



**TRANSPORT
SCOTLAND**
CÒMHDHAIL ALBA

Carbon Account for Transport No. 12: 2020 Edition

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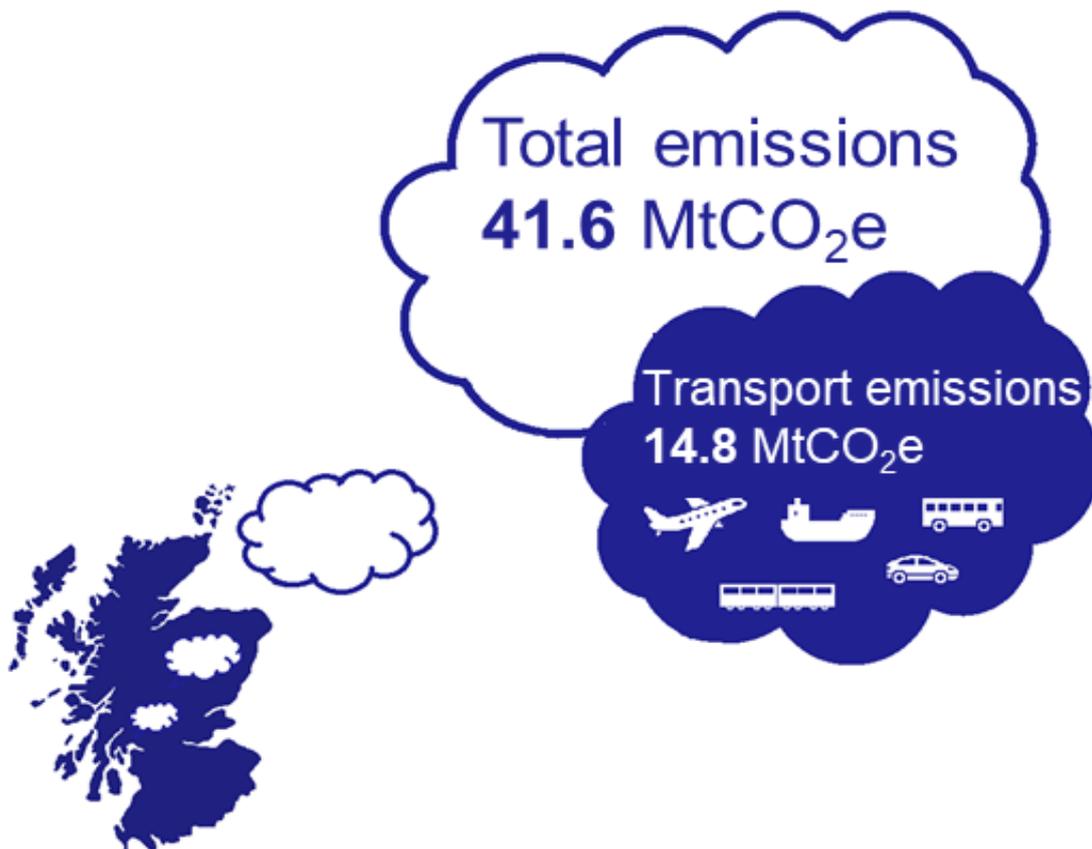
EXECUTIVE SUMMARY

The Carbon Account for Transport (CAT) provides a balance sheet for Scotland's greenhouse gas emissions due to transport.

This is the twelfth edition of the CAT and provides analysis of transport emissions for the period between 1990 and 2018. The key findings from volume 12 are illustrated in the infographic summary below.

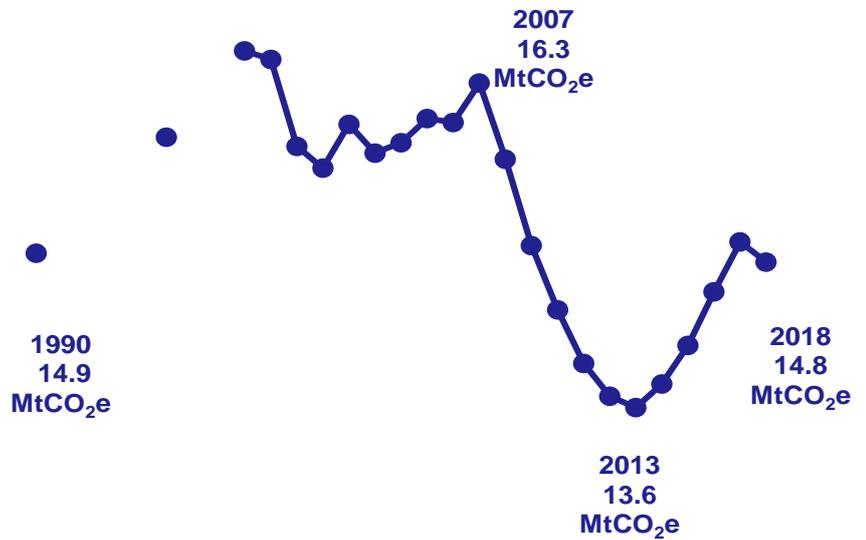
Transport accounted for 35.6% of Scotland's total greenhouse gas emissions in 2018.

Scotland's total greenhouse gas emissions in 2018 were 41.6 megatonnes of carbon dioxide equivalent (MtCO₂e). Transport, including international aviation and shipping, accounted for 14.8 MtCO₂e.



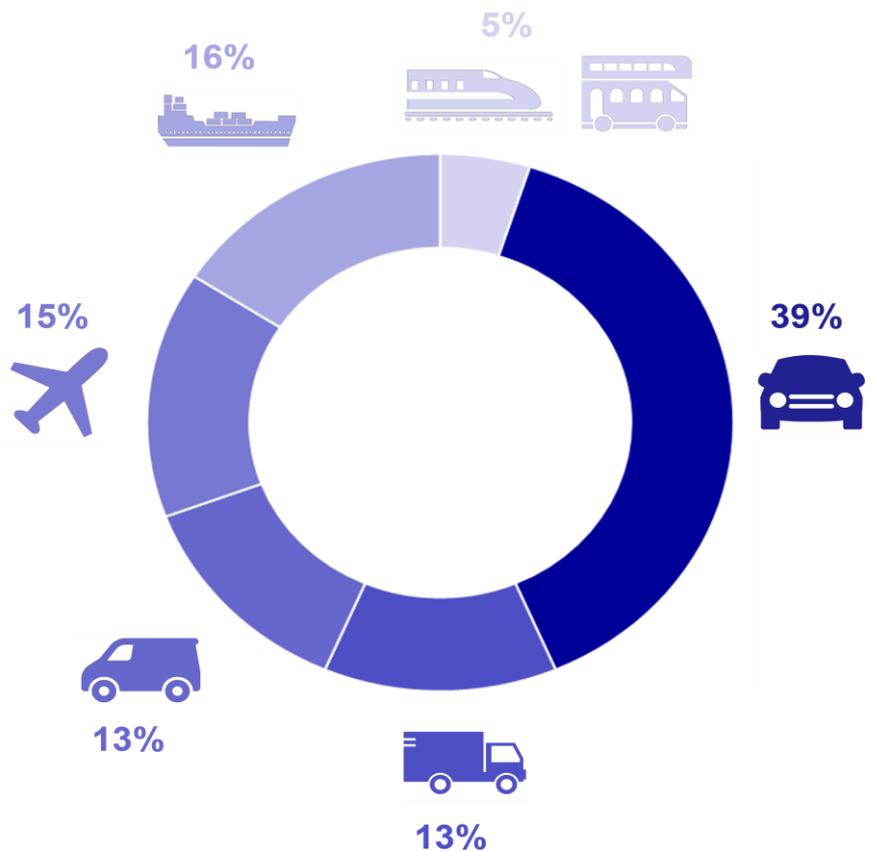
2018 marks the first year since 2013 that emissions have decreased in Scotland, with the previous four showing a gradual upward trend.

Scotland's transport emissions in 2018 were 1.1% lower than in 2017, and 0.5% lower than in 1990.



Car was the most emitting transport mode in 2018.

