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# CARBON REDUCTION PLAN

**Supplier name: Mace Ltd**

Publication date: October 2022



# COMMITMENT TO ACHIEVING NET ZERO



**Baseline year: 2019**

**Mace Group achieved Carbon Neutrality in 2020 and to reduce our future reliance on offsets will reduce absolute emissions by 60% by 2026.**

## **Baseline Emissions Footprint**

Baseline emissions are a record of the greenhouse gases that have been produced in the past and were produced prior to the introduction of any strategies to reduce emissions. Baseline emissions are the reference point against which emissions reduction can be measured.

## **Additional Details relating to the Baseline Emissions calculations**

Mace's carbon footprint adheres to the Greenhouse Gas Protocol's Corporate Accounting and Reporting Standard. Our 2021 carbon reporting and measurements have been verified by independent auditors, Carbon Footprint.

### **Scope and Reporting Boundaries**

Mace works across the whole built environment life cycle and has four business engines: Develop, Consult, Construct and Operate.

Our full reporting scope includes all Scope 1 and 2 emissions from Mace offices and construction sites within our operational control. We also report on a number of Scope 3 emissions categories which have the most material impact.

The Mace 2019 baseline was calculated in line with the Greenhouse Gas Protocol control approach for Operational Control (a company has operational control if it or one of its subsidiaries has the full authority to introduce and implement its operating policies at the property).

How we determine operational control:

- All construction projects are deemed to be within our operational control. Every Mace construction project must be logged on our online reporting platform **Optimise**<sup>1</sup> as part of the **'Engage'**<sup>2</sup> process. The Optimise central listing provides a list of all construction sites that are eligible for reporting.
- All Mace offices where we lease/own space and where we have operational control of the electricity supply are included in our reporting. A central list of these offices is maintained by the Mace Group Board

<sup>1</sup> Optimise is the Mace KPI monitoring tool - it shows a project's performance against our corporate environmental and responsible business targets

<sup>2</sup> Engage is our ISO 9001 certified management system which holds our mandatory policies, procedures and guidance

Where Mace has operational control, the calculation methods are detailed below. Mace does not currently quantify:

- Upstream Scope 3 transportation (datasets are not currently available)
- Downstream Scope 3 transportation and distribution of sold products (we do not produce goods/services for transportation downstream)

The following table is an excerpt from the published **Mace Basis of Carbon Reporting**.

Emission	Scope	Method and Data Source
<b>Scope 1</b>		
<b>Diesel</b> Data unit is litres	Diesel fuel consumed on Mace sites where Mace is main contractor or construction manager	Data collected via Optimise where site teams upload diesel delivery notes.  Where data is not available, estimates are made using averaged data from other Mace sites.  The majority of our construction activities (and diesel consumption) is UK-based. The carbon factors used to convert diesel consumption into emissions are sourced from DEFRA 2021 GHG Emissions Factors
<b>HVO Fuel</b> Diesel unit is litres	HVO fuel consumed on Mace sites where Mace is main contractor or construction manager	Data collected via Optimise where site teams upload HVO delivery notes.  Where data is not available, estimates are made using averaged data from other Mace sites.  The majority of our construction activities (and HVO consumption) is UK-based. The carbon factors used to convert HVO consumption into emissions are sourced from DEFRA 2021 GHG Emissions Factors.
<b>Petrol</b> Data unit is litres	Petrol fuel consumed on Mace sites where Mace is main contractor or construction manager	Data collected via Optimise where site teams upload petrol delivery notes.  The majority of our construction activities (and petrol consumption) is UK-based the carbon factors used to convert petrol consumption into emissions are sourced from DEFRA 2021 GHG Emissions Factors.
<b>LPG</b> Data unit is litres	LPG consumed on Mace sites where Mace is main contractor or construction manager	Data collected via Optimise where site teams upload LPG delivery notes.  The majority of our construction activities (and LPG consumption) is UK-based the carbon factors used to convert LPG consumption into emissions are sourced from DEFRA 2020 GHG Emissions Factors.
<b>Natural Gas</b> Data unit is m <sup>3</sup>	Purchased natural gas on Mace sites where Mace is main contractor or construction manager	Data collected through two methods: <ul style="list-style-type: none"> <li>• Billed natural gas consumption</li> <li>• Meter reading data uploaded on Optimise</li> </ul> Where data for offices or construction sites is not available estimates are made using averaged data from other Mace offices/sites or industry standards.  The majority of our natural gas consumption occurs within UK offices and construction sites, therefore the carbon factors used to convert gas consumption into emissions are sourced from DEFRA 2021 GHG Emissions Factors.

