



SKANSKA

Skanska UK
Net-zero 2045
Special report on
cutting carbon

We build for a better society.



*Not just green
on the outside*

SKANSKA

Zero emissions

Low emission vehicles

Our commercial fleet includes electric vehicles and we have trialled a Toyota Mirai hydrogen car.

Company cars must have emissions under 130g/km, and we offer hybrid and electric vehicles to employees. Our UK headquarters has 67 electric vehicle charging points, to support the take-up of green vehicles.

Introduction

Skanska UK's President and CEO, Gregor Craig reveals ambitious carbon reduction targets, aimed at cutting all supply chain emissions.

“At Skanska, we are recognised as being a leader in green and I have always been proud of that. Our Journey to Deep Green™ sets out the path to projects with a near-zero impact on the environment, demonstrating our green leadership commitment. We have a track record of award-winning green solutions and excellent environmental management.

“The defining environmental issue of our generation is accelerated climate change. We are putting carbon emissions reduction where it belongs: at the front and centre as one of the largest challenges the construction industry faces. Skanska Group supports the Paris Agreement and is working to significantly reduce its carbon footprint by 2030.”

Taking the lead

“In this report, we set out how Skanska UK is leading the decarbonisation agenda in the construction industry. We are setting ourselves ambitious carbon reduction targets. In order to achieve these objectives we've developed a low-carbon roadmap to help

Skanska UK's carbon targets

All targets include *all* the emissions generated from our *whole* supply chain on our projects, in *addition* to all our own direct emissions

Net-zero carbon emissions by 2045

The objective is for our portfolio of projects to be carbon-neutral without using carbon offsetting schemes.

Reduce carbon emissions to 50 per cent of the 2010 level by 2030

The target is 223,000 tonnes of CO₂ equivalent gases.

Reduce carbon intensity to 130 by 2030

Carbon intensity is the amount of emissions, in tonnes of CO₂ equivalent gases, emitted for each £1 million of revenue.



Gregor Craig

drive carbon out of our operations. We were the first contractor externally certified to the PAS2080 carbon management in infrastructure specification, demonstrating our competence in delivering low carbon, low-cost solutions for our customers.

“Every year, we will publish our direct emissions level and an estimate of the total emissions of our supply chain, from their involvement in Skanska projects. This provides a significantly more transparent reflection of our impact on climate change than the standard way of reporting corporate emissions. We will also publish our estimating methodology.

Changing the construction industry

“We think that all UK construction companies should publish annual estimates of all supply chain emissions. And we think they should aim for net-zero carbon emissions, including their supply chain.

“The construction industry also faces significant efficiency and productivity challenges. There is now a body of evidence which links carbon with cost. So, it is even more compelling to take carbon seriously if by doing so we can deliver better, and cheaper, solutions for our customers.

“I believe that decarbonisation should be an industry priority, especially as it will incentivise the whole sector to collaborate more, becoming more productive and efficient at the same time.”

Estimated emissions footprint

Including an estimate of the total amount of carbon emissions produced by the supply chain on projects enables Skanska UK to understand its impact on climate change.

Most construction companies report their carbon emissions using a public standard, such as the carbon disclosure project (CDP) or the certified emissions measurement and reduction scheme (CEMARS). These mainly focus on direct emissions. This includes an organisation's offices, commercial fleet and plant together with a small amount of other emissions sources, which are often not mandatory disclosures.

Skanska reports emissions data using CDP at group level and Skanska UK uses CEMARS. In addition, the Skanska group submits a wide range of data to the sustainability global reporting initiative (GRI).

The current way of reporting emissions does not show the full impact of major contractors, because they primarily act as construction managers. The emissions of the supply chain, which does most of the work, are not included.

This means the emissions reported by tier one contractors tend to be a small proportion of the emissions of their supply chain and an even smaller amount of those produced by the assets they build. Further, as many small construction firms do not report their emissions – and those that do work in many different supply chains – it is very difficult to identify the full impact of any given company. We think construction companies should work to be more transparent about their emissions.

Supply chain emissions estimate

Our estimate of the emissions of the supply chain from their work on our projects is based on a range of data. It includes emissions from fuel, electricity, materials, waste and other categories. All parts of our supply chain are included, whatever the type of sub-contractor activity, including construction, transport and maintenance.