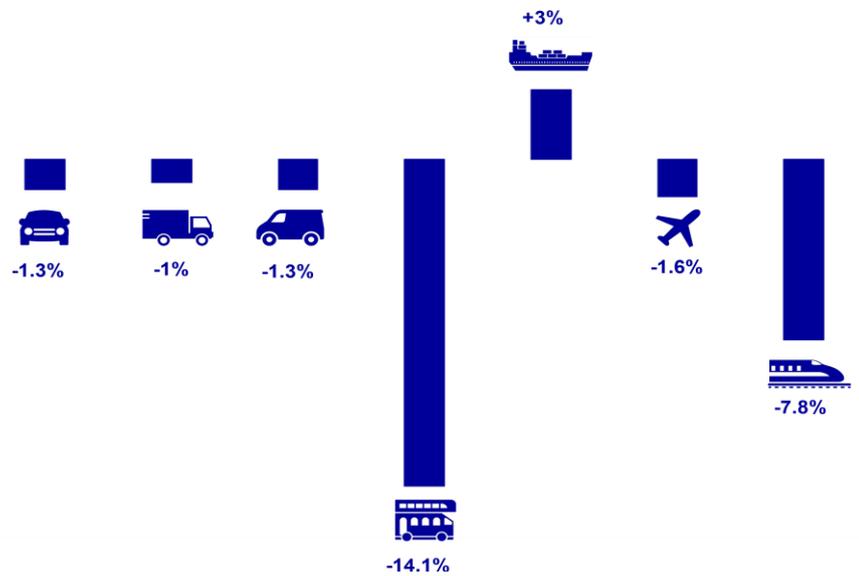
Cars accounted for 39% of Scotland's transport emissions in 2018. Goods vehicles contributed 25%, aviation and shipping accounted for 15% and 16%, respectively, and other transport modes accounted for 5%.



Road transport, aviation and rail emissions decreased between 2017 and 2018, while shipping emissions increased.

Road transport emissions fell in 2018, with car, HGV, LGV and bus emissions all lower than in 2017. Aviation emissions were also lower than in 2017.

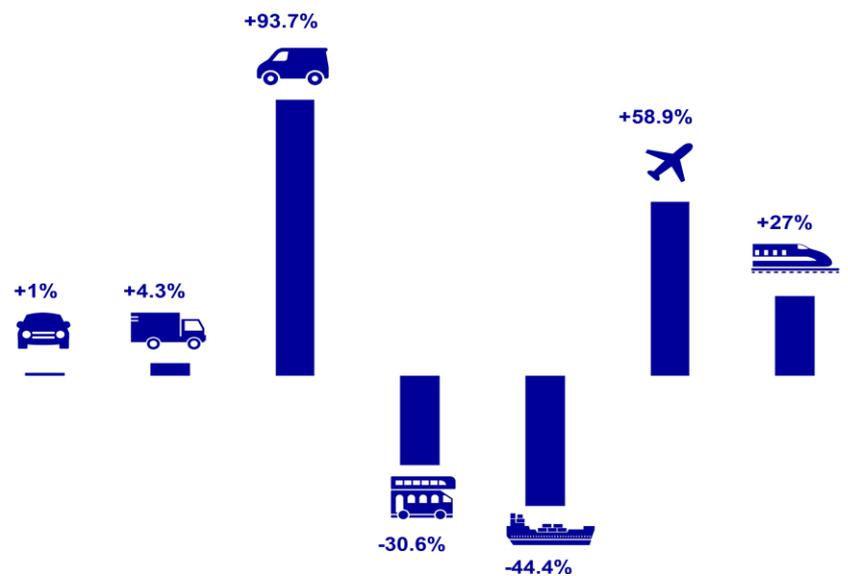
Shipping emissions saw the largest percentage increase.



Between 1990 and 2018, LGV emissions saw the largest percentage increase of all transport modes.

Aviation and rail emissions also increased substantially over this period.

Shipping emissions saw the largest percentage decrease of all transport modes, with bus emissions also falling.



Introduction

The Carbon Account for Transport (CAT) is an annual publication, produced by Transport Scotland, and provides a detailed analysis of Scottish transport emissions. This is the twelfth edition of the CAT, containing the latest inventory revisions alongside Scotland's key transport emissions trends for 1990-2018. The data used in this report is sourced from the annual publication of UK-wide annual emissions produced by the National Atmospheric Emissions Inventory (NAEI).¹

Policy context

The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 sets out our increased ambitions to reach net-zero emissions for the benefit of our environment, our people, and our prosperity. Scotland continues to outperform the UK as a whole in delivering long term emissions reductions, and in western Europe is second only to Sweden.

Scotland's targets have intentionally been set to provide an extremely stretching pathway to net-zero emissions by 2045, with a 75% reduction from baseline levels to be achieved by 2030. Our recast Climate Change Plan, expected in December, will set out a credible pathway to meeting Scotland's climate targets over the period to 2032, as part of a green recovery from Covid-19.

We acknowledge that transport remains Scotland's biggest sectorial contributor which is why we intend to take bold action to meet our climate change targets. In February this year we set out a long term vision for transport in our new National Transport Strategy - shaping the future provision of transport in Scotland around a shared vision - one that will protect our climate and improve our lives.

The National Transport Strategy set [Take Climate Action](#) as one of four priorities and highlights the need to reduce travel by unsustainable modes, as well as to manage demand. These strategic aims will guide our actions as we respond to the impacts of Covid-19. To ensure a green economic recovery, we are taking measures to support the transport sector in ways which are sustainable and which addresses inequality. Future transport investment decisions will continue to be made in line with both the Sustainable Travel and Sustainable Investment hierarchies, prioritising walking, wheeling, cycling and public and shared transport options in preference to single occupancy private car use.

Scotland has the most ambitious agenda in the UK for decarbonising transport, including phasing out the need to purchase new petrol or diesel cars by 2032. The measures in the Transport (Scotland) Act 2019 support emissions reduction in transport through encouraging modal shift. This includes an improved framework for bus services, Low Emission Zones (LEZs) and the Workplace Parking Levy.

¹ [Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2018](#), National Atmospheric Emissions Inventory, Department for Business, Energy and Industrial Strategy, 2020.

The Scottish Government is committed to supporting active travel, both now and in the future. The budget was doubled to £80 million in 2018-19 and now stands at over £100 million for 2020-21. This investment will enable the continued delivery of high quality walking, cycling and wheeling infrastructure, enabling more people to choose to walk and cycle for shorter everyday journeys or as part of a longer multi-modal journey.

Within the transport sector, Scotland's railway is a success story, with around 76% of passenger and 45% of freight journeys already on electric traction. The Scottish Government published its [Rail Services Decarbonisation Action Plan](#) on 28 July 2020. Work has been and continues to progress well by Transport Scotland, Network Rail and industry partners to deliver the key outcomes of the plan to make the traction elements of Scotland's railway carbon free by 2035.

While aviation emissions remain high, Scotland has shown global leadership by being the first country to include international aviation and shipping emissions in its statutory climate targets. We are working with Highlands and Islands Airports Ltd and the aviation industry to bring trials of cutting-edge zero and low emission aircraft to Scotland in 2021 and are working to decarbonise scheduled flights within Scotland by 2040.

Background data and sources

All data relating to emissions used in this publication were derived from, and originally published in the NAEI's annual report: *Greenhouse Gas Inventories for England, Wales, Scotland and Northern Ireland*. Additionally, key Scottish transport data has been sourced from Scottish Transport Statistics.

NAEI continually refine their reporting methodology to increase the accuracy of their publications. This results in revisions across the entire time-series. Consequently, the data contained within this report should not be compared with previous editions of the CAT.

Emissions from international aviation and shipping (IAS) were not originally reported in the inventory but have been included since 2009 under a separate category called *Exports*. The Scottish Government has committed to including emissions from IAS in emissions targets, hence references to maritime and aviation emissions refer to the combined total of domestic and international emissions, unless otherwise stated.

In line with the methodology used to report against the Climate Change (Scotland) Act 2009, only emissions relating to point-of-use (i.e. tailpipe emissions) are analysed here. Lifestyle and displaced emissions such as those generated to power trains are not included.

Measurement of greenhouse gas emissions

The emissions inventory reports emissions of carbon dioxide, methane, nitrous oxide, and the four F-gases (hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride, and nitrogen trifluoride). Overall emissions are given as a single figure, measured in megatonnes or kilotonnes of carbon dioxide equivalent (MtCO_{2e} or KtCO_{2e}), by weighting non-carbon dioxide gases by their global warming potential (GWP). The GWP of a greenhouse gas is defined as its warming influence relative to that of carbon dioxide over a 100 year period. For example, the global warming potential of methane over 100 years is 21, meaning that each tonne of methane emitted causes the same level of warming over 100 years as 21 tonnes of CO₂. Approximately 99% of equivalent emissions in Scotland's transport sector are due to CO₂, therefore a breakdown of emissions by greenhouse gas is not included in this report.

Emissions trends for Scotland

Total emissions for Scotland, measured at source, were 41.6 MtCO_{2e} in 2018. This represents an increase of 1.5% compared to 2017, and a 45.5% reduction in emissions since the 1990 baseline period when emissions were 76.3 MtCO_{2e}. The Committee for Climate Change (CCC) recommended a new method of reporting emissions for the purposes of reporting against targets using the Greenhouse Gas Inventory.