Emission	Scope	Method and Data Source
<b>Refrigerants</b> Data unit is kg	Refrigerant disposal and leakage from air conditioning systems	Not currently quantified.
<b>Scope 2</b>		
<b>District heating</b>	Purchased heat from district heating systems	This category is excluded as Mace does not purchase heat from district heating systems
<b>Electricity</b> Data unit is kWh	Emissions associated with electricity consumed on construction sites and in global offices.	<p>Data collected as follows:</p> <ul style="list-style-type: none"> <li>• Automatic data collection from half-hourly meters on the Stark reporting platform</li> <li>• Meter reading data uploaded on Optimise</li> <li>• Office Managers providing meter readings or utilities bills</li> </ul> <p>Where data is not available estimates are made using benchmark data from other Mace offices/ sites.</p> <p>Carbon emissions associated with electricity consumption are calculated as both market-based and location-based emissions. Carbon factors used to convert electricity consumption into emissions are sourced from:</p> <p>Location based factors:</p> <ul style="list-style-type: none"> <li>• DEFRA 2021 GHG Emissions Factors used for UK emissions</li> <li>• IEA 2021 (total CO2 emissions per kWh)</li> <li>• Where country specific conversion factors are available these are used</li> </ul> <p>Where a country specific factor is not available a global average is used based on whether a country is an OECD member or not</p> <p>Market based factors are calculated using the market-based method emission factor hierarchy set out in the Greenhouse Gas Protocol. For this baseline the following are used:</p> <ul style="list-style-type: none"> <li>• DEFRA 2021 GHG Emissions Factors used for UK emissions</li> <li>• IEA 2021 (total CO2 emissions per kWh). Where country specific conversion factors are available these are used. Where a country specific factor is not available a global average has been used based on whether a country is an OECD member or not</li> <li>• AIB European Residual Mix (RE-DISS) of 2020</li> <li>• EAC certificates</li> </ul>
<b>Scope 3</b>		
<b>1. Purchased goods and services</b> Data unit is m <sup>3</sup>	Water consumed on construction sites	<p>Data collected through the following methods:</p> <ul style="list-style-type: none"> <li>• Meter reading data uploaded on Optimise</li> </ul> <p>Where water consumption data was not available estimates were made using averaged data from other Mace construction sites as outlined in the estimations and assumptions section.</p> <p>Carbon emissions associated with water consumption have been calculated using the 2021 DEFRA GHG Emissions Factors carbon factor category 'water supply'.</p>

Emission	Scope	Method and Data Source
<b>2. Capital goods</b> Data unit is GBP (£)	Embodied carbon associated with the materials used on our Mace Development projects	Carbon factors are calculated using detailed material specifications and quantities, using an in-house calculation tool which sources material carbon factors from the ICE v3 Database for Embodied Carbon Factors.  These embodied carbon factors are used to calculate the total tCO <sub>2</sub> ee of embodied carbon for Mace Developments.
<b>3. Fuel and energy related activities</b> Data unit is kWh	T&D losses associated with global electricity consumption	Transmission and distribution losses are calculated using the Scope 2 reporting electricity consumption data.  Carbon emissions associated with T&D losses are calculated using the IEA 2019 Emissions Factors (T&D Losses) globally and using DEFRA 2020 GHG Emissions Factors.
<b>4. Upstream transportation</b>	NA	Not Quantified (see note above).
<b>5. Waste</b> Data unit is tonnes	Waste to landfill generated in our construction projects	Data collected through the following methods: <ul style="list-style-type: none"> <li>Waste transfer notes uploaded on Optimise</li> <li>Diversions from landfill reports provided by waste destinations</li> </ul> Where waste to landfill data is not available estimates are made using averaged data from other Mace sites.  Carbon emissions associated with waste generation are calculated using DEFRA 2021 GHG Emissions Factors carbon factor category 'waste'.
<b>6. Business travel</b> Data unit is kilometres (and spend where kilometres is not available)	Emissions associated with business travel	Data collected through: <ul style="list-style-type: none"> <li>Mace's travel provider FCM</li> <li>Mace's expenses team</li> <li>Addison Lee (UK taxi services)</li> <li>Emails summarising travel from the finance leads across our international offices</li> </ul> Emissions associated with the majority of business travel are calculated using DEFRA 2021 GHG Conversion Factors and a kilometre travelled conversion factor. For a small number of international business travel movements kilometres travelled is not available. In these cases, a spend proxy is used.
<b>7. Employee commuting</b>	Emissions associated with working from home	Employee commuting has not been calculated  Working from home calculations include emissions associated with equipment, heating and cooling of home office space using the methodology set out in the Eco Act Home Working Emissions white paper (2020).
<b>8. Upstream leased assets</b>	N/A	None reported – emissions associated with international offices which are leased are reported under Scopes 1 & 2.
<b>9. Downstream transportation and distribution of sold products</b>	N/A	Not applicable, Mace's primary products for sale are buildings and consultancy services. The GHG impact of transport and distribution of these services is considered de minimis and has been excluded.

