK sites are certified to BS EN 50001 (energy management systems) to fulfil our obligations under ESOS Regulations.

Marshalls' carbon reduction journey has been a long and challenging one - and it has some distance yet to run.

Chris Harrop summarises how far we've come:

> "We identified the importance of climate change and the dangers of CO_2 in 2003. We started reporting carbon in our annual report in 2004. In 2008, we worked with the Carbon Trust to calculate the carbon footprint of every single one of our 2,000 manufactured products. It was a two-year process to get the product carbon footprints because no-one had ever done it before: the database didn't exist, the data capturing systems didn't exist."

> "We've looked at all the raw materials, all the transport to Marshalls, all of the manufacturing and operational processes in the business, all the loading onto transport, all the deliveries to site, all the installation, all the life and all the disposal. That's our cradle to grave approach to carbon reduction. And we now have that for every single product category."

In May 2021, Marshalls was independently recognised as a European Climate Leader by the Financial Times and international research company Statista.

'Europe's Climate Leaders 2021' is a list of companies across Europe that achieved the greatest reduction in their greenhouse gas emissions intensity between 2014 and 2019. Emissions intensity is defined as the amount in tonnes of CO_2e emissions per €1m of revenue. Marshalls is the only UK building materials company to appear on the list.

Chris Harrop said:

> "Being a European Climate Leader is such an achievement. This is a testament to the hard work we've been doing for many years now; sustainability is a big part of who we are and what we do. This is really significant for Marshalls and I'm proud that we're making big changes to tackle climate change."

“PEOPLE CHALLENGE ME ABOUT SAVING THE PLANET. IT’S NOT ABOUT SAVING THE PLANET – IT’S ABOUT SAVING US AS A SPECIES.”

Martyn Coffey,
CEO, Marshalls plc

Our Challenge to the Industry

The world stands on the brink of irreversible damage that will impact on millions of people.

Here at Marshalls we believe that we have a social responsibility to look after those around us and an environmental responsibility to minimise the impact of our activities - whether that’s in our factories, our quarries or our offices. And we take those responsibilities seriously.

Unlike many brands in this sector, Marshalls started its environmental responsibility journey 20 years ago. It’s so deeply embedded in our DNA now that it is an integral part of who we are.

With climate change currently high on everyone’s sustainability agenda, the need for brands to demonstrate their low-carbon credentials has also seen an increase in questionable low-carbon claims.

Beware of greenwashing

Given the number of environmental claims made in our sector, you could be forgiven for thinking that all brands are equally strenuous in the way they measure their carbon performance. But with a rise in companies blithely making low carbon claims and little scrutiny given to those claims, we are at risk of being swamped by a rising tide of greenwashing.

Chris Harrop OBE, Marshalls’ Group Sustainability Director, sees ‘greenwashing’ as one of the major threats to the industry achieving its targets:

> “There are lots of people jumping on the low-carbon bandwagon, making claims they couldn’t substantiate if challenged. I think the statements made by some businesses about ‘low carbon products’ and being

'carbon neutral by 2050' are spurious at best. Having one production line in one factory that's carbon neutral, or a wind turbine next to their factory contributing a maximum of 10% of the electricity usage for that factory doesn't make you a low-carbon business."

"The veracity - and the credibility - of the industry's low-carbon claims suffer from a lack of common standards and lack of comparability. That manufacturers can simply set their own 'standards' and make claims based on those leaves everyone open to being misled."

"We believe that, if you're taking it seriously, you need find out who the real experts are, and find out what the best international standards are. You should talk to people like the UN Global Compact, The Carbon Trust, and the Building Research Establishment (BRE), and set a credible standard. Then you put the processes in place to start measuring against that standard - because if you do that, you can't be accused of greenwashing."

We like to think that choosing products to support your own environmental performance is a conscious choice. And, when you specify products, you need the reassurance that they are safe to use, fit for purpose and made to industry standards. But if you insist on proof of those things, why would you still take low-carbon claims at face value?

Chris Harrop agrees:

"There are so many people now who want to do the right thing. When they see brands making low-carbon claims, they think they're making a good decision - but that's not always the case. In short we have to start doing things properly."

"We must stop kidding ourselves that everyone's claims are equal and hold to account those responsible for greenwashing."

So, when a manufacturer makes a claim about environmental credentials of their products, ask yourself: are there hard, verifiable facts behind their claims, or is it just greenwash? Is there data to back up these claims? And if there is, where has it come from and who has verified it? If there's any doubt in your mind, ask the manufacturer for proof.

Transparency is absolutely key and Marshalls is happy to be completely candid about our carbon performance. We always make public commitments, report openly on the actions we take, and seek external validation from internationally recognised standards wherever we can.

Our carbon challenge to you

Not only do we strive to have a positive impact on the planet we all share, we're committed to leading the market by example. Our Carbon Challenge is another example of that. We don't take such extensive climate action just to create a point of difference - we think that the quality of our products and service speak for themselves anyway.

However, we do see it as our responsibility to shape the world around us into a better place - and that motivation goes way beyond the products we supply. We believe that we have a duty to ensure that everything we do has a positive impact on the planet we all share.

Here at Marshalls we're proud to lead the sector on climate action - but we're happy not only for others in our industry to catch us up, but also for them to improve on what we do.

If the sector we work in is genuinely serious about reducing its carbon output, we believe that challenging others to match our results will accelerate carbon reduction across the industry.

So here's the challenge to all of our competitors: show us how serious you really are by bettering our carbon performance to 2030 and beyond. Publish your commitments, report your results and beat us to net zero. Show us - and the whole industry - that you're as serious about addressing the Carbon Challenge as we are.

Start today.
The clock is ticking…

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