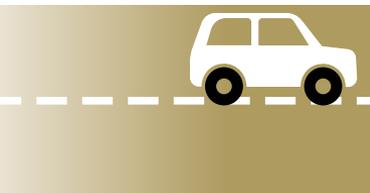
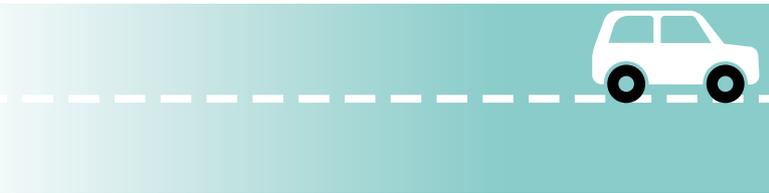
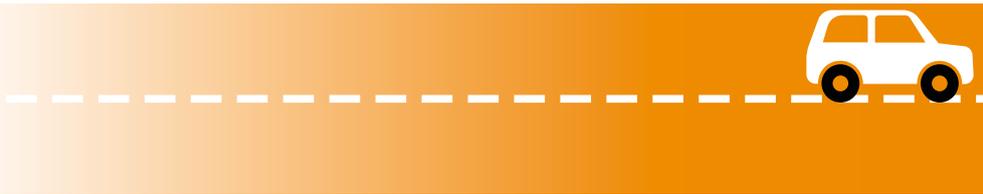


Not going the extra mile

Driving less to tackle climate change

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It will take more than a move to electric vehicles to bring down transport emissions

Transport is responsible for nearly a third of the UK's carbon emissions and cars alone account for over 40 per cent of that, making them the single highest polluting sub-sector of the economy.¹

Here we argue that cutting emissions from cars will require a combination of switching to electric vehicles (EVs) and reducing traffic.

The move to EVs will be a major contributor to emissions savings, but their uptake will have to increase significantly over the next decade to meet the Climate Change Committee's (CCC) recommended decarbonisation pathway.

The government has announced it will introduce a zero emissions vehicle mandate, however the sales targets it aims to set for the industry have yet to be decided.

To ensure the CCC's recommendation is achieved, and because car traffic is such a significant contributor to carbon emissions, introducing traffic reduction measures will provide certainty that the UK can cut emissions to necessary levels over the next decade.

Traffic reduction will also bring other major health and economic benefits to communities across the country, including cutting congestion, improving air quality and encouraging more active travel.

Some progress on traffic reduction has already been made in parts of the UK, for instance: the Scottish Government has a target to reduce miles driven by car by 20 per cent by 2030. This is an example of an ambition that could be adopted more widely across the UK to reduce traffic levels.

