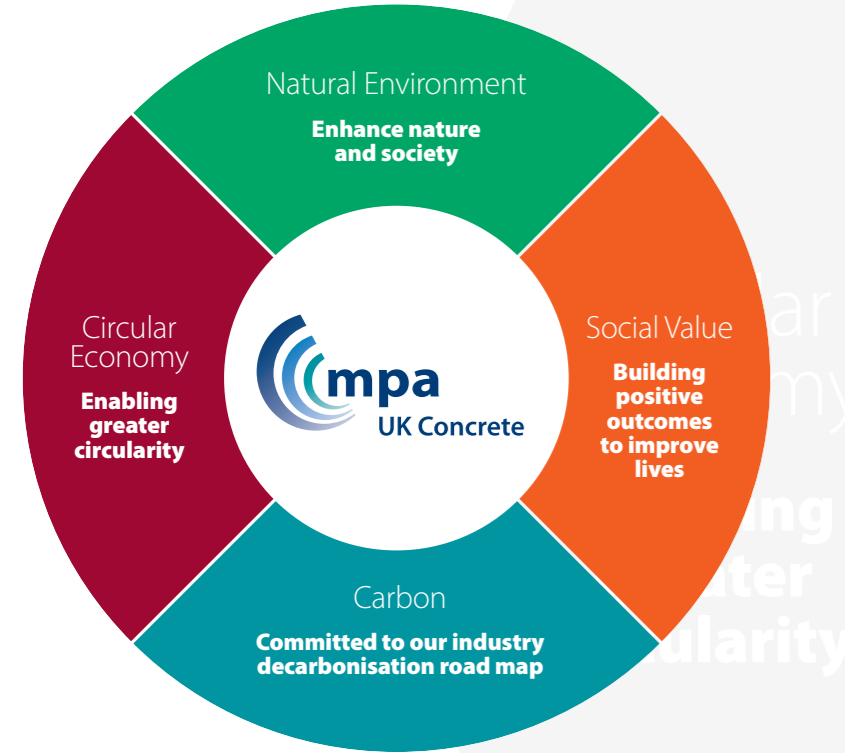


Summary

As a sector we take our environmental obligations extremely seriously and are committed to being part of a net zero carbon society. With the publication of the new UK Concrete Industry Sustainable Construction Framework, the UK concrete industry will be adopting five ambitious commitments to respond to the climate and biodiversity emergency.



Photography: Hufton + Crow

Faculty of Arts Building, University of Warwick

This BREEAM Excellent and Stirling Prize shortlisted building, utilised material efficient post-tensioned concrete construction that saved over 1,000m³ of concrete.

Referred to by students as the FAB building, the project has created a space that facilitates genuine collaboration and communication.

UK Concrete Industry Sustainable Construction Strategy Framework

Introduction

By launching the *Concrete Industry Sustainable Construction Strategy* in 2008, the concrete industry demonstrated its leadership position by setting clear targets and ambitions for the delivery of a sustainable, low-carbon built environment in a socially, environmentally and economically responsible manner. This next iteration of the strategy focuses on the sector's journey to 2030.

In this document, we introduce the framework that has been developed to underpin the evolution of the sector strategy.

Through the development of this strategy, the UK concrete industry aims to show leadership and demonstrate our ambition to deliver sustainable outcomes in collaboration with the value chain and stakeholders. The new strategy will also align with key industry initiatives such as the *UK Concrete and Cement Industry Roadmap to Beyond Net Zero*.

Concrete remains essential for our economy, homes, buildings, infrastructure and quality of life. Its remarkable properties like inherent stability, robustness and resilience, makes it an indispensable material for generations. Concrete will be required for building the infrastructure necessary to transition to a net zero economy that is resilient to threats posed by climate change.

From the significant progress the industry is making to lower its carbon footprint through to the outstanding sustainable buildings and green infrastructure being constructed, concrete is part of the solution towards creating a net zero carbon society.

About UK Concrete

UK Concrete is part of the Mineral Products Association (MPA), the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and industrial sands industries, and represents the UK's concrete industry.

The concrete and cement sector is a key part of a combined mineral products industry, which contributes around £22 billion to the UK's GDP and directly employs 80,000 people, supporting a further 3.2 million jobs.

Vision

The UK concrete industry will demonstrate leadership by adopting five ambitious commitments to respond to the climate and biodiversity emergency.

These sector commitments will be delivered in collaboration with our value chain and built environment partners.

Our UK commitments:

1 Carbon

Progressing our UK Concrete and Cement Industry Roadmap to Beyond Net Zero, advancing carbon reduction plans and policies and developing the prerequisites by 2030 to fully decarbonise by 2050.

