

# STEPS WITHOUT FOOTPRINTS



Net zero carbon strategy  
**January 2020**





UCL Student Centre  
London, UK

Awarded  
BREEAM  
'Outstanding'

## INTRODUCTION

For 30 years Mace has been shaping cities and building sustainable communities.

We are proud that our work gives us the opportunity to positively impact people's lives - but we are acutely aware that our industry plays a part in harming the planet by generating carbon emissions.

Around 40% of man-made global carbon emissions come from the construction and operation of buildings. Efforts to reduce carbon emissions are gaining momentum across the world, but while 2050 (the date at which the world must eliminate the release of heat-trapping carbon) seems far away, our opportunity to change the course of direction is now.

Our industry has already taken steps to reduce its carbon footprint but what we've achieved isn't enough. We must change the way in which we build, refurbish, operate and dispose of properties. We need to come together to develop new technologies, share lessons and implement smarter solutions. We need to collaborate to make change happen on the scale in which it is needed.

For the last eight years Mace has invested heavily in reducing our impact on the planet and we are committed to doing more. We are now ready to take an ambitious step - to become net zero carbon in 2020.

As an industry leader we believe we have a responsibility to spearhead positive change by developing low carbon solutions, introduce best practice throughout our global networks and lead our industry to take bold action.

The climate change crisis is a challenge we all face. We must ensure that we don't use it as a reason to compete against one another, but instead see an opportunity to collaborate and innovate.

The driving force behind this strategy is our exceptional people who constantly strive to go that extra mile, innovate, and challenge convention to find better ways to deliver for our clients, communities and the construction industry.

Together we will take steps towards becoming carbon neutral. It's what our clients, communities and people expect of us and it's the right thing to do.



Mark Reynolds  
Chief Executive



WHAT IS CLIMATE CHANGE?

Climate change refers to the long-term shift in average global climate conditions and is often measured by temperature and rainfall.

A significant cause of climate change is the use of fossil fuels. Burning fossil fuels to produce energy releases greenhouse gases into the air. Large amounts of these gases have accumulated in the atmosphere forming a 'blanket' around the planet and trapping heat from the sun.

In the 20<sup>th</sup> century the planet warmed by an average of almost 1°C. This may not sound like a lot as an average but it means many parts of the world are suffering from dramatic and far greater increases.

World leaders have agreed that temperature rises need to be kept below 1.5°C. Currently, however, the planet's temperature is on course to rise by 3-4°C or more by 2100.

The current period of warming is occurring more rapidly than ever before, as natural fluctuations in the climate are being overtaken by human-induced warming. Droughts, floods, hurricanes and forest fires are occurring more frequently and the rate at which sea ice and glaciers are melting is increasing.

The impacts of climate change are global in scope and unprecedented in scale.

Human factors causing climate change

The UN Intergovernmental Panel on Climate Change (IPCC) has been categorical in its conclusion – climate change is real and human activities are the primary cause.

Cities consume 78% of the world's energy and produce more than 60% of greenhouse gas emissions. Yet, they account for less than 2% of the Earth's surface.

Use of fossil fuels – coal, oil and gas – is the main problem. Burning them has released carbon dioxide and other greenhouse gases which were previously locked deep within the Earth.

Both forests and oceans play vitally important roles in regulating our climate. Cutting down forests on an industrial scale destroys trees which suck up huge amounts of carbon, and melting polar ice caps release trapped methane which releases gases 30 times more harmful than carbon emissions.

“

**THE CLIMATE EMERGENCY IS NOT A FUTURE PROBLEM, IT IS SOMETHING THAT IS ALREADY AFFECTING US, PEOPLE ARE SUFFERING AND DYING FROM IT TODAY.**

”