The CCC recommends rapid sales of electric vehicles to 2030

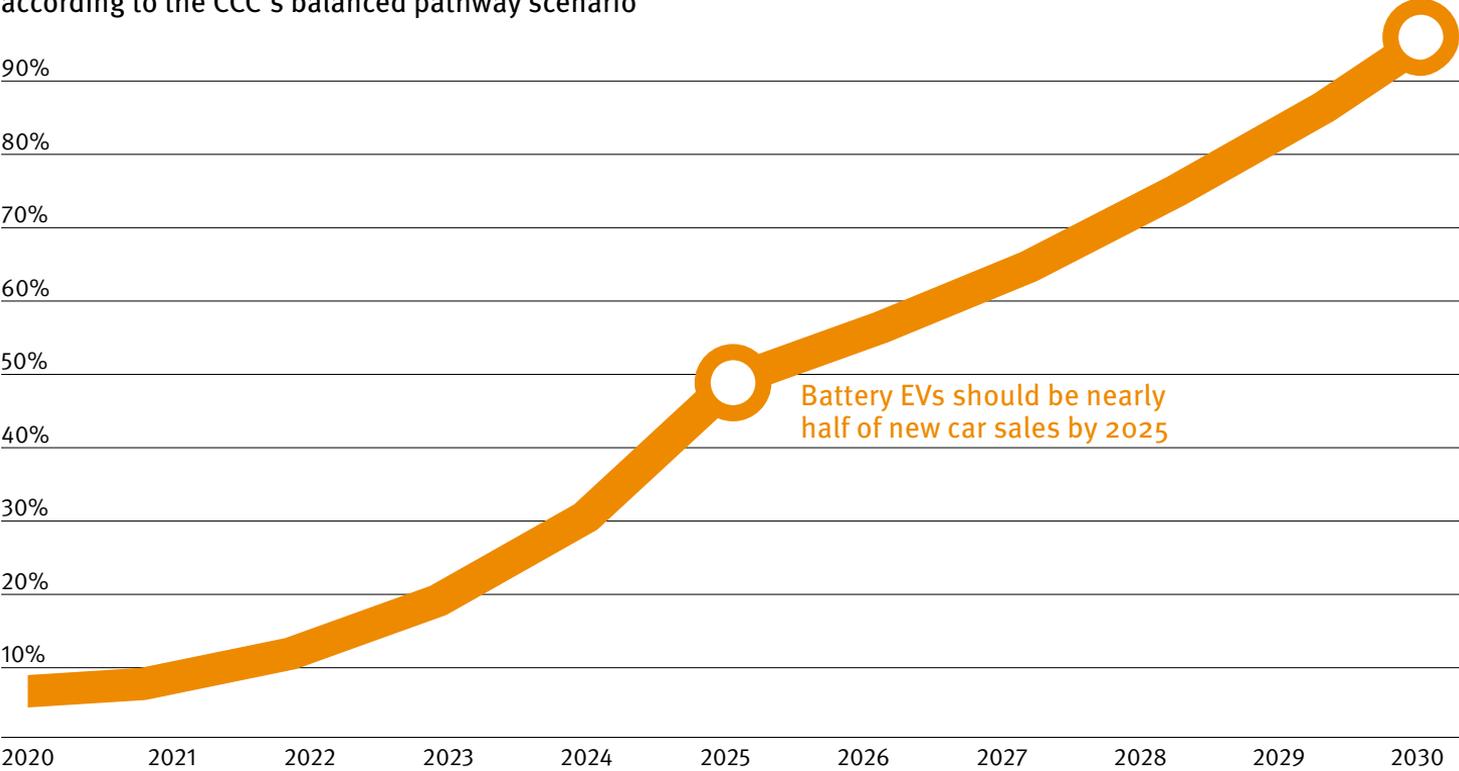
The Climate Change Committee has set out a ‘balanced pathway’ scenario which sets out the rate of EV* sales needed to meet the UK’s 2030 emissions reduction target. This assumes that the largest share of the UK’s car emission savings in 2030 will result from the switch to EVs, with traffic reduction playing a more limited role.

To achieve this, EVs will need to account for nearly half of new car sales in 2025 and nearly all new car sales in 2030.

*While ‘EV’ generally refers to both plug-in hybrids and battery electric vehicles, here we use it to refer to battery electric vehicles only, as they have no tailpipe emissions.

Under the CCC's 'balanced pathway', fast uptake of electric vehicles is needed to meet 2030 emissions reduction targets

Uptake of battery EVs as a percentage of new car sales (2020-30), according to the CCC's balanced pathway scenario



Policy will play a big role in determining the uptake rate

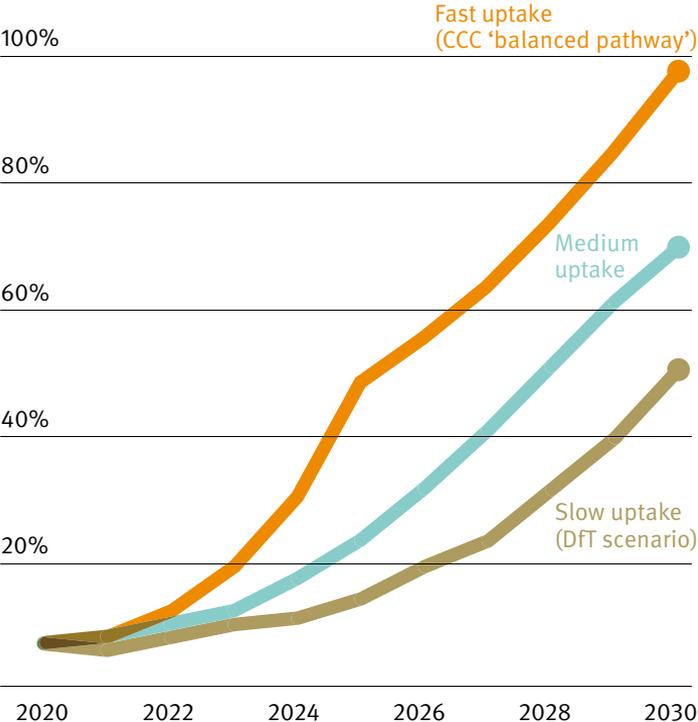
The government has banned the sale of new petrol and diesel cars from 2030 and will only allow new battery electric cars to be sold from 2035. But the rate of sales over the next decade will depend on the right policy and regulation to drive it. For example, ambitious targets in a ZEV mandate will ensure manufacturers are supplying a high number of EVs ahead of 2030. It will also be dictated by how fast comprehensive charging infrastructure is rolled out across the country.

