
Quantifying classic motorcycle emissions

2023

Assigning a figure to the carbon footprint of classic motorcycles has long been a challenge. In this report, we attempt to find an answer.



loop

Welcome

Assigning a figure to the carbon footprint of classic motorcycles has long been a challenge. In this report, we attempt to find an answer.

Author
Alex Kefford

About loop
loop is a specialist automotive PR and communications agency producing award-winning work for clients across Europe and internationally. From our base at Bicester Heritage, the heart of the UK’s classic automotive scene, we deliver a full service covering everything from simple stories to key projects, for clients stretching right across the automotive, engineering and technology sectors.

Disclaimer
The views expressed within do not necessarily reflect those of the author or publisher. Great care has been taken to ensure the accuracy of the content, but responsibility cannot be taken for any errors or omissions that may occur. No guarantees, warranties or assurances are given regarding the correctness or completeness of any information contained within.

Copyright
The contents of this report are copyright © loop agency 2023. No part of this publication may be reproduced, stored, or transmitted, in any form or by any means, without the prior written permission of the author or publisher. References to the data or insights contained within are welcomed with proper citation of this report.

President Richard Nixon, White House Photo Office, U.S. National Archives.
BSA Motorcycle factory, © BSA Company Ltd, reproduced with kind permission.
Honda C90, VFR750F, courtesy Honda Motor Europe.

Contents

Introduction	4
A unique challenge	4
Defining a classic	6
What is a classic motorcycle?	6
How many classic motorcycles are there?	7
What are the most popular bikes on our roads?	8
How many bikes are currently off the road?	10
What are the most popular years?	12
Methodology	14
What is molar mass?	15
What is CO ₂ e?	15
Trends	16
Delving into the archives	16
Calculating fuel economy	19
Calculating emissions	20
In perspective	21
Q&A	22
Abbreviations	24
References	25

Introduction

As we become increasingly conscious of our environmental footprint, it's natural that we should look more closely at our activities in the hope of understanding their true impact. For owners of older vehicles, the arguments for replacing it with something more modern have been around for years. But as many enthusiasts begin to feel the pressure of increased environmental scrutiny, it's become clear that quantifying the carbon footprint of classic and historic vehicles is more than a little problematic.

In this report, we consider some of the complexities at play while attempting to quantify the CO₂ emissions of the UK's classic motorcycles.

A unique challenge

Motorcycles face unique difficulties when it comes to emissions control. With less space available, the engineering challenges in meeting stringent environmental legislation are much more complex, while a retail price generally lower than most cars can quickly make these efforts cost-prohibitive. It's perhaps not surprising, therefore, that emissions regulations for motorcycles have lagged behind their four-wheeled contemporaries.

Fig. 1

President Richard Nixon signing the Clean Air Act of 1970 at the White House. Looking on are William Ruckelshaus, Administrator of the Environmental Protection Agency (left), and Russell E. Train, Chairman of the Council on Environmental Quality.

Source: U.S. National Archives



The United States was one of the first countries to enact legislation to reduce motorcycle emissions with an amendment to the Clean Air Act that took effect from the 1978 model year. It introduced limits for carbon monoxide and hydrocarbon emissions that remained in force until 2006 when a nitrogen oxide element was added.

By 1999, Europe had followed suit with the first of a series of 'Euro' standards for two- and three-wheeled vehicles, culminating in the current Euro V standard which sees motorcycle and passenger car emissions closely aligned for the first time.

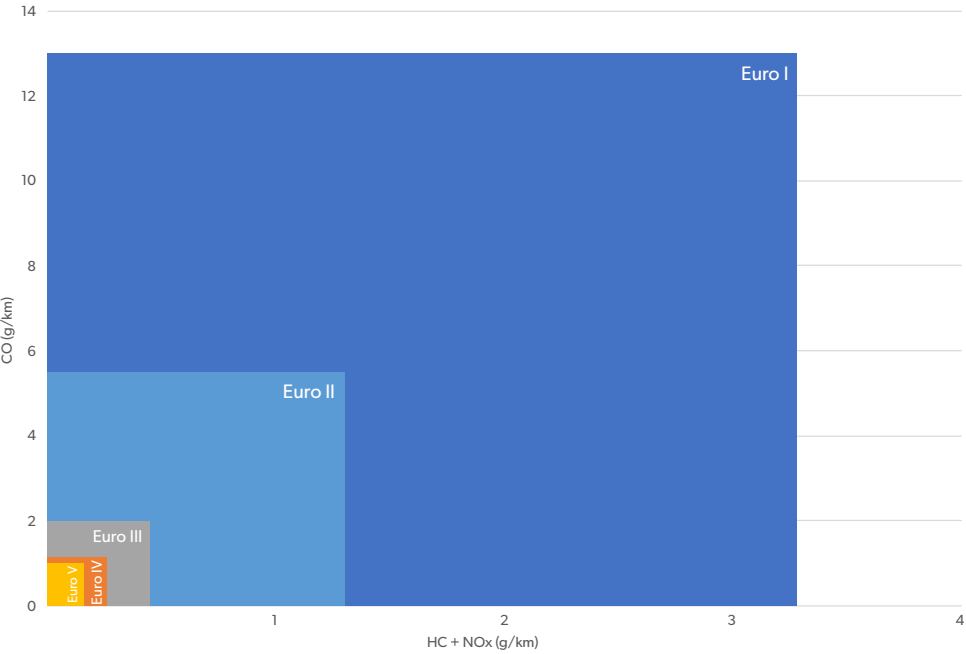
Standard	Year	CO (g/km)	NOx (g/km)	HC (g/km)
Euro I	1999	13	0.3	3
Euro II	2003	5.5	0.3	1
Euro III	2006	2	0.15	0.3
Euro IV	2016	1.14	0.09	0.17
Euro V	2020	1	0.06	0.1

Tab. 1

Euro emissions standards

Fig. 2

Euro emissions standards by comparative volume



However, that means all classic motorcycles on UK roads today pre-date any formalised standards under which their emissions might have been assessed. As a result, no data exists with which to quantify their environmental performance, and we must instead rely on other metrics.

Defining a classic

What is a classic motorcycle?

Agreeing upon a definition for what constitutes a classic motorcycle has always been notoriously difficult, clouded by subjective opinions and often thwarted by unusual edge cases.

FIVA, the Fédération Internationale des Véhicules Anciens, the body that represents historic vehicle owners’ interests in Europe, defines a classic as ‘a mechanically propelled road vehicle which is at least 30 years old, preserved and maintained in a historically correct condition, not used as a means of daily transport, and which is therefore a part of our technical and cultural heritage.’

