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UK New Car Registrations by CO_2 Performance

Report on the 2005 market

April
2006

UK New Car Registrations by CO_2 Performance

Quick facts

	2005	*2004*	*1997*
Average new car CO_2 emissions	**169.4g/km**	**171.4g/km**	**189.8g/km**
% reduction vs 2005		*-1.2%*	*-10.7%*
Share of cars under 140g/km	**18.0%**	**15.5%**	**3.9%**
Total new car market	**2,439,717**	**2,567,269**	**2,170,725**
Diesel penetration	***36.8%***	***32.5%***	***16.2%***

	2004	*2003*	*1997*
CO_2 emissions – road transport*	**32.6MtC**	**32.3MtC**	**31.7MtC**
Cars only	**N/A**	**19.8MtC**	**20.0MtC**
Total volume fuel consumed*	**37.8Mt**	**37.4Mt**	**37.0Mt**
% diesel	***48.9%***	***47.3%***	***40.4%***
Fuel consumed by cars	**22.4Mt**	**22.7Mt**	**23.0Mt**
Total UK car parc	**30.27mn**	**29.90mn**	**26.32mn**
Total UK car & CV parc	**34.09mn**	**33.59mn**	**29.63mn**

MtC = Million tonnes Carbon (abbreviation used throughout report)

Mt = Million tonnes

Mn = Million (abbreviation used throughout report)

Sources

All data sourced from SMMT unless otherwise stated

* DEFRA, 2006

Transport Statistics Great Britain, 2005 edition (www.tso.co.uk/bookshop)

UK New Car Registrations by CO_2 Performance

Contents

Overview

- Average new car CO_2 emissions in 2005 were 169.4g/km
- This was 1.2 per cent below and three times the rate achieved in 2004
- CO_2 levels have fallen by 20g/km or 10.7 per cent from the 1997 level
- 18 per cent of cars were below 140g/km – the highest level ever
- Performance largely due to further growth in the diesel market
- Integrated Approach needed to ensure pick-up in pace of gains

SMMT's fifth annual review of the new car market by CO_2 performance shows the trend since 1997. Average new car CO_2 emissions have fallen in each year, and by 2005, had fallen to 169.4g/km. This was a 1.2 per cent or 2g/km improvement over the 2004 level and a 10.7 per cent or 20.4g/km saving over the 1997 level.

The improvements in average new car CO_2 emissions stems from increased dieselisation of the fleet. Diesel cars accounted for a record 36.8 per cent of the new car market in 2005. New technologies have helped petrol cars make gains too. However, economic developments, structural changes in the market, and the timing of model replacements have worked against making even better gains in 2005, but we expect to see their impact in 2006.

The rate of decline in 2005 was some three times the rate in 2004. This represents an acceleration in the rate of change. This is welcome, but still leaves the industry with a tough challenge to achieving the UK's contribution to the European target of 140g/km. This report looks at the current average new car performance, and sets this in the context of other market trends, the whole vehicle parc and potential future scenarios, eg higher diesel penetration.

Making further gains will be reliant upon all parties sharing their responsibilities to develop a lower carbon transport system. This integrated approach would see manufacturers delivering improved technologies, fuel companies developing lower carbon renewable clean fuels, government promoting the purchase and use of low CO_2 emitting vehicles, and buyers actively changing their purchasing and driving habits.

Accuracy of data

Data is sourced from manufacturers' own CO_2 figures (supplied on the first registration document) and checked with type approval data from the Vehicle Certification Agency to ensure accuracy. Since 2003, the low volume of missing data was estimated by using other models in the range or using models of a similar segment/engine size and type.

Number of vehicles with fully checked CO_2 data

	CO_2	All Registrations	% of total
1997	1,742,251	2,170,725	80.3%
1998	1,993,301	2,247,402	88.7%
1999	2,125,465	2,197,615	96.7%
2000	2,212,786	2,221,647	99.6%
2001	2,457,368	2,458,769	99.9%
2002	2,562,764	2,563,631	100.0%
2003	2,579,050	2,579,050	100.0%
2004	2,567,269	2,567,269	100.0%
2005	2,439,717	2,439,717	100.0%

SMMT believes the database it has compiled is the most accurate and reliable available and therefore provides the best source for analysing the UK's performance over the past nine years.

The data is collated by SMMT's Motor Vehicle Registration Information Service (MVRIS). It links vehicles' CO_2 levels to the MVRIS new car registration database. The information in this report looks at the overall new car market and does not differentiate for individual manufacturers or groups of manufacturers (eg ACEA, JAMA or KAMA members).

For specific tailored reports by CO_2 performance contact co2@smmt.co.uk.

Average new car emissions

- In 2005 the average new car registered in the UK emitted 169.4 g/CO_2 per km

Average new car CO_2 emissions in the UK (1997-2005)

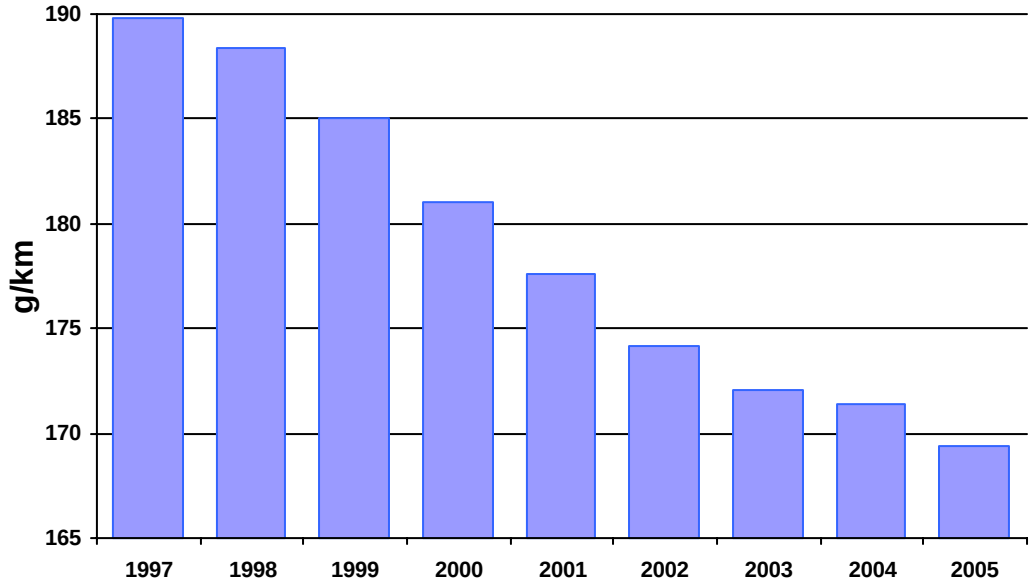
Year	Average CO_2 g/km	y/y % change	y/y % ch on 1997
1997	189.8	-	-
1998	188.4	-0.7%	-0.7%
1999	185.0	-1.8%	-2.5%
2000	181.0	-2.2%	-4.6%
2001	177.6	-1.9%	-6.4%
2002	174.2	-1.9%	-8.2%
2003	172.1	-1.2%	-9.3%
2004	171.4	-0.4%	-9.7%
2005	169.4	-1.2%	-10.7%

In 2005, average new car CO_2 emissions in the UK posted an eighth successive annual decline as emissions fell below 170g/km for the first time – a reduction of over 20g/km since 1997. The pace of reduction picked up in 2005, being three times the rate recorded in 2004 and back to the 2003 level.

The reduction reflects a record diesel share of the UK market in 2005 and also the arrival of more new models with improved technologies to lower CO_2 emissions. However, the pace of reduction was hindered by the shift in the UK's economic balance, which saw the volume bought by the private sector fall sharply. The private buyer is most active in the small car market, and the decline here was reflected a fall in the supermini and mini segments. Many models in these two segments are also set to be replaced soon, causing a further hold-off in demand for small cars, though this should have a positive impact on the 2006 performance.

The proportion of cars under 140g reached 18.0 per cent in 2004 – a new high. 2005 also saw the largest ever share of cars in, or below, the 'B' VED band, at 3.3 per cent. The year also saw a record level of hybrid vehicle registrations, as new products were introduced, but alternatively fuelled cars saw volumes slide.