On this adjusted basis, the GHG account reduced by 50% between the baseline period and 2018. The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 specifies a 54% reduction over the same period. Therefore, the target for 2018 has **not been met**. The overall reduction demonstrated in the time-series reflects decreases in emissions from major contributors such as energy supply, waste management and business, whilst land-use, land-use change and forestry (LULUCF) became a greater carbon sink, offsetting an additional 5.1 MtCO_{2e} of emissions.

In 2018, Scottish transport emissions, including emissions from international aviation and shipping, were recorded at 14.8 MtCO_{2e}; this is a decrease of 1.1%, or 0.2 MtCO_{2e}, since 2017, and a 0.5% decrease, or 0.1 MtCO_{2e} since the 1990 baseline (Figure 1). In 2018, Scottish transport emissions have declined for the first time since 2013.

Whilst Scottish transport emissions have decreased over the years, transport, including international aviation and shipping, is the largest contributor of greenhouse gases in 2018, accounting for 35.6% of all emissions. Unlike other sectors, which have achieved significant emissions reductions compared to baseline measurements, transport emissions have only seen a small decrease since 1990, slowing the overall reduction in emissions nationwide.

Road transport accounted for 10 MtCO_{2e} (68% of all transport emissions), the largest share of all transport modes. Emissions for shipping and aviation were 2.30 MtCO_{2e} (15.5%) and 2.23 MtCO_{2e} (15.1%) respectively, and rail emissions were 0.16 MtCO_{2e} (1.1%). Since 1990, the share of transport emissions due to shipping has generally fallen, while the shares due to road, rail and aviation have generally

increased. Figure 2.1 and 2.2 illustrate the change sectoral contributions to Scotland's transport emissions for 1990 and 2018, respectively.

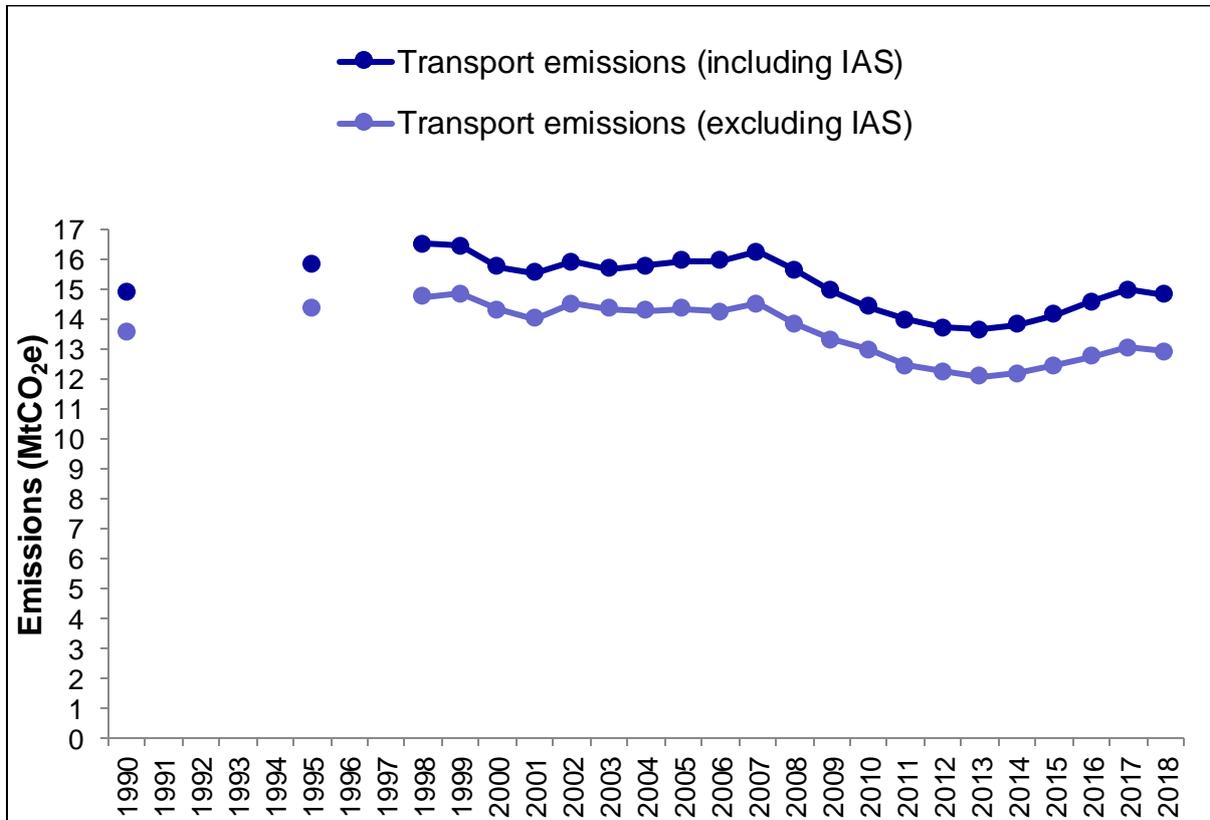


Figure 1: Time series of Scotland's total transport emissions, 1990-2018 (Source: NAEI).

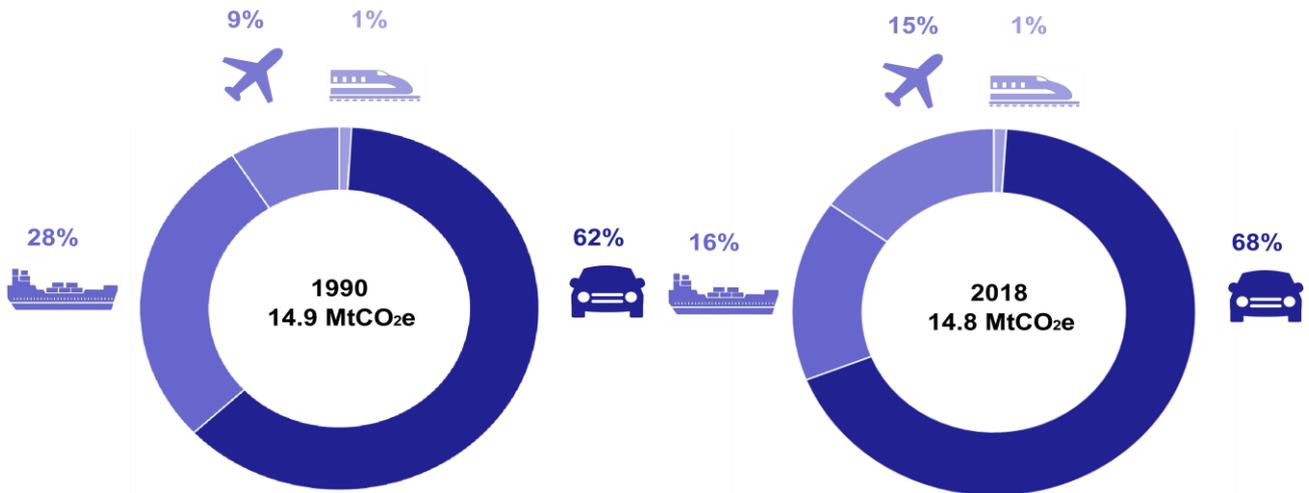


Figure 2: Share of transport emissions by transport sector, 1990 and 2018.

A detailed discussion of emissions for each transport sector is presented in sections 2.1 to 2.4.

Road transport

Road transport emissions were 10 MtCO_{2e} in 2018, 0.2 MtCO_{2e} lower than last year, accounting for 68% of Scotland's total transport emissions. Figure 3 shows the year-on-year change in Scotland's road transport emissions.