2 Circular Economy

Enabling greater circularity across the built environment using concrete and encouraging the retention of concrete's value throughout all stages of its life cycle.

3 Natural Environment

Developing solutions for a regenerative built environment, incorporate natural capital in decision making and deliver wider ecosystem benefits such as biodiversity net gain.

4 Social Value

Building positive outcomes to improve lives through our activities, and use concrete to create a safe, comfortable and healthy built environment.

5 Metrics

Continuous improvement of the annual Concrete Industry Sustainability Performance reporting with relevant Performance Indicators.

1 Carbon

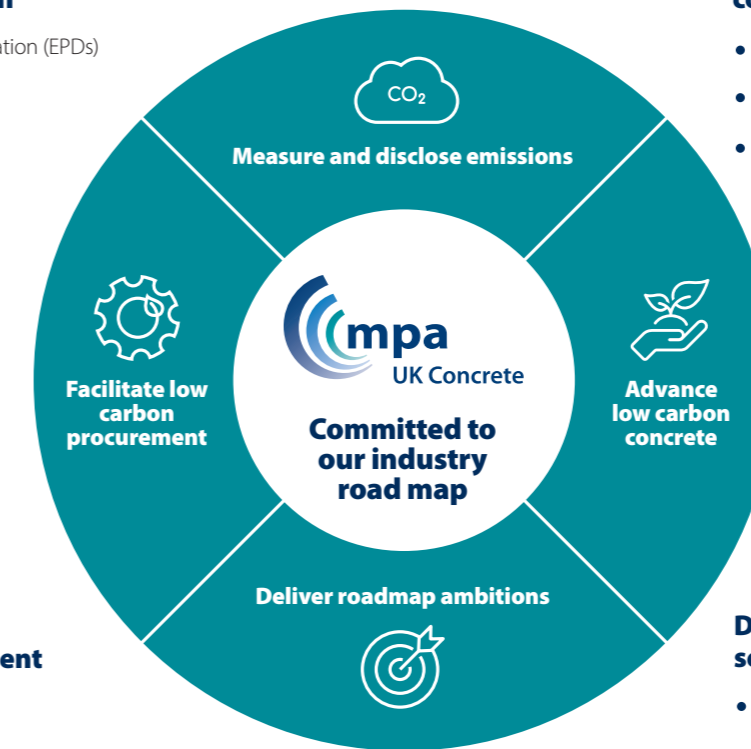
The UK concrete industry has an ambition to decarbonise as soon as practically and economically possible. We are working hard every day to achieve this goal and have set out four pillars that will enable us to do this.

Measure and disclose GHG emissions associated with UK concrete production

- Environmental product declaration (EPDs)
- Concrete benchmarking
- Digitalisation and data sharing

Enable standards and specifications of low carbon concrete solutions

- Evolution of concrete standards
- Innovative products
- Guidance to accelerate adoption



Facilitate low carbon and resilient procurement

- Engage with value chain
- Engage with regulators
- Collaborate with sector stakeholders

Deliver the ambitions set out in the roadmap

- Net zero pathway
- Roadmap lever progress
- Policy requirements

Our goal is to progress our *UK Concrete and Cement Industry Roadmap to Beyond Net Zero*, advancing carbon reduction plans and policies and developing the prerequisites by 2030 to fully decarbonise by 2050.

As a sector we are committed to delivering our industry [roadmap](#) to beyond net zero. We take our environmental obligations extremely seriously and are committed to being part of a net zero carbon society.