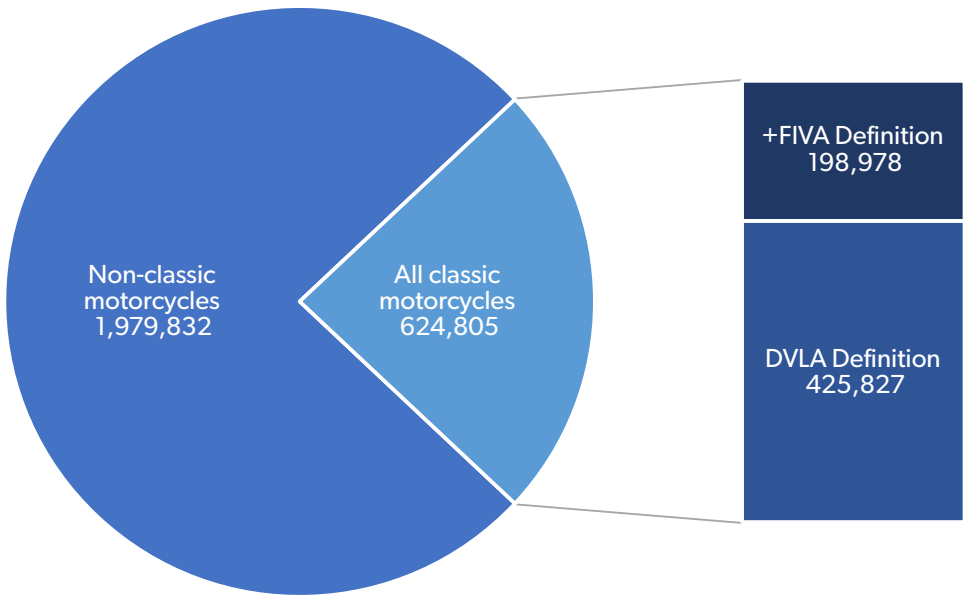
The DVLA define it differently, granting ‘historic’ status to vehicles built or first registered more than 40 years ago provided that no ‘substantial changes’ have been made to the vehicle in the last 30 years. In the pantheon of noteworthy two-wheelers, a ‘vintage’ motorcycle might be considered to be older still, perhaps comprising hall-of-famers from the likes of Vincent and Indian.

For our purposes, we will closely follow FIVA’s definition and consider any bike manufactured prior to 1992 to be worthy of classic status.

Fig. 3

Number of classic motorcycles by definition vs. total parc.

Source: DVLA



How many classic motorcycles are there?

Using our definition, the DVLA database¹ holds details of 275,012 classic motorcycles licensed for use on UK roads, with an additional 349,793 motorcycles declared as SORN (Statutory Off-Road Notification), for a total of 624,805.

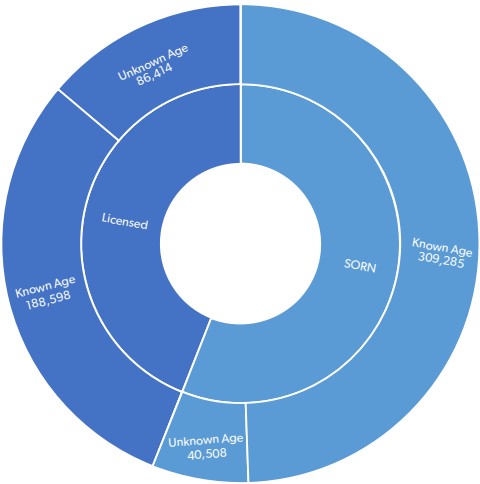


Fig. 4

Number of classic motorcycles, licensed and SORN, in the UK.

Source: DVLA

However, that includes 126,922 bikes (40,508 of which are SORN) for which the DVLA has no known build date. Looking at the manufacturer recorded against these – a list that includes iconic marques from BSA to Velocette – it’s clear most, if not all, are likely to fall within our definition of a classic. As a result, these bikes have been included in our analysis.



Fig. 5

BSA motorcycles are among the most popular bikes for which the DVLA has no recorded year of manufacture, with 22,370 of indeterminate age.

Photo: BSA Company Ltd.

¹ DVLA, df_VEH0124: Vehicles at the end of the quarter by licence status, body type, make, generic model, model, year of first use and year of manufacture

Defining a classic

What are the most popular bikes on our roads?

Honda, the giant Japanese conglomerate, is the most popular make with British bikers with 35,894 motorcycles and mopeds licensed for use on UK roads. BSA, once the largest motorcycle manufacturer in the world, takes the second spot with a healthy 28,713, with fellow British brand Triumph not far behind in third.

Tab. 2

Top 10 most popular makes of licensed motorcycles

Source: DVLA

Make	Licensed motorcycles
HONDA	35,894
BSA	28,713
TRIUMPH	26,142
LAMBRETTA	23,211
YAMAHA	18,672
SUZUKI	13,655
KAWASAKI	11,488
NORTON	10,441
BMW	6,404
VELOCETTE	6,189

Although the famous Japanese triumvirate of Yamaha, Suzuki and Kawasaki dominate much of the remainder of the top ten, the presence of early pioneering marques such as Velocette, Matchless, and AJS within the top 20 suggests that bikers are proud of their motorcycling heritage and keen to see it preserved.

Establishing the most popular model is harder for motorcycles than for cars. The Honda CB series, for example, is the most prevalent family of motorcycles overall with 1,464 licensed for use on our roads. However, that includes everything from the lowly CB50 of the 1970s to the CB1100R homologation special of the 1980s.

Tab. 3

Top 10 most popular models of licensed motorcycles

Source: DVLA

Make	Model	Licensed motorcycles
HONDA	C 90	1,278
TRIUMPH	BONNEVILLE	891
LAMBRETTA	GP 150	659
BMW	R 80	626
HONDA	CB 750	604
HONDA	VFR 750	547
TRIUMPH	TIGER	457
BMW	K 100	441
LAMBRETTA	GP 200	354
YAMAHA	RD 250	350

If there is to be an award for the most popular individual model, that must surely go to the Honda C90. A modern design classic and part of the Super Cub line that has notched up more than 100 million units sold since production began in 1958, there are at least 1,278 C90s pattering around British roads.



Fig. 6

Most popular models of the top 10 most popular makes of licensed motorcycles

Source: DVLA



Defining a classic

Which bikes are currently off the road?

When looking at bikes currently declared as SORN, the picture is still dominated by the big Japanese brands, with 86,317 Hondas tucked away in garages. As we'll see in a moment, it's the 'young timers' – relatively new classic bikes that are yet to qualify for DVLA historic status – that make up the bulk of these numbers.