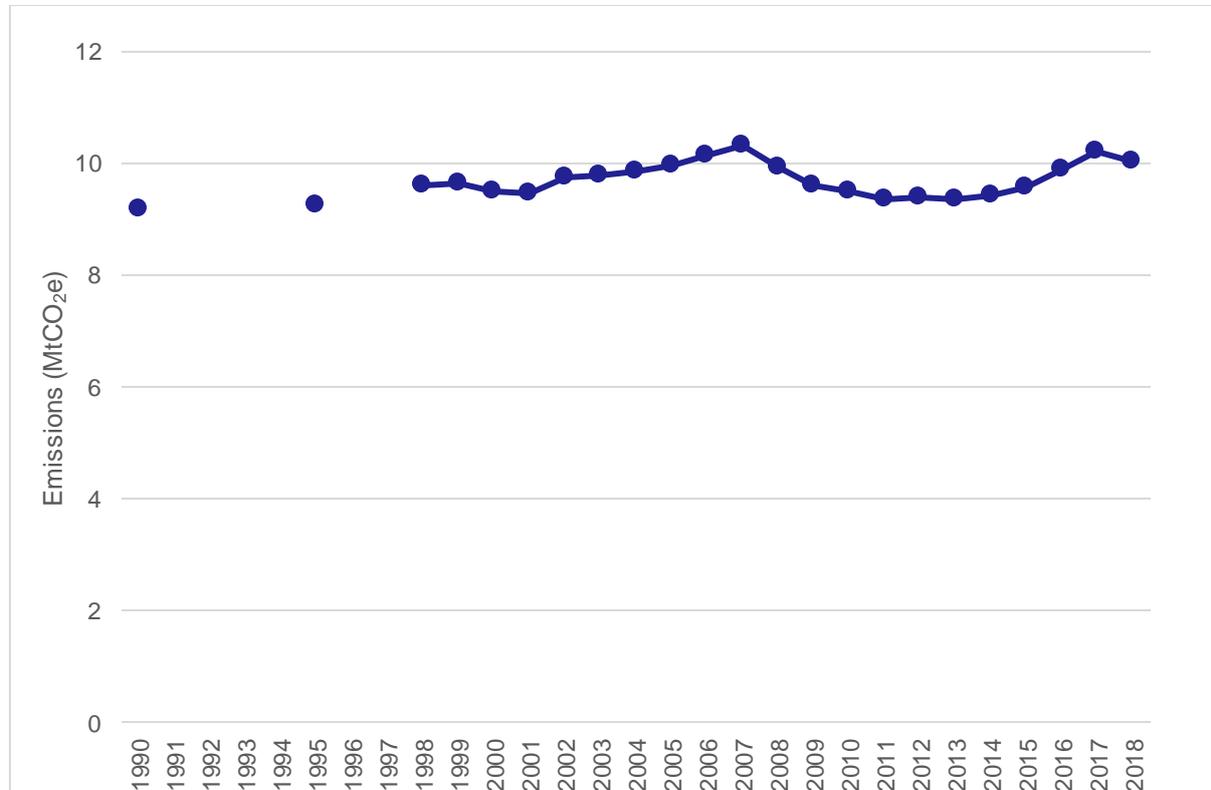


Figure 3: Time series of Scotland's road transport emissions, 1990-2018 (Source: NAEI).

A number of factors have influenced the fluctuations in road transport emissions in recent years. While road vehicles have become more fuel efficient, this has largely been offset by an increase in vehicle kilometres. Since 2011, vehicle kilometres have increased by 4.7 billion representing a 10% increase over the past eight years, whilst road transport emissions have increased by 7% over the same timeframe.² The category which experienced the greatest proportional increase in 2018 was Other Road Transport which includes residual emissions from car engines, anti-freeze products as well as LPG and biofuels components of petrochemicals. In 2018, Other Road Transport increased by 6.4%, however this equates to less than a 0.01 MtCO_{2e} increase.

² [Scottish Transport Statistics 2019](#), Table 5.3

Road emissions by vehicle type

Cars

Car emissions were 5.8 MtCO_{2e} in 2018, a decrease of 1.3% from 2017, and 0.5% above the 1990 baseline. Between 2017 and 2018 car kilometres increased by 0.6%. Cars accounted for 39.3% of all transport emissions, the largest contribution of any transport mode, and 57.9% of road transport emissions. This year marks the first decrease in car emissions in Scotland since 2013.

Heavy goods vehicles

HGV emissions were 1.9 MtCO_{2e} in 2018, a decrease of 1% from 2017, and 4.3% above the 1990 baseline, accounting for 12.6% of all transport emissions. Between 2017 and 2018 HGV kilometres increased by 0.1% or 2 million vehicle kilometres.

Light good vehicles

In 2018, LGV emissions were 1.85 MtCO_{2e}, a decrease of 1.25%. LGVs have seen one of the largest increases in emissions since the 1990 baseline, reflecting the increase in demand for online shopping and home delivery. Since the 1990 baseline LGV emissions have seen an increase of 93.7%, which equates to 0.9 MtCO_{2e}. However, 2018 marks the first year since 2009 that LGV emissions have decreased. Conversely, the e-commerce market grew by 18%, the largest annual growth since records began in 2014.³ LGV vehicle kilometres increased from 3.8 million in 1995 to 8 million in 2018, an increase 109%².

Buses and coaches

Emissions from buses and coaches have shown a substantive reduction since the 1990 baseline. In 2018, emissions from the bus and coach network have fallen from 0.4 MtCO_{2e}, a 30.6% decrease. In 2018, bus emissions fell by 0.1 MtCO_{2e} compared to 2017, a decrease of 14.1%. Bus vehicle kilometres followed a similar trend, with a decrease of 12.5% since 2017.

Motorcycles

Motorcycle emissions have remained relatively constant and small in comparison to the other modes of transport discussed in this publication. Motorcycles accounted for 0.2% of Scotland's transport emissions in 2018. Motorcycle emissions for 2018 were 0.03 MtCO_{2e}, a decrease of 1% from 2017, and 9.9% below the 1990 baseline.

³ [E-commerce and ICT activity, UK: 2018](#), Office for National Statistics

Motorcycle vehicle kilometres increased by 0.7% since 2017, and by 29.2% since 1998.²

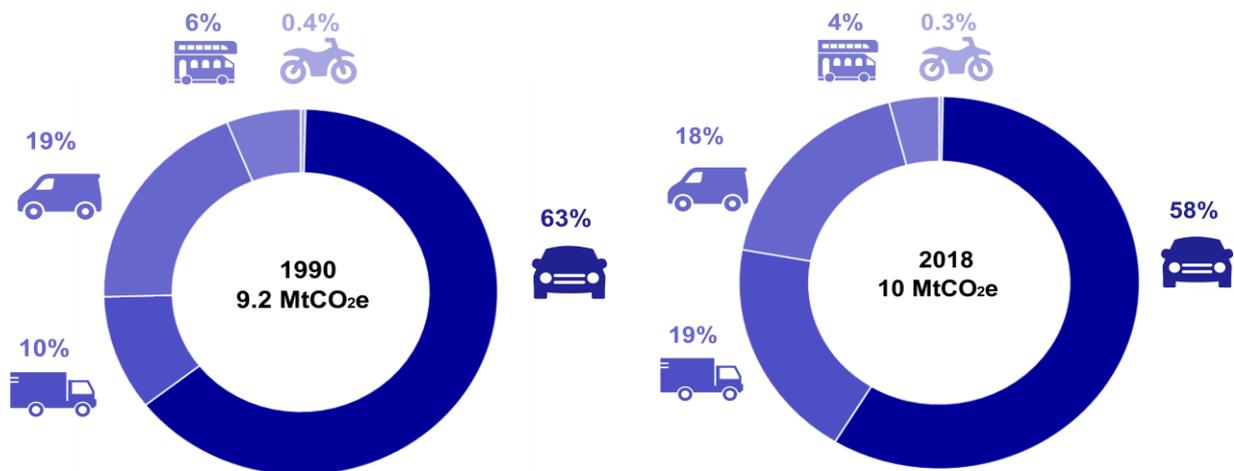


Figure 4: Share of road transport emissions, 1990 and 2018 (Source: NAEI).

Road emissions by type of road

Motorway emissions were 2 MtCO_{2e} in 2018, an increase of 4.2% from the previous year, accounting for 20.2% of road emissions. Motorway emissions have increased substantially since 1990, with the 2018 figure 81% above that of the 1990 baseline. This increase in motorway emissions since 1990 has coincided with a substantial increase in the length of Scotland's motorway network. Between 1990 and 2017 Scotland's motorway network increased in length from 312km to 645km. Motorway vehicle kilometres rose from 3242 million in 1990 to 8518 million in 2018.⁴

Rural road emissions were 4.4 MtCO_{2e} in 2018, accounting for 43.5% of road emissions, and urban road emissions were 3.6 MtCO_{2e}, accounting for 35.5% of road emissions. The methodology used to classify urban and rural roads has changed since the last publication, therefore it is not possible to compare the most recent emissions figures for these roads to previous years.

In 2018, rural and urban driving emissions decreased by 3.4% and 3%, respectively, reflecting drops of 0.2 MtCO_{2e} for rural roads and 0.1 MtCO_{2e} for urban roads. On the other hand, motorway driving saw an increase of 0.1 MtCO_{2e} or 4.2%. No further expansion of the road network was recorded for 2018. Since baseline, motorway driving has been on the increase, with motorway-generated emissions rising by 81% since 1990 equating to 0.9 MtCO_{2e}. Whilst motorway-related emissions have experienced an increase since the baseline period, rural driving has dropped 5.6% or 0.3 MtCO_{2e}. Urban driving since the baseline has increased 0.2 MtCO_{2e}, or 5.1% and decreased 0.1 MtCO_{2e} or 2.9% in 2018.