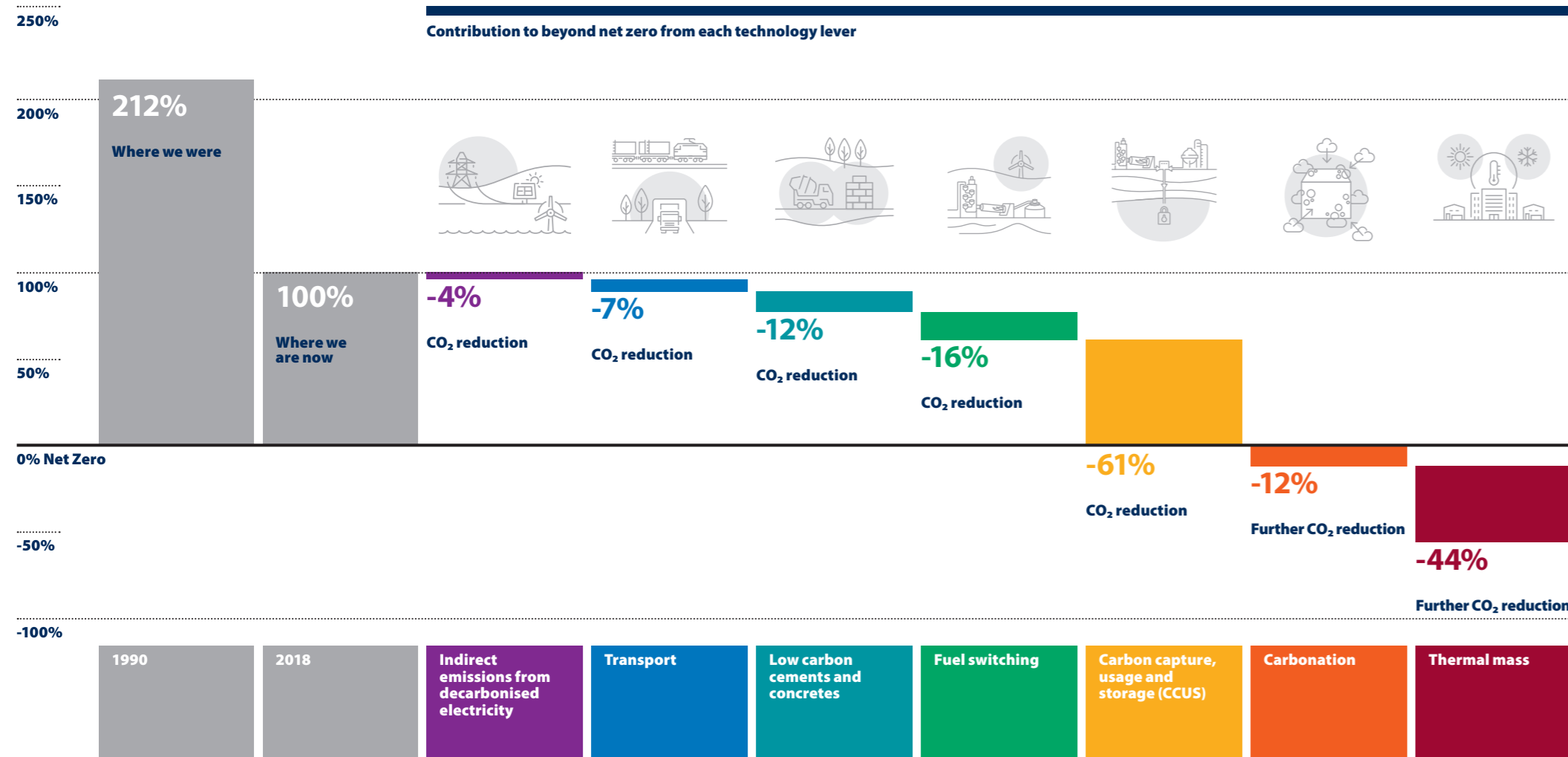
MPA UK Concrete has also been actively involved in the publication of the Green Construction Board's [Low Carbon Concrete Group \(LCCG\) Route map](#), and is supporting the value chain to achieve its goal in the accelerated adoption of low carbon concretes.

The *UK Concrete and Cement Industry Roadmap to Beyond Net Zero* shows a scenario of how the sector can build on the significant carbon reduction from 1990 to 2018, which has seen absolute emissions reduce by 53 per cent. The roadmap (shown on page 4) is based on seven decarbonising levers and each lever is explored in more detail, including progress to date in a [series of lever papers](#).