The Department for Transport's (DfT's) delivery plan for an EV transition estimates that, in a worst case scenario, battery electric cars would account for 50 per cent of new car sales in 2030.

We have used this pathway as a 'low uptake rate' scenario and developed a further, 'medium uptake' scenario that sits in between this and the CCC's 'balanced pathway'.² Low or medium uptake rates are both realistic possibilities and would result in transport emissions being above targeted levels for 2030.

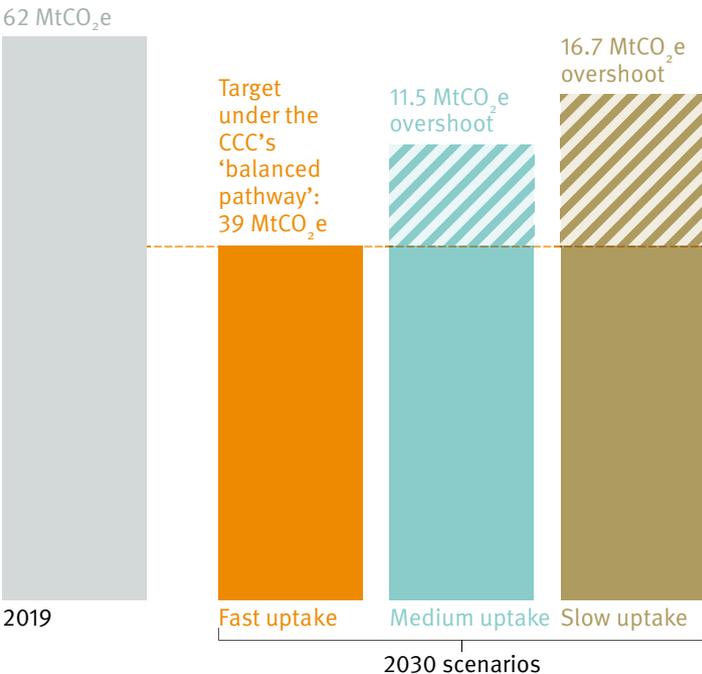
If electric vehicle uptake is slower than the CCC's recommendation emissions targets will be at risk

Uptake of battery EVs as a percentage of new car sales, 2020-30, under three scenarios



Only fast uptake of EVs meets the emission target for 2030

Emissions from total car fleet (MtCO₂e)



Cutting traffic will secure emissions reductions if electric vehicle sales are too slow

In a future where both GDP and the population grow, the DfT has predicted that road traffic will increase through improved innovation and lower costs. But this prediction does not anticipate measures to reduce car travel.

The CCC's 'balanced pathway' uses the DfT's forecast as a baseline. It assumes policy will lower demand for private motor vehicles to a limited extent, although it predicts there will be a net rise in traffic in 2030 compared to current levels.

