

Carbon Literacy Guide



Section Three: Travel and transport
Where emissions come from and how to reduce them

2018

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“

How could I look my grandchildren in the eye and say I knew what was happening to the world and did nothing.

”

David Attenborough

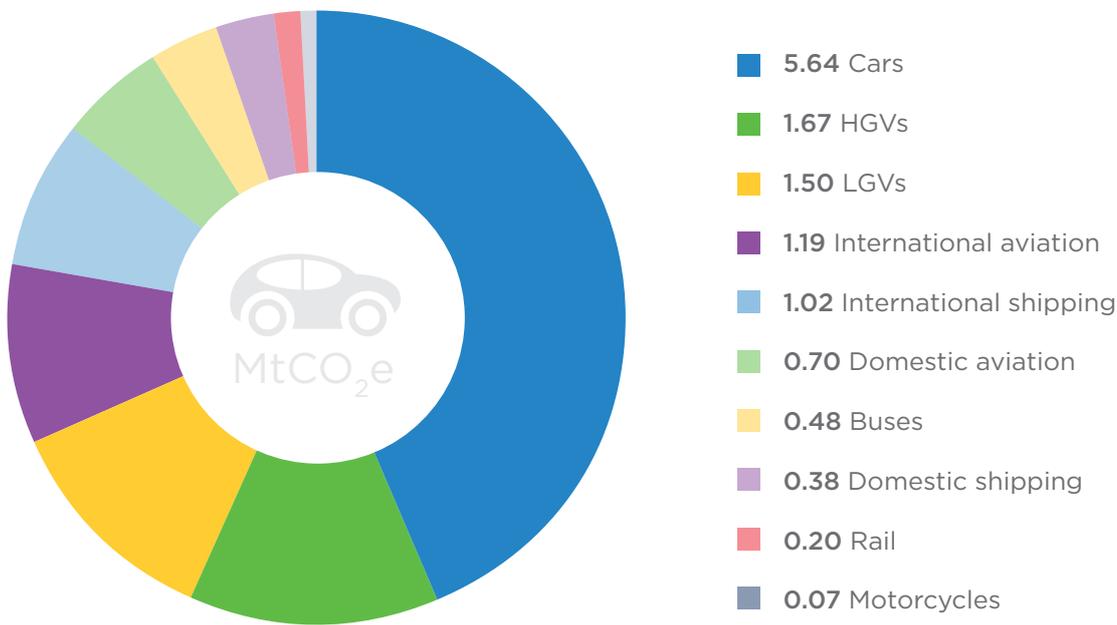


Where do emissions come from - travel and transport

Transport is a big source of emissions in Scotland, making up 28% of total Scottish GHG emissions. The transport sector covers all transport modes in Scotland, including public transport, freight, aviation, shipping, private motoring and active travel.

The largest contributor to transport emissions is the road sector. In combination, cars, lorries, vans, buses and motor cycles accounted for 9.4 MtCO₂e in 2014 (73% of total transport emissions). Emissions from maritime transport are estimated at around 11% of transport emissions and aviation makes up a further 15%. Rail only contributes 1.3% of transport emissions.

Carbon missions from transport measured in MtCO₂e



The total number of miles travelled by road has increased. For example, in 2014 demand for all road transport stood at 44.8 billion kilometres, as compared to 36.5 billion kilometres in 1995. Although we're travelling further, overall emissions have remained steady – this is because vehicles are getting more efficient. The same is true for aviation, where a very large increase in passenger numbers is accompanied by a smaller increase in emissions, reflecting more efficient planes and fuller planes.

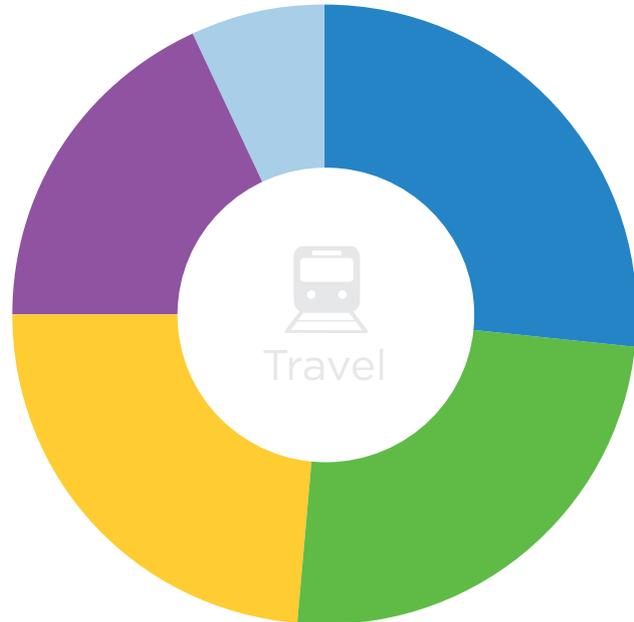
This section is going to focus on personal travel, rather than freight of goods which is considered when we look at the embodied emissions of food and resources.