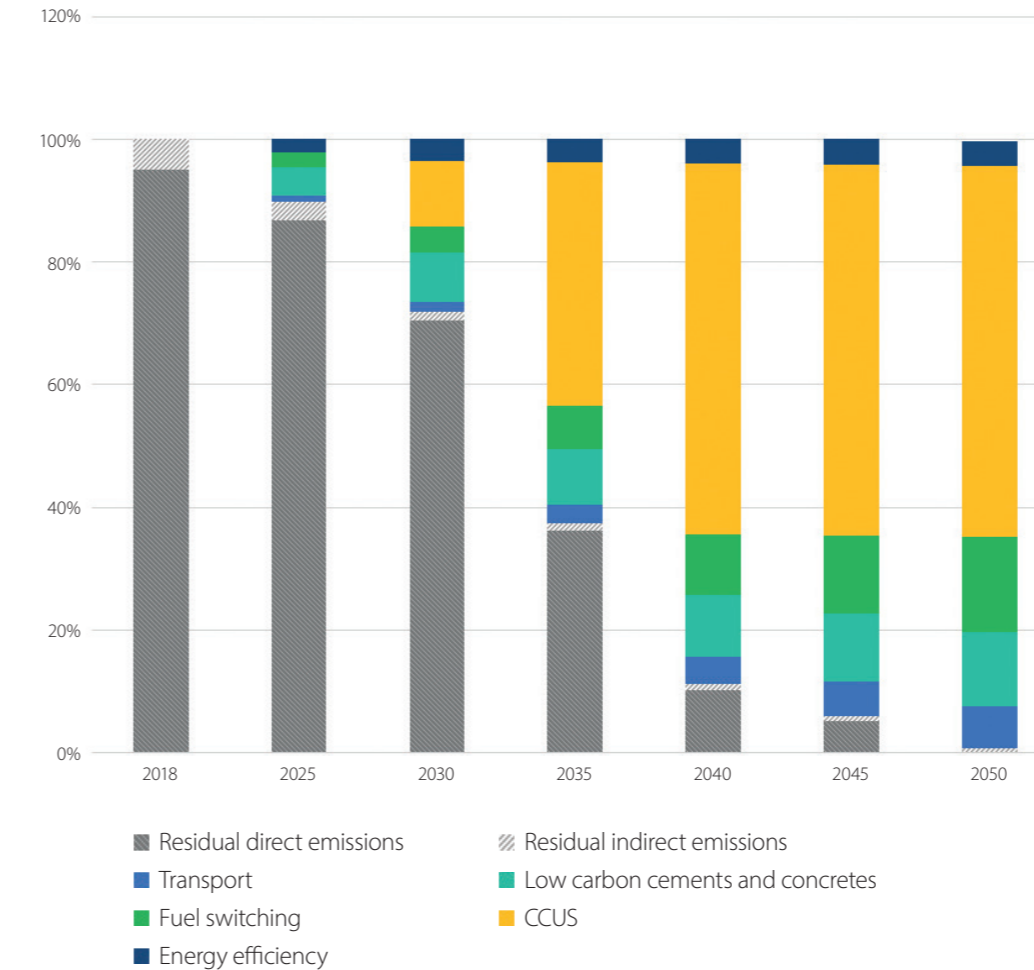
Beyond net zero: our roadmap in numbers

Absolute 2050 CO₂ emissions reductions compared to 2018

Delivering beyond net zero is not a linear process but we forecast that seven technology levers will play an important and active part in delivering beyond net zero for concrete and cement.



UK Cement and Concrete Possible Decarbonisation Trajectory to 2050



UK cement and concrete net zero pathway

Our [sector roadmap](#) published in October 2020 shows how different levers may contribute to achieving, and even going beyond, net zero by 2050. Here, for the first time we are able to show a more detailed pathway to net zero, which represents just one possible trajectory to achieving our net zero ambition¹.

The pathway is an estimate based on published information and our knowledge of current Government policies. It is subject to change and is reliant on the implementation of Government policy and regulation, as well as access to infrastructure and decarbonisation technologies including cost competitive renewable electricity, access to waste biomass fuels and deployment of CO₂ transport and storage infrastructure.

Significant decarbonisation has already been achieved across the sector since 1990. However, in our roadmap we set 2018 as the baseline and based on this pathway scenario, we estimate a CO₂ reduction of approximately 28% by 2030, 63% by 2035, and achieving net zero by 2050.

Carbon capture, use or storage (CCUS) is key to the decarbonisation of cement and concrete. The pathway shown here assumes that the CCUS projects already announced but in the early stages of development will be fully implemented.

However, the timings of these projects will only become clear following further Government announcements on the cluster sequencing process. The roadmap's targets are based on an assumption that CCUS technology will be available in 2040, however this will require further clarity of the relevant policies.

It is important to note that the pathway focuses on the actions required to mitigate CO₂ emissions to reach net zero. Our roadmap also takes into account the benefits of concrete in use, such as carbonation and thermal mass, that will enable the cement and concrete sector to go beyond net zero and become net negative by 2050.

The MPA trajectory is based on the main technology levers previously set out in our industry roadmap. However, we acknowledge that other levers, such as material efficiency, can enable further carbon reductions. We have no current means or methodology in place for measuring this, and consequently it is not included in our roadmap.

Nevertheless, estimates can be found in the [Global Cement and Concrete Association's \(GCCA\) carbon reduction monitoring and the LCCG routemap's recommendations](#) in terms of potential reductions through concrete mix design, structural design and construction efficiencies.