⁴ [Scottish Transport Statistics No. 37, 2019 Edition](#), tables 4.1 and 5.1

Emissions of licensed vehicles

There were 233,058 new vehicle registrations in Scotland in 2018, a decrease of 7.1% from the previous year. The total number of vehicles registered in Scotland at the end of 2018 was 2.9 million, 1% more than at the end of 2017.⁵

The average CO₂ emissions of newly registered cars in Scotland in 2018 was 123.6 grams per kilometre, 2.8% higher than last year. This is the second year that average emissions for newly registered vehicles have seen an increase since records began in 2001. Since 2001 newly registered cars with an average emissions value higher than 140 grams CO₂ per kilometre have fallen significantly, with 94,746 fewer vehicles on the road in 2018, this represents a decline of 254%. Figure 5 shows the year-on-year change in average emissions of newly registered cars in Scotland.

The number of newly registered cars with average emissions of up to 120 grams of CO₂ per kilometre has increased by 98.6% since 2001, while those with average emissions between 121-150 grams of CO₂ per kilometre on average have increased by 31.6%. New registrations of cars emitting 151 grams of CO₂ per kilometre or over have decreased by 353.9% since 2001.⁶

As a result of the improved fuel-efficiency of newly registered cars between 2001 and 2018, average emissions of the total number of cars licensed in Scotland have continued to decrease every year. In 2018, the average emissions of all cars licensed in Scotland fell by 2.6 grams of CO₂ per kilometre, representing a 1.9% drop in average emissions per kilometre travelled. Additionally, since the baseline, the average grams of CO₂ per kilometre driven by cars has fallen by 37.2 or 27.3%.

⁵ [Scottish Transport Statistics No. 37, 2019 Edition](#), Table 1.1

⁶ [Scottish Transport Statistics No. 37, 2019 Edition](#), Tables 13.6a and 13.6b

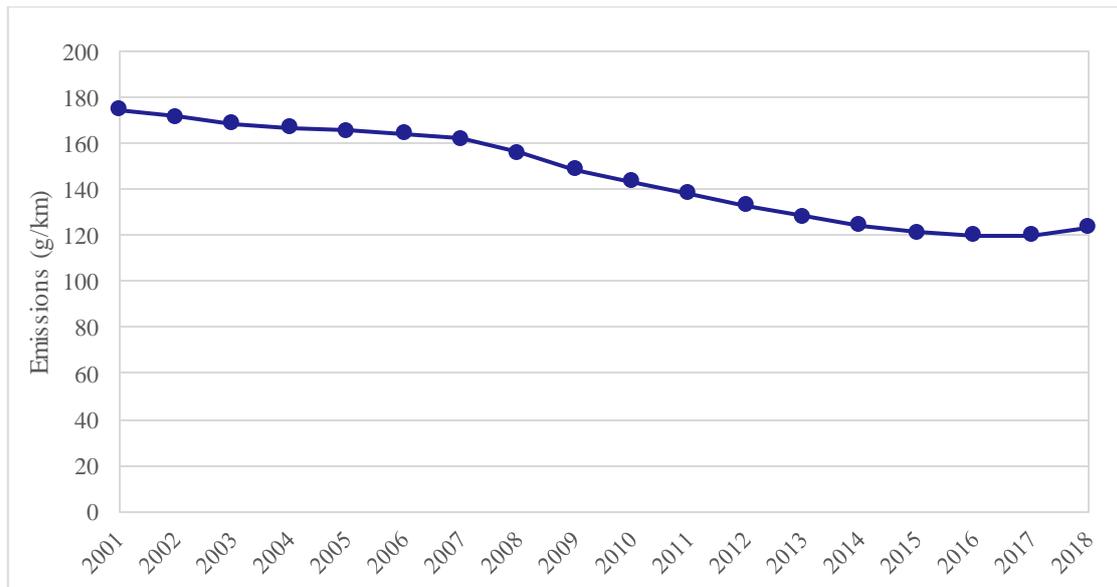


Figure 5: Average emissions of newly registered cars in Scotland, 2001-2018 (Source: [Scottish Transport Statistics, Table 13.6a](#))

The proportion of new cars registered in higher emissions bands fell significantly between 2001 and 2018. In 2001, 53% of newly registered cars had emissions of at least 151 g/km, compared with just 13% in 2018. The proportion of newly registered cars with emissions of less than 120 g/km rose from 1% in 2001 to 53.4% in 2018. Figure 6 illustrates the proportions of newly registered cars in each emissions band.

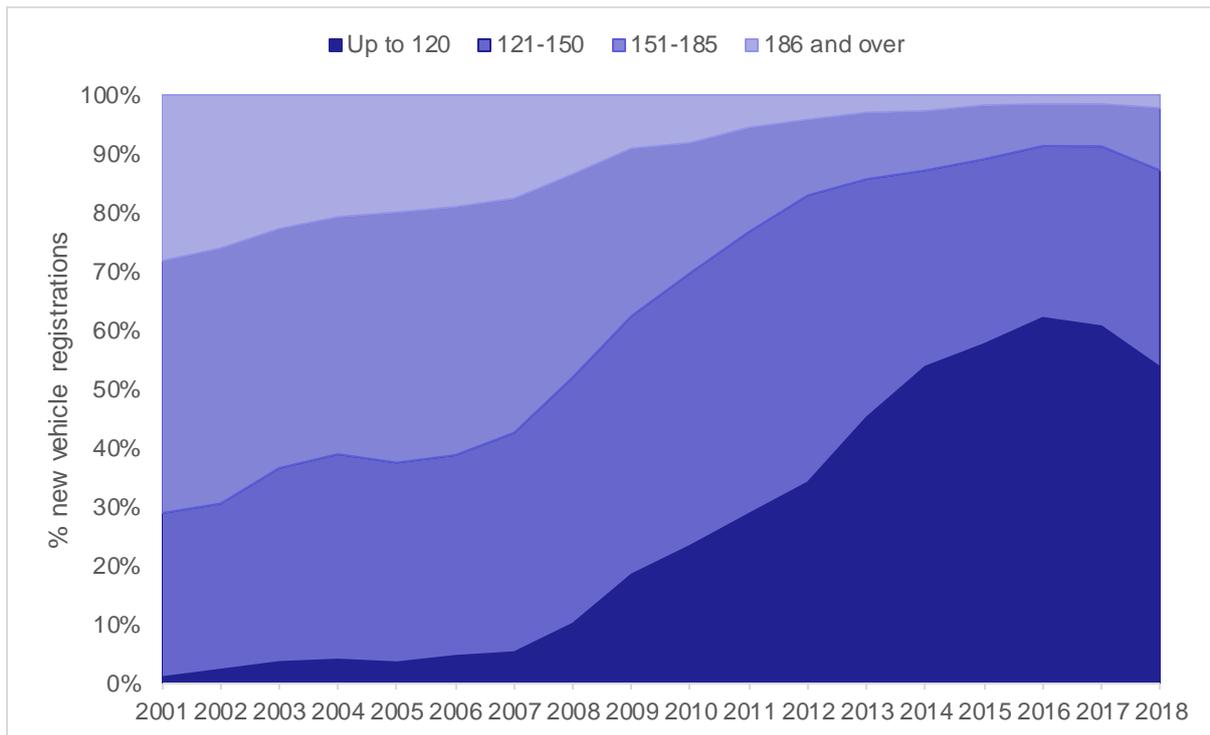


Figure 6: Newly registered cars in Scotland by emissions band, 2001-2018 (Source: [Scottish Transport Statistics 2019, Table 13.6a](#)).

The improvements in efficiency of newly registered cars between 2001 and 2018 caused the average emissions of all cars licensed in Scotland to decrease every consecutive year during this period. At the end of 2018, the average CO₂ emissions of cars licensed in Scotland was 136.5 g/km, down 1.9% from the previous year, and 27.3% below the 2001 average. Figure 7 shows the year-on-year change in average emissions of all cars licensed in Scotland.