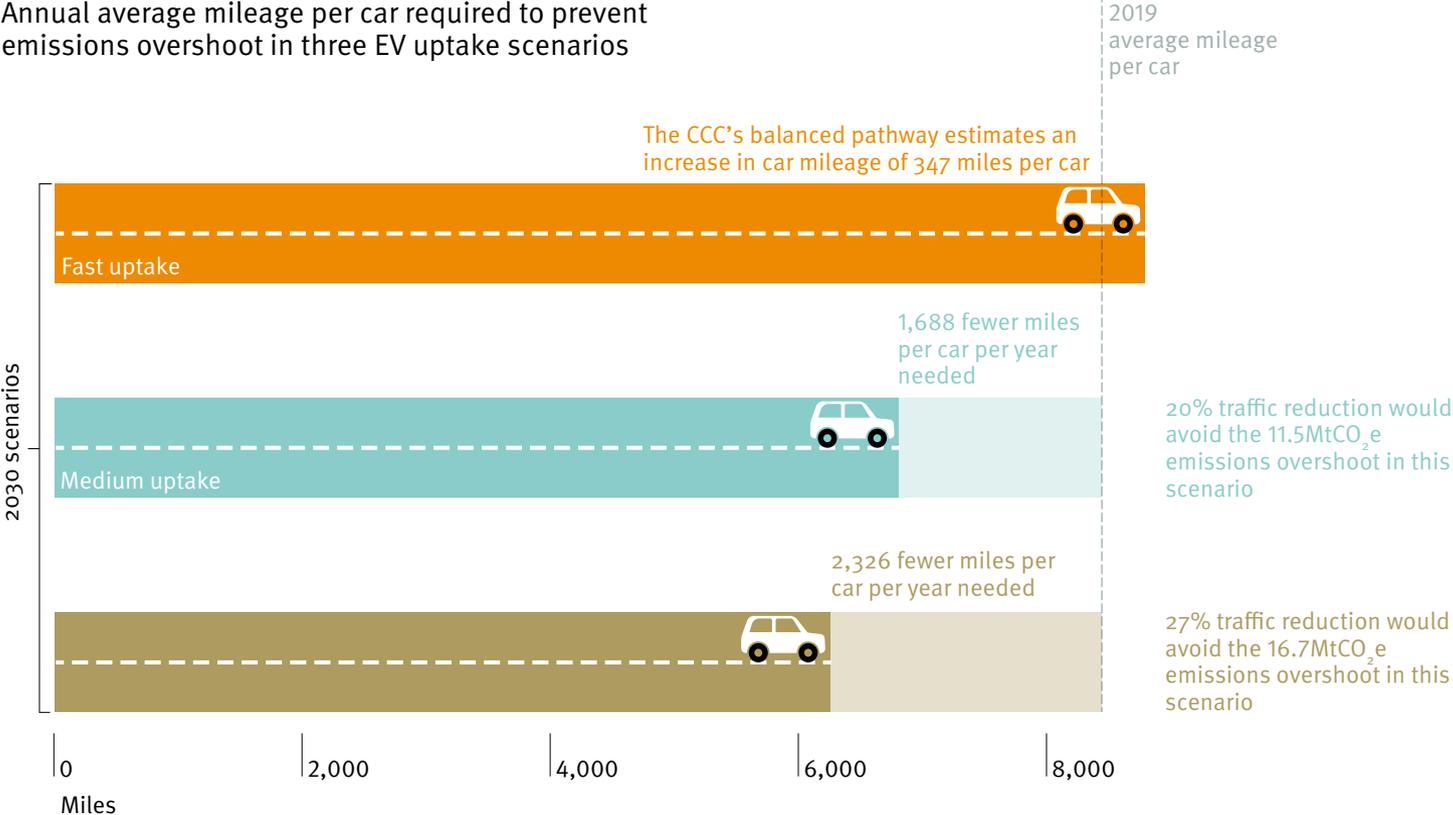
If the government acts swiftly on its transport decarbonisation plan to roll out comprehensive charging infrastructure and introduce ambitious annual sales targets in its zero emission vehicle mandate, it is feasible that electric vehicle numbers will increase in line with the CCC's predictions.

Greater effort to reduce traffic (beyond that recommended by the CCC) would be a practical step to lock in lower emissions without relying solely on EVs and would insure against a slower rate of uptake.

Reducing traffic can be achieved by reducing the number of cars, the miles driven by each car or a combination of both. We have analysed the impact of cutting traffic by reducing miles driven (rather than the number of cars on the road).³

Reducing miles driven per car will make up for slower electric vehicle sales

Annual average mileage per car required to prevent emissions overshoot in three EV uptake scenarios



The many other benefits of leaving the car at home

Cutting traffic will also solve other significant issues and have a positive impact on communities, people's wellbeing and the economy.

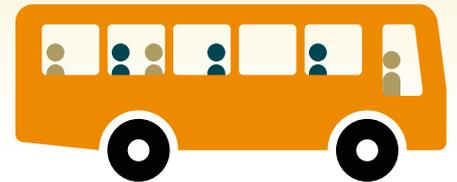
Better health

There is a potential **£2.5 billion** in health benefits from shifting just 1.7% of car journeys to active travel, like walking and cycling.⁴



Improved mobility for low income households

46% of low income households have no access to a vehicle so they need good public transport and, as public transport improves, more traffic is reduced.⁵



Lower congestion

Reducing traffic congestion could save UK drivers billions. The cost of traffic congestion was almost **£8 billion** in 2018 alone, equal to £1,317 per driver.⁶



Better air quality

Cutting road miles will help to reduce the **36,000 early deaths** caused by air pollution in the UK each year. Tyre and brake wear on cars is expected to account for 10% of the UK's PM2.5 particulate emissions by 2030.^{7,8}



Lower embedded emissions

Fewer cars on the road reduces the need for road building which cuts the embedded carbon emissions associated with construction.