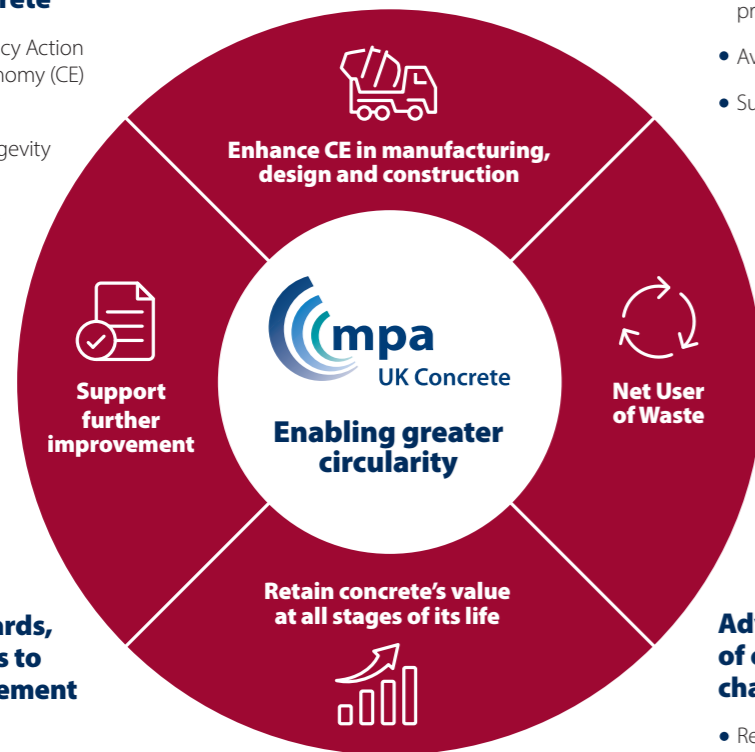
¹ The roadmap, including the pathway shows only one possible route to net zero for the sector as a whole. It does not reflect the opinion of individual member companies of the MPA. The forward-looking trajectories and statements in this publication are subject to change and do not reflect any individual company's results or forecasts which may differ significantly.

2 Circular Economy

The four pillars of our circular economy framework set areas of focus to identify, measure, improve and facilitate activity that supports a more circular economy using concrete.

Enhance circularity through manufacture, design and construction using concrete

- Evolve existing Resource Efficiency Action Plans (REAPs) into a Circular Economy (CE) action plan
- Design and manufacture for longevity and adaptability
- Guidance for resource efficiency



Develop metrics, standards, and policy requirements to support further improvement

- Metrics development
- Standards evolution
- Policy and stakeholder requirements

Remain a net user of waste

- Upcycling waste and the use of by products, and recovered materials
- Avoiding waste
- Supporting innovation

Advance the retention of concrete in the supply chain at its highest value

- Reuse of existing structures
- Digitisation to help future recovery and reuse
- Higher value end of life scenarios

Our goal is to enable greater circularity across the built environment using concrete and encouraging retention of concrete's value throughout all stages of its life cycle.

The first iteration of the *UK Concrete Sustainable Construction Strategy* established the measuring and reporting of concrete manufacturing processes. These include the use of recycled content, resource efficiency and reducing waste to landfill. The ready-mixed, precast and masonry sectors have all developed and acted upon Resource Efficiency Action Plans (REAP) for over a decade.

The approaches, priorities and solutions for achieving more circularity within the built environment have matured since our original strategy was developed. While diverting waste from landfill and recycling remain core metrics, other measures are required to move beyond this and look at the entire life cycle of concrete, from its manufacture to its use, end of life and beyond.

The focus for UK Concrete is to continually develop these priorities for the concrete sector and its associated supply chain, as well as collaborating with stakeholders to evolve the understanding of concrete's role in supporting a circular economy across its whole life cycle.

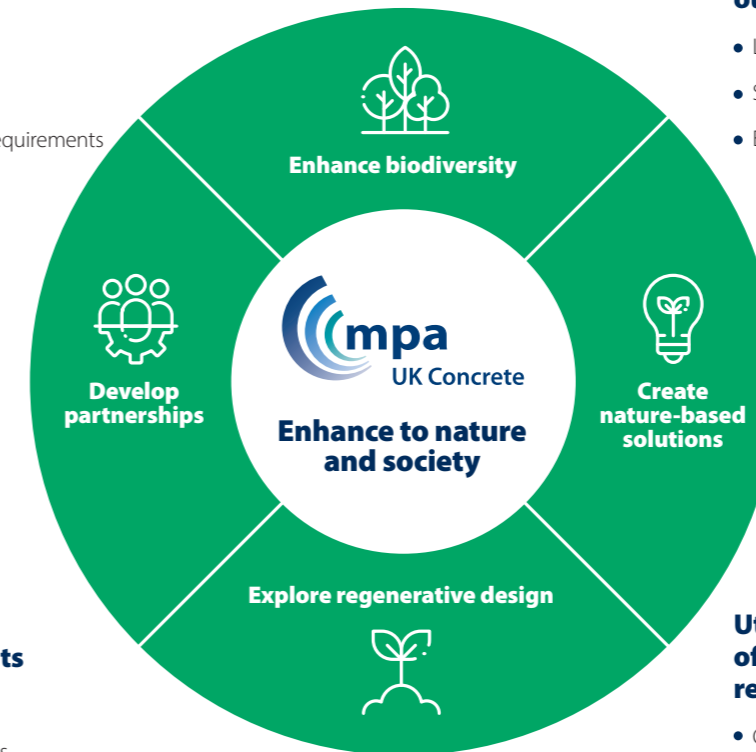
The inherent low maintenance and durable nature of a concrete structure together with its resilience to fire and the impacts of climate change, mean that it can remain in use over a long period, with the potential to be repurposed and reused multiple times during its lifetime. This approach represents the most efficient use of resources and the best way of embracing circular economy principles and improving whole life carbon performance.