## Baseline emissions reporting

Reporting year: Jan – Dec 2019

Emissions	Total (tCO <sub>2</sub> e)
Scope 1	6,659.93
Scope 2	1,921.44 (Market based) 5,474.17 (Location based)
Scope 3 (Included Sources)	17,817.76 Waste to landfill: 0.53 (category 5) Water consumption: 54.72 (category 1) Business Travel: 10,162.51 (category 6) Embodied Carbon: 7,600 (category 2) Working from Home: NA (category 7)
Total Emissions	26,399.13
Total Offsets	0
Net Emissions	26,399.13

## Current Emissions Reporting

Reporting year: Jan – Dec 2021

Emissions	Total (tCO <sub>2</sub> e)
Scope 1	4,266.67
Scope 2	300.90 (Market based) 6,341.23 (Location based)
Scope 3 (Included Sources)	7,708.91 Waste to landfill: 4.62 (category 5) T&D Losses: 542.80 (category 3) Water consumption: 22.57 (category 1) Business Travel: 4,389.22 (category 6) Embodied Carbon: 134.42 (category 2) Working from Home: 2,604 (category 7)
Total Emissions	12,276.48
Total Offsets	12,277
Net Emissions	0

## Emissions reduction targets

To continue our progress to achieving Net Zero, we have adopted a programme of carbon reduction activities and targets.