How to reduce traffic

Effort to reduce car travel will be important in helping to reach UK climate targets. It can build on recent trends, such as changing working patterns and advances in virtual meeting technologies.

Here are some ways the government could help local leaders to reduce traffic:

Give local government the autonomy and funding to roll out more charging infrastructure and improve connections between areas, reducing the need to use cars for journeys across local authority boundaries.

Fund and support public transport infrastructure, especially in rural areas, to improve services, cut congestion and make public transport an attractive alternative to car use.

Prioritise public transport and active travel in new developments as part of planning reforms, locating new housing developments in accessible places and building in sustainable transport from the outset.

Allocate more long term funding for local authorities to invest in active travel, allowing walking and cycling to replace around 40 per cent of car journeys under three miles.⁹

Encourage the use of city car clubs as an alternative to car ownership; a single car club vehicle can replace 10.5 privately owned vehicles which will reduce traffic levels. Similarly, car sharing should be encouraged.¹⁰

Endnotes

- ¹ Department for Transport (DfT), 2021, 'Transport and environment statistics: 2021 annual report'
- ² The government has set a phase-out date of 2030 for petrol and diesel cars, and 2035 for plug-in hybrid cars (PHEVs) which will still use some petrol or diesel. A lower level of battery EVs throughout the 2020s is likely to be balanced by higher levels of PHEV sales in the 2030s, leading to higher than targeted emissions. The medium uptake scenario was determined using Green Alliance's own estimates and emissions factors for internal combustion engine and PHEV cars, using data from the Department for Environment, Food and Rural Affairs (Defra), DfT and Transport & Environment. There is also the assumption that the average lifespan of a car will not change in the future. Further details can be found in our methodology at www.green-alliance.org.uk/resources/Not_going_the_extra_mile_methodology
- ³ In this analysis, we look at the average mileage of each car per year. We assume the fleet size grows in all scenarios, using the CCC's 'balanced pathway' as our baseline. To reduce traffic numbers across the fleet, the average annual mileage of each car would need to decrease. See our methodology at www.green-alliance.org.uk/resources/Not_going_the_extra_mile_methodology
- ⁴ Ricardo-AEA, 2013, *Review of the impacts of carbon budget measures on human health and the environment*. Active travel, like cycling and walking, decreases the risk of health problems including cardiovascular disease and diabetes. The potential to shift to active travel is far greater than the 1.7 per cent shift modelled for associated health benefits, meaning ambition in this area could exceed the £2.5 billion figure cited here.
- ⁵ DfT, 31 July 2019, 'National travel survey', statistical dataset table NTS0703: 'Household car availability by household income quintile: England'
- ⁶ Inrix.com, press release, 12 February 2019, 'Congestion costs UK nearly £8 billion in 2018'
- ⁷ Public Health England, 2019, 'Public Health England publishes air pollution evidence review'
- ⁸ Defra, 2019, 'Air pollution from tyres and brakes'
- ⁹ A Neves and C Brand, May 2019, 'Assessing the potential for carbon emissions savings from replacing short car trips with walking and cycling using a mixed GPS-travel diary approach', in Transportation research, 'part A: policy and practice', volume 123. The research found that 41 per cent of trips under three miles could be substituted by walking or cycling, and that, if the threshold was set at five miles, 11.2 per cent more could be replaced by cycling.
- ¹⁰ CREDS, September 2019, *Shared mobility – where now, where next?*, second report of the Commission on Travel Demand

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by Helena Bennett and
Caterina Brandmayr

Acknowledgements

Thanks to Greg Archer, Lisa Hopkinson and Morgan Jones for their research support and insights.

This report was produced as part of Green Alliance's work programme on decarbonising transport, which is supported by the Quadrature Climate Foundation.

Green Alliance

Green Alliance is an independent think tank and charity focused on ambitious leadership for the environment. Since 1979, we have been working with the most influential leaders in business, NGOs and politics to accelerate political action and create transformative policy for a green and prosperous UK.

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Published by Green Alliance
December 2021

Designed by Howdy

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