Tab. 4

Top 10 most popular makes of SORN motorcycles

Source: DVLA

Make	SORN motorcycles
HONDA	86,317
YAMAHA	49,712
SUZUKI	37,201
KAWASAKI	37,000
TRIUMPH	17,568
BSA	16,257
BMW	12,334
LAMBRETTA	11,713
VESPA (DOUGLAS)	7,873
HARLEY-DAVIDSON	6,554

Our old friend the Honda C90 again takes the top spot in the list of most popular bikes declared as SORN. In fact, there are more than three times as many parked up off the road than are currently being used on it, and far more than any other bike. One can only hope they will one day earn their place in the sun.

Tab. 5

Top 10 most popular models of SORN motorcycles

Source: DVLA

Make	Model	SORN motorcycles
HONDA	C 90	4,035
HONDA	VFR 750	2,527
BMW	K 100	2,095
KAWASAKI	ZX 750	1,815
HONDA	CBR 600	1,679
BMW	R 80	1,627
HONDA	CG 125	1,593
HONDA	CBR 1000	1,508
KAWASAKI	ZX 900	1,418
KAWASAKI	Z 750	1,183

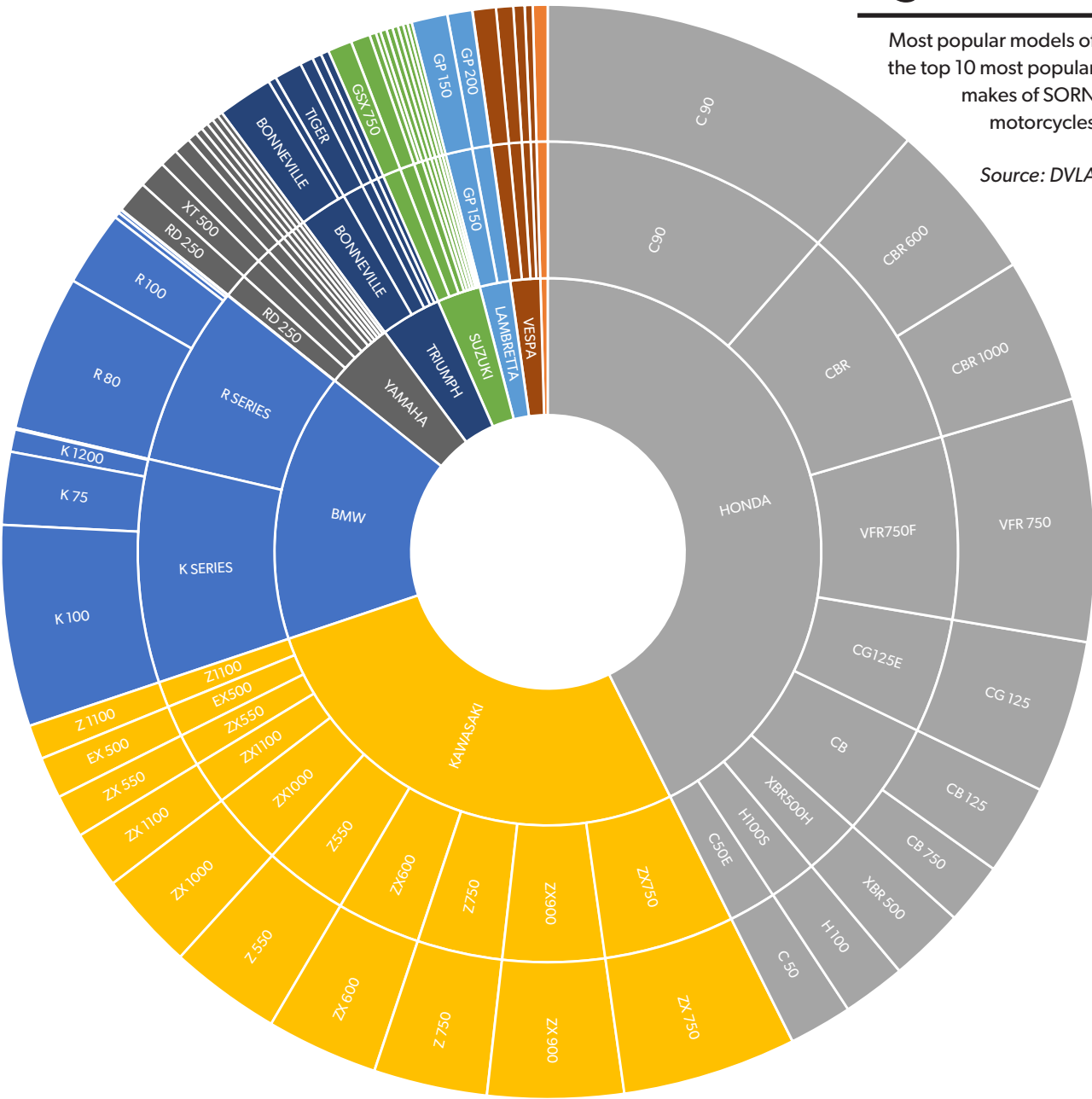
Camshaft failures in an earlier incarnation of the V4 engine meant Honda was on the back foot. Their next bike had to be perfect and, in true Honda style, their engineers threw everything at it. When the VFR750F of 1986 arrived, industry legend Graham Sanderson coined his now-famous phrase: "I don't care how much the VFR costs, it's worth £1,000 more."