Average new car CO_2 emissions

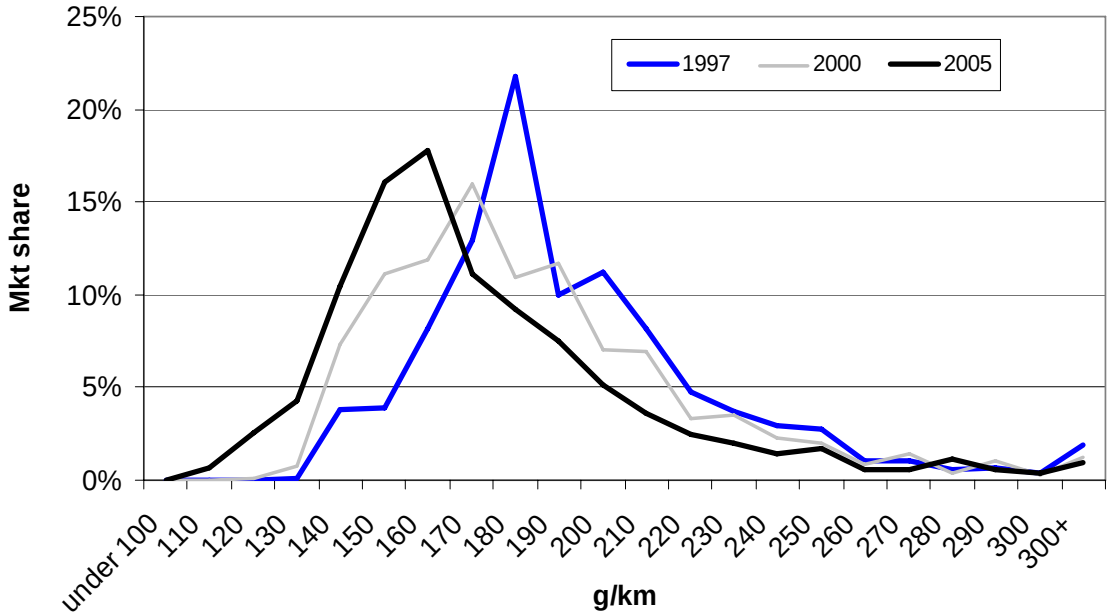


While year-on-year comparisons are the focus of this report, it should be noted that usually car buyers do not change their vehicle every year. Typically it is nearer three years, although for company car buyers it may be slightly shorter. This can often delay the introduction of the latest technology, but it does also suggest that buyers are making even greater reductions in CO_2 levels from the new car purchase than they made of one three years earlier. For example, comparing the average CO_2 emission of a 2005 car with a 2002 car shows a 2.8 per cent lower CO_2 emitting vehicle is likely to be bought.

CO_2 profile of the new car market

- Over half the market now under 160 g/km
- 18 per cent of cars under 140g/km. Over 80,000 new cars registered in 2005 were below 120g/km, but still virtually none under 100g/km
- Share of market over 186g/km ('F' VED band) fell to lowest ever share in 2005

CO_2 distribution of new car registrations in the UK (1997 – 2005)



Over half of the market in 2005 was under 160g/km. A record share of the market was below 140g/km in 2005, and at the same time a record low proportion was over 200g/km. The chart above shows how the distribution of the market has shifted. In 1997 less than four per cent of the market was below 140g/km; by 2000 the share was still only 8.2 per cent. However, by 2005 18.0 per cent of the market was below 140g/km. The peak on the chart in 1997 was around the 180g/km mark. By 2000 it was nearer the 170g/km mark and by 2003/2004 it was at the 150g/km level. In 2005 it was the under 140g/km group. In 1997 almost 40 per cent of the market was over 200g/km. By 2005 the level was just 20.4 per cent. The chart continues to show a long tail, although the proportion of vehicles over 250g/km has more than halved between 1997 and 2005, from 8.4 to 4.1 per cent.

Vehicle Excise Duty profile of the new car market

- CO_2-based VED scheme in place since 1 March 2001
- VED gives signals to new car buyers to assist 'greener' motoring – with 19 rates
- The new car market still moving steadily towards ever lower CO_2 values
- New top band introduced in 2006 and £0 charge on lowest band - £210 differential
- 2006 changes said to be revenue neutral – but likely to raise revenues by £10mn+

Since March 2001, the UK has had a VED scheme based upon CO_2 emissions for new cars, with engine size still used for pre-2001 cars. The scheme also includes a differential between fuel types, with higher charges for diesels and lower charges for alternative fuelled cars.

Originally, the scheme had four bands A–D, but new bands were progressively introduced, AA and AAA. In the March 2005 Budget the AAA–D bands were reclassified to A–F. In September 2005 vehicle manufacturers introduced a new car labelling scheme, based on the A–F bands, to give consumers greater information on the environmental performance and running cost of new cars.

In the 2006 Budget, the Chancellor announced 'radical' change, with a new top band – 'G', for all cars over 225g/km registered from 23rd March 2006. At the same time the charge for an 'F' band car was increased by almost 20 per cent, whilst cars in the 'B' and 'C' bands saw rates drop and in the 'A' band the charge fell to zero. The rates are shown below.

Annual VED payable on new cars as of March 23rd 2006 *(previous rates)*

	A	B	C	D	E	F	G
CO_2 g/km	**<100**	**101-120**	**121-150**	**151-165**	**166-185**	**186-225**	**226+**
AFV	£0 *(£55)*	£30 *(£65)*	£90 *(£95)*	£115	£135	£180 *(£155)*	£200
Petrol	£0 *(£65)*	£40 *(£75)*	£100 *(£105)*	£125	£145	£190 *(£160)*	£210
Diesel	£0 *(£75)*	£50 *(£85)*	£110 *(£115)*	£135	£155	£195 *(£165)*	£215

The UK is the only country within Europe to have new car tax systems based on CO_2 emissions. Currently government varies VED to increase awareness amongst buyers of the importance of CO_2 emissions in their new and recently new car choices. However, the structure is complex, fragmented and its effectiveness also needs to be properly reviewed. There are, in effect, three schemes for cars. Taxes for pre-2001 registered cars are based on engine size, under or over 1550cc. The post-2001 registered cars scheme is based on CO_2 performance, with six bands for cars pre-23 March 2006 and with seven bands for cars post that date. Furthermore, each CO_2 band is split into three classes, dependent upon fuel type. This latter aspect could confuse consumers into thinking that CO_2 emitted by one fuel type is better or worse than CO_2 from another fuel type.

There has been a debate over introducing more bands or widening the differentials between the bands. SMMT remains unconvinced of the benefits of this, especially upon drivers of older vehicles, where higher VED rates may preclude some sectors of society having access to vehicles which best suit their ability to pay for a car which meets their mobility needs.

The table below shows the new car market differentiated by VED band since 1997.

New car market distributed by VED band (% total market)

Band	1997	1998	1999	2000	2001	2002	2003	2004	2005
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B	0.0	0.0	0.0	0.1	0.6	2.0	3.0	3.1	3.3
C	7.8	8.9	11.8	19.2	23.1	25.8	31.2	30.1	30.8
D	15.1	18.0	25.0	23.8	23.8	24.3	21.2	23.6	24.9
E	32.0	31.2	25.8	22.7	20.6	19.0	17.8	17.2	17.2
F	45.1	41.9	37.4	34.3	31.8	28.8	26.8	25.9	23.8

Over eight per cent of the 2005 market would have been captured in the new 'G' band, for cars over 225g/km. In his Budget speech Gordon Brown said it would capture just one per cent of the market. Cars over 300g/km represent one per cent of the market.

In 2005 a record proportion of the market was in band 'B', with a record low in band 'F'. The market has fundamentally shifted since 1997, when almost half the market was in the 'F' band, 75 per cent were in the 'F' and 'E' bands and 0 per cent were in bands 'A' or 'B'. Since 2003, band 'C' has been the most populated. In 2005 the 'C' band represented 30.8 per cent of the market or over 750,000 cars. Band 'F' had become only the third largest band by 2005.

The number of cars in the 'B' band continues to grow – taking a 3.3 per cent share in 2005, up from zero in 1999, with over 80,000 vehicles. However, just six cars were registered in the 'A' band (this was down from 481 units in 2004, largely due to some re-classification by SMMT of some type B1 approved cars CO_2 emission levels).

Clearly the market has very visibly shifted across the bands in the short space of time since the graduated CO_2-based VED scheme was introduced in 2001. However, the true impact of the scheme is difficult to gauge, as other influences are at work (the manufacturers voluntary agreement, CO_2-based company car tax system, etc), plus the market had already begun to shift into lower CO_2 emitting vehicles prior to 2001. Greater work needs to be undertaken to understand the impacts of demand pull, supply push and incentive tickle.