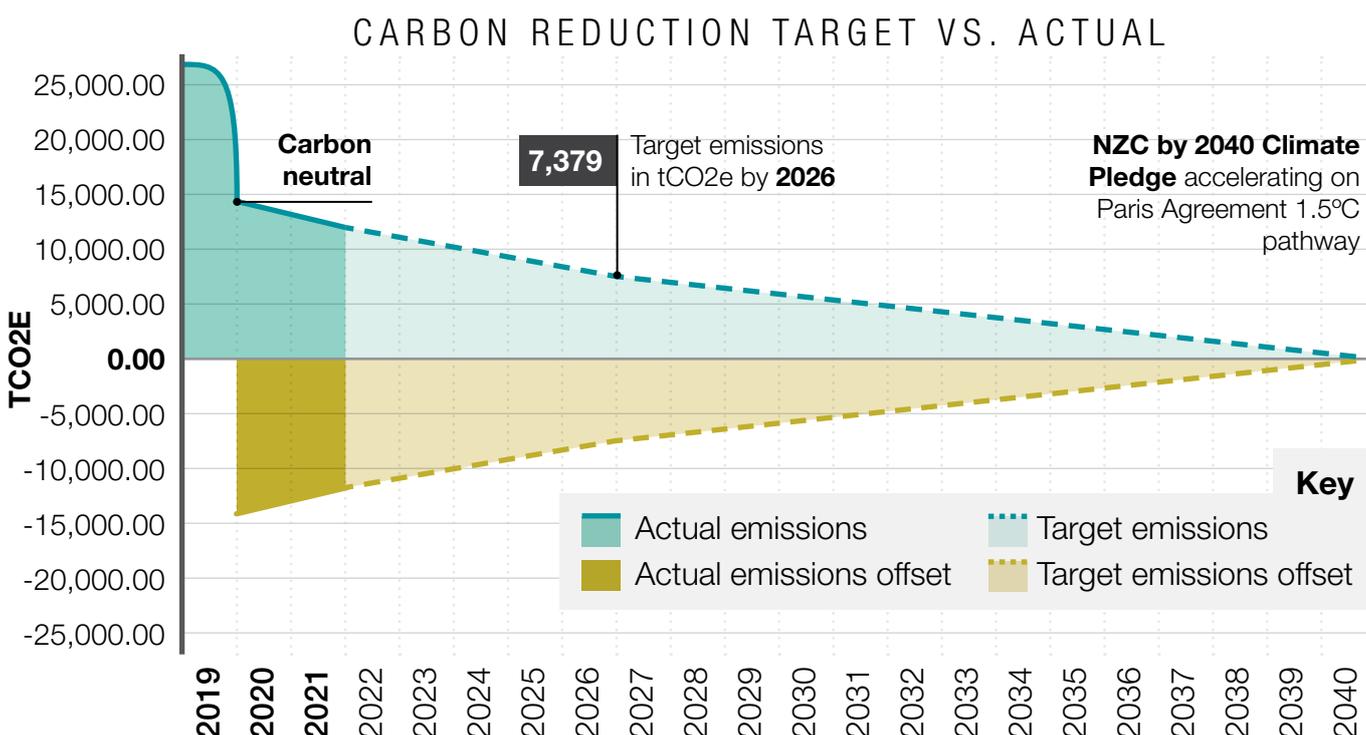
### Mace GHG emission targets

The Mace Steps Without Footprints strategy released in January 2020 outlines the following key targets across our global operations:

1. Reduce absolute GHG emissions by 60% by 2026 against our 2020 baseline against all our reporting scopes
2. Achieve net zero carbon (with offsets) by end of 2020 (reporting based on our operational control) (This was met in 2020 and is now an ongoing commitment)
3. Baseline emissions are a record of the greenhouse gases that have been produced in the past and were produced prior to the introduction of any strategies to reduce emissions. These emissions are the reference point against which emissions reduction can be measured.
4. Reduce embodied carbon on our development projects by 50% by 2030 vs 2019 baseline
5. Reduce embodied carbon on our construction projects by 20% by 2030 vs 2019 baseline Reduce business travel carbon emissions by 50% by 2030 vs 2019 baseline
6. Reduce waste across our construction projects by 20% by 2030 vs 2019 baseline Reduce water use across our construction projects by 40% by 2030 vs 2019 baseline

The 2019 baseline was prepared in line with the definitions outlined in the Mace Basis of Carbon Reporting in our Statement for Financial Year ending 31st December 2020.

In our 2026 Business Strategy we committed to a refreshed target to reduce absolute carbon emissions by 10% year on year from 2021-2026, against 2020 data. This represents a decrease to **7,379 tCO<sub>2</sub>e by 2026**.



## Carbon Reduction Projects

### Completed Carbon Reduction Initiatives

The following carbon reduction measures and projects have been completed or implemented since the 2019 baseline was developed and all contributed to our reduction in GHG emissions of 11.7% from the previous year (2020).

#### Waste and water

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

Through a re-invigorated a waste and circular economy working group, Mace leaders have committed to driving change through pre-defined plans. In addition, our plastics working group continues 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 98.93% in 2021. In 2021, we strengthened our partnership with the social enterprise Community Wood Recycling. By working with them on our construction projects, we diverted 284 tonnes of waste timber to other uses, saving 141 tonnes of carbon emissions.

At our One Crown Place project, we worked with our supplier, Protec, by utilising a takeback scheme for flooring protection. We were able to send >2000kg of material back to Protec for processing. Capturing this saving early on new projects has potential to maximise protection return. In this case study, 4.65 tonnes of atmospheric carbon was saved from the material not being incinerated. This is equivalent to 95 trees that would need to be planted to offset the carbon had it been incinerated.



#### First zero diesel site

Our 78 St James Street construction project in London is due completed in 2021 and was 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 committed to eliminating diesel use across all of our construction sites.

## Diesel generator ban

In April 2021, Mace introduced a Diesel generator ban. The new policy has made it much more onerous for project teams to get approval for the use of diesel generators and was introduced to encourage the uptake of alternative solutions.