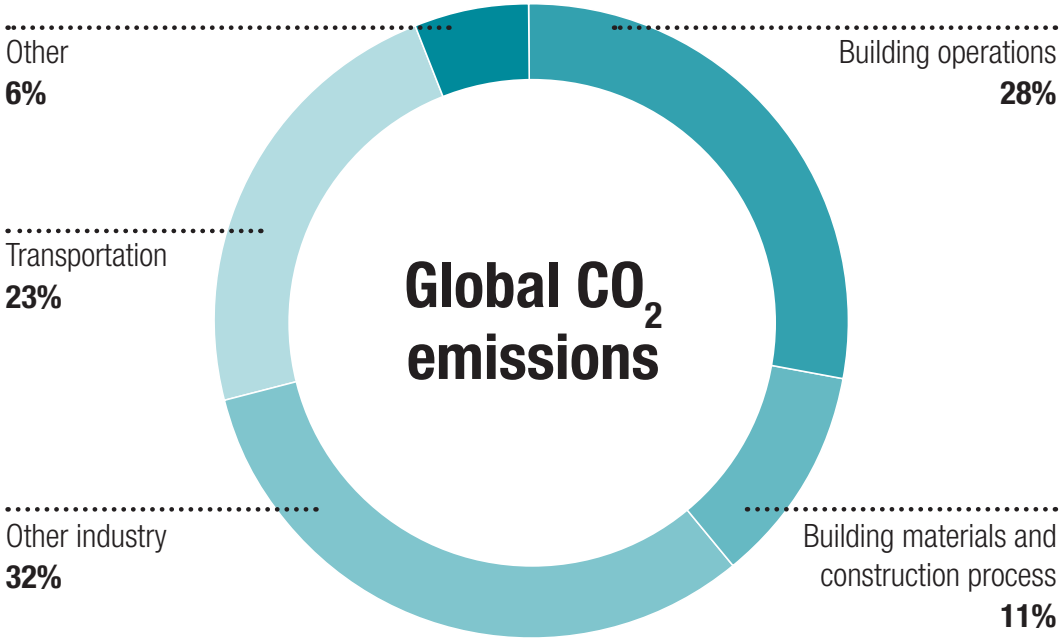
GRETA THUNBERG  
ACTIVIST

Carbon crisis in construction

Around 40% of man-made global carbon emissions come from the built environment - from building operations and also from materials manufacturing and construction processes.

We need to both mitigate the impact our buildings have on the environment and also adapt and futureproof our buildings to accommodate the new climate; much hotter summers, extreme flooding, damaging forest fires and unhealthy air pollution.

- Our industry has a clear part to play in reducing the impact that it has on the planet. There are three primary types of carbon to tackle in the construction industry:
1. Embodied carbon – the energy used to manufacture, transport and install construction materials.
  2. Building operational carbon – the energy consumed by buildings in use
  3. Business operations carbon - particularly business travel



Source: Global Alliance for Buildings and Construction  
2018 GLOBAL STATUS REPORT





“WE ARE AT A **UNIQUE STAGE IN OUR HISTORY**. NEVER BEFORE HAVE WE HAD SUCH AN AWARENESS OF **WHAT WE ARE DOING TO THE PLANET**, AND NEVER BEFORE HAVE WE HAD THE **POWER TO DO SOMETHING ABOUT THAT**.

SURELY WE ALL HAVE A **RESPONSIBILITY TO CARE FOR OUR BLUE PLANET**, THE FUTURE OF HUMANITY AND INDEED, ALL LIFE ON EARTH, **NOW DEPENDS ON US.**”

DAVID ATTENBOROUGH  
BROADCASTER AND NATURAL HISTORIAN



HOW OUR INDUSTRY CAN PLAY A PART IN REDUCING CARBON EMISSIONS

Climate change has been making headlines for the last 30 years but it is only in the last five that the world has started to react to the scale of the crisis.

In 2015 the world-wide crisis was formally acknowledged when 196 countries signed the ‘Paris Agreement’ to keep global warming to below 2°C. In the following years multiple nations took stock of their responsibility and in 2019 the UK became the world’s first major economy to pass a law committing the country to a target of ‘net zero’ emissions by 2050.

Industries and, in particular, global companies have the opportunity to affect major change. A number of industry organisations have taken a lead in influencing climate change, (for example, Better Buildings Partnership, National Infrastructure Commission, National Federation of Builders, World Green Building Council) but we do not yet have a collective commitment.

While legislation, recommendations and national frameworks have been formed around us, our industry has remained independent in its efforts.

We will achieve more together than if we tackle climate change in isolation. We must help our industry come together to:

- Design buildings as net zero carbon
- Take responsibility for delivering energy efficiency in existing portfolios
- Invest in research and development and drive innovation
- Share knowledge to replicate success across the industry

“COMPANIES THAT DON’T ADAPT [MOVE TOWARDS ZERO-CARBON EMISSIONS] WILL GO BANKRUPT WITHOUT QUESTION.”