Beer Wall flood defences, Somerset

Carbon was reduced by 60 per cent at the design stage of this flood alleviation scheme at the A372, creating a £470,000 saving



Where we were unable to obtain actual emissions data we developed a methodology to estimate emissions. This uses carbon factors – which enable conversion into emissions – from the Department for Business, Energy & Industrial Strategy and Bath University’s Inventory of Carbon and Energy. These allow us to turn activities, procurement spend and quantities of materials into emissions estimates.

This is done on an itemised basis, so we can link the emissions from particular materials, activities or suppliers to specific projects. The level of detail provided gives us a holistic picture of our emissions.

Our method of estimating supply chain emissions will be made available publicly on our website in our ‘carbon management system – technical report’. The methodology will be reassessed annually and has been externally reviewed by consultants WSP.

We have measured the annual carbon emissions of our supply chain, while working on projects, starting from the year 2010, when we began reporting emissions using the CEMARS protocol.

The impact of supply chain emissions

The estimate of annual emissions from our supply chain is, on average, ten times higher than the emissions we report using CEMARS.

For example, in 2018 the amount of Skanska UK’s emissions under CEMARS was 35,035 tonnes of CO₂ equivalent gases. We estimate the emissions level of our supply chain in 2018 was 378,332 tonnes of CO₂ equivalent gases. The combined amount of emissions is 413,367 tonnes of CO₂ equivalent gases.

There is a very significant difference, if you include all supply chain emissions.



**Royal Papworth
Hospital NHS
Foundation Trust**

Up to 40 per cent
of the hospital’s
operational energy
needs will be met
from green power

A call for real transparency

We think more transparency is an opportunity for greater control and influence over emissions. We believe that if all major contractors took this approach, there would be a more complete picture of emissions. The exact ratio of the difference will vary, depending on each company’s delivery model.

However, including an estimate of supply chain emissions will always give a more transparent picture of tier one contractors’ emissions. It will also provide the industry’s customers with a more realistic view of the emissions impact of their projects. Greater transparency is essential, if the sector is to realistically tackle the carbon emissions it produces.

Skanska UK: emissions by source, including supply chain estimate (tonnes of CO₂e – see under the chart for explanation)

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Direct ¹	42,327	40,616	30,589	38,282	37,276	35,454	37,263	35,668	35,035
Supply chain ²	402,686	298,421	276,795	226,158	247,231	281,429	371,070	349,215	378,332
Total ³	445,013	339,037	307,384	264,440	284,507	316,883	408,333	384,883	413,367

¹ Skanska UK’s emissions – as reported to the CEMARS carbon disclosure scheme.

² The estimated total level of carbon emissions from our supply chain, while engaged on Skanska UK projects.

³ Skanska UK’s emissions reported to CEMARS added to the estimate of the supply chain emissions from Skanska UK projects.

Carbon dioxide equivalent gases (CO₂e)

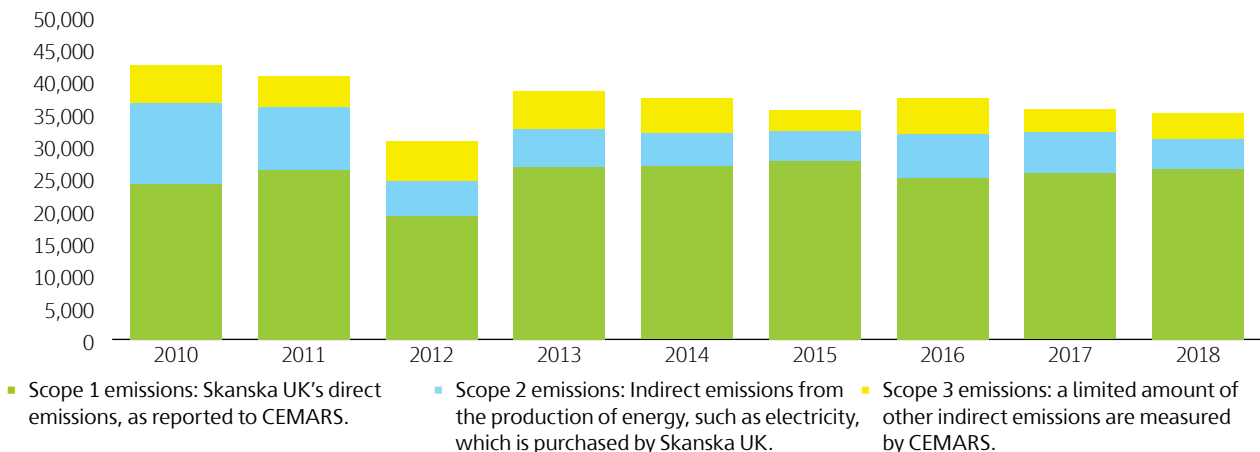
Greenhouse gases, which warm the planet when released into the atmosphere, are produced by human activities. Familiar to most people is carbon dioxide (CO₂), which we breathe out and it is released when fossil fuels – such as oil, coal and gas – are burned. However, there is a range of other similar gases, which include methane (CH₄), nitrous oxide (N₂O), sulphur hexafluoride (SF₆),

hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs). Each gas has a different warming effect on the atmosphere. For example, releasing 1kg of methane (CH₄) into the atmosphere has the equivalent effect of around 25kg of CO₂. The CO₂ equivalent measure gathers together all the various greenhouse gases and expresses their total environmental effect as tonnes of CO₂.

Skanska UK direct carbon emissions (certified to ISO 14064-1 by the CEMARS carbon disclosure scheme)

This is one of the ways the construction industry currently reports emissions.

Tonnes of CO₂e

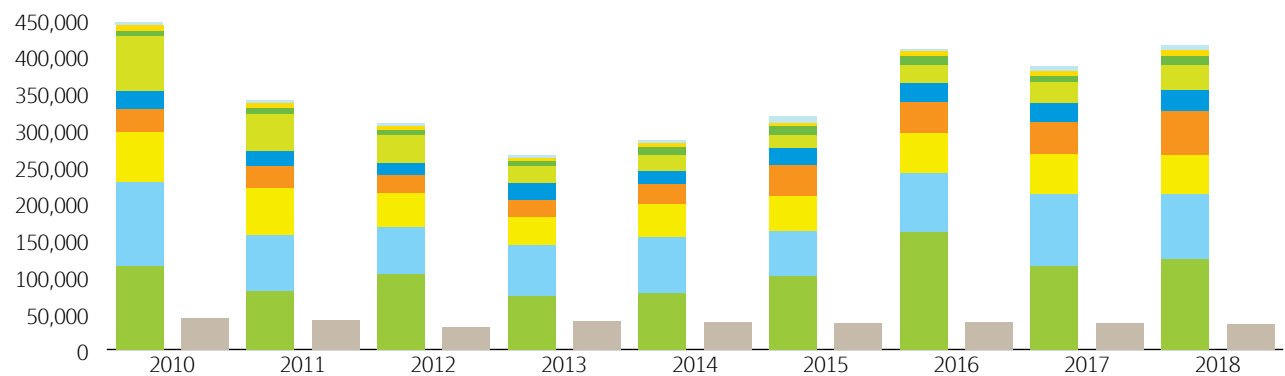


Skanska UK: estimated total carbon emissions, including the supply chain

We believe this is a more transparent way of measuring emissions, even though they are estimates. The column on the left is the total amount of estimated emissions

(including CEMARS emissions), while the column on the right shows only CEMARS emissions, allowing a comparison to be made.

Tonnes of CO₂e



Column 1:

- Steel
- Direct emissions and sundry materials
- Concrete and cement
- Plant and equipment
- Fuel emissions
- Plastic
- Aggregates
- Materials delivery
- Waste and disposal

Column 2:

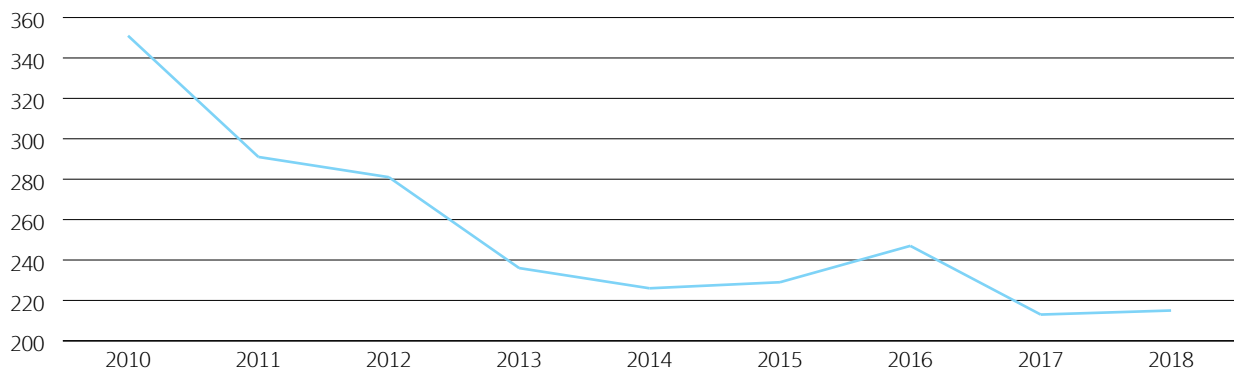
- CEMARS emissions

Skanska UK: estimate of carbon intensity, including the supply chain

This measures carbon efficiency: how much carbon is produced by the activities of an organisation. The lower the figure, the better. Carbon intensity shows the average level of emissions against each £1 million of revenue.

Decreases – or increases – in the total amount of an organisation’s annual emissions may actually be caused by a fall or rise in revenue, rather than from lower carbon emissions from a set activity.

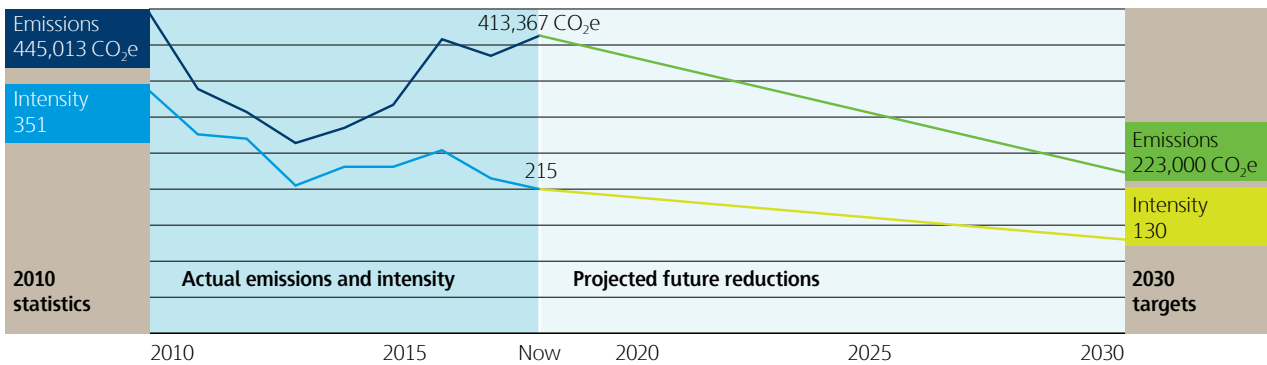
Tonnes of CO₂e emitted for each £1 million of Skanska UK revenue



Projection of estimated carbon emissions and intensity to 2030, including the supply chain

While absolute emissions have fluctuated because of revenue changes, overall we are a more carbon efficient business. Our activities produce fewer emissions.

Through a detailed understanding of our emissions, we have been able to analyse how to cut them effectively. This data has given us confidence in our projections.



Five-year rolling rates

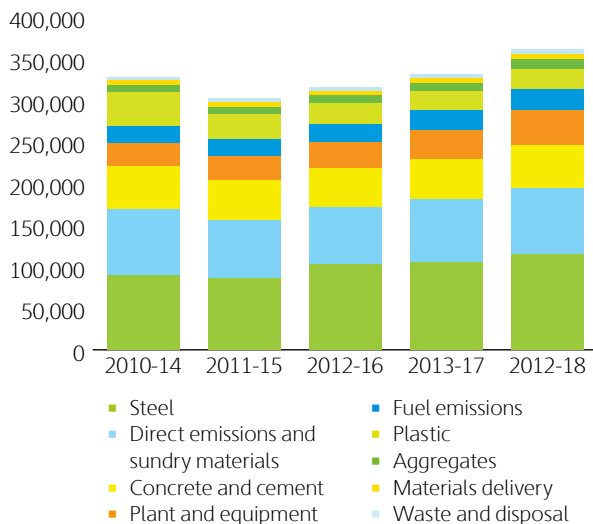
We use five-year rolling rates to smooth out distortions caused by the cyclic nature of the industry and the impact of economic factors. Annual figures on their own can be misleading.