It is interesting to note that a 230g/km car registered in 2000 pays £175 per annum, a 230g/km registered in 2002 pays £190 per annum, whilst a 230g/km car first registered after 23 March 2006 pays £210. VED should provide consistent, durable and proportionate signals. It is unclear that a system where a car featuring the latest safety and emissions standards pays more than an older car does.

Some environmental groups had talked of £5,000 top rate tax. This would suggest that a 'G' band car emits more CO_2 than a 44 tonne commercial vehicle, which, at most, pays £1,850 per annum.

SMMT believes a full review of the VED scheme should be implemented. Ideally, such a review would have taken place prior to the further changes to the system in the 2006 Budget.

Company car tax profile of the new company car market

- Company car taxation has been based on CO_2 emissions since 1 April 2002
- A driver is taxed (at 23 or 40 per cent) on 15–35 per cent of the vehicle's list price, depending upon which CO_2 band it sits in (diesel is 18-35 per cent)

Car benefit charges for cars with an approved CO_2 emissions figure

% of cars price to be taxed	CO_2 emissions g/km			
	2002-2003	2003-2004	2004-2005	2005-2007
15%*	Up to 165	Up to 155	Up to 145	Up to 140
16%*	170	160	150	145
17%*	175	165	155	150
18%*	180	170	160	155
19%*	185	175	165	160
20%*	190	180	170	165
21%*	195	185	175	170
22%*	200	190	180	175
23%*	205	195	185	180
24%*	210	200	190	185
25%*	215	205	195	190
26%*	220	210	200	195
27%*	225	215	205	200
28%*	230	220	210	205
29%*	235	225	215	210
30%*	240	230	220	215
31%*	245	235	225	220
32%*	250	240	230	225
33%**	255	245	235	230
34%***	260	250	240	235
35%****	261+	251+	241+	236+

Diesel supplements:- * - add 3%, ** - add 2%, *** - add 1%, **** maximum charge, no diesel supplement (note these only apply to cars first registered in 1998 or later which ran solely on diesel. Prior to 1st January 2006 the supplement was waived for cars approved to Euro IV emission standards).

- Rates have been unchanged since 2005, but a new 135g/km starting rate is due in 2008/09 (announced in the March 2006 Budget)
- SMMT's fleet and business sectors are used as the company car market. They improved their market share to 55.9 per cent of the total 2005 market

The following table shows how the 2005 and 2004 company car market was distributed by company car tax bands and by fuel type. Of note is the continued growth in the volume of diesel cars and the big shift in petrol-fuelled cars moving below 140g/km. In 2005 17.9 per cent of market was sub 140g/km, in 2004 it was 15.1 per cent.

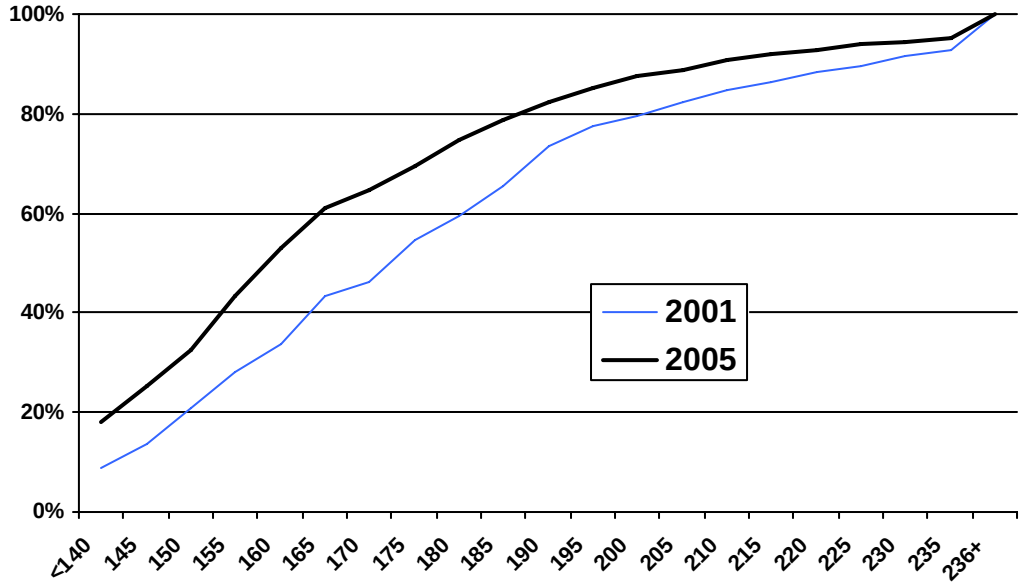
New company car market by CO_2 tax bands

CO_2 bands	2005 petrol	2005 diesel	2004 petrol	2004 diesel
Up to 140	12.3%	24.7%	8.7%	24.6%
145	9.7%	5.0%	6.4%	7.6%
150	3.9%	11.4%	8.3%	12.0%
155	6.7%	15.4%	9.1%	17.7%
160	8.2%	11.6%	6.1%	7.1%
165	10.1%	5.3%	7.9%	4.9%
170	4.1%	2.9%	5.7%	3.2%
175	7.1%	2.1%	7.8%	2.8%
180	6.9%	3.1%	5.5%	2.7%
185	6.4%	1.6%	6.3%	1.0%
190	3.3%	3.4%	4.8%	3.3%
195	3.6%	1.8%	3.7%	1.5%
200	3.7%	1.0%	2.6%	1.3%
205	1.3%	1.6%	1.8%	1.9%
210	2.1%	1.8%	2.0%	1.9%
215	1.7%	0.5%	2.1%	0.6%
220	1.3%	0.3%	1.7%	0.1%
225	1.0%	0.7%	1.1%	0.5%
230	0.7%	0.6%	1.0%	0.7%
235	0.9%	0.2%	0.9%	0.1%
236+	5.0%	4.9%	6.2%	4.7%
Total volume	758,539	601,337	825,057	539,488

** 2004 bands started at 145g/km, but 2005 bands used for demonstration purposes. AFVs excluded.*

The following chart shows the fleet market by current company car tax bands for 2005 and 2001 – the year before the CO_2-based company car tax was introduced. In 2001 under nine per cent of the market was under 140g/km. By 2005 that level had doubled to 18 per cent.

New company car market by CO_2 level – cumulative total



New car CO_2 emissions by sales type

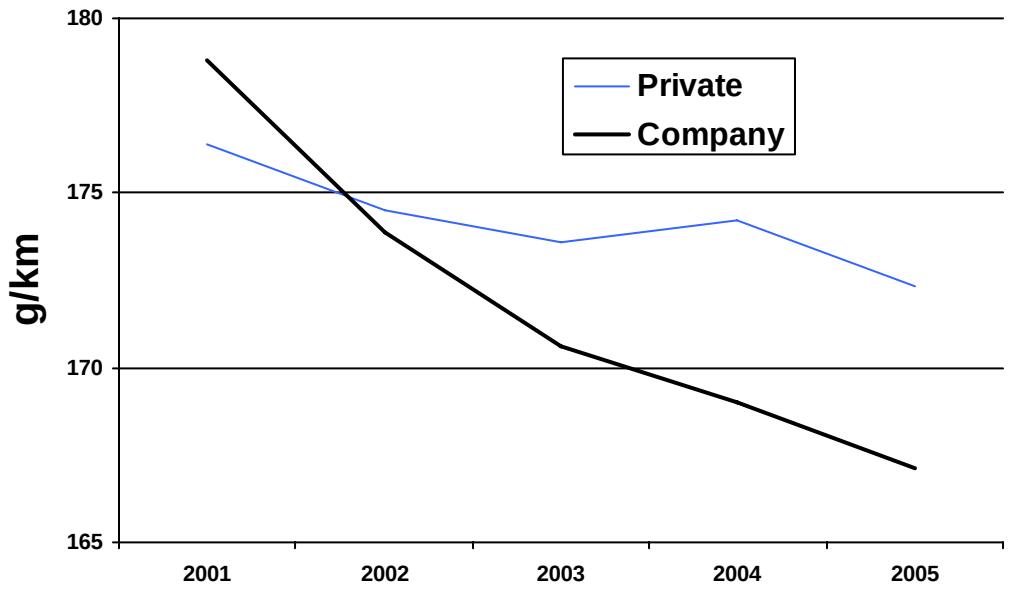
Sales type	2005	2004	% change	Mkt sh '05	Mkt sh '04
Company	167.1	169.0	-1.1%	55.9%	53.3%
Private	172.3	174.2	-1.1%	44.1%	46.7%

- New company cars emit some 5g/km or three per cent less CO_2 than private ones
- In 2005 both private and company cars achieved the same rate of improvement
- 2005 saw the private car market fall by over 10 per cent, ensuring company cars accounted for a larger market share, despite them too seeing volumes dip

Since 2002 – when the CO_2-based company car scheme was introduced – company cars have averaged a lower CO_2 emissions level than the private market. This reflects the higher diesel penetration in the company car market than the private sector – 44.1 per cent compared with 27.5 per cent respectively in 2005. Diesel penetration for both company and private markets has risen rapidly, moving from 22.8 and 12.5 per cent respectively in 2001. Diesel penetration of the overall new car market in 2001 was 17.8 per cent and rose to 36.8 per cent in 2005.