3 Natural environment

Supporting biodiversity, building partnerships and exploring the ways concrete can benefit nature and society are among the key areas of our focus for supporting the natural environment.

Conserve and enhance biodiversity at extraction and production sites

- Biodiversity Action Plans
- Natural capital
- Meet and exceed regulatory requirements



Develop partnerships and policy requirements

- Conservation organisations
- Local nature recovery strategies
- Planning system

Create nature-based solutions and social outcomes

- Land restoration
- Social outcomes
- Environmental and water management

Utilise the characteristics of concrete for regenerative design

- Concrete's versatility
- Green and blue infrastructure
- Innovative approaches

Our goal is to develop solutions for a regenerative built environment, incorporate natural capital in decision making and deliver wider ecosystem benefits such as biodiversity net gain.

Quarrying or mineral extraction is a temporary land use, once extraction has finished the land can be restored to a range of end uses. Some, such as restoration to nature, can deliver multiple benefits including landscape and nature, recreation and a range of wider 'ecosystem services' such as water storage and flood management, landscape enhancement, and carbon sequestration.

The UK Concrete Sustainable Construction Framework adopts the [MPA Biodiversity Strategy](#) which aims to protect and enhance biodiversity and deliver net gain wherever possible. The aims and objectives of the biodiversity strategy cannot be achieved in isolation and it is therefore important that we continue to work with our partners and other relevant organisations.

Concrete can also be used to support regenerative design and nature-based solutions in development projects. New products are evolving to provide conditions suitable as a natural habitat on or in the concrete itself.

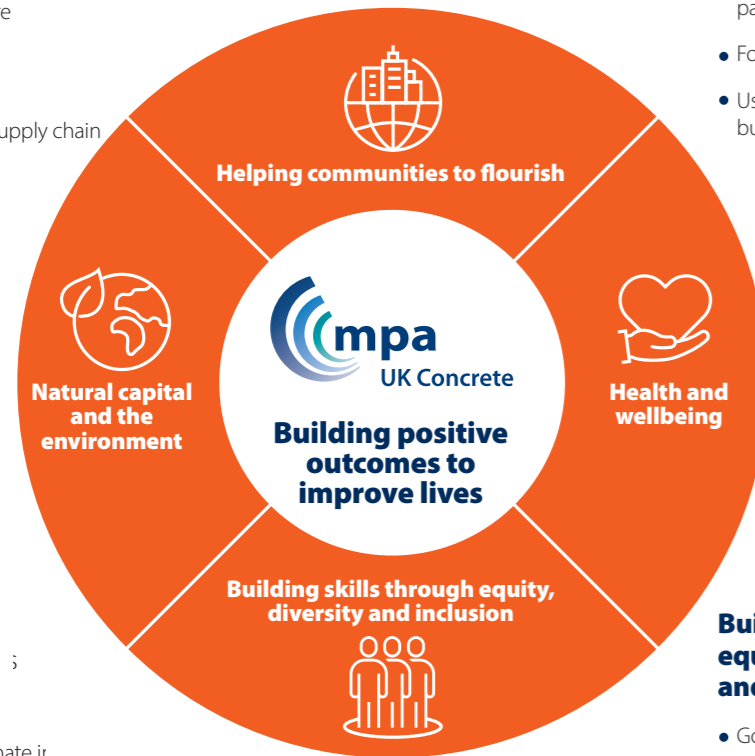
As we progress our understanding and actions in the context of sustainability, we aim to explore further the role of concrete in a regenerative system which is resilient, adaptable and can evolve to produce net positive impacts.

4 Social value

Concrete remains essential for improving our communities and quality of life. Our new social outcome framework sets out how we can deliver positive outcomes.

Helping communities to flourish

- Support healthier, safer, and more resilient communities
- Strengthen local economy
- Drive positive behaviour in the supply chain



Natural capital and the environment

- Value the natural environment
- Enable solutions to mitigate climate ir
- Provide benefits to society throughou the full life cycle of built assets

Health and wellbeing

- Health and wellbeing for employees, partners and communities
- Focus on vulnerable groups
- Use concrete to create a healthy built environment

Building skills through equity, diversity and inclusion

- Good quality employment
- Equal access to jobs
- Invest in communities, creating opportunities for all

Our goal is to build positive outcomes to improve lives through our activities and use concrete to create a safe, comfortable, and healthy built environment.

The updated UK Concrete Sustainability Strategy aims to raise the bar in our approach to social outcomes for the concrete industry and its supply chain. We have co-developed a framework that demonstrates the short- and long-term social outcomes of our sector and will guide our social value actions.

The four themes of the social value framework set a strategic direction for the UK concrete sector. The framework reflects the existing and future opportunities to develop a roadmap and metrics to demonstrate performance.

UK Concrete aims to deliver further positive social outcomes by continuing to develop sector capabilities through collaboration, sharing best practice, CPDs and engagement with relevant groups of stakeholders and the value chain. We will provide best practice guidance to improve the standard of social outcomes. We will communicate and report on our progress based on the framework.

The UK Concrete social outcome framework is aligned with the [MPA Charter](#) and its aspiration regarding health and safety reflected in MPA's [Vision Zero](#). This treats the health and safety of employees, contractors, and visitors as the number one priority.

It is important to note that all of the commitments made in the previous sections play a role in improving people's lives. As such there are inherent overlaps and interdependencies across all of the goals of the UK Concrete Sustainable Construction a Strategy Framework.

5 Metrics and reporting

Our goal is the continuous improvement of the annual Concrete Industry Sustainability Performance reporting with relevant Performance Indicators.

We acknowledge that sustainability is a dynamic process, not a fixed state to reach. Therefore, it is important that we keep reviewing our strategy, methodologies, targets and keep measuring and reporting data.

Whether directly or implicitly, we recognise that our sector influences the UN Sustainability Development Goals (SDGs). The effects of our work on SDGs indicators will be measured and quantified at the national level by the Government.

The concrete sector has been reporting data and performance indicators since 2008, when the first *Concrete Industry Sustainable Construction Strategy* was published.

Performance Indicators related to Climate Change and Energy, Natural Resources and Enhancing the Environment, Sustainable Consumption and Production and Creating Sustainable Communities have been published in the annual *Concrete Industry Sustainability Report* and past reports can be downloaded from www.sustainableconcrete.org.uk.

Metrics and progress from the previous iteration of the Concrete Industry Sustainable Construction Strategy

Sustainability Principle	Performance Indicator	Baseline (2008 unless stated)	Performance 2021
CLIMATE CHANGE AND ENERGY			
Energy Efficiency	Energy intensity as a proportion of production output. <i>Standardised Mix (kWh/tonne)</i>	132.1	118.5
CO ₂ Emissions - Production	CO ₂ emissions as a proportion of production output. <i>Standardised Mix (kg CO₂/tonne)</i>	87.5 1990 baseline – 102.6	71.5
CO ₂ Emissions - Transport	CO ₂ emissions from delivery transport through the industry supply chain as a proportion of production output. <i>(kg CO₂/tonne)</i>	7.2 (2009 baseline)	6.2
NATURAL RESOURCES AND ENHANCING THE ENVIRONMENT			
Waste Minimisation	Materials diverted from the waste stream for use as a fuel source, as a % of total energy use.	17.4%	33.1%
	Waste to landfill as a proportion of production output. <i>(kg/tonne)</i>	5.0	0.6
Water	Mains water consumption as a proportion of production output. <i>(litres/tonne)</i>	86	95.2
Site Stewardship & Biodiversity	% of relevant production sites that have specific action plans.	94.3%	99.7%

The UK Concrete Industry Sustainable Construction Strategy gives a direction and sets a path for the sector's actions and reporting by 2030.

We continue to develop and refine our metrics and reporting based on the new strategy and framework mentioned in previous sections:

- We will continue to develop performance indicators to ensure the relevance of our reporting and framework for data collection.
- We will continuously review our data collection and disclosure including provision of sector EPDs.
- We will continue to provide guidance and best practice to members and stakeholder to ensure consistent reporting and benchmarking.
- We will continue to develop our annual reporting to reflect the needs of stakeholders and develop new metrics for stakeholder engagement requirements.

Metrics and progress from the previous iteration of the Concrete Industry Sustainable Construction Strategy

Sustainability Principle	Performance Indicator	Baseline (2008 unless stated)	Performance 2021
CREATING SUSTAINABLE COMMUNITIES			
Health & Safety	Reportable injuries per 100,000 direct employees per annum.	799	587
	Lost Time injuries (LTI) for direct employee per 1,000,000 hours worked.	6.5 (2010 baseline)	3.9
Employment & Skills	% of employees covered by 'UKAS' certified training and evaluation process. *	84.4%	99.1% (2017 data)
Emissions (excluding CO ₂)	Number of convictions for air and water emissions per annum.	6	0
Local Community	% of relevant sites that have community liaison activities. *	85.9%	90.3% (2017 data)
SUSTAINABLE CONSUMPTION AND PRODUCTION			
Environmental Management	% of production sites covered by a 'UKAS' Environmental Management System (EMS).	72.3%	98.4%
Quality and Performance	% of production sites covered by a 'UKAS' certified ISO 9001 quality management system.	84.2%	97.6%
Responsible Sourcing	% of production certified to BES 6001.	0%	91%
Resource Efficiency	% of additional cementitious materials (GGBS, fly ash) as a proportion of total cementitious materials used. **	30%	26%
	Recycled/secondary aggregates as a proportion of total concrete aggregates.	5.3%	5.9%
	% of recycled scrap as a proportion of total constituent raw materials used.	97.0% (2009 baseline)	98.7%

NOTES

* This metric has been discontinued and will be replaced in the revised strategy

** The methodology for this metric changed during the period and the baseline was not revised

Key achievements:

- The concrete industry carbon reduction target was to achieve a 30% reduction in CO₂ emissions from a 1990 baseline. 2021 data shows a 30% reduction has been achieved.
- Concrete is a net user of waste, consuming more waste than it sends to landfill. Waste to landfill has reduced by nearly 90% since the launch of the strategy.
- Not all metrics demonstrate improvement. However, the process of collecting and reviewing data informs and will improve current practice. The knowledge gained will inform the next phase of the strategy.
- In 2020, MPA published an update to the Biodiversity Strategy that continues to take a positive approach to nature conservation and recovery.
- Both health & safety indicators are showing a reducing trend of incidents. In 2019, MPA launched Vision Zero and issued new targets to 2025.
- The strategy represents best practice approaches, here indicated by ISO 14001 on Environmental Management Systems (EMS) and ISO 9001 for Quality Management System (QMS). There was a marked increase in the certification.
- The adoption of responsible sourcing certification by the sector is a key achievement of the early iterations of the strategy. Providing evidence of the responsible sourcing of building products and materials continues to be crucial with the need to demonstrate compliance with a recognised responsible sourcing scheme, certified by a third party.

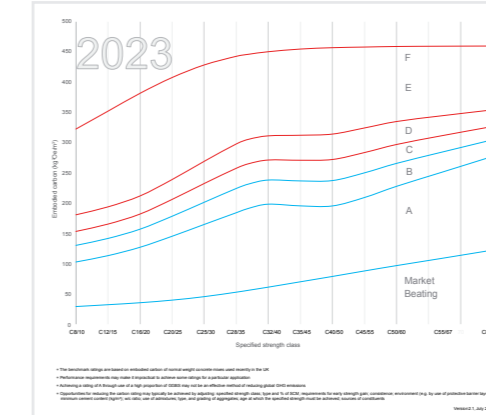
Our strategy in action



World-first hydrogen trials

A UK cement kiln has successfully been operated using a net zero fuel as part of a world-first demonstration using hydrogen technology.

Led by the Mineral Products Association (MPA), Hanson UK and made possible by UK Government funding, the trial used a mix of 100 per cent net zero fuels including hydrogen for commercial-scale cement manufacture for the very first time.



Market benchmark for low carbon concrete

The LCCG market benchmark summarises the distribution of cradle-to-gate carbon emissions of normal weight concrete in the UK. First published in 2022, the benchmark is based on data from MPA members supplemented by data from contractors and consultants.

This benchmark helps the value chain define 'low' carbon concrete suitable for their projects and accelerate the use of lower carbon concretes.

Social outcome framework

In 2023, UK Concrete formed a Social Outcome Task Group for the manufacturing members of MPA. Work is continuing on activities with social value experts, Akerlof, to develop a Social Outcome Framework. This group is now working on activities and indicators to demonstrate industry value and progress.

Net user of waste

The industry has made significant progress on the longer-term aspiration for zero waste to landfill.

In 2020, 100g (or 0.1kg) of waste went to landfill per tonne of concrete produced. This exceeded the 2020 target of a 90% reduction from the 2008 baseline of 5kg per tonne.

Our goal is to maintain this performance, and continue to find ways to avoid waste and use secondary materials and by-products where possible.



Priority habitats

The MPA aims to protect and enhance biodiversity and deliver net gain wherever possible.

To date MPA members have recorded the creation of over 8,300ha (83km²) of priority habitat and have a further 11,000ha (110km²) planned.

Many of the sites that MPA members have created and continue to manage are national nature reserves, local nature reserves and Sites of Special Scientific Interest.