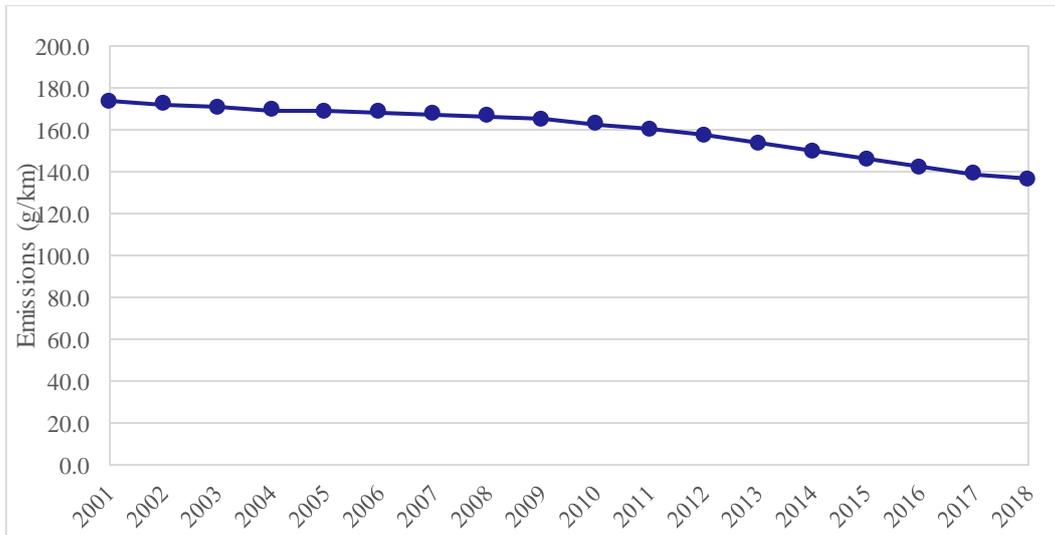


Figure 7: Average emissions of all cars licensed in Scotland, 2001-2018 (Source: [Scottish Transport Statistics, Table 13.6b](#)).

The proportion of cars licensed in Scotland emitting 120g/km of CO₂ or less increased from 0.1% in 2001 to 37.7% in 2017. The proportion of cars emitting 186g/km or more of CO₂ increased from 2.5% in 2001 to 7.6% in 2018.

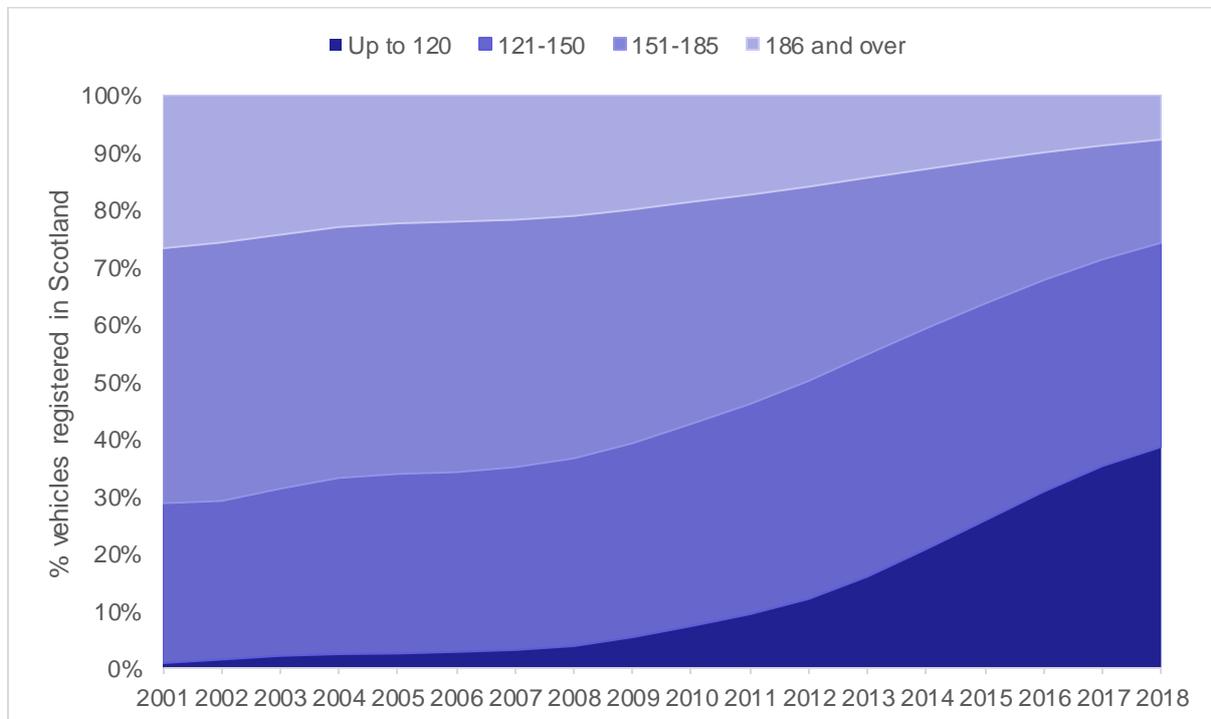


Figure 8: Cars licensed in Scotland by emissions band, 2001-2018 (Source: [Scottish Transport Statistics, Table 13.6b](#)).

Ultra-low emissions vehicles (ULEVs)

The Scottish Government has committed to phasing out the need for new petrol and diesel cars by 2032. This will be supported by a significant increase in the uptake of ultra-low emissions vehicles.

An ultra-low emissions vehicle (ULEV) is defined as any road vehicle that emits less than 75g of CO₂ per kilometre. ULEVs include battery electric vehicles, hybrid electric vehicles, range-extended electric vehicles, and hydrogen fuel cell vehicles.

The number of ULEVs registered in Scotland increased substantially in the years up to 2018: at the end of 2018 there were 11,350 ULEVs registered in Scotland, compared to only 497 at the end of 2011. Figure 9 shows the year-on-year change in the total number of ULEVs registered in Scotland.

The number of ultra-low emissions vehicles licensed in Scotland has continued to increase since records began in 2011, when only 497 ULEVs were registered. In 2018, the number of licensed ULEVs in Scotland has risen to 11,350 vehicles, an increase of 3,842 or 33.9% since 2011. Figure 6 shows the sales of ULEVs in Scotland between 2011 and present.

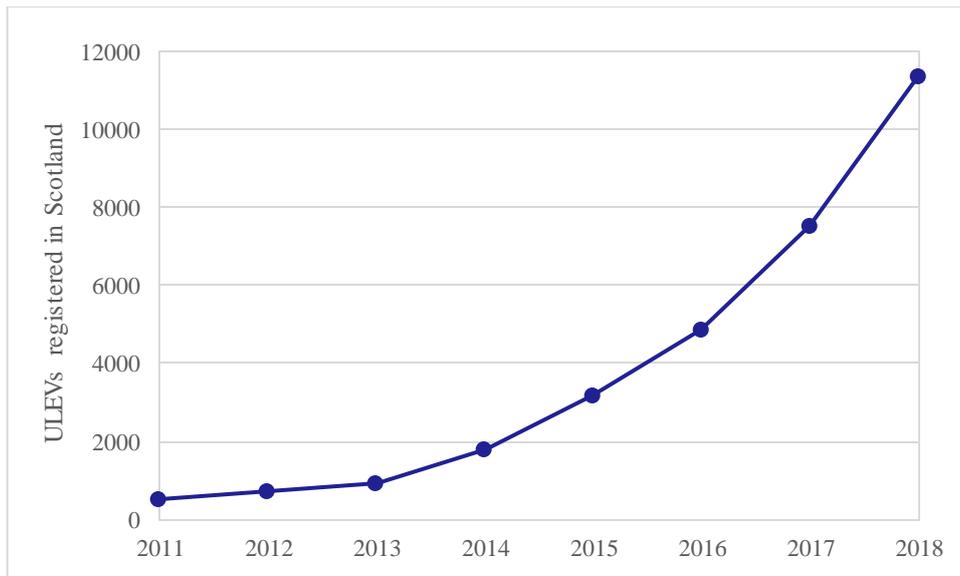


Figure 9: Number of ULEVs registered in Scotland at year end, 2011-2018 (Source: [Scottish Transport Statistics, Table 13.8](#)).

Shipping

Shipping emissions were 2.3 MtCO_{2e} in 2018, an increase of 3% from 2017 and 44.4% below the 1990 baseline. Shipping emissions accounted for 15.5% of transport emissions.

Both domestic and international shipping emissions fell in 2018, with domestic shipping accounting for 2 MtCO_{2e} and international shipping accounting for 0.34 MtCO_{2e}. This is an all-time low for international shipping. Since 1990, domestic shipping emissions have fallen by 41.8% and international shipping emissions have fallen by 56.1%.

Figure 10 illustrates the year-on-year change in Scotland's shipping emissions.