Since 2001 average new car CO_2 emissions in the company car market have fallen by 6.5 per cent, compared with a 2.3 per cent decline in the private market. In 2005 both private and company cars achieved the same rate of improvement, 1.1 per cent compared with the 2004 level.

Private and company average new car CO_2 emissions

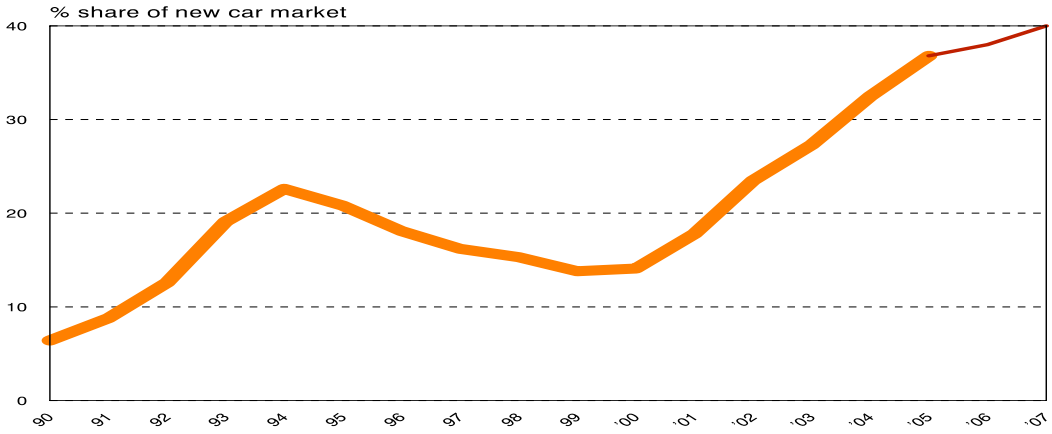


In March 2006 the HM Revenues & Customs published the 'Report on the Evaluation of the Company Car Tax Reform: Stage 2'. This carried on from initial work published in April 2004. The report reveals a high proportion of employers and drivers know about the reform – 90 per cent, but only half knew what the reform was about, namely to reduce emissions. The significant shift from petrol to diesel company cars is cited as the key measure taken to reduce CO_2 emissions. The report details that some 400,000 company cars have been lost from the scheme between 1999 and 2005, with now just 1.2mn cars covered. However, those that are left have made encouraging reductions in their CO_2 emissions, with a 15g/km reduction reportedly made by the end of 2004. It is estimated that those that have left the scheme have reverted to a vehicle emitting 5g/km more than when they were in the scheme. It is estimated that the scheme saved 02-0.3MtC in 2005 and that this will rise to 0.35-0.65MtC by 2010.

Diesel new car market

- Diesel volume and market share hit a high in 2005 - the sixth successive year of growth and volumes have almost trebled since 1999 to 897,887 units
- Diesel cars represented 36.8 per cent of the total 2005 market, and took over 40 per cent of registrations in the final quarter of the year
- Diesel sales were pulled forward as buyers tried to avoid the three per cent supplement for Euro IV spec diesels from 1st January 2006 in the company car tax scheme. This could have an adverse knock-on effect in 2006

Diesel penetration of the UK new car market, 1990-2007



- Higher diesel penetration has been the key driver of the improving CO_2 emissions, as diesels typically produce 15-20 per cent less CO_2 than petrol equivalents
- The diesel market has recorded sustained growth due to a number of factors, such as improved availability across a wider manufacturer and model base, improved technology for quieter, better performance, tax changes to favour CO_2 emissions, greater media and public acceptance and focused marketing by manufacturers
- Diesel penetration is forecast to hit 40 per cent by 2007
- Government policy will remain a key determinant in diesel penetration levels
- Diesel penetration remains significantly higher in the EU than in the UK – 49.8 per cent vs 36.8 per cent respectively in 2005. In France and Germany diesels took 69 and 42 per cent of the market respectively. Diesel penetration is higher than in the UK, principally as the duty rates on diesel are well below those for petrol elsewhere in Europe. Diesel share was highest in Luxembourg, at 75.4 per cent

- Average sales weighted diesel car CO_2 level was 4.3 per cent that of a petrol car
- Average diesel car CO_2 level has risen in each of past three year, but still 11.7 per cent below 1997 level in 2005
- Petrol cars CO_2 value fell by 1.6 per cent in 2005, and by 9.6 per cent since 1997
- Petrol/electric cars continue to offer very low CO_2-emitting performances, but the 2005 figure showed a sharp hike in percentage terms due to market structure changes

Average CO_2 emissions by different fuel types – volume weighted

Fuel type	1997	2000	2001	2002	2003	2004	2005
Diesel	186.7	167.7	164.0	161.7	163.8	164.2	164.8
Petrol	190.4	183.2	180.6	178.1	175.2	175.0	172.2
Petrol/gas	-	-	170.3	166.4	166.4	177.0	172.8
Petrol/elec	-	107.8	109.1	109.2	113.2	108.9	128.3
Diesel	16.9%	14.0%	17.6%	23.5%	27.3%	32.5%	36.8%
Petrol	83.1%	85.9%	82.4%	76.4%	72.6%	67.3%	62.9%
Others	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.3%

For dual fuel vehicles the lower CO_2 figure is used.

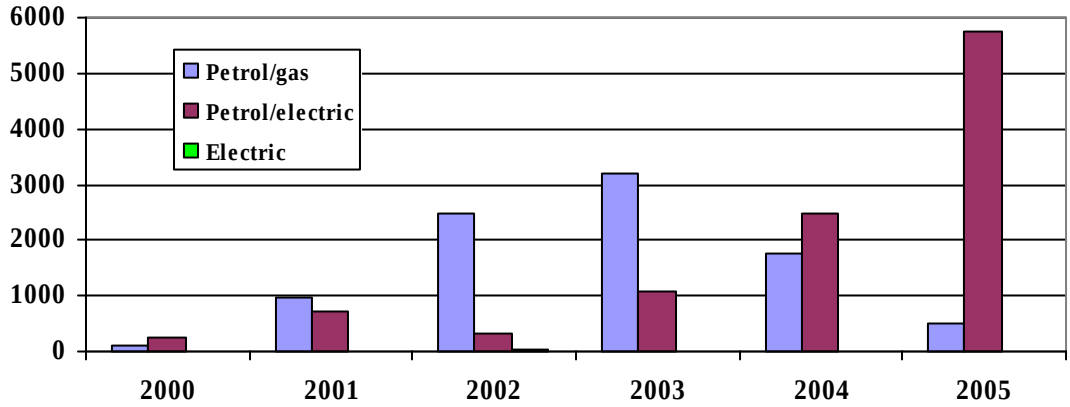
- Shift to diesels drives overall UK average new car CO_2 emissions fall
- The introduction of diesel engines into all model segments has offset sales of larger vehicles and kept the UK on a downward CO_2 trend
- The rise in diesels' average CO_2 levels over past three years reflects the growth in the dual purpose and large saloon segments, and decline in diesel supermini volumes
- If the segment switch had not been accompanied by switch to diesels then the UK average new car CO_2 performance may have increased
- Diesel penetration was highest in the dual purpose segment in 2005, at 67.3 per cent. It was around 60 per cent or above in the upper medium, executive and MPV segments, 35.8 per cent in the lower medium segment and just 11.1 per cent in the supermini segment

Sales of petrol/electric and gas vehicles

- Major growth in registrations of hybrids, as new models enter the market place
- Demand for gas-powered cars falls sharply
- Net alternatively fuelled vehicle (AFV) sales rose 48 per cent in 2005 to 6,255 units, 0.3 per cent of the market

MVRIS data, as shown in the below chart, shows new registrations of petrol/electric hybrids and gas powered cars (termed alternative fuelled vehicles - AFVs in this section) jumped in 2005, having paused in 2004. AFV penetration of the overall market remains very low, at 0.3 per cent in 2005. The AFV market in 2004 was knocked by the removal of the PowerShift grant. This ensured that demand for gas-powered vehicles continued to fall sharply – down 72.2 per cent in 2005 to just 489 units. However, the arrival of the Lexus RX400h and full year volumes of the (new) Toyota Prius ensured 134 per cent growth of petrol/electric cars in 2005. The Prius represented 65 per cent of the petrol/electric market, whilst the Lexus accounted for a quarter of the volume. The bulk of the remainder consisted of Honda's Civic IMA. Petrol/electric vehicles accounted for 92.2 per cent of all AFVs in 2005, up from 58.4 per cent in 2004 and under 12 per cent in 2002. Once again, there were no electric only cars registered in the UK in 2005. The MVRIS data shows the first registration of the vehicle, and so any aftermarket conversions are not reported in this system. This, therefore, could mean a substantial under-stating of the total market. Obtaining reliable data from other sources remains an issue.