Why and how do we travel?

The main source of data about travel in Scotland comes from the transport and travel related questions in the Scottish Household Survey (which includes a travel diary). Key reasons given for travelling include:

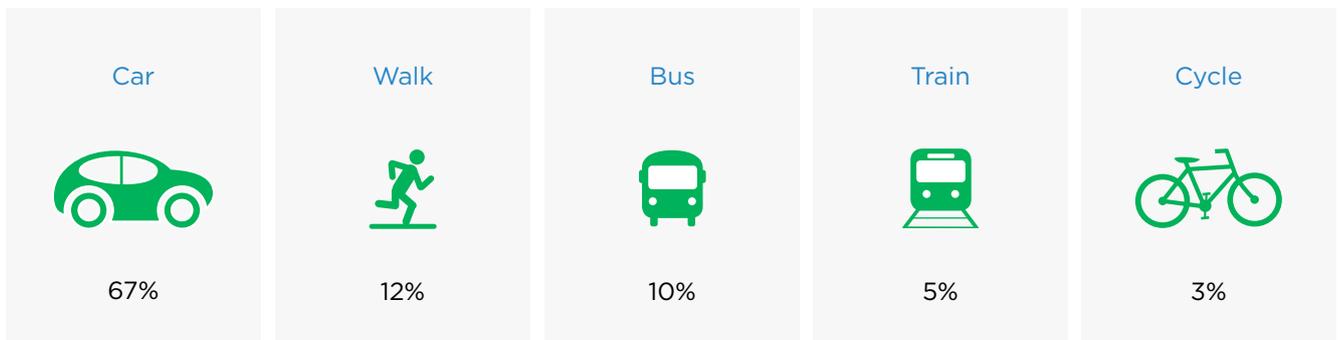
Key reasons for travelling

- 27% Leisure
- 25% Commuting/business
- 24% Shopping
- 18% Other
- 7% Education

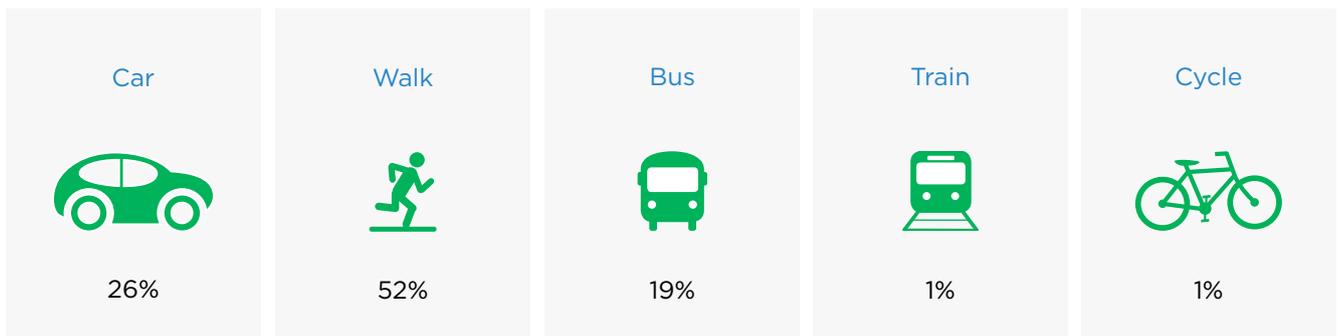


How we travel also depends on a lot of factors including distance, availability and accessibility of public transport, car ownership etc.