MARK CARNEY  
GOVERNOR OF BANK OF ENGLAND

Increased demand will drive solutions

To achieve true net zero (carbon neutral without the need for offset compensation), buildings will need to generate or be powered by renewable energy. Modes of transport will need to be ‘clean’ (i.e. not use fossil fuels), water will need to be re-used and waste eliminated.

To support the development of new solutions and reduce the costs of existing sustainable alternatives, we must work together as an industry to increase demand. Opportunities include:

1. All-electric heavy construction equipment

Hybrid and low-carbon equipment is already available. We can mandate diesel-alternatives and give a clear message to manufacturers.

2. HFC-alternatives for refrigerants

Hydrofluorocarbons (HFCs) used in refrigeration and air conditioning release greenhouse gases that heat up the climate. Lower impact HFC-alternatives are available and affordable. Specifying these will help ensure the growing global demand for cooling doesn’t further contribute to climate change.

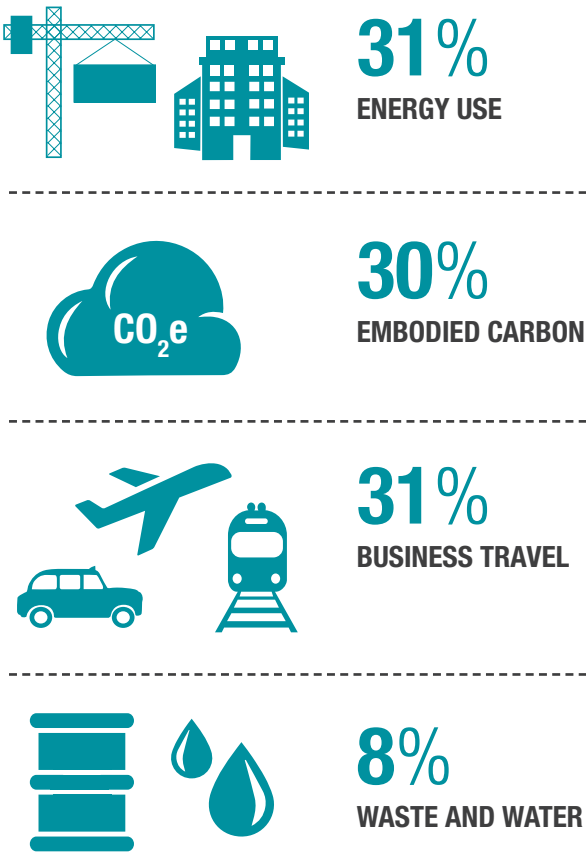
3. Low carbon transport networks

Teleconferencing and agile working are changing how we do business, but there will always be a need for business travel. We can prioritise lower carbon options and choose suppliers who align with our low carbon ambition.

4. Digital solutions

Over recent years digital solutions have greatly developed and we know that they will be a critical component of successfully delivering a low carbon future built environment. We must continue to trial and employ these systems.

MACE 2019 CARBON EMISSIONS



OUR JOURNEY SO FAR

IN 2012 WE  
COMMITTED TO  
BEING A MORE  
ENERGY EFFICIENT  
BUSINESS

In 2019 we were...  
**25%**  
more energy efficient



IN 2016 WE  
COMMITTED TO  
CREATING 100HA OF  
NEW BIODIVERSE  
GREEN SPACE

We have already planted  
more than...  
**3,000**  
trees



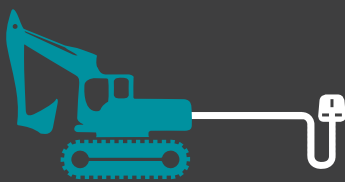
IN 2017 WE SIGNED  
UP TO RE100 – TO  
PURCHASE 100%  
RENEWABLE POWER  
BY 2022

In 2019...  
**72%**  
of the power we purchased  
was renewable



IN 2017 WE SET  
OURSELVES THE  
CHALLENGE OF  
DELIVERING DIESEL-  
FREE CONSTRUCTION

In two years we have  
piloted...  
**40**  
clean tech diesel-alternatives



IN 2019 WE  
LAUNCHED  
MACE TECH





This new construction  
method generates...  
**70%**  
less construction waste



OUR FOCUS TO REDUCING CARBON EMISSIONS

Bold change is needed. To lead the charge in 2020 Mace has committed to become net zero carbon. That means that in 2020 we will reduce our carbon footprint as far as possible, and we will offset any outstanding emissions by supporting Gold Standard certified offset projects.

