



Gloucestershire's Journey to Net Zero

– Frequently Asked
Questions (FAQs) –



How has GCC started to engage with stakeholders?

GCC in partnership with UK100¹ held a Gloucestershire Decarbonising Transport Forum 2022 - Journey to Net Zero in July 2022. The forum's aim was to bring together key stakeholders and experts to discuss Gloucestershire's journey to net zero.

More information on our Journey to Net Zero and the Decarbonising Transport Forum and a summary engagement report can be found here:

<https://www.gloucestershire.gov.uk/gloucestershire-county-council-news/news-july-2022/journey-to-net-zero-event-hosted-by-county-council/>

To continue the engagement started at forum, Gloucestershire County Council is seeking to hear from all residents, businesses and organisations, community groups, transport interest groups, councils, and parishes on their views to prioritise transport measures to reduce transport carbon emissions and reach net zero by 2045.

[Journey to Net Zero - Gloucestershire County Council](#)

The 6-week engagement period is from Friday 13th January to Tuesday 28th February 2023.

What is CO₂ and how does transport impact greenhouse gas emissions?

The terms carbon, carbon dioxide (CO₂), CO₂ equivalent (CO₂e), and greenhouse gases are often used interchangeably. Climate change is driven by a range of greenhouse gases including carbon dioxide (CO₂). CO₂ is the dominant greenhouse gas, particularly for the transport sector (accounting for over 99% of transport greenhouse gas emissions). Other greenhouse gases can be expressed in terms of the amount of CO₂ that would cause the same level of warming, in which case totals are expressed as CO₂ equivalent or CO₂e. The term carbon emissions is often used as a shorthand for CO₂ and CO₂e emissions.

What is transport's contribution to carbon emissions?

Transportation makes a substantial contribution to CO₂ emissions due to the continued use of diesel and petrol vehicles. Transport accounts for 34% of all CO₂ emissions per person in Gloucestershire. This proportion rises to 43% if emissions associated with motorways and railways are included. While other sectors, such as energy have been able to achieve significant reductions in their CO₂ emissions, transport carbon emissions have remained unchanged for many years. Transport emissions are projected to remain high and will contribute towards an increasing proportion of total emissions in Gloucestershire if emissions from transport continue to decrease less rapidly than those in other sectors.

¹ [UK100](#) is a network of highly ambitious local government leaders, which seeks to devise and implement plans for the transition to clean energy that are ambitious, cost effective and take the public and business with them. GCC is an active member.

How are you calculating transport emissions?

Our work to reduce transport sector emissions is based on a consideration of 'well to wheel' emissions generated by road traffic and rail operations within the county boundary. Well to wheel emissions include emissions associated with extracting/generating and transporting the fuel or energy to the vehicle (well to tank) as well as the emissions generated directly by vehicle use, i.e., tailpipe emissions (tank to wheel).

What are GCC's climate change targets?

The targets set out in GCC's Climate Change Strategy are for:

- The County Council's own operational emissions to be net zero by 2030.
- Emissions from all sources across the county to be net zero by 2050; and
- The county to work with partners to deliver an 80% reduction in emissions by 2030, relative to 2005.

In 2020, GCC strengthened its targets by signing up to the UK100 Pledge, committing to reaching net zero emissions from all sources across the county by 2045. This target is reflected in Gloucestershire's Local Transport Plan (LTP).

Reaching both targets: net zero emissions by 2045 and an 80% reduction in emissions by 2030, would mean that Gloucestershire would stay within its carbon budget.

What is a carbon budget?