How people travel to work



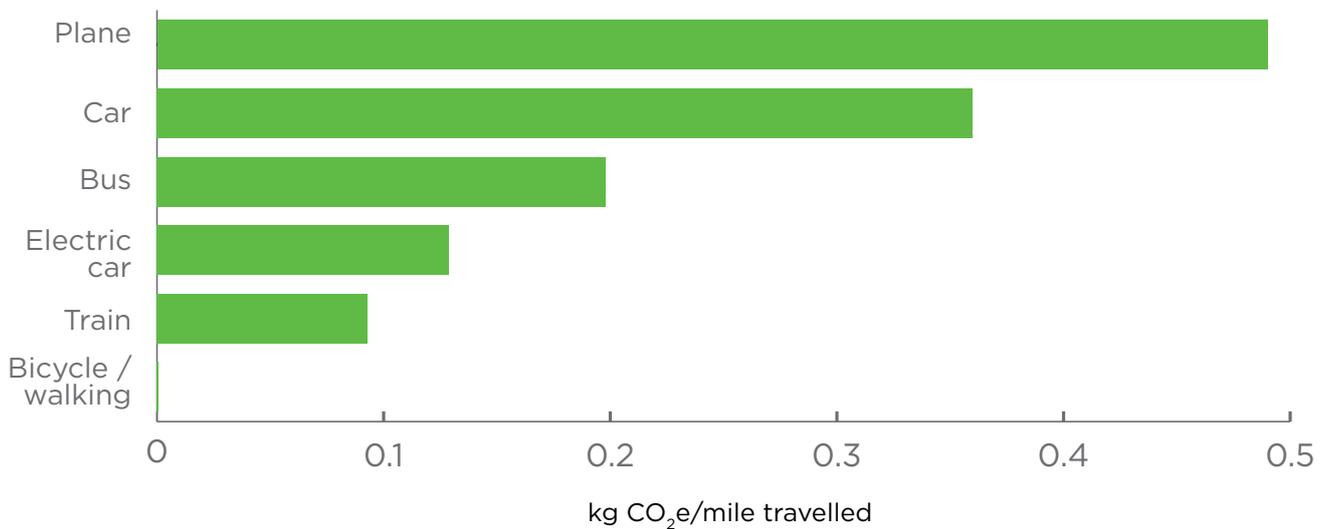
How people travel to school





There is a big difference in the carbon emissions produced by different modes of transport. The graph below shows the how much carbon is emitted per mile for different type of vehicles.

Carbon emissions to travel one mile



This shows that the one person travelling in an average petrol or diesel car produces about three times more emissions than someone travelling by train. Active travel (cycling or walking) produces no direct carbon emissions, whereas travelling by plane produces nearly 0.5 kg for every passenger mile travelled.

Climate Challenge Fund projects for travel can focus on reducing the need for travel or the number of journeys made (doing it less), or on changing the mode of transport used (doing it differently).

Doing it less: travel and transport

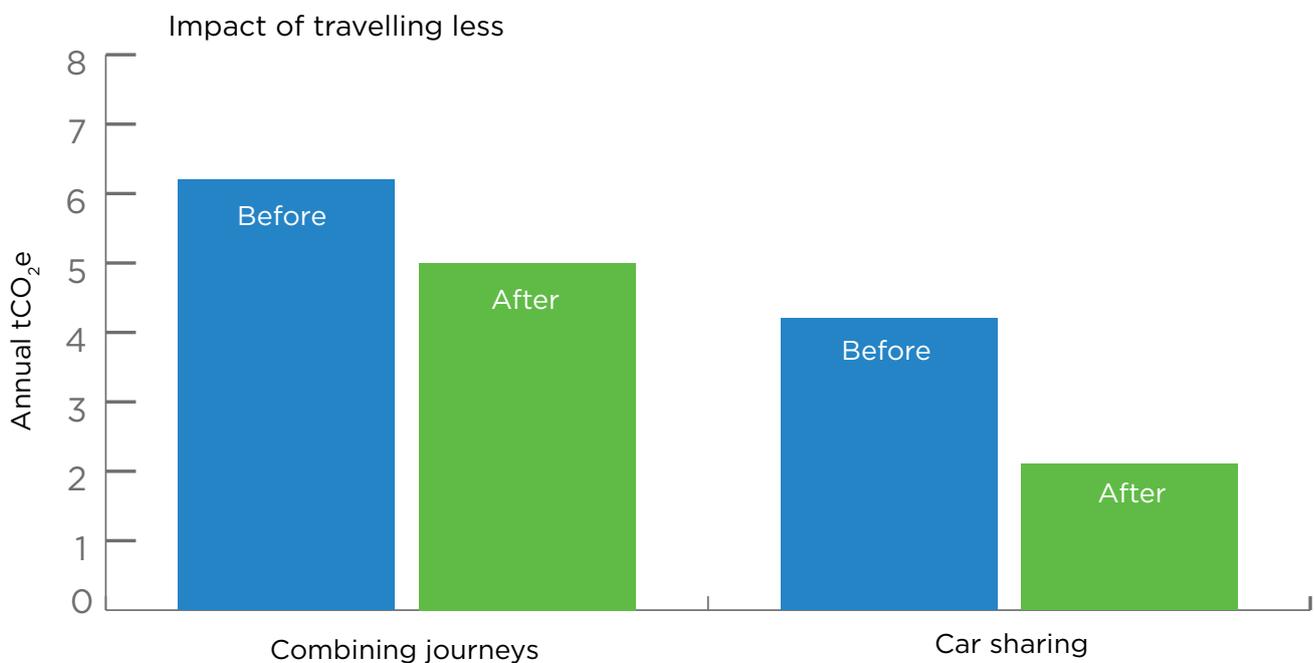
By reducing the distance we travel, either by making fewer journeys, or by reducing the length of journeys we make can significantly reduce our travel carbon footprint.