To be net zero we will eliminate the carbon emissions associated with:

	In scope	Out of scope
<div>Energy use</div> <div></div>	The electricity, gas and diesel we purchase.	Energy we don't purchase - for example, energy used by Mace people in client offices.
<div>Embodied carbon</div> <div></div>	From manufacturing and transporting the materials used in the buildings we develop and own.	Embodied energy in materials we use on projects we don't develop or own.
<div>Business travel</div> <div></div>	Our flights, trains, taxis, cars and hotel accomodation.	Commuting travel.
<div>Waste and water</div> <div></div>	The water we use and waste we send to landfill.	Waste that is repurposed that doesn't go to landfill.

OUR STRATEGY TO BECOME NET ZERO CARBON

<div>Reduce</div> <div>To become more energy efficient we must continue to reduce our energy consumption, travel less for business and generate less waste.</div>
<div>Transform</div> <div>We will transform our business activities by adopting new technologies, piloting new materials and specifying low carbon energy and diesel alternatives to ensure that we play our part in responding to the climate emergency.</div>
<div>Investigate</div> <div>We will continue to position ourselves at the forefront of research and development opportunities – working with technology developers, clients, designers and suppliers to trial innovative low carbon solutions.</div>
<div>Influence</div> <div>We will encourage and enable our clients, partners and suppliers to embrace low carbon solutions and understand the benefits of net zero carbon.</div>

TIMELINE

The table below shows future milestones, activities and operational changes that we will need to make to reduce our reliance on carbon off-sets.

	2020	2022	2024	2026	2028	2030
Key targets	Define our 2017 Science Based Targets carbon baseline	Net zero carbon (with offsets)				
		Reduce absolute greenhouse gas (GHG) emissions by 60%				
Energy use			RE100 - Procure 100% renewable power	Reduce energy demand by 30%		
		First zero diesel construction site		Eliminate diesel on all of our construction sites		
				Achieve net zero operational carbon on our development projects		
Embodied carbon		Measure and report embodied carbon for all our development projects	Reduce embodied carbon on our development projects by 50%			
		Measure and report embodied carbon on our construction projects	Reduce embodied carbon in all our construction projects by 20%			
Business travel			20% reduction in business travel carbon emissions	Reduce business travel carbon emissions by 50%		
Waste and water		Refresh procurement requirements and site practices	Reduce waste by 20%			
			Reduce water use by 40%			



ACTIONS

The table below details some of the actions that we will take to deliver our commitment to being low carbon.

	Energy use	Embodied carbon	Business travel	Waste & water
Reduce	<ul style="list-style-type: none"><li>Continue to implement energy efficiency solutions in our workplaces</li><li>Maximise adoption of modern methods of construction</li></ul>	<ul style="list-style-type: none"><li>Consistently adopt lean construction techniques and pre-fabrication</li><li>Reduce virgin concrete use by specifying cement replacements and low carbon concrete</li></ul>	<ul style="list-style-type: none"><li>Make more low carbon travel choices available (FCM)</li><li>Develop business unit travel targets and incentivise low carbon choices</li></ul>	<ul style="list-style-type: none"><li>Optimise materials and reduce waste through design</li><li>Water used in commissioning</li></ul>
Transform	<ul style="list-style-type: none"><li>Procure 100% renewable electricity</li><li>Specify usage of hybrid and electric plant and equipment</li></ul>	<ul style="list-style-type: none"><li>Greater use of cross laminated timber (CLT)</li><li>Diesel-free construction</li></ul>	<ul style="list-style-type: none"><li>Electric vehicles and fleet</li><li>Invest in new teleconferencing facilities</li></ul>	<ul style="list-style-type: none"><li>Adopt circular economy model</li><li>Update waste procurement to incentivise minimisation</li></ul>
Investigate	<ul style="list-style-type: none"><li>Alternatives to HFCs</li><li>AI and IOT platforms</li></ul>	<ul style="list-style-type: none"><li>Embodied carbon calculation tools and integration with BIM</li><li>Develop partnerships eg ultra-low carbon cements</li></ul>	<ul style="list-style-type: none"><li>Zero carbon for rail, aviation and taxi providers</li><li>Workplace teleconferencing &amp; connectivity digital solutions</li></ul>	<ul style="list-style-type: none"><li>Investigate new commissioning processes</li><li>Design for disassembly</li></ul>
Influence	<ul style="list-style-type: none"><li>Clients to adopt and implement low carbon strategies</li><li>Suppliers to provide low carbon solutions</li><li>Landlords to provide improved data from serviced offices we occupy</li></ul>	<ul style="list-style-type: none"><li>Manufacturers and suppliers to provide embodied carbon data of materials and equipment</li><li>Challenge structural designs and material choices</li></ul>	<ul style="list-style-type: none"><li>Share benefits of flexible and agile working</li><li>Identify low carbon business travel vendors (eg airlines, hotels, car hire) and promote with FCM</li></ul>	<ul style="list-style-type: none"><li>Designers</li><li>Suppliers</li><li>Waste contractors and logistics partners</li></ul>