The new process is that a generator checklist is issued on a 'request only basis' and must be formally signed off by the Sustainability Lead and Project Director / Business Unit Lead. The use of a generator will only be approved if there is a clear-cut reason why the project's TBS electrical installation cannot be used.

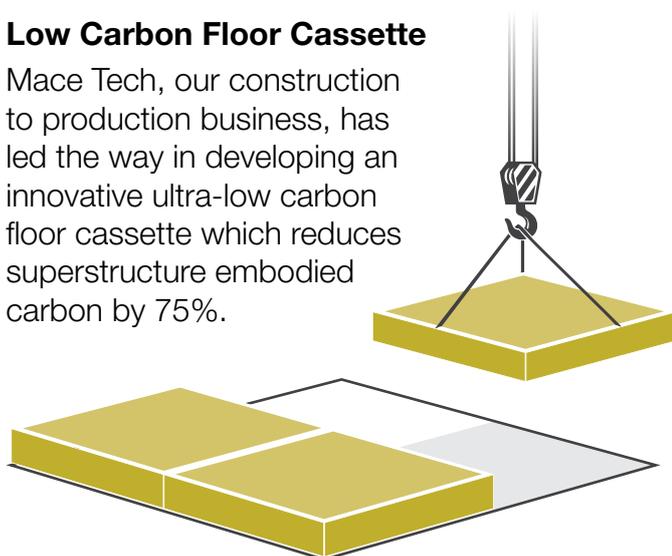
Where a generator must be used, the Sustainability Lead(s) provide guidance on the type of gen-set, fuel type, etc., and in the interest of the Mace NZC commitment, look to have the project use a hybrid set. Mace's Clean Tech working group have collated a database of acceptable alternatives and options for the projects to utilise.

## Use of hydrotreated vegetable oil (HVO) fuels

Uptake of HVO has been increasing across our construction sites despite not currently being mandated. In 2021, 178,069 litres of HVO sustainable biofuel were used across Mace construction sites. If diesel had been used in its place, this would have led to an increase in emissions of 475 tCO<sub>2</sub>e. From June 2022, our contracts will formally state diesel-use on site is by exception only.

## Low Carbon Floor Cassette

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



## Future Carbon Reduction Initiatives

In the future we will deliver further outcomes and measures such as:

### Reduction of our clients' carbon by one million tonnes

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 global 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. Some current and future examples of these include:

### 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.

## 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.

<sup>3</sup> <https://ghgprotocol.org/corporate-standard>

<sup>4</sup> <https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>

<sup>5</sup> <https://ghgprotocol.org/standards/scope-3-standard>

## Declaration and Sign Off

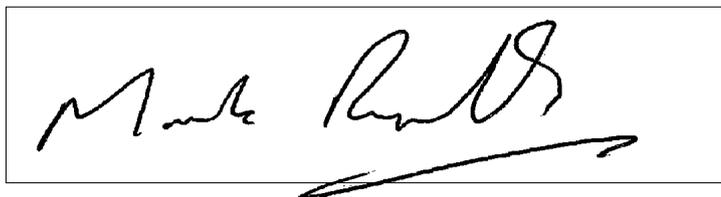
This Carbon Reduction Plan has been completed in accordance with PPN 06/21 and associated guidance and reporting standard for Carbon Reduction Plans.

Emissions have been reported and recorded in accordance with the published reporting standard for Carbon Reduction Plans and the GHG Reporting Protocol corporate standard<sup>3</sup> and uses the appropriate Government emission conversion factors for greenhouse gas company reporting<sup>4</sup>.

Scope 1 and 2 emissions have been reported in accordance with SECR requirements, and the required subset of Scope 3 emissions have been reported in accordance with the published reporting standard for Carbon Reduction Plans and the Corporate Value Chain (Scope 3) Standard<sup>5</sup>.

This Carbon Reduction Plan has been reviewed and signed off by the board of directors (or equivalent management body).

Signed on behalf of the Supplier:

A rectangular box containing a handwritten signature in black ink. The signature appears to read 'Mark Reynolds' with a long horizontal flourish underneath.

### Mark Reynolds

Mace Group Chairman and Chief Executive

Date: 6 October 2022



## **Mace**

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## **Image credits**

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