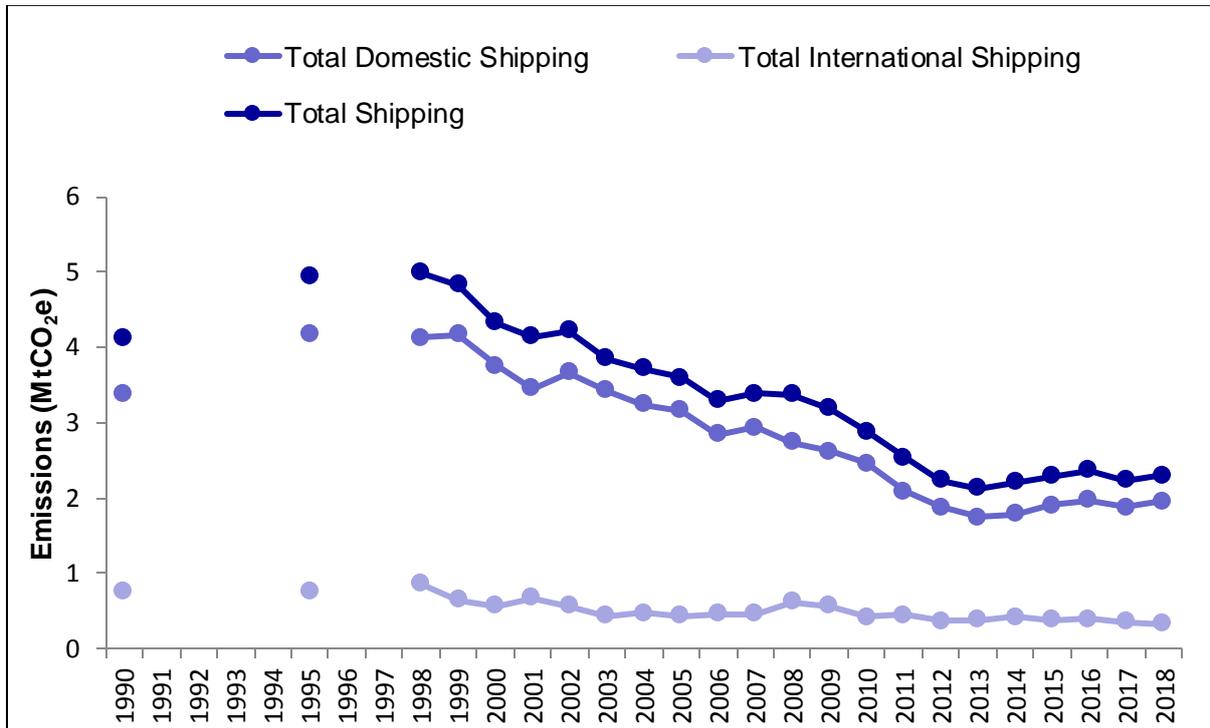


Figure 10: Time series of Scotland's shipping emissions, 1990-2018 (Source: NAEI)

Aviation

Total aviation emissions, including aircraft support vehicles and military aircraft, were 2.23 MtCO_{2e} in 2018, a decrease of 1.58% from 2017 and 58.9% above the 1990 baseline. Aviation emissions were 15.1% of Scotland's total transport emissions in 2018, the largest share they have ever accounted for.

Both domestic and international aviation emissions fell in 2018, with domestic aviation accounting for 0.67 MtCO_{2e} and international aviation accounting for 1.6 MtCO_{2e}. Since 1990, domestic aviation emissions have decreased by 22.1% while international aviation emissions have risen by 186.2%.

Figure 11 illustrates the year-on-year change in Scotland's aviation emissions.

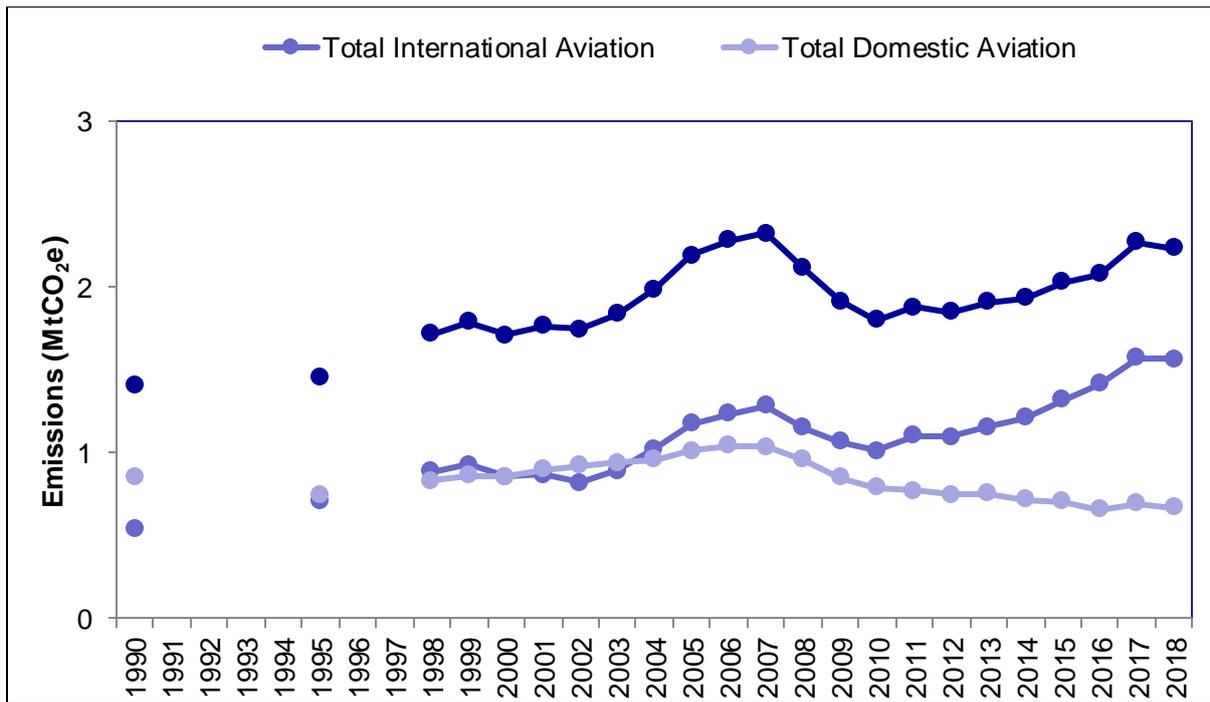


Figure 11: Time series of Scotland's aviation emissions, 1990-2018 (Source: NAEI).

Rail

Rail accounted for 0.2 MtCO₂e (1.1%) of transport emissions in 2018, a decrease of 7.8% from 2017, but 27% above the 1990 baseline. Figure 12 shows the year-on-year change in Scotland's rail emissions.

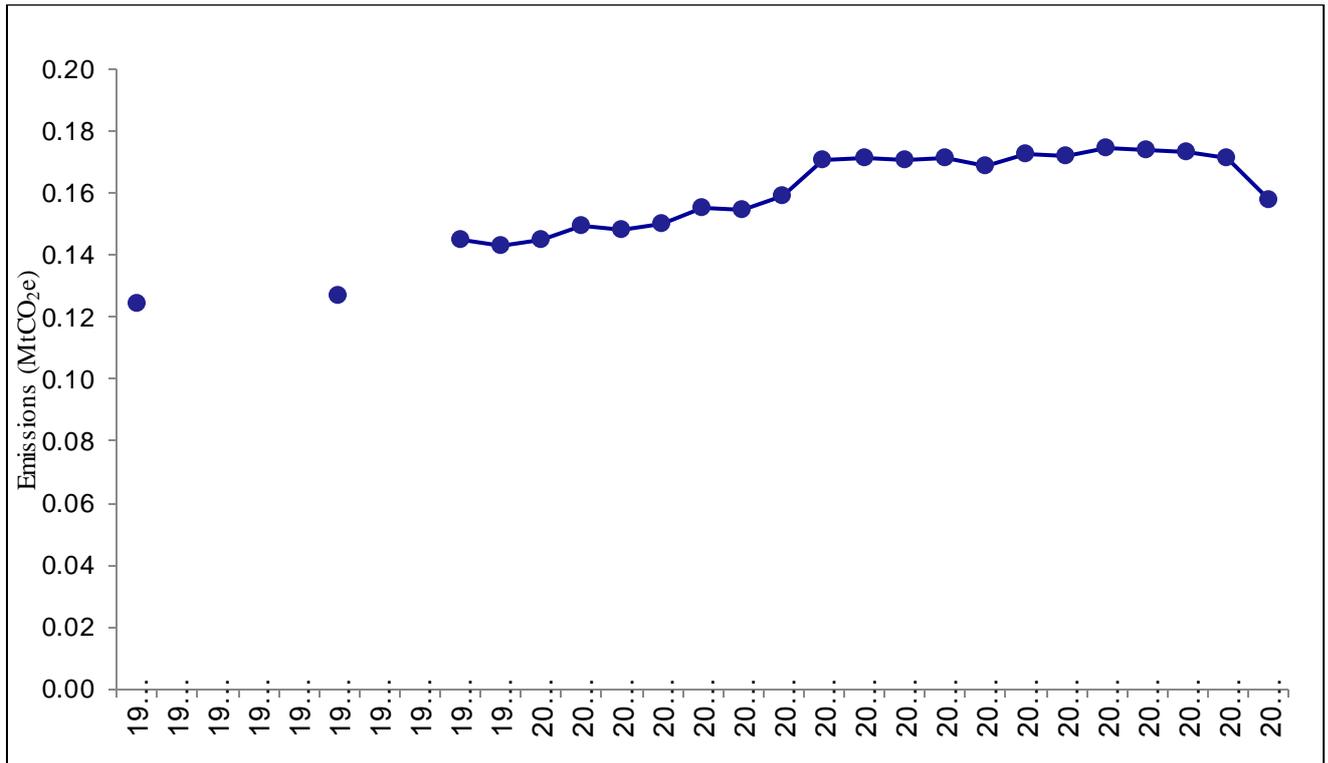


Figure 12: Time series of Scotland's rail emissions, 1990-2018 (Source: NAEI).