Fig. 7

Most popular models of the top 10 most popular makes of SORN motorcycles

Source: DVLA

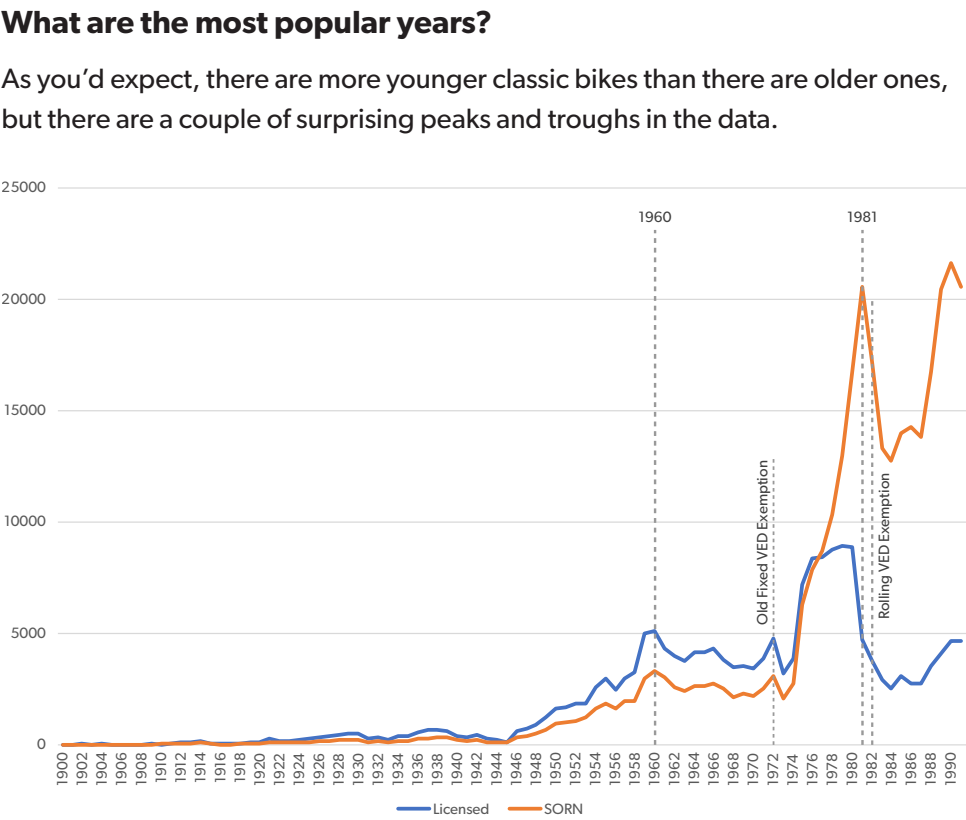


Defining a classic

Fig. 8

Licensed and SORN classic motorcycles by year of manufacture

Source: DVLA



The easiest to explain is the rise in licensed bikes as they reach their magic 40th anniversary and receive the gift of Vehicle Excise Duty (VED) exemption from the DVLA. Prior to the creation of the rolling 40-year rule in 2014, only vehicles constructed before 1st January 1973 were eligible for historic status, and that leads to a similar but smaller uptick in the figures around the 1972 mark.

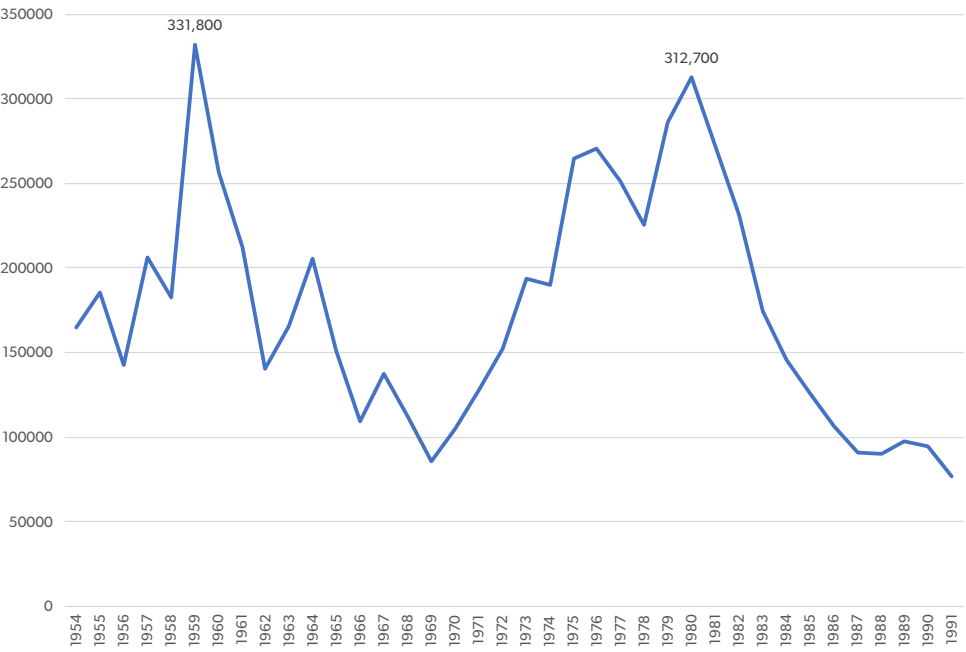
Far more noticeable, however, is a towering summit in the numbers of both licensed and SORN motorcycles made in 1980-81, and a similar yet smaller peak in the data for 1959-60.

To understand the reason for this, we need to turn to the Department for Transport's statistics on new vehicle registrations². There, the two golden ages of motorcycling are clearly visible. In the 1950s, American-imported counter-culture and films such as *The Wild One* ensured motorbikes transitioned from mere cost-effective transport to a cultural icon for individualism, with registrations more than doubling in three short years to a record high of 331,800 in 1959.

Fig. 9

New motorcycle registrations by year

Source: DfT



When *Easy Rider* hit the screens a decade later in 1969, motorbikes became a symbol of rebellion and freedom for a new generation. Japanese newcomers usurped the established British manufacturers with their speed and reliability, and motorcycling enjoyed a sustained rise in popularity throughout the Seventies – upset momentarily by the odd recession – culminating in a second peak of 312,700 new registrations in 1980.

Harder to answer is why the numbers dropped so sharply during the Eighties; perhaps economic prosperity meant that many switched their allegiance from two wheels to four. Whatever the reason, by 1991, new bike registrations were at their lowest point in more than 40 years.

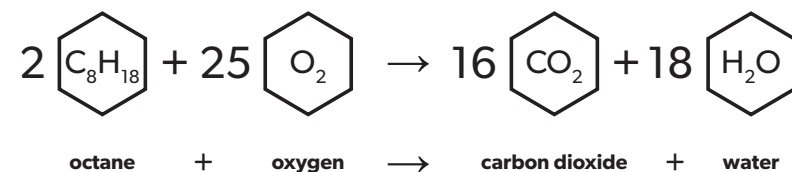
² Department for Transport, VEH0153: Motor vehicles registered for the first time by tax class: Great Britain and United Kingdom

Methodology

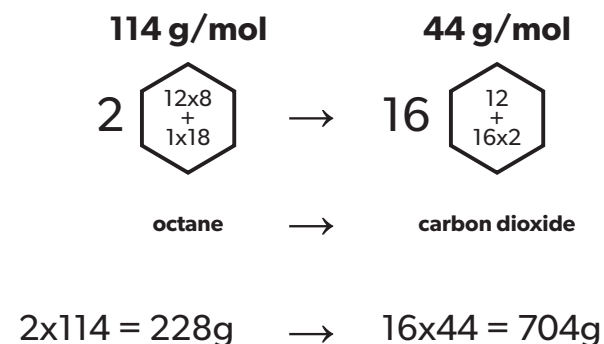
Given the lack of official emissions data, we must develop an alternative methodology.

Although we think of petrol engines as a purely mechanical process, at their heart lies a chemical reaction – combustion – which occurs when a substance reacts with oxygen to release energy, usually in the form of heat and light. When the fuel is mixed with air and ignited inside the engine, a predictable reaction takes place. So predictable, in fact, that we can assign a formula to it.

Petrol is made up of many hydrocarbons but is usually approximated as octane, whose chemical formula is C_8H_{18} . When it burns it reacts with oxygen from the air, with the carbon (C) oxidising to carbon dioxide and the hydrogen (H) oxidising to water. Complete combustion of our fuel, therefore, can be written like this:



The molar mass of carbon is 12.0107 g/mol, while the molar mass of hydrogen is 1.00784 g/mol. During combustion, it combines with oxygen (15.999 g/mol) in the air. Using these masses, we can establish exactly how much CO_2 is produced:



Therefore, 1kg of petrol produces $1000/228 \times 704 = 3087.72g$ of CO_2 .

The density of petrol varies but in the UK one ton is currently defined³ as 1343.79 litres, or 0.7442 kg/m³. That means we can say 1 litre of petrol produces:

$3087.72 \times 0.7442 = 2297.88g$, or **2.3kg of CO_2** .

³ Department for Business, Energy & Industrial Strategy, Digest of United Kingdom Energy Statistics (DUKES) 2021

There are variances due to the formulation of fuel and the engine itself, but the chemistry remains much the same.

Molar mass, often called the molecular weight, is the mass of one mole of a substance, with one mole defined as the number of atoms in 12 grams of carbon.

While that sounds complicated, an easier way to think of it is as the sum of the atomic mass of all the atoms in a molecule. The atomic mass of each element is shown in the periodic table that's been with us for more than 150 years.

For example, water which we know as H_2O has a molar mass of two times hydrogen's mass of 1 plus one of oxygen, 16, which equals 18. We express that in grams per mole, or g/mol.

Petrol stations in the UK have recently switched to E10, a blend that contains up to 10% bioethanol. The Department for Business, Energy & Industrial Strategy kindly publishes a figure for the amount of CO_2 produced from the typical formulation of petrol that's available at filling stations across the UK. However, to permit a more representative picture of greenhouse gas (GHG) emissions in our calculations and to make later comparisons easier, we will use the published conversion figure⁴ for CO_2e which is 2.19352kg.

CO_2e , or CO_2 -equivalent, is a measure created by the United Nations' Intergovernmental Panel on Climate Change (IPCC) in order to make the effects of various greenhouse gases comparable.

Each greenhouse gas (GHG), whether carbon dioxide, methane, nitrous oxide or fluorinated gases, has a different climate change impact. CO_2e provides a means of expressing that impact in terms of the amount of CO_2 required to achieve the same effect.

In short, it's a simple way to gather all GHGs into one measure.

Combined with fuel consumption data, this information can be used to calculate the emissions of our classic motorbikes.

⁴ Department for Business, Energy & Industrial Strategy, Government conversion factors for company reporting of greenhouse gas emissions, 2021

What is molar mass?

What is CO_2e ?

Trends

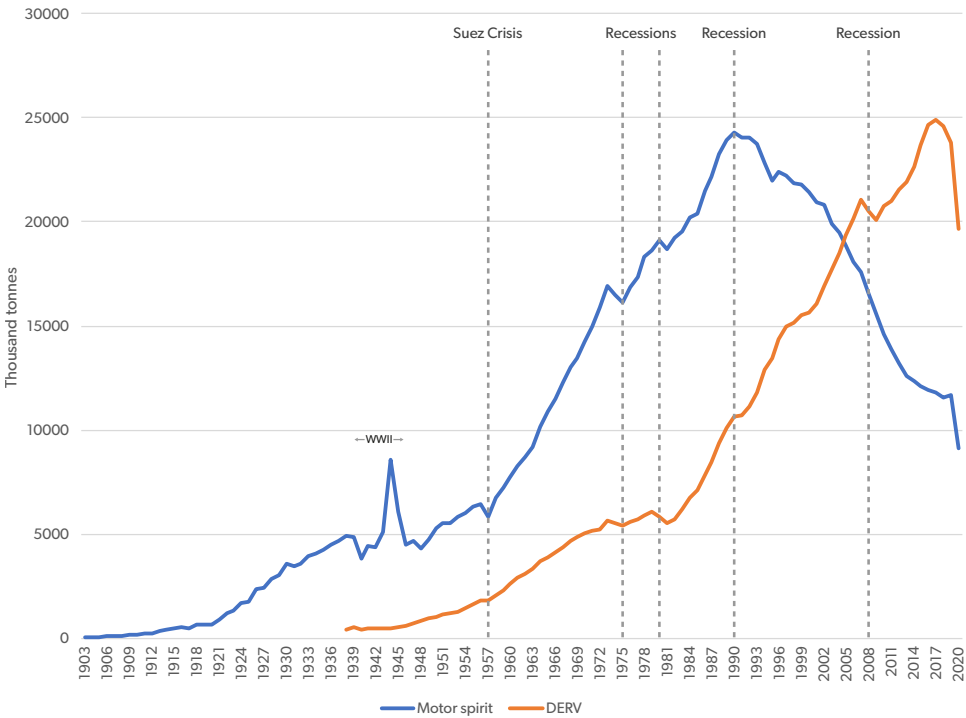
Fig. 10

Historic Inland Deliveries of Petroleum Products

Source: DfBEIS

Delving into the archives

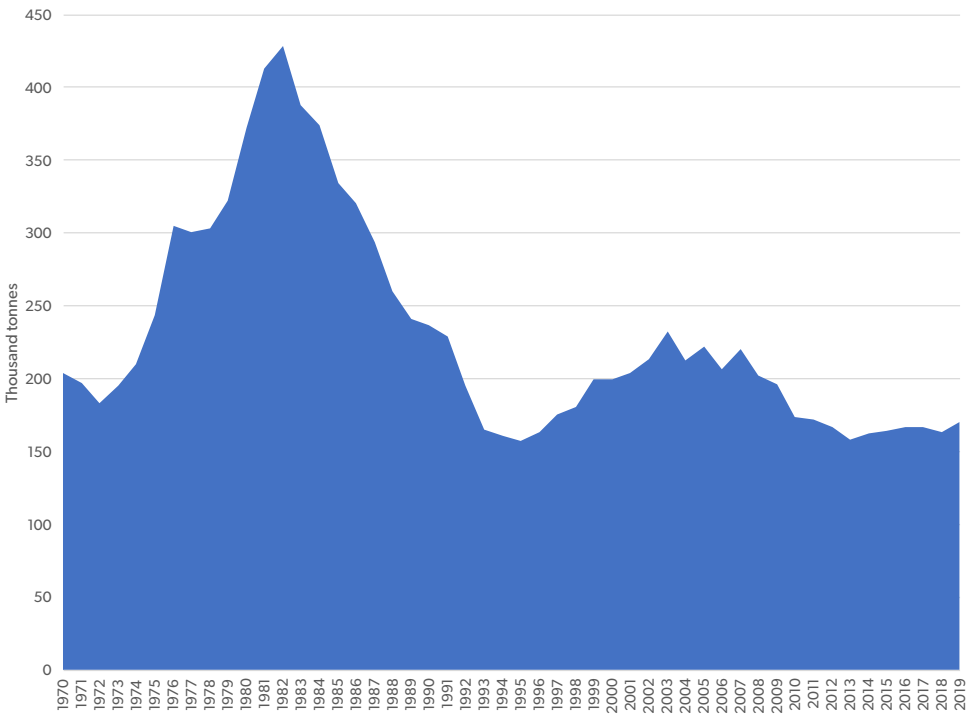
Even before the birth of the motorcycle, the Government has kept records⁵ of fuel sales – then called ‘motor spirit’ – and these are available from our old friend the Department for Business, Energy & Industrial Strategy. Data prior to 1938 is derived from handwritten tables that can trace their origin all the way back to 1870, while subsequent figures are available from the appropriate DUKES (Digest of United Kingdom Energy Statistics).



The graph paints a picture of the escalating reliance on fossil fuels over the last 120 years, with petrol consumption peaking in 1990 at 24.3m tonnes, before diesel takes over in 2005 to finally reach its zenith of 24.9m tonnes in 2017. The spectre of the global pandemic clearly plays its hand as fuel usage drops sharply in 2020.

⁵ Department for Business, Energy & Industrial Strategy, Historic Inland Deliveries of Petroleum Products, 1870-2020

The Department for Transport is kind enough to break these figures down by vehicle type⁶ from 1970, from which we can deduce sufficient trends to calculate fuel use by vehicle type back to 1949.



The graph reinforces what we learned earlier regarding the golden ages of motorcycling with a peak of 428,560 tonnes of fuel used by motorcycles in 1982 followed by a sustained decline towards the early 1990s. The peaks in 1999 and 2003, 2005 and 2007 correspond closely with resurgences in two-wheeler sales.

⁶ Department for Transport, Road transport energy use by vehicle type, split by Diesel for Road Vehicles (DERV) and petrol, 1970-2018

Fig. 11

Fuel use by motorcycles by year

Source: DfT

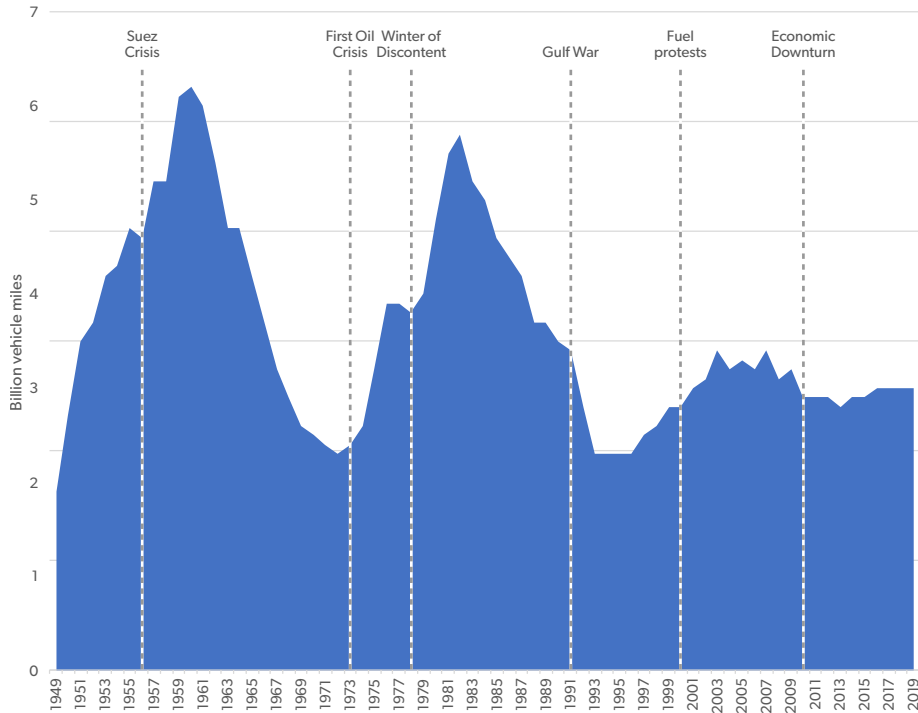
Trends

Fig. 12

Road traffic (vehicle miles) by motorcycles

Source: DfT

The DfT’s National Road Traffic Survey⁷ details the miles travelled by different road users since 1949. While motorcycling’s golden ages are clear to see, more subtle are the effects of world events. The Suez Crisis of 1956, for example, which saw five months of petrol rationing and a four day working week for many factories, registers plainly as a divot in an otherwise inexorable rise in miles travelled by motorbike.



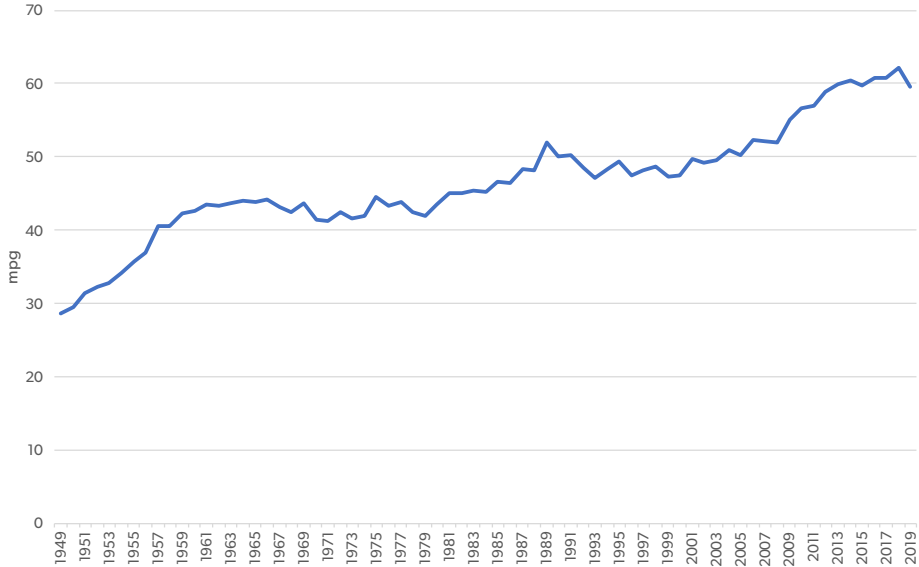
It could be argued, however, that the 1973 oil crisis – the result of an embargo by the Organization of Arab Petroleum Exporting Countries and an attempt to ‘weaponise’ oil production in order to achieve political influence – had the opposite effect. Motorcycle sales continued to rise, as did the number of miles they travelled, perhaps as a result of their greater fuel economy over their four-wheeled equivalents. Although this increase in popularity was diverted slightly by the Winter of Discontent in 1978-79, by 1982 Brits were travelling nearly six billion miles a year on two wheels, not far behind the zenith of 1960.

⁷ Department for Transport, National Road Traffic Survey, TRA0101: Road traffic (vehicle miles) by vehicle type in Great Britain, annual from 1949

In 1982, learners lost the right to ride 250cc motorcycles without a full licence, while 1990 saw a new training regime introduced and the birth of Compulsory Basic Training (CBT). Whether these had a direct impact on motorcycle use is hard to say, although the fuel protests of 2000 certainly made it hard to go for a ride with thousands of petrol stations across the country forced to close as they ran out of fuel.

Calculating fuel economy

Combining what we’ve learnt about fuel usage and miles travelled over the last 70 years, we can now estimate how average fuel economy in miles per gallon (mpg) has changed over time.



By its nature, this analysis includes the entire mix of new and old motorcycles on the road at any given time, and therefore cannot be entirely indicative of the average mpg of new bikes alone. However, countering this is the fact that most motorcycles are relatively new, with only 21% qualifying as a classic, even though today’s bikes are now older than ever before. In fact, in 2002, the average UK motorcycle⁸ was 9.6 years old; by 2021, that had risen to 15.2 years, the highest figure on record.

⁸ Department for Transport, VEH1107: Licensed vehicles at the end of the year by number of years since first use

Fig. 13

Estimated average mpg of motorcycles

Source: Our analysis

Calculating emissions

With our estimates for average mpg over time, we can now calculate an emissions figure for every classic motorcycle on UK roads.

The calculation itself is quite straightforward, converting mpg to L/100km, before multiplying by the appropriate conversion factor⁹ to give us a figure for each motorcycle's CO₂e output in grams per kilometre (g/km).

$$\text{CO}_2\text{e g/km} = \frac{1}{\frac{\text{mpg}}{4.546} \times 0.01609344} \times 2.19352 \times \frac{1000}{100}$$

By analysing the DfT's anonymised MOT data¹⁰ we know that the national average annual mileage for classic and historic motorcycles in the UK is 717 miles or 1,154km p.a. Multiplying this by the result of the formula above gives us the total annual emissions for each bike in the classic fleet, while repeating it for every entry in the DVLA database gives us the total combined emissions of all the UK's classic motorcycles.

209.9 kg

The average annual CO₂e emitted by each classic motorcycle in the UK

57,723 t

The total annual CO₂e emissions of all classic motorcycles in the UK in tonnes

In perspective

To the average person, those numbers might not mean a great deal without some benchmark to view them against. In the context of the UK's overall emissions¹¹, the environmental impact of every classic motorcycle in the country is so small as to be almost invisible, accounting for just 0.05% of all transport emissions.

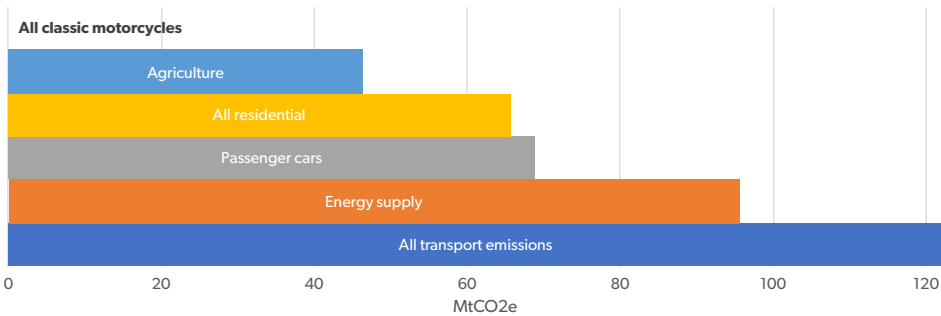


Fig. 14

Comparison with UK's overall annual emissions

Source: DfBEIS, Our analysis

At the individual level, the carbon footprint of a classic motorcycle becomes easier to understand, with 700 miles on an old bike emitting little more than drinking a latte¹² a day for a year or a single roundtrip flight from London to Portugal¹³.

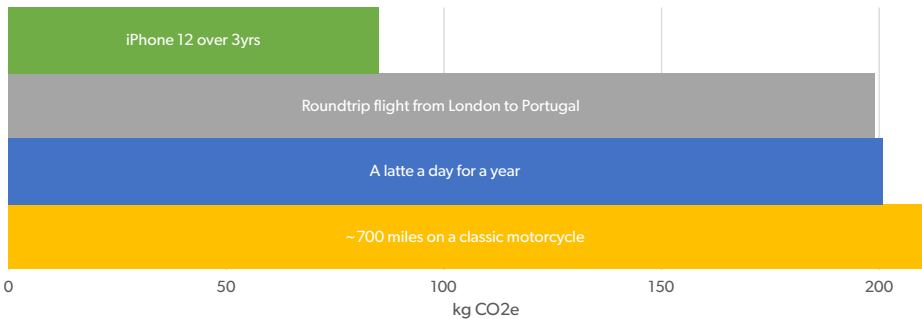


Fig. 15

Comparison with various typical emissions

Source: UCL, Carbon cost of your daily coffee; SAS, Flight Emissions Calculator; Our analysis; Apple, iPhone 12 Product Environmental Report

⁹ Department for Business, Energy & Industrial Strategy, Government conversion factors for company reporting of greenhouse gas emissions, 2021
¹⁰ Department for Transport, Anonymised MOT tests and results, 2021

¹¹ Department for Business, Energy & Industrial Strategy, Final UK greenhouse gas emissions national statistics, 2019 (pre-pandemic)
¹² UCL, Carbon cost of your daily coffee
¹³ SAS, Flight Emissions Calculator

Q&A

Are these figures totally accurate?

Without attaching a PEMS (Portable Emissions Measurement System) device to every single vehicle and recording their emissions over the course of a year, it's impossible to be 100% accurate. Any methodology will have to make assumptions and compromises, not least because of the number of vehicles involved and the historical nature of the data, much of which is missing. We've tried to be as accurate as we can with the data available, and present our findings in a transparent way.

How accurate is the data used in this analysis?

The DVLA estimate¹⁴ that 11% of vehicles registered in its database have an error in at least one data field. For motorcycles, however, our analysis suggests that figure is much higher.

Of the 2,604,637 motorcycles listed in the DVLA data, 813,645 are missing basic information such as make or model – roughly 31%. Of those, 417,183 are classic two-wheelers, while a further 124,447 have no recorded year of manufacture, although are still likely to be considered a 'classic'.

In addition, we noted that a number of cars were erroneously recorded as motorcycles – several BMW 325i Cabriolets and Triumph Acclaims are obvious examples – and where possible we have manually removed these from our analysis.

Are SORN motorcycles included in these figures?

All vehicles declared as SORN have been excluded from our final analysis. As the DVLA data is released annually and presents a snapshot of the vehicle register at the time it is produced, it's possible some of these vehicles are returned to the road for part of the year – perhaps to coincide with the classic show season – before being redeclared as SORN. No official records are available to quantify the frequency with which this occurs. The DVLA's rolling Vehicle Excise Duty (VED) exemption for historic vehicles means there is now less incentive to declare as SORN other than for 'young timers' or long-term reasons.

Do these figures take the deployment of E10, a bioethanol petrol blend, into account?

The conversion factors used to calculate the CO₂e emissions are based on the typically-available blend of fuels at petrol stations across the UK, and are therefore representative of the current state of the E10 roll-out. However, there is some anecdotal evidence to suggest that fuel economy is reduced in vehicles running on E10. At present no official studies exist to quantify this, and as the impact is currently not well understood, we have chosen not to weight our figures to compensate.

Figure 13, the estimated average MPG, goes as far back as 1949. What happens beyond this?

For the relatively small number of motorcycles made prior to 1949 where our estimated fuel economy calculations have no data, we have used a fallback value of 25mpg.

¹⁴ Department for Transport, Vehicle licensing statistics: notes and definitions, Quality of the data

Abbreviations

C	Carbon
CO	Carbon monoxide
CO₂	Carbon dioxide
CO₂e	Carbon dioxide equivalent
CBT	Compulsory Basic Training
DERV	Diesel Engined Road Vehicle
DfBEIS	Department for Business, Energy & Industrial Strategy
DfT	Department for Transport
DUKES	Digest of United Kingdom Energy Statistics
DVLA	Driver and Vehicle Licensing Agency
EEC	European Economic Community
EPA	Environmental Protection Agency
FIVA	Fédération Internationale des Véhicules Anciens
g	Gram
g/km	Grams per kilometre
g/mol	Grams per mole
GHG	Greenhouse gas
H	Hydrogen
H₂O	Water
HC	Hydrocarbons
kg	Kilogram
kg/m³	Kilograms per cubic metre
L/100km	Litres per 100 kilometres
mpg	Miles per gallon
MtCO₂e	Million tonnes of carbon dioxide equivalent
NOx	Nitrogen oxides
OAPEC	Organization of Arab Petroleum Exporting Countries
SORN	Statutory Off-Road Notification
VED	Vehicle Excise Duty

References

DVLA, df_VEH0124: Vehicles at the end of the quarter by licence status, body type, make, generic model, model, year of first use and year of manufacture, www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-files

Department for Transport, VEH0153: Motor vehicles registered for the first time by tax class: Great Britain and United Kingdom, www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-tables

Department for Business, Energy & Industrial Strategy, Digest of United Kingdom Energy Statistics (DUKES) 2021, www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2021

Department for Business, Energy & Industrial Strategy, Government conversion factors for company reporting of greenhouse gas emissions, 2021, www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021

Department for Business, Energy & Industrial Strategy, Historic Inland Deliveries of Petroleum Products, 1870-2020, www.gov.uk/government/statistical-data-sets/crude-oil-and-petroleum-production-imports-and-exports

Department for Transport, Road transport energy use by vehicle type, split by Diesel for Road Vehicles (DERV) and petrol, 1970-2018, www.gov.uk/government/statistical-data-sets/tsgb03

Department for Transport, National Road Traffic Survey, TRA0101: Road traffic (vehicle miles) by vehicle type in Great Britain, annual from 1949, www.gov.uk/government/statistical-data-sets/road-traffic-statistics-tra

Department for Transport, VEH1107: Licensed vehicles at the end of the year by number of years since first use, www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-tables

Department for Transport, Anonymised MOT tests and results, 2021, www.data.gov.uk/dataset/e3939ef8-30c7-4ca8-9c7c-ad9475cc9b2f/anonymised-mot-tests-and-results

Department for Business, Energy & Industrial Strategy, Final UK greenhouse gas emissions national statistics, 2019 (pre-pandemic), www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2019

SAS, Flight Emissions Calculator, www.flysas.com/gb-en/sustainability/emission-calculator

References

UCL, Carbon cost of your daily coffee, www.ucl.ac.uk/news/2021/jan/analysis-heres-carbon-cost-your-daily-coffee-and-how-make-it-climate-friendly

Apple, iPhone 12 Product Environmental Report, www.apple.com/environment/pdf/products/iphone/iPhone_12_PER_Oct2020.pdf

Department for Transport, Vehicle licensing statistics: notes and definitions, Quality of the data, www.gov.uk/government/publications/vehicles-statistics-guidance/vehicle-licensing-statistics-notes-and-definitions

About loop

loop is a specialist automotive PR and communications agency producing award-winning work for clients across Europe and internationally. From our base at Bicester Heritage, the heart of the UK's classic automotive scene, we deliver a full service covering everything from simple stories to key projects, for clients stretching right across the automotive, engineering and technology sectors.

For more information, to find out how **loop** could help you achieve your communications objectives, or to start your next campaign, visit:

www.loopagency.co.uk





Loop Agency

Building 123
Bicester Heritage
Buckingham Road
Bicester, Oxon
OX27 8AL

Telephone 01869 228766 **email** info@loopagency.co.uk

loopagency.co.uk

loop