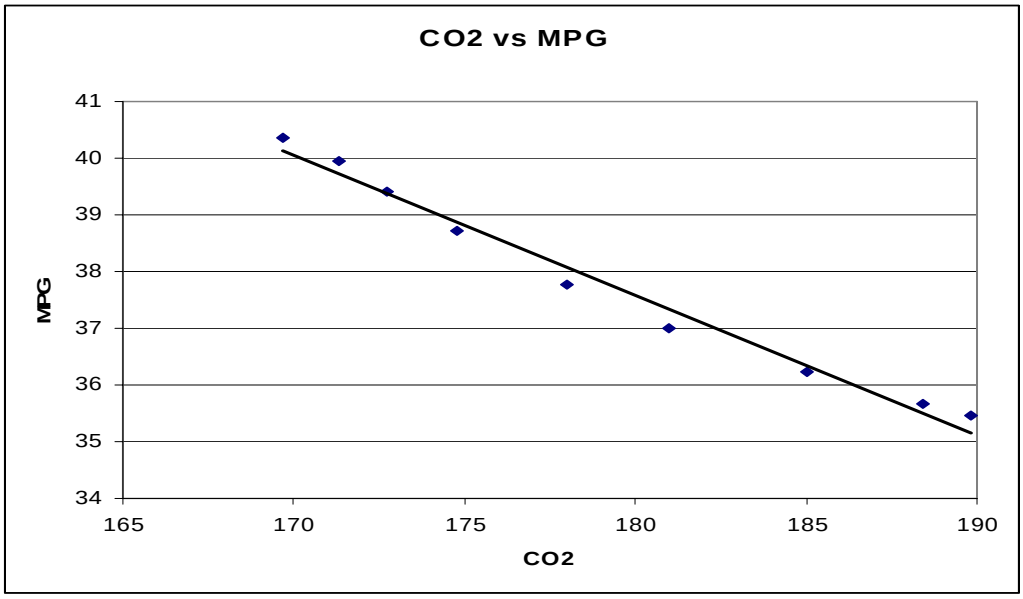
Registrations of alternative fuel cars in the UK by fuel type (2000 – 2005)



CO_2 emissions vs miles per gallon (MPG)

Data from the DVLA shows a strong link between CO_2 emissions and mpg, although the precise formula is complex due to different metrics (km vs miles). As CO_2 emissions have steadily fallen so average fuel consumption has steadily improved. The scatter diagram below shows the relationship, with a trend line added.

Average new car CO_2 emissions and MPG data, 1997 – 2005, Source: DVLA



- Since 1997 average CO_2 emissions have fallen by 10.6 per cent and mpg has risen by 13.9 per cent
- In 2005 average fuel consumption was 40.4mpg, compared with 35.5mpg in 1997
- Average fuel consumption improved by one per cent in 2005, compared with 2004
- Shift to diesels drove the improvement in fuel efficiency

- Creating the link between fuel efficiency and CO_2 emissions is important, as consumers are often more aware of mpg figures

- Extrapolating the trend line suggests that 140g/km equates to around 50mpg, 120g/km to 60mpg and 100g/km approximately 65mpg

CO_2 emissions by range

The table below shows the 10 lowest emitters registered in 2005.

Top 10 lowest CO_2 emissions models registered in 2005 (lowest emitter in range)

	Model	Fuel type	CO_2 g/km	Volume
1	Honda Insight	Petrol/Electric	80	3
2	Toyota Prius	Petrol/Electric	104	3,749
3	Citroën C2	Diesel	107	1,099
4=	Citroën C1	Diesel & Petrol	109	1,561
4=	Citroën C3	Diesel	109	2,207
4=	Peugeot 107	Petrol	109	3,870
4=	Toyota Aygo	Petrol	109	2,896
8	Renault Clio	Diesel	110	1,250
9=	Peugeot 206	Diesel	113	4,687
9=	Smart Fortwo/City	Petrol	113	686
9=	Toyota Yaris	Diesel	113	433

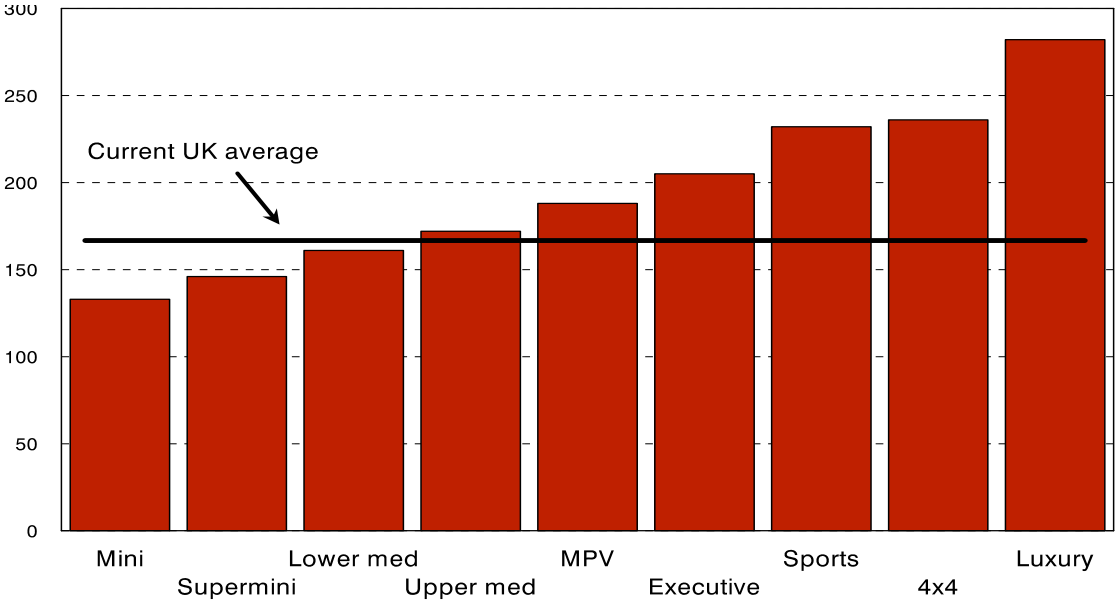
Note: Axiam, Ligier & Microcar not included as only type B1 approval.