WHAT OUR NZC TARGET MEANS FOR OUR ENGINES FOR GROWTH

Develop	<ul style="list-style-type: none"><li>Specify electric HVAC systems and purchase 100% renewable electricity</li><li>Measure and report the embodied carbon in our developments and target a 20% reduction on each project</li><li>Phase out use of HFCs in refrigeration and air conditioning systems</li></ul>
Consult	<ul style="list-style-type: none"><li>Reduce business travel (flights, taxis and hotel stays)</li><li>Support clients to adopt and implement low carbon strategies</li><li>Share knowledge of low carbon solutions with clients, designers and project delivery teams</li></ul>
Construct	<ul style="list-style-type: none"><li>Phase out the use of diesel</li><li>Undertake research and development and innovate in low carbon materials, MEP and digital solutions</li><li>Reduce waste</li></ul>
Operate	<ul style="list-style-type: none"><li>Buy renewable energy and implement smart-building retrofit to reduce energy intensity of buildings we manage</li><li>Invest in digital systems to enable remote monitoring and management to reduce our need to travel</li><li>Incentivise clients with energy performance delivery contracts</li></ul>
Group services	<ul style="list-style-type: none"><li>Improve teleconferencing facilities and uptake to provide a credible alternative to business travel</li><li>Prioritise low carbon travel options offered by Mace travel partners</li><li>Help define incentives for low carbon transport or reduced business travel</li></ul>

ACT NOW

Join us on our journey

We are more than 6,000 people at Mace and we have the opportunity to change our industry on a global scale - to lead the change we need and to encourage our industry to work together. To be successful we need all Mace people to get behind our commitment, be bold in taking action and share learning with colleagues. For ideas and inspiration, please visit the Knowledge Hub.

Share your questions, suggestions and actions with: [stepswithoutfootprints@macegroup.com](mailto:stepswithoutfootprints@macegroup.com)

“  
HELPING TO SOLVE A SYSTEMIC  
PROBLEM LIKE CLIMATE CHANGE IS  
AN OPPORTUNITY FOR COMPANIES  
TO UNLEASH INNOVATION.  
”

PAUL POLMAN  
CEO OF UNILEVER

Mace’s service offer

Mace has a successful track record of managing the delivery of award-winning, low-carbon programmes, buildings and energy infrastructure for clients across the globe.

Our people help clients to achieve their carbon ambitions, from shaping and developing corporate targets, to delivering estate-wide transition programmes, constructing low carbon buildings, and developing and financing low carbon assets.

Our service offer includes:

- Net zero carbon strategy planning, governance and employee engagement programmes
- Carbon data measurement and reporting
- Commercial planning and costing
- Programme and project management
- Estate masterplan and zero carbon hierarchy implementation
- Co-investment and development and delivery of clean energy projects

For further information or to arrange a client meeting, email: [stepswithoutfootprints@macegroup.com](mailto:stepswithoutfootprints@macegroup.com)

Six ways you can make a difference at home

It’s easy to feel overwhelmed by the scale of the challenge but it’s important that we all take responsibility for our own actions. Every small change will have an impact.



**Switch to green energy**



**Offset your carbon emissions**  
[www.goldstandard.org](http://www.goldstandard.org)



**Generate less waste (eg single-use plastics)**



**Reduce the amount of meat you eat**



**Measure your carbon footprint**  
[www.footprint.wwf.org.uk](http://www.footprint.wwf.org.uk)



**Reduce your travel**

Please visit [infomace Responsible Business](#) pages for more information.



MACE HAS COMMITTED  
TO ACHIEVING  
**NET ZERO**  
CARBON EMISSIONS  
IN 2020

Join us on our journey

**#stepswithoutfootprints**

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