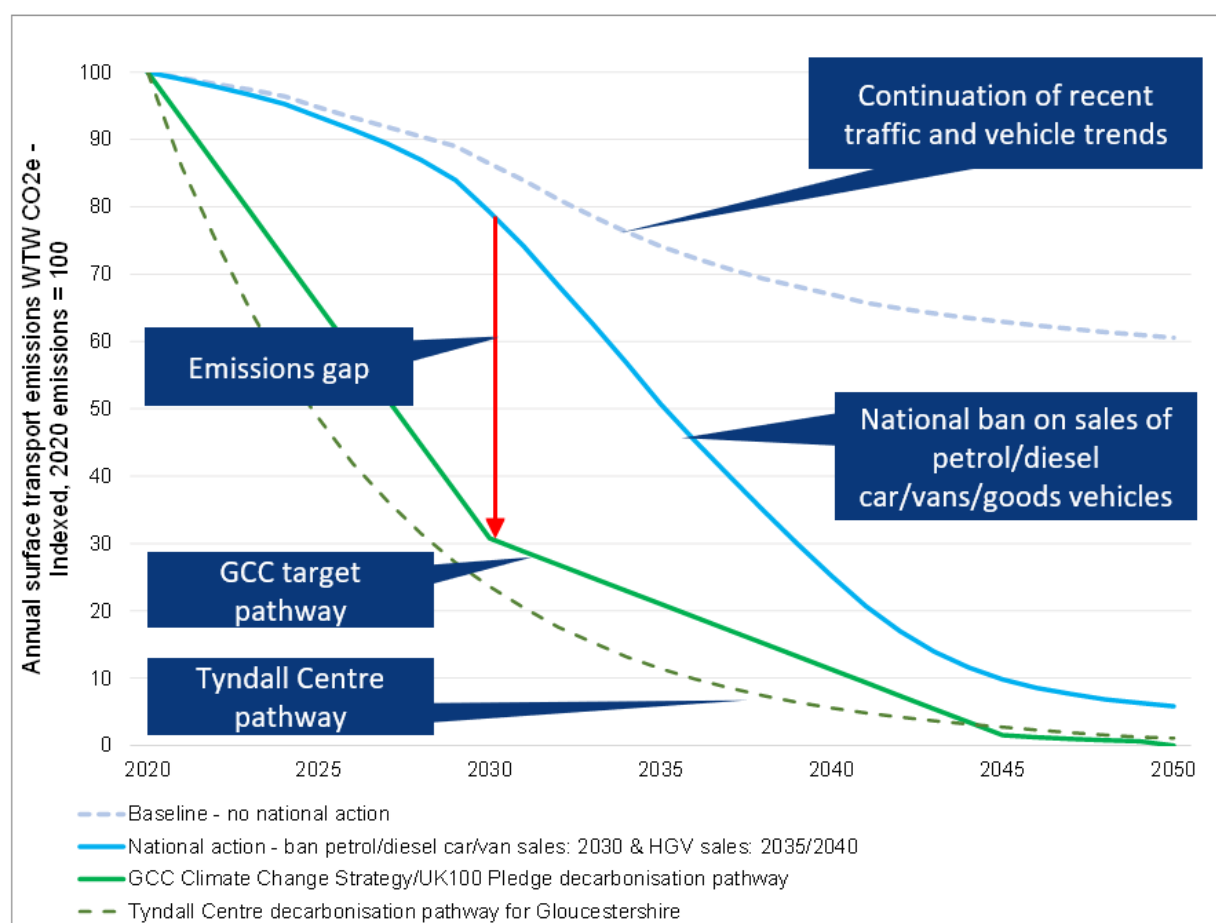
The term 'carbon budget' refers to the total amount of additional emissions that scientists estimate the atmosphere can absorb globally without warming beyond a certain point (usually an increase of 1.5°C from pre-industrial times). This global carbon budget can then be distributed to local areas, providing indicative budgets or 'fair shares' of the global total. To stay within Gloucestershire's carbon budget for transport we will need to identify carbon reduction measures that go beyond the emissions saved from the currently projected forecasts of electric vehicle uptake because of the national action to ban petrol and diesel vehicle sales by 2030. The difference between transport emissions levels forecast with projected electric vehicle uptake and the levels needed to stay within the carbon budget is described as Gloucestershire's emission gap (see below). Additional measures are needed to close this gap.

How much do transport emissions in Gloucestershire need to decrease – What is Gloucestershire's emission gap?

Even with the national action to encourage electric vehicle uptake based on the national action on moving to a zero emissions fleet (government ban on the sale of new petrol/diesel cars and vans by 2030), a large emissions gap remains between the projected emissions and both the GCC and the national Climate Change Committees (CCC) target pathways in the 2020s and 2030s. These emissions gaps need to be closed if GCC is to meet its climate change commitments or meet the national CCC target pathway.

To illustrate the carbon emissions gap, we can look at the graph below - the blue dotted line (labelled 'continuation of recent trends') shows carbon emissions if current traffic and vehicle fleet trends continue. This line is brought down by taking into consideration the impacts of the government sales ban for new petrol and diesel cars and vans, as indicated by the blue solid line ('national ban on petrol/ diesel car/ van/ HGV sales'). This solid blue line can be compared to the solid green line, which represents GCC's carbon reduction targets as set out in its Climate Change Strategy and UK100 Pledge. The red arrow between these two solid lines identifies Gloucestershire's 'emission gap' in 2030. For information and context, the dotted green line shows a view of academic experts at the Tyndall Centre for Climate Change Research on the rate of decarbonisation required to stay within Gloucestershire's remaining CO₂ budget, which would leave an even bigger emissions gap.