- The two lowest CO_2 emitters were hybrid models
- The Honda Insight had the lowest CO_2 emissions - just 80g/km – less than half the UK average. However, only three were registered in 2005
- Axiam, Ligier and Microcar ranges – which would all have featured in the top 10 recorded 494 registrations in 2005, but these vehicle conform to different type approval standards
- Toyota Prius registrations climbed 135.2 per cent to 3,749 units in 2005
- 2005 also saw the arrival of the Citroen C1/Peugeot 107 and Toyota Aygo joint venture – these models had the fourth lowest CO_2 emissions in 2005
- The Ford Focus – the UK's best seller in each of the past seven years - had an average new car CO_2 emission level of 156.1g/km in 2005, 7.9 per cent below the industry average. The lowest CO_2 emitting Focus, at 125g/km, is 20 per cent cleaner than the average for the range

CO_2 performance by segment *(definition of segments in Appendix 1)*

- CO_2 reductions evident across all segments in 2005
- Dual purpose 4x4s made the best reduction between 2005 and 2004, falling 3.3 per cent. Between 1997 and 2005 MPVs made the biggest reduction, 21 per cent – almost twice the industry average
- Sports cars were the only segment to see emissions rise between 1997 and 2005, but they did fall between 2004 and 2005
- Smaller cars tend to have lower CO_2 emissions, due to their lighter weight, but have made below average reductions since 1997. New models may rectify this
- Weak private buyer demand caused a decline in supermini registrations in 2005
- The lower medium segment became the largest segment by volume in 2005
- Lower medium segment average CO_2 emissions were 10.5 per cent higher than in the supermini segment

CO_2 g/km profile of the UK 2005 new car market, by segment



- The two largest segments – lower medium and supermini – both have average CO_2 levels below the UK average, by 5 and 14 per cent respectively
- Luxury cars have the highest CO_2 emissions, 66.7 per cent above the average
- 4x4 dual purpose sector CO_2 emissions almost now on par with sports cars, both are some 40 per cent above the UK average

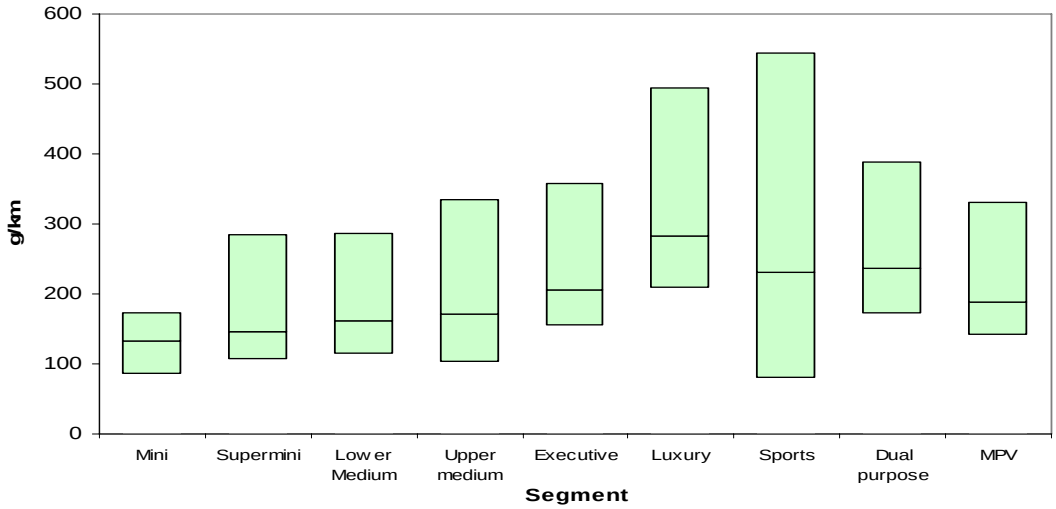
New car registrations by market segment

Market Shares (%)	1997	2000	2004	2005
Mini	0.7%	2.3%	1.4%	1.1%
Supermini	26.5%	31.0%	32.7%	30.0%
Lower medium	32.4%	29.8%	28.4%	31.2%
Upper medium	25.2%	21.5%	17.9%	17.5%
Executive	5.8%	4.7%	4.3%	4.6%
Luxury	0.7%	0.5%	0.5%	0.5%
Sports	2.9%	3.0%	2.9%	2.7%
Dual purpose 4x4	3.8%	4.5%	7.0%	7.7%
Multi-purpose vehicles	2.0%	2.7%	4.9%	4.8%

- The lower medium segment became the largest sector in 2005, as new models helped drive demand up in the segment
- The supermini segment conversely saw volumes slide by 13 per cent following the sharp fall in the private sector – linked to slowdown in the rate of growth in the overall economy, and a relatively aged model line-up in this segment
- In 2005 only the lower medium, dual purpose and executive segments showed growth. Supermini volumes fell by over 100,000 units in 2005
- Since 1997 the market has seen a shift away from traditional lower medium and upper medium cars into small and niche products
- Lower and upper medium segment cars accounted for 57.6 per cent of the 1997 market, compared with 48.7 per cent in 2005
- Dual purpose and MPV ranges have seen growth in the number of offerings and their market share has more than doubled between 1997 and 2005, where they represented 12.5 per cent of the market. Dieselisation has minimised adverse CO_2 impacts of this growth

- If the market segment volumes from 1997 were applied to the 2005 segment CO_2 values, then emissions would be just 0.7 per cent lower than actually recorded
- If the average CO_2 values for the segments in 1997 were applied to the 2005 market structure then CO_2 emissions would have been 13.9 per cent higher than recorded, at 193g/km. If the 2004 CO_2 values were used, the market average would have been 1.7 per cent higher, at 172.3g/km

CO_2 emissions by segment – range and average, 2005

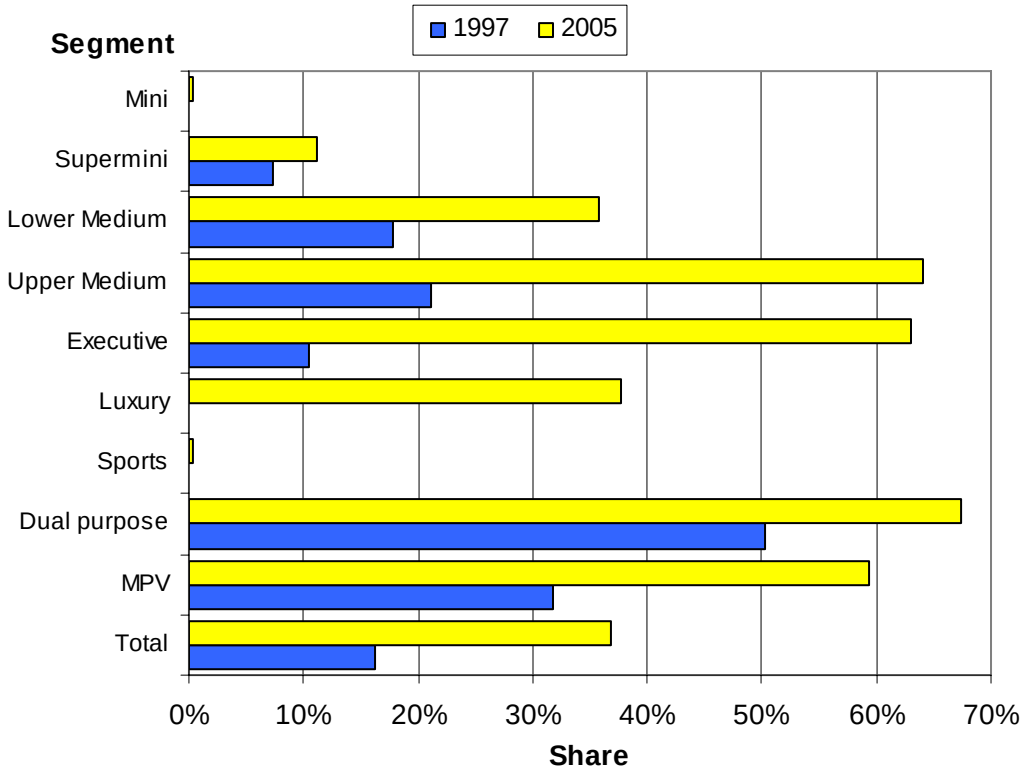


The chart above shows the range of vehicles by CO_2 emissions performance in each segment in 2005, and shows the average CO_2 emissions from vehicles in the year. It is noticeable that the average is at the low end of the range in each segment. The table below shows that lower CO_2 emitting alternatives exist in each segment and compares that vehicle's performance to the segment average. Hybrids, then diesel variants, tend to be the lowest CO_2 emissions in each segment. If the lowest CO_2 emitting vehicles in each segment were only bought within the segment then average CO_2 emissions would fall by over 30 per cent to 118g/km

Lowest CO_2 emitting models in each market segment in the UK in 2005

Segment	Model	Fuel	CO_2 g/km	Seg ave	Difference
Mini	Smart Fortwo	Petrol	113	133	-15%
Supermini	Citroen C2	Diesel	107	146	-27%
Lower medium	Audi A2	Diesel	116	161	-28%
Upper medium	Toyota Prius	Petrol/Electric	104	172	-40%
Executive	Mercedes C220	Diesel	156	205	-24%
Luxury saloon	Mercedes S320	Diesel	209	282	-26%
Sports	Honda Insight (Vauxhall Tigra)	Petrol/Electric (Petrol)	80 (146)	232	-66% (-37%)
4x4	Suzuki Jimny	Petrol	174	236	-26%
MPV	Hyundai Matrix	Diesel	142	188	-24%

New car market segment by diesel penetration



The chart above shows the 2005 and 1997 UK new car market by segment, by diesel penetration. While total diesel penetration in 2005 was 36.8 per cent, the chart reveals that much higher diesel levels were evident in the dual purpose 4x4, upper medium, executive and MPV markets – all around 60 per cent plus. The lower medium segment has diesel penetration in line with the market average. However, in the supermini segment diesel's share is far lower, at just 11 per cent.

