

Reducing Carbon

In UK Infrastructure:
Are we nearly there yet?



54%

Of UK consumption-based carbon emissions



Reducing Carbon in UK infrastructure

Based on 2010 data, the Treasury's Infrastructure Carbon Review gave us a pretty good idea of how much of our national carbon footprint comes from Infrastructure – over half!

Since its launch the government has committed the UK to making even further reductions with a goal of reaching net zero carbon emissions by 2050.

To understand our journey to net zero, it's important to know where we've come from, how much carbon still needs to be removed, and which areas we need to focus on.

So how has the industry been doing in reducing our carbon since 2010?

Are we heading in the right direction?

Are we on track to reach our 2050 target of Net Zero Carbon?

Where we are today

Based on 2017 data you can see that infrastructure still accounts for over half of the UK's carbon footprint, with 13% under our direct control and 41% under our influence.

100%
UK Carbon Footprint
733 MtCO₂e

Includes all impacts of UK consumption both territorial and imported emissions

46%

All other emissions
354 MtCO₂e

From other sources

54%

Infrastructure Emissions
419 MtCO₂e

13%

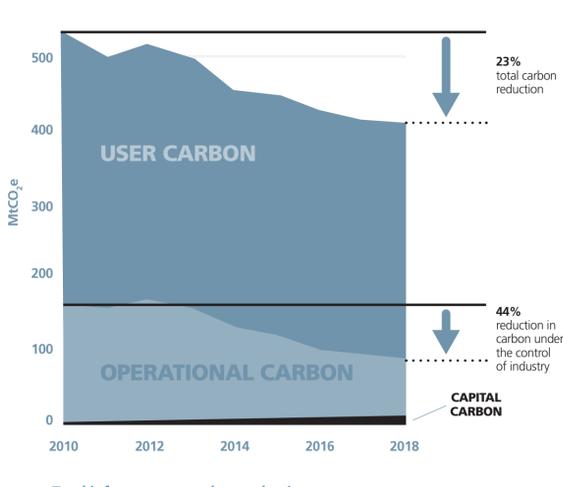
Control
99 MtCO₂e

The infrastructure industry has control over the capital & operational carbon associated with the construction, operation and maintenance of infrastructure assets

41%

Influence
320 MtCO₂e

The infrastructure industry can influence emissions from end users but typically action is also required by others to reduce these emissions



We're (mostly) heading in the right direction

Since 2010 we've seen a 23% reduction in total carbon from Infrastructure and a 44% reduction in carbon that the industry has some level of 'control' over.

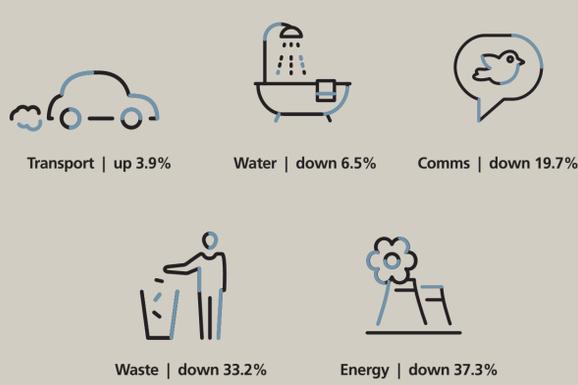
For more info about net zero phrases and terminology see our guide to the language of carbon.

Carbon emissions by sector Change from 2010 to now

Some sectors are moving quicker than others

Reductions have been driven by the Energy and Waste sectors largely due to phasing out fossil fuels, increasing renewables and reducing methane emissions.

Some sectors like transport have actually seen an increase due to a rise in user emissions through increased vehicle usage.



+60%

increase in CapCarb
2010-2018

-48%

reduction in OpCarb
2010-2018

-13%

reduction in UseCarb
2010-2018

The way we are building our infrastructure still needs to improve

Decarbonisation of energy has helped us make large reductions in our operational and user carbon, masking the fact that our capital carbon has actually seen an increase of almost 60%.

We're building more now than in 2010 and, despite some examples of innovation and better practice, a lot of the 'quick wins' such as improvements in material and manufacturing, have already been exhausted.

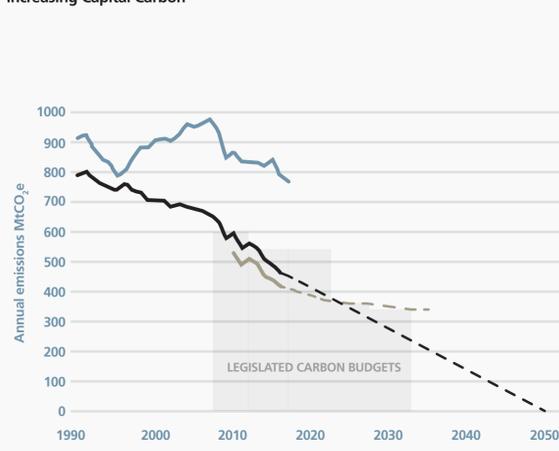
We need to shift toward changing design and specifications to drive greater carbon reductions.

And we still have a long way to go

Between 2010-18, the annual rate of reduction was 3%. This needs to be at least a 4.1% annual reduction if we're to stand any chance of hitting our 2050 target of net zero.

This is a bare minimum - the sooner we make our reductions, embedding them deeper in the infrastructure life cycle, the better.

Declining Operational & User Carbon, increasing Capital Carbon



Graph adapted from CCC 2020 Progress Report to Parliament exhibits

— Territorial emissions
— Consumption based emissions
— Infrastructure
— Indicative path to the UK's net zero target
— Government projections (reference scenario)

The Carbon Project

The Carbon Project is a collaborative programme, led by ICE, to deliver rapid progress towards net zero carbon across all infrastructure systems, programmes and projects by 2050. We are focused on specific areas of technical practice where the civil engineering community has the greatest potential to support carbon reduction: meaningful measurement, building new capabilities and transforming existing system-level emissions.

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<https://www.ice.org.uk/knowledge-and-resources/carbon-project>

Funding provided by the ICE Research and Development Enabling Fund

<https://www.ice.org.uk/about-ice/what-we-do/research-and-development-enabling-fund>

This content is adapted from a presentation given at the 2020 Unwin Lecture – The full presentation can be viewed here.

<https://www.ice.org.uk/eventarchive/2020-unwin-lecture-zero-carbon-webinar>

Special thanks to all those that worked on updating this data.

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