What is meant by Gloucestershire's transport carbon emissions gap?



Note: This graph shows the trajectory of carbon reduction required as four scenarios, it demonstrates the gap between GCC's Climate Change Strategy of 80% reduction by 2030 and net zero by 2045 alignment with UK100 Pledge and the national action on the ban of sales of petrol/diesel cars/vans/goods vehicles by 2035, which will not be enough to reach GCC's targets.

What will determine future transport emissions?

Future transport emissions will be determined by:

- How much people travel, i.e., changes in the distance travelled by different types of vehicles (cars, vans, goods vehicles, buses etc.).
- How people travel, e.g., driving a car alone or travelling on a well-used bus.
- The composition of the national vehicle fleet (size, efficiency, and fuel/energy source) which determines the carbon emissions produced per kilometre driven.

Which journeys produce the most emissions?

We have analysed the breakdown of transport emissions in Gloucestershire and key findings from this analysis are:

Journey purpose - pre-COVID19, commuting was the trip purpose that accounted for the highest single proportion of emissions (25%), with other social and personal trips accounting for most of the rest. Business trips have an average trip length nearly double all other purposes and therefore contribute 10% to emissions despite few trips being made.

Journey length - trips 20km and above, account for over 60% of emissions. Trips under 5km account less than 10% of total distance and emissions. So, bus and rail have the most potential to reduce long journeys by car that contribute most to carbon emissions. Cycling has the potential to provide an alternative for shorter journeys of under 10km and beyond, particularly by improving facilities and the use of e-bikes.




How can we reduce transport related carbon emissions?

We can reduce transport related carbon emissions by:

- Reducing the need to travel and travel shorter distances (i.e., by providing smarter options for accessing services) – **smarter access**
- Changing the way people travel, i.e., encouraging a shift from car to sustainable modes of transport such as cycling or taking public transport. – **shift mode of travel**
- Improvements to the vehicles travelling in Gloucestershire, e.g., by encouraging people to drive electric vehicles. – **improve vehicle emissions**

These three approaches to reducing transport carbon emissions are summarised in Table A.

Table A: Approaches to reducing transport carbon emissions

Our approach	What we propose to do
<p>Smarter access</p> 	<p>Implement measures that reduce the need to travel or shorten the distance travelled. These could include:</p> <ul style="list-style-type: none"> • Ensure new houses are built only in places with easy access to local services such as shops, doctors, libraries, or employment. Ideally no one should live more than a 20-minute walk away from local facilities. • Ensure all people have access to online services, where these can be delivered online, and people are supportive. • Manage freight deliveries to avoid unnecessary trips, e.g., by bundling deliveries or through delivery hubs.
<p>Shift mode of travel</p> 	<p>The way we travel influences the amount of carbon emissions we produce. Active travel modes such as walking, and cycling do not produce carbon emissions and bring many benefits to our health and wellbeing. Sharing trips with other people such as when using public transport also greatly reduces our carbon emissions.</p>
<p>Improve vehicle emissions</p> 	<p>This category includes measures that increase energy efficiency of vehicles and/ or the conditions people are driving in. For example:</p> <ul style="list-style-type: none"> • Changing to an electric vehicle or another less carbon intensive fuel/energy source. • Teaching people how to drive more energy efficiently. • Managing the road network to ensure traffic flows in a way that reduces emissions, e.g., tailoring speed limits to speeds at which vehicles operate most efficiently, or smoothing traffic through minor capacity improvements.

What will happen next?

We are now working on the following:

- Development of potential packages of measures, to meet the needs of different areas and different groups of people in Gloucestershire. This will consider the diverse needs of rural areas, market towns and urban areas in Gloucestershire.
- Further analyses to estimate the broad impacts of the potential packages on carbon emissions, together with impacts on accessibility, travel choices and wider benefits to the county. The likely costs of measures will also be assessed, to inform future planning.
- A Transport Decarbonisation Strategy by the summer 2023, setting out detailed steps and the phasing required to reduce Gloucestershire's transport emissions to align with emission reduction targets. This will need to be ambitious to meet the targets but must also be achievable with the resources available.