The general long-term increase in rail emissions has largely been due to a significant increase in the number of rail passengers.

Efficiency of transport modes

The emissions figures for each transport mode presented in the previous section are largely dependent on the usage of that transport mode, therefore they do not give any information on how efficient that mode of transport is for a passenger to travel on. This section presents a discussion of the efficiency of various transport modes, measured in terms of their emissions per passenger kilometre (pkm). The data presented in this section are provided by DEFRA⁷ and are for the UK as a whole, not just Scotland.

The table below provides the average efficiencies of key transport modes for the years 2012-2018.

⁷ [Greenhouse gas reporting: conversion factors 2018, Department for Business, Energy & Industrial Strategy](#)

| Sector | Mode and fuel | gCO ₂ e/pkm | | | | | | |
|----------|----------------------------------|------------------------|------|------|------|------|------|------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| Road | Average petrol car ⁸ | 133 | 131 | 128 | 128 | 129 | 124 | 123 |
| | Average diesel car ⁸ | 124 | 121 | 123 | 122 | 123 | 119 | 119 |
| | Average hybrid car ⁸ | 89 | 87 | 89 | 86 | 89 | 79 | 84 |
| | Average petrol motorbike | 119 | 119 | 120 | 120 | 120 | 117 | 115 |
| | Average bus | 112 | 112 | 110 | 109 | 102 | 103 | 101 |
| | Average coach | 29 | 29 | 29 | 29 | 29 | 28 | 28 |
| Rail | National rail | 58 | 49 | 47 | 45 | 49 | 47 | 44 |
| | Light rail and tram | 68 | 60 | 62 | 55 | 54 | 44 | 39 |
| Ferry | Average foot and car passengers | 116 | 116 | 116 | 116 | 116 | 116 | 113 |
| Aviation | Average domestic flight | 182 | 173 | 155 | 158 | 147 | 141 | 158 |
| | Average short haul international | 104 | 102 | 88 | 90 | 89 | 95 | 86 |
| | Average long haul international | 119 | 120 | 111 | 105 | 101 | 104 | 112 |

Table 1: Fuel efficiencies for Scottish modes of transport

A summary of trends in efficiency for different transport modes is presented below.

Road transport

Coach fuel efficiencies have remained stable over the years and is the most carbon-efficient method of travel of the key transport modes presented here.

Diesel cars were more emitting than petrol cars in 2018, with the difference between petrol and diesel car emissions having reduced substantially over the years. Hybrid cars were more efficient, with emissions of 31.6% and 29.2% less than petrol and diesel cars, respectively.

⁸ This category uses the 1.5 average car occupancy published in [Transport and Travel in Scotland 2018](#) to derive the emission's figure for Scotland

Rail

Other than coach travel, rail was the most efficient means of transport in 2018. Both national rail and light rail and tram services saw reductions in average emissions per passenger kilometre between 2012 and 2018. A number of factors may have influenced this, including increased electrification of the rail network, improved fuel efficiency of trains, and increased capacity of train services.

Aviation

Despite a reduction in average emissions per passenger kilometre of 22% between 2012 and 2017, domestic aviation remained the least efficient means of travel in 2017. Since a large proportion of aviation emissions is due to take-off and landing, international aviation is on average more efficient than domestic aviation per passenger kilometre.

Passenger ferries

Ferry travel saw little change in efficiency between 2012 and 2018. Improvements in efficiency of aviation have meant that for some journeys it is now more efficient to travel by air than by ferry.

Comparison of key Scottish and UK transport emissions statistics

In 2018, Scottish transport accounted for 9.2% of the UK's total transport emissions including IAS, and 10.4% excluding IAS.

Road and rail accounted for a similar proportion of the UK's total emissions to Scotland; however, a substantially greater proportion of the UK's transport emissions is due to aviation, and a smaller proportion is due to shipping. Figure 13 illustrates the sectoral compositions of total transport emissions for Scotland and the UK in 2018.

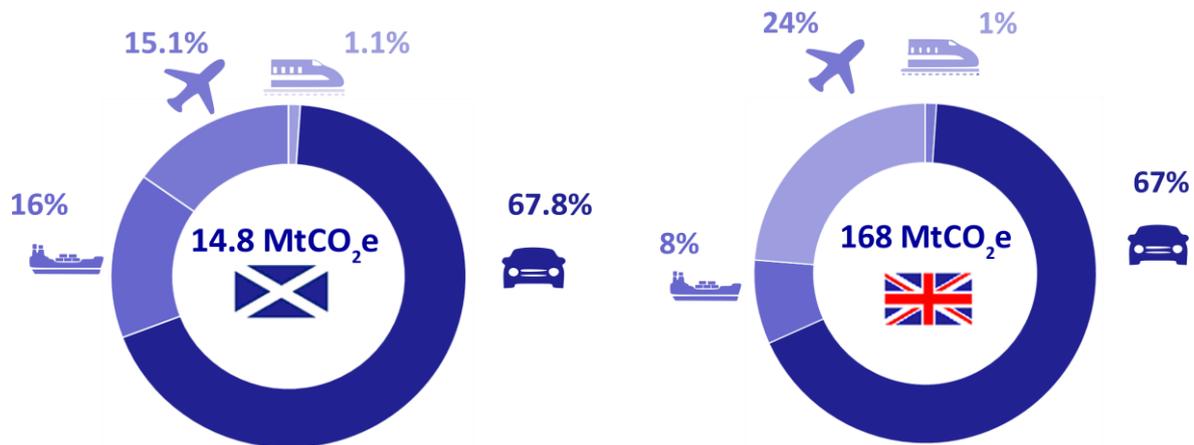


Figure 13: Proportions of Scotland and UK transport emissions by transport sector, 2018 (Source: NAEI).

Domestic aviation and shipping accounted for proportionately more emissions in Scotland compared to the UK as a whole, contributing 20.9% and 41.7% of the UK's total emissions for these transport modes, respectively. Conversely, Scotland contributed proportionately less to international aviation emissions compared to the whole UK, accounting for just 4.3% of the UK's total international aviation emissions.

Between 1990 and 2018, Scotland's transport emissions, including IAS, increased by 0.5%. Over the same period, the UK's transport emissions rose by 10.8%. Excluding IAS, there was a 4.9% fall in Scotland's transport emissions between 1990 and 2018 and a 3% fall in the UK's transport emissions.

Outlook

This report presented emissions data for Scotland's transport sector for 1990-2018. Over this period, the share of Scotland's total emissions due to transport has grown substantially, meaning the transport sector now plays an increasingly important role in reducing Scotland's emissions.

The emissions data presented in this report are not published until 18 months after the end of the last year reported, therefore we cannot present any information about Scottish emissions in 2019 at this stage. However, some indicators of Scotland's transport emissions for 2019 are available.

- *ULEV sales.* The total number of ULEVs registered in Scotland increased from 11,245 in 2018 to 16,110 in 2019, an increase of 30.2%⁹.
- *Efficiency of registered vehicles.* The average CO₂ emissions of new car registrations increased from 123.6 g/km in 2018 to 126.5g/km in 2019. However,

⁹ [Vehicle licensing statistics](#), table VEH0132, Department for Transport

the average emissions of all cars registered in Scotland fell from 136.5 g/km to 134.5 g/km.¹⁰

- *Aircraft movements.* The number of aircraft movements decreased from 481,000 in 2018 to 477,788 in 2019.¹¹

With the share of Scotland's total emissions due to transport increasing, it is clear that reducing transport emissions is imperative to Scotland achieving net-zero emissions by 2045. This reduction in transport emissions will need to be led by large reductions in road transport emissions, which made up 68% of Scotland's total transport emissions in 2018. The Scottish Government's commitment to phase out the need for new petrol and diesel cars by 2032, and increased take-up of ULEVs, will play an important role to this effect.

The current pandemic and its associated lockdown measures are expected to have an effect on transport emissions in future years. Emissions trends relating to the pandemic will be reported on in the Carbon Account for Transport 2022.

¹⁰ [Vehicle licensing statistics](#), tables VEH0206 and VEH0256, Department for Transport

¹¹ [Scottish Transport Statistics No. 37, 2018 Edition](#), table 8.1



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