When assessing carbon reduction performance, particularly in the construction sector, it is important

to consider total emissions and intensity together. Using rolling rates for both gives us a holistic view. In the charts below, you can see the smoothing effect. The fall in intensity since 2010 clearly shows we produce fewer emissions. The rise in total emissions has been significantly reduced because we are now a much more carbon efficient business.

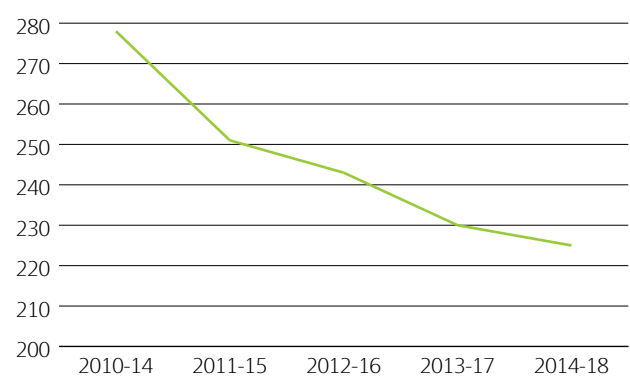
Rolling rate carbon emissions, with supply chain

Tonnes of CO₂e



Rolling rate carbon intensity, with supply chain

Tonnes of CO₂e emitted for each £1 million of Skanska UK revenue





Wind turbine, Swansea

This Skanska UK-built wind turbine will annually save Dŵr Cymru Welsh Water £350,000 of operational expenditure and help it achieve its renewable energy targets.

Carbon emissions were cut by reducing materials used during the building process and reusing excavation waste, saving nearly £500,000.

Ambitious and practical targets

Including all supply chain emissions in carbon reduction targets will promote a collaborative approach to decarbonisation across the construction industry, helping to cut emissions more quickly.

Climate change continues to rise up the political and scientific agendas. In 2015, governments across the world signed the COP21 agreement in Paris. They pledged to take significant measures to reduce climate change. The effects of a global temperature increase of over 1.5°C were highlighted by a 2018 report by the intergovernmental panel on climate change – the IPCC – which advises the United Nations. Following these developments, it is more important than ever for businesses to play their part, embracing new ways of doing things that will reduce the impact of their activities – and those of their supply chain – on global warming.

At Skanska, we would prefer to lead this transition rather than to follow it.

When the level of carbon emissions produced by the supply chain of tier one contractors is understood, targets can be set to reduce their whole footprint, beyond just their own direct emissions.

We recognise the targets are challenging, but we think they are achievable.

We also believe that robust carbon targets should include a number of different metrics over various timeframes all supporting one overarching objective, so that real carbon performance can be assessed as the business grows and changes. We'll also track our performance on the way to net-zero, publishing our performance every year with both absolute and intensity measures, represented as annual metrics and as five-year rolling rates.

We think that greater emissions transparency provides an opportunity for tier one contractors to have a much wider influence over decarbonising the whole sector.

If the entire industry takes this approach, it will promote collaboration throughout the sector to reduce its impact on climate change.



**52 Lime Street,
London**

We carried out a successful trial of cement-free concrete, with 76 per cent less carbon than normal

Targets include all supply chain emissions

It is not possible to accurately predict how fast global carbon emissions will be reduced. However, we are confident that by using decarbonisation to improve business efficiency and by collaborating across the

supply chain Skanska UK will achieve net-zero emissions quicker than the industry norm, while providing more sustainable and lower-cost solutions for our customers.

Skanska UK's targets

All targets include *all* the emissions generated from our *whole* supply chain on our projects, in *addition* to all our own direct emissions.

Net-zero carbon emissions by 2045

The aim is for our portfolio of projects to be carbon neutral. We will do this without using commercial offsetting schemes. These add extra costs to the industry (and are not environmentally sustainable) while we believe that cutting carbon could – and should – cut costs for the sector.

Cut emissions to 50 per cent of the 2010 level by 2030

In 2010, our total emissions level was 445,013 tonnes of CO₂e gases. We propose to cut emissions to 223,000 tonnes of CO₂e gases by 2030.

Cut carbon intensity to 130 by 2030

Carbon intensity is the emissions, in tonnes of CO₂e gases, for each £1 million of revenue.

It measures an organisation's carbon efficiency: its success at reducing the emissions of its activities. The lower the figure, the better.



A14 Cambridge to Huntingdon improvement scheme

Using a solar power generator during construction saved 105 tonnes of CO₂e in six months

Reducing carbon

We have developed a range of tools to help us reach our emissions targets, including an advanced analytical application, and will focus on cutting whole-life and construction emissions

Skanska UK is using a range of tools to reach our low carbon targets. Our approach to decarbonisation is guided by our low carbon roadmap. This is based on whole-life principles and is designed to ensure we get the balance right, reducing our own impact and the legacy emissions of assets we build and maintain.

The low carbon road map is available to employees and sets out six key areas:

Targets and measurements

Improving carbon measurement and target setting at all levels, linking carbon performance with cost.

Estimating and design

Continually embedding low carbon principles into the way we estimate and design, particularly using data-driven whole-life principles.

Commercial and financial

Developing financial and commercial solutions that promote collaboration across the construction value chain and incentivise low carbon outcomes, particularly over the whole life of a project or asset.

Plant and transport

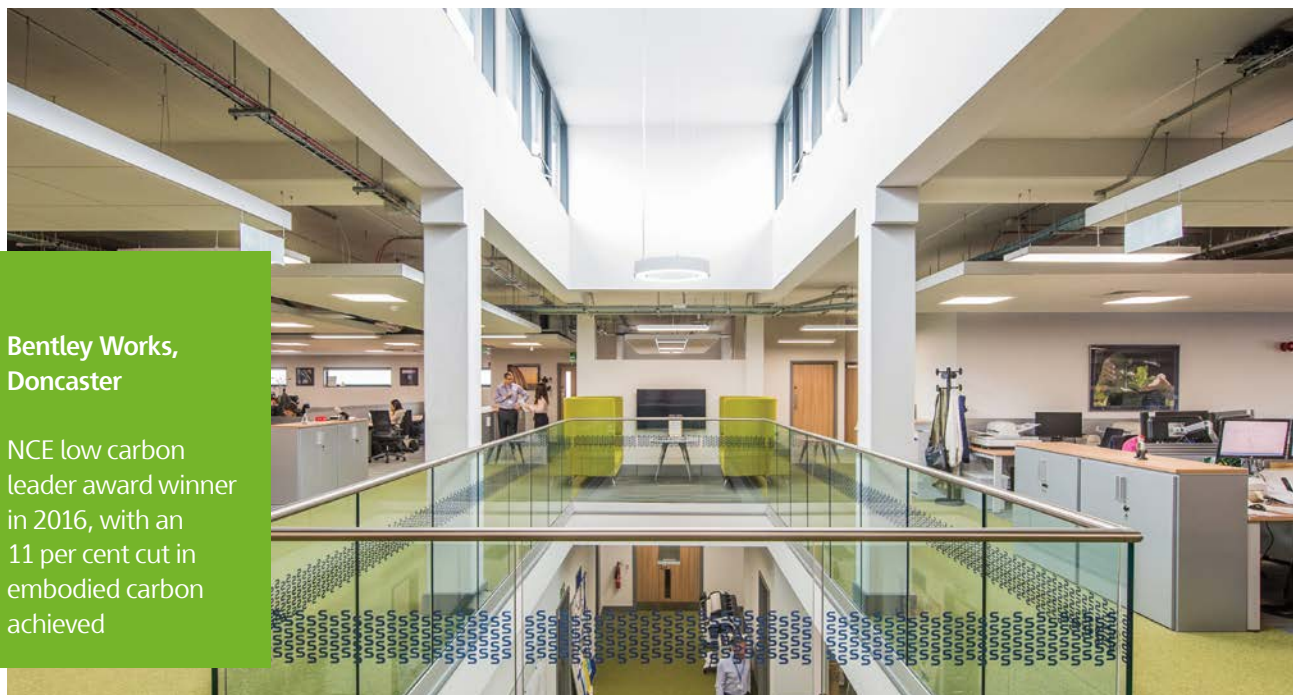
Decarbonising our plant and transport as fast as technology allows.

Collaboration

Collaborating with our supply chain to develop and procure lower carbon materials.

Asset management

Integrating low carbon offerings into how we manage assets for our customers.



**Bentley Works,
Doncaster**

NCE low carbon leader award winner in 2016, with an 11 per cent cut in embodied carbon achieved

Reducing carbon Cutting cost

Driving down carbon

A big part of our emissions footprint is from plant and transport and we are taking the lead in decarbonising our fleet. Company cars must have emissions under 130g/km, and we offer hybrid and electric vehicles to employees. Our Hertfordshire head office has 67 electric vehicle charging points, which have cut carbon emissions by 23 tonnes since they were installed.

We are working towards a greener commercial fleet and plant. We use electric vehicles on projects and have trialled a Toyota Mirai hydrogen car.

Using data to cut carbon and cost

Building on our PAS2080 carbon management in infrastructure certification, we're continually improving whole-life carbon management.

Our presence in many sectors of the construction industry means we are able to share best practice across our infrastructure, development, buildings, and asset management portfolios.

Our analytical tool allows us to target high-impact areas to cut the most emissions. It is continually updated, and uses data such as environmental product declarations, so we can offer customers industry-leading cost and carbon insight.

We use BIM collaboratively to cut emissions. An example is the River Humber tunnel project for National Grid. We used a BIM model, including emissions data, to assess how to cut carbon and cost, resulting in an 11 per cent carbon saving from the concrete platforms for the tunnelling machines.



Skanska UK's low carbon roadmap

The roadmap sets out in detail the whole-life principles we will use to reach our carbon ambitions

Targeting whole-life asset emissions

Cutting whole-life asset emissions

The construction industry has a responsibility beyond project supply chain emissions. It must minimise the ongoing emissions of the assets it builds and maintains. Our low carbon roadmap focuses on this, as well as construction phase emissions. We use the Skanska Color Palette™ on every project with a value of over £5 million. This measures environmental performance in four key areas, including construction emissions and the post-handover energy efficiency of the asset.

Measuring our impact on the whole-life emissions of an asset is a crucial part of being a low carbon leader. Our estimate of supply chain emissions is, on average, ten times higher than our direct emissions. We believe post-handover emissions, from the assets we have built, will be many times greater than this.

There is no established way for construction firms to measure responsibility for the post-handover emissions impact of the assets they build. This is due to significant challenges, such as defining the emissions that should be allocated to a tier one contractor when many other organisations are involved. Other issues include defining the impact of post-handover modifications and how long to link emissions with a construction phase contractor.

At group level, Skanska is sharing best practice and exploring how to report on whole-life emissions. Skanska UK is also working with the Carbon Trust to develop our way of understanding whole-life emissions. In the meantime, we will continue to reduce whole-life carbon emissions on a project-by-project basis, using the principles of the low carbon roadmap and PAS2080.



**Bakerloo line link,
Paddington station**

Carbon emissions were cut by 20 per cent through design changes to the new Crossrail pedestrian link tunnel

Anglian Water

As a member of the @one Alliance collaborative partnership, Skanska UK has worked with other members of the alliance to deliver significant carbon reductions.

Embodied carbon – emissions when materials are made – has been cut by 55 per cent. Carbon from operational activities has been cut by 41 per cent. These measures have led to 25 per cent cost savings.



SKANSKA

Skanska UK

Maple Cross House
Denham Way
Maple Cross
Rickmansworth
Hertfordshire
WD3 9SW

📞 +44 (0)1923 776666

🌐 skanska.co.uk

🌐 [skanska](https://www.linkedin.com/company/skanska)

🐦 [@skanskaukplc](https://twitter.com/skanskaukplc)