Since 1997 diesel penetration has increased in every segment and diesels are now available in every segment. The biggest growth areas have been lower medium, upper medium, executive, dual purpose and MPV segments.

Diesels were traditionally physically larger than petrol engines to get the same power, so were more suitable for larger vehicles. They were also suitable to vehicles where outright performance is not a necessity and where pulling power is a greater asset, eg the 4x4 and MPV markets. Technology here is changing and so this is not so necessary now.

Regional new car market by CO_2 performance

Appendix 2 lists the new car market by region, by CO_2 performance. It should be noted that the regional information is based upon the place where the vehicle is first registered and is therefore influenced by a number of factors, e.g. where some large companies have their headquarters or distribution points as well as levels of wealth and availability of public transport. Using first registration data means that the information does not show where the vehicle is actually being used.

The data reveals that:

- West Glamorgan had the lowest average new car CO_2 emissions for the third successive year in 2005, at 162.1g/km – 4.3 per cent below the national average
- West Glamorgan made a 1.7 per cent gain in their 2005 performance, compared with 2004 – above the market average
- Of the 66 counties just nine recorded a rise in average new car CO_2 emissions between 2004 and 2005
- The best improvement in 2005 came from North Yorkshire, where average new car CO_2 emissions fell by 3.7 per cent – more than three times the national average, to 166.7g/km
- The highest average new car CO_2 emissions were in Warwickshire, for the second successive year. Their 190.6g/km was 12.5 per cent above the UK average. It was also a 2.9 per cent increase over their 2004 performance – the largest increase in 2005 of any county
- In 2005, the West Midlands became the largest region, with an eight per cent share of the UK market. Its average new car CO_2 emissions were 164.0g/km, a 2.1 per cent reduction over the 2004 level and 3.2 per cent below the UK average
- Greater London – the previous largest market – accounted for 7.4 per cent of the 2005 new car market. Average new car CO_2 emissions in the capital were 178.0g/km, 5.1 per cent above the UK average, although they did fall by 1.1 per cent over the year

Commercial vehicles (CVs)

SMMT does not collate CO_2 data for CVs. It is soon likely to feature within the type approval data, as taxation measures become more CO_2 focused, especially for light vans. Many light commercial vehicles (LCVs) share the same engines and engine technologies as passenger cars. However, measuring CO_2 levels remains complicated by the vast array of different body styles and different pay-loads that CVs can adopt.

New CV registrations totalled 385,969 units – down one per cent on the record 2004 level in 2005. LCVs represented 84 per cent of the 2005 CV market, but their volumes dipped for the first time since 1999. Demand for heavy commercial vehicles rose. For each new CV registered there are more than six cars. However, CVs average a far higher annual mileage than cars, so their importance to the CO_2 issue is high.

Due to the crossover of technologies, LCVs will have benefited from the advances in passenger car CO_2 reduction measures. However, CVs principally are bought and used for specific business purposes, rather than for some element of styling, etc that may dictate passenger car choice. It should be recognised that due to the functionality of CVs, creating emission reduction targets may well be at odds with the economic role these vehicles play.

Euro standards, which include environmental, but not CO_2, standards, apply to CVs – as well as cars. These ensure the introduction of new technologies in all new vehicles. CV taxation is increasingly based upon these standards. Likewise some incentives are often applied to encourage the early adoption of higher standards. However, efforts to reduce non- CO_2 emissions may have an adverse impact on CO_2 emissions.

CVs naturally lend themselves to alternative fuel use; their larger body structures can house the generally larger fuel tanks of gas powered vehicles or batteries for electric vehicles. The performance loss for using alternative fuels, compared to traditional internal combustion engines, is less of a concern. As they are typically run by specialist fleet operators they can be re-charged/fuelled and/or maintained more readily. As CVs typically cover a greater mileage, the AFVs' higher purchase cost can also be spread over a shorter payback period than a passenger car.

Pan-European industry commitment to reduce CO_2 emissions

The motor industry has made positive steps in reducing CO_2 emissions, and is committed to significant future reductions. In a groundbreaking voluntary agreement in 1998, members of the Association des Constructeurs Européens d'Automobiles (ACEA) agreed that by 2008 they would reduce average new car CO_2 emissions across Europe by 25 per cent from their 1995 levels, to 140g/km. Members of the Japan Automobile Manufacturers Association (JAMA) and Korea Automobile Manufacturers Association (KAMA) members signed similar agreements in 1999 to reach 140g/km target by 2009.

There were also interim targets for ACEA members to reach 165-170g/km by 2003, for JAMA to reach 165-175g/km in 2003 and for KAMA to reach 165-170g/km by 2004.

A recent DTI paper (UK Energy and CO_2 Emissions Projections, February 2006) shows that the voluntary agreement package is set to create an annual 2.3MtC saving by 2010. This is equivalent to 20 per cent of the existing Climate Change Programme measures.

European average new car CO_2 performance

Latest performance in average new car CO_2 emissions across Europe

	2004 CO_2/g/km	1995 CO_2/g/km	% ch 2004 vs 2003	% ch 2004 vs 1995
ACEA	161	188	-1.2%	-14.4%
UK market	168	191	-1.2%	-12.0%

- The data in the table above is from ACEA. Since 2002 Member States (MS) have directly reported their performance to the Commission. ACEA member's figures are typically 2g/km below the MS's data
- The 2004 ACEA data for the UK showed CO_2 emissions are 168g/km, this compared with the SMMT figure for the UK of 171.4g/km
- ACEA data only includes ACEA members, whilst SMMT data includes JAMA and KAMA members as well as other manufacturers from outside these areas or outside those associations

- ACEA members across the EU13 show CO_2 emissions in 2004 improved again and were over 14 per cent or 17g/km lower than the 1995 baseline
- No 2004 data is available yet for Greece and Portugal – the latter previously had the lowest emissions of any MS
- ACEA members met their interim target of 165-170g/km by 2003
- A further 13 per cent improvement (average across the EU) is still necessary to achieve 140g/km by 2008

- Italy had the lowest average new CO_2 emissions of any MS, at 148g/km, ahead of France and Spain. The Italian market has long been associated with small cars
- The UK was placed ninth (of 13), having been re-passed by Luxembourg in 2004
- Average new CO_2 emissions in the UK were four per cent or 7g/km above the EU average and 13.5 per cent or 20g/km above Italy's
- Sweden had the highest CO_2 emission figures in 2004, at 198g/km
- In Germany the average was 173g/km and in France 150g/km

Part 2 - Influences on CO_2 emissions and ways to achieve future gains

This section of the report introduces the Integrated Approach – bringing together stakeholders to reduce CO_2 emissions rather than relying solely on technological gains. It also looks at further technological gains which the automotive industry will exploit to move the fleet average lower more rapidly. In addition, this section also focuses upon some of the reasons which have limited past successes. Finally it gives some scenarios for future UK CO_2 emission levels.

The Integrated Approach

The Integrated Approach is a partnership of stakeholders which includes the automotive industry, the fuel industry, government local, national and European levels, and consumers.

No single technological solution is capable of solving the CO_2 reduction issue. There are technological developments that can be sought: engine downsizing, clean diesel; advanced direct injection gasoline; weight stabilisation and reduction; alternative fuel vehicles (AFV), including flexible-fuel vehicles and developing improved AFV technologies; hybrid powerpacks and research into plug-in hybrid technology; hydrogen internal combustion engines (ICE); and hydrogen fuel cells. The integrated approach, however, promotes CO_2 reductions through a range of complimentary measures delivered by a cross section of stakeholders. The integrated approach also broadens out the focus from solely new cars but to all vehicles on the roads, which broadens the scope for reducing CO_2 emissions.

Concerted efforts on vehicle technology, fuels, infrastructure, traffic management and driver behaviour can combine to achieve far wider real-world CO_2 emissions reductions on a more cost-effective basis than merely technology alone. Work by ACEA concludes that to meet a 120g/km target via technology alone would cost in the range of €400-540/t CO_2, whereas the integrated approach would deliver a higher emissions reduction at a cost in the range of €180-210/t CO_2. A technology only approach would also likely generate a range of cars which consumers did not really

want and place the industry at a competitive disadvantage against brands which did not have to meet the same CO_2/km targets.