Fewer journeys

In order to make fewer journeys, we need to find ways to do all the things we need to do – e.g. work, shop, learn, play, and keep in touch with friends and relatives – in fewer journeys. What's feasible and desirable is different for each person: a GP can't **work from home**, but many people could. Many journeys we take are unnecessary or could be avoided by **combining journeys** (e.g. going to shops on the way home from work rather than as a separate trip at the weekend). Sharing journeys with others effectively reduces the number of journeys we make – by **car sharing to work**, people can halve the number of individual car journeys and the consequent carbon footprint.

Shorter journeys

As above, to make our journeys shorter, we need to find ways to do all the things we need to do but with shorter journeys. This means making decisions about where we live, work, shop, learn and play in relation to each other. Some of these decisions are more significant than others – **shopping closer to home** is likely to be easier whilst persuading the rest of the family to **holiday in Scotland rather than Florida** might be a bit harder. Big life decisions such as **choosing where we live, work and send children to school** can commit us to long (or short) everyday journeys.



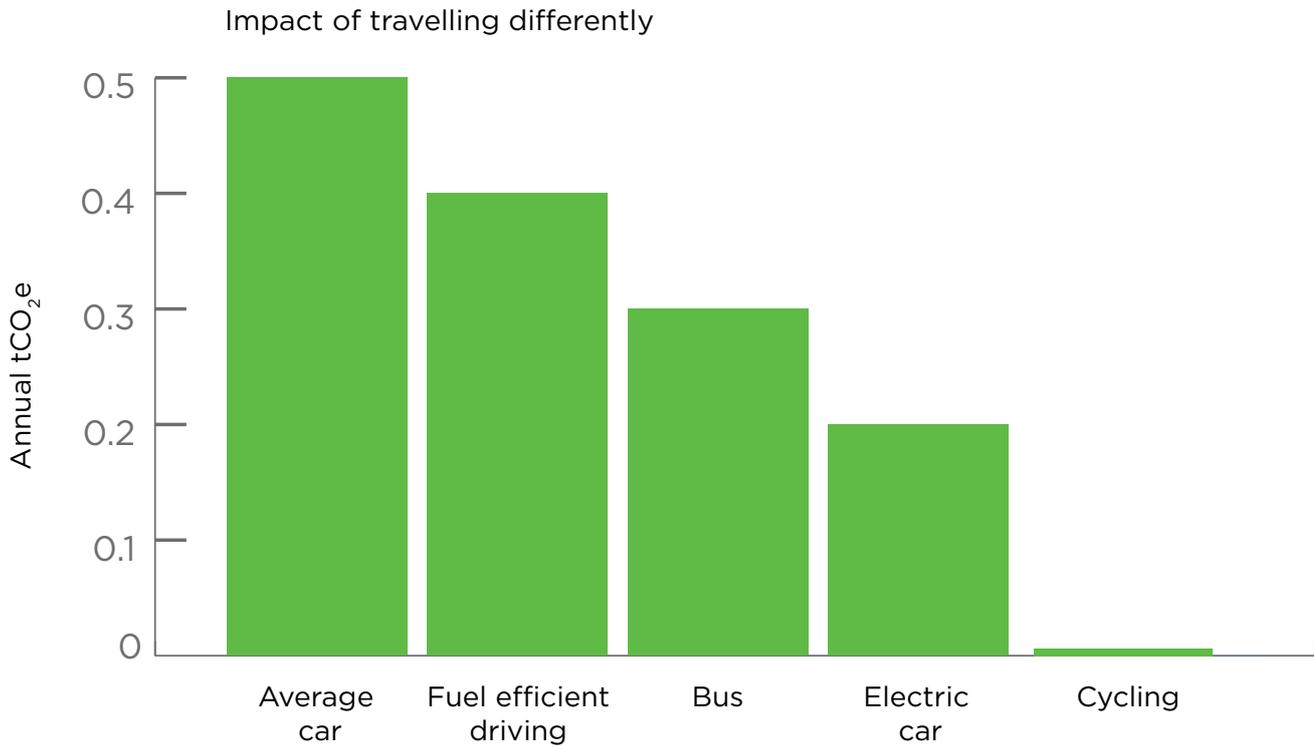
Doing it differently: travel and transport

All motorised forms of transport result in carbon emissions, whether this is from combustion of petrol/diesel, or in generating electricity to power them, with only cycling and walking considered to be zero emissions. Swapping transport modes, for example from car to cycling or car to bus is called **modal shift**.

Often, especially in rural areas, there is no other option than the car. In this case there are still opportunities to reduce the carbon emissions per mile travelled. The way we drive affects fuel consumption, **so driving the same car in a more fuel efficient way** can reduce the carbon emissions per mile. Cars vary in fuel efficiency (these are often quoted by manufacturers in KgCO₂ per km) so **choosing a more efficient vehicle** when buying/replacing a car can make a difference. **Electric vehicles** and the infrastructure to support them are fast becoming a practical option when choosing a new vehicle.

As you can see, the feasibility of choosing a lower carbon mode of transport is not just down to personal preference – the distance we need to travel and the level of public transport service in an area are just two factors that influence our choices.

For a person who travels three miles to work by car (and three miles back again), the graph below shows the impact over a year of using different travel modes.



Although often short, our everyday journeys make up a significant part of travel emissions (because we do them every day). It's often best to focus efforts on these journeys rather than occasional trips. The one exception to this is....

...Flying

Flying has the highest carbon intensity by far and, by definition, flights are very long distance journeys. This means that even one flight can add a significant amount to the average carbon footprint of 11 tonnes CO₂e. For example, a return flight to Thailand creates 4 tonnes CO₂e per passenger – that's the same as eight years' worth of emissions for a three mile commute! This means **avoiding flying** where possible can make significant difference to our carbon footprint.

Summary

Doing it less	Doing it differently
Flexible working	For short journeys - swap the car for active travel
Planning journeys	Take the train or bus instead of the car
Car sharing	Avoid domestic flights - take the train instead
Shopping locally	Choose a more efficient petrol/diesel car or an electric vehicle
'Staycations' (domestic holidays/avoiding flights)	Drive more efficiently
Consider journey distance in life choices	

Travel and transport: Government milestones

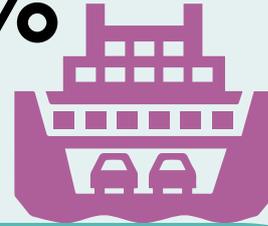
The Scottish Government's Climate Change Plan sets out the following milestones:

IN TRANSPORT, WE WILL

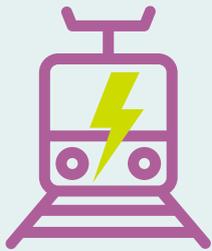
BY 2032, PHASE OUT THE NEED TO BUY PETROL AND DIESEL CARS OR VANS



INCREASE LOW EMISSION FERRIES IN THE SCOTTISH GOVERNMENT FLEET BY:
30%



ELECTRIFY 35% OF OUR RAIL NETWORK



INTRODUCE LOW EMISSION ZONES IN SCOTLAND'S FOUR BIGGEST CITIES



NEW INFRASTRUCTURE, IMPROVEMENTS IN TECHNOLOGY AND BEHAVIOR CHANGE WILL BE THE MAIN DRIVERS FOR SUCCESS

The Cycling Action Plan for Scotland 2017-2020 details actions that will work towards the Scottish Government's target of 10% of everyday journeys being made by bike. Some actions identified are:

1. Bikeability cycle training will be delivered in 100% of schools.
2. Active Travel Hubs provide advice, services and support for people to bike, walk or use public transport.
3. Schools, campuses and workplaces are 'cycle friendly'.
4. Promote and increase accessibility to cycling through community and school focussed activities, such as lead-ride programmes.

Support for low carbon action

Greener Scotland

is a good starting place to find out about reducing energy use at home.

<http://www.greenerScotland.org/home-energy/using-your-home-energy-well>

Smarter travel choices

A quick online quiz to help you identify ways to travel smarter and greener.

<http://www.greenerScotland.org/greener-travel/smarter-travel-choices>

Reducing work travel

Information and links from Greener Scotland.

<http://www.greenerScotland.org/greener-travel/reducing-work-travel>

Sustrans Scotland

Work to increase active travel in Scotland.

<http://www.sustrans.org.uk/scotland/our-work-scotland>

Cycling Scotland

Is the national cycle training, promotion, events and engineering organisation for Scotland.

<http://www.cyclingscotland.org/>

Sustrans Scotland's Community Links Programme

Provides grant funding to local authorities, statutory bodies and educational institutions for the creation of cycle network infrastructure for everyday journeys.

<https://sustranscommunitylinks.wordpress.com/>

Smarter Choices, Smarter Places Programme

is Paths for All's grant scheme to support behaviour change initiatives to increase active and sustainable travel modes. It provides match funding to Local Authorities to deliver projects with local partners.

<http://www.pathsforall.org.uk/pfa/get-involved/smarter-choices-smarter-places-fund.html>

Cycle to work scheme

Enables employees to get bikes and accessories tax-free, saving on average about half the cost.

<https://www.cyclescheme.co.uk/>

Car Plus and Bike Plus

Works for accessible shared transport including car clubs, 2+ car sharing, bike sharing and taxi sharing.

<http://www.carplus.org.uk>

Fuel Good driver training

Is available for workplaces and community organisations.

<http://www.energysavingtrust.org.uk/scotland/businesses-organisations/transport/fuelgood-driver-training>

Energy Saving Trust

Provide advice and information about electric vehicles <http://www.energysavingtrust.org.uk/travel/electric-vehicles>
Charge Point Map from Greener Scotland.

<http://www.greenerScotland.org/greener-travel/greener-driving/charge-point-map>

Plug-in Car Grants

From the UK Government. Up to £4,000 for a car or £8,000 for a van – covers electric cars and plug-in hybrids.

<https://www.gov.uk/plug-in-car-van-grants/what-youll-get>

Electric vehicle homecharge scheme

Up to 75% (max. £500) towards the cost of installing a chargepoint at home.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/514339/electric-vehicle-homecharge-scheme-guidance-for-customers-2016.pdf

Switched on @ work

Offers advice, information and recognition to workplaces to install electric vehicle charge points.

<http://www.energysavingtrust.org.uk/scotland/businesses-organisations/transport/switched-work>

Electric vehicle loan

From the Scottish Government is an interest free loan of up to £35,000 towards the cost of an electric vehicle or plug-in hybrid.

<http://www.energysavingtrust.org.uk/scotland/grants-loans/electric-vehicle-loan>

Low carbon transport business loan

From Transport Scotland provides an interest free loan of up to £100,000 to help lower transport and travel costs. Eligible costs include electric vehicles, teleconferencing facilities and cycle facilities.

<http://www.energysavingtrust.org.uk/scotland/grants-loans/low-carbon-transport-business-loan>

Car share

There are many web-based platforms designed to facilitate car sharing for one-off or regular journeys.

<https://liftshare.com/uk>

www.blablacar.co.uk



We support the Sustainable Development Goals.

Keep Scotland Beautiful is the charity that works with organisations and communities to help people to reduce carbon emissions, improve local areas and adapt to the impacts of climate change. It's part of our work to make Scotland clean, green and sustainable.



Keep Scotland Beautiful

Your charity for Scotland's environment

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