European motor manufacturers already spend more on research and development than any other industry sector. Over €20 billion per annum, or five per cent of turnover, is spent by the industry each year – equivalent to almost a quarter of all EU R&D spending. Much of this is on reducing the environmental impact of vehicles.

Government needs to act to increase investment in improved road and traffic management infrastructures and to ensure that policy and incentives should be 'technology neutral'. That is, incentives should not favour one technology over another, but instead should target the outcome rather than the solution. Government can also support eco-driving activities, be they for new and existing drivers.

The fuel industry can contribute by developing and bringing to the market regenerative or CO_2-neutral energy sources. The automotive industry is already gearing up to use bioethanol and biodiesel blends, but higher mixes and the (wider) availability of alternative fuels, at a reasonable cost, is needed to help give the market long-term confidence in alternatives. The fuel industry can also act by ensuring development and maintenance of appropriate tyre inflation infrastructure and supporting driver education programmes. Optimal tyre pressures are crucial to ensure vehicles run safely and at their optimum efficiency, which, in turn, helps keep CO_2 levels to a minimum. Changing driver behaviour can have a major impact on real-world CO_2 emissions. The fuel industry can help educate drivers. There is a good opportunity to educate motorists at the pump, through advertising, as they re-fuel.

Consumers must also take an increased responsibility for the vehicles they purchase and the journeys they make. Industry and government must promote the benefits of greener vehicle choice and motoring, educate drivers, and offer then effective and reasonably priced products. Ultimately consumers decide which vehicle they buy and when and where they use them. An 'attitude-action gap' often exists, where consumers say they support the environment, but act in a less sustainable way. Greater understanding of the reasons behind this and how to close that gap need to be developed.

Technology

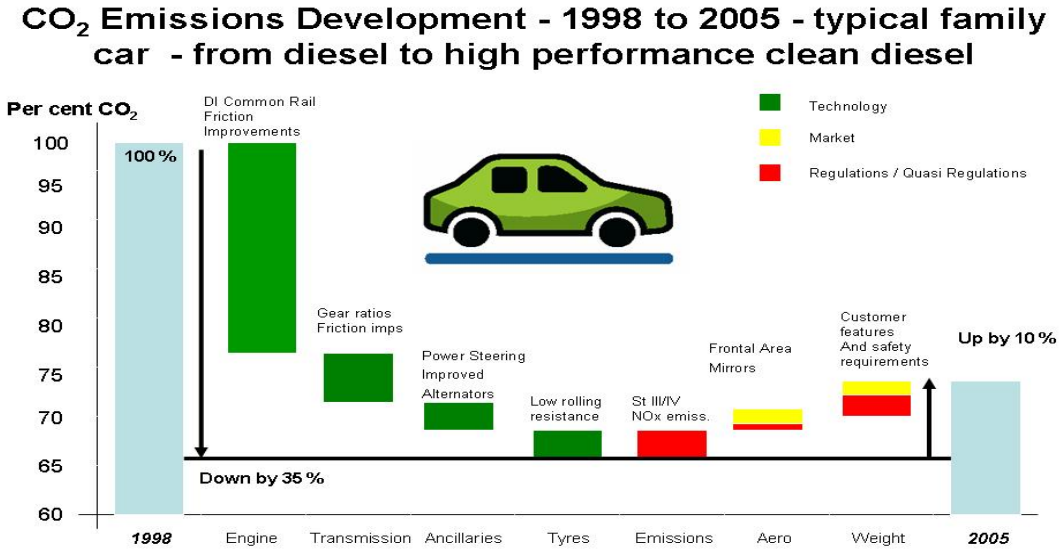
There are a huge range of technological initiatives underway to improve the environmental impact of motor vehicles. Below are some of the key areas under investigation.

Combustion efficiency – new combustion processes, petrol direct injection technologies, variable valve control, cylinder deactivation
Energy management – hybrid technologies
Engine improvement – thermomanagement, reduced friction, aggressive downsizing
Improved transmission – reduced friction, longer gear ratios, more gears (6 and 7 speed gearboxes), Eco shift programs
Stop-start systems
Aerodynamics – lower resistance
Rolling resistance – lower friction tyres, brake drag reduction
Weight reduction – high strength steel, aluminium, magnesium, plastics, composites
Driver information devices – gear shift indicators, fuel economy indicators

Limitations to past performance

This section looks at some of the influences on the industry's past performance and examines how some factors have limited the scope for further gains. These areas will also need to be considered when looking towards achieving future gains. This section looks at the influence of strong economic growth, of increasing vehicle weights and of consumer buying habits.

The diagram below, shows how CO_2 emissions from a car have been trimmed using technology, but then how some of those advantages have been cancelled out through regulations and market preferences.



So, in this example, the switch from petrol to diesel, the introduction of direct injection common rail technology, low rolling resistance tyres etc have helped reduce emissions by 65g/km, or 34 per cent, between 1998 and 2005. However, changing the frontal area of the car, adding safety and creature comfort equipment, plus environmental technologies to meet other non-CO_2 related emissions has ensured that some of those savings have been eaten into. The net performance is still positive, but further savings could have been made. Ricardo's – *'A study into passenger car CO_2 reduction*' for the Department for Transport (2005) suggests that UK CO_2 emissions savings have been countered by up to 50 per cent as a result of weight increases.

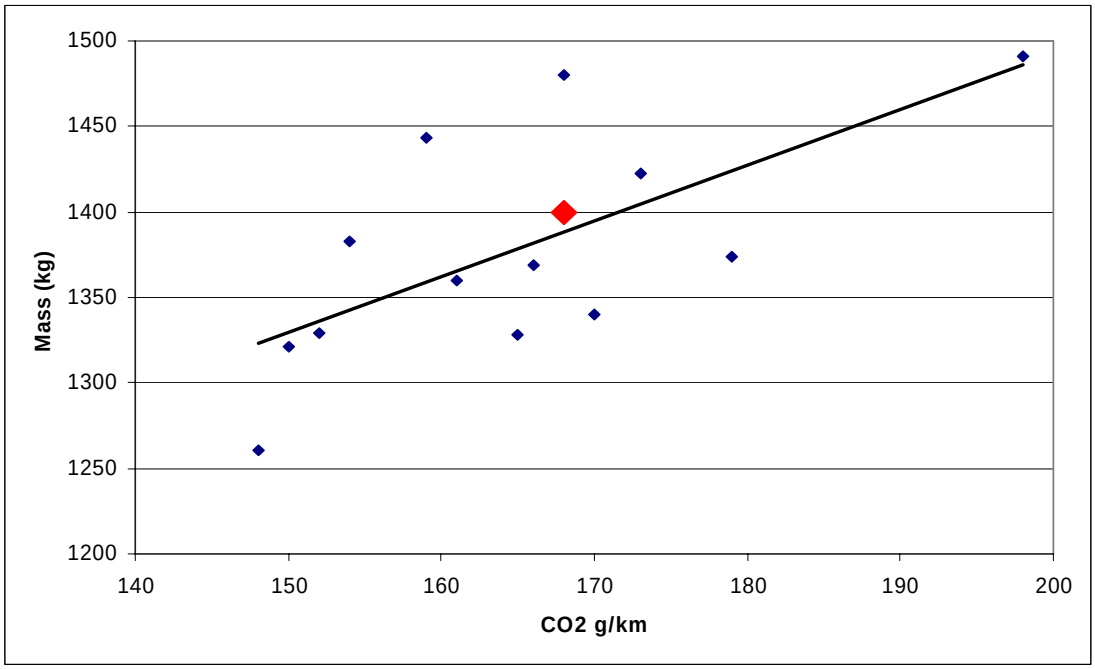
Weight

Data on the average weight of new cars is not currently held by SMMT. The weight of the average car would clearly depend upon the type of car being bought. Anecdotal evidence, however, suggests that the weight of cars is on the increase, in some cases by over 60 per cent in the past 25 years.

The weight of a vehicle is crucial in terms of its relative CO_2 performance. The heavier the car, the more energy is needed to move it about. Manufacturers have strived to bring weight saving to motor vehicles, but often those savings have been more than offset by safety, comfort and even environmental features.

The following scatter diagram depicts CO_2 emissions versus vehicle weight and then by diesel penetration for 13 member states in the EU15. The data is taken from ACEA. The red marker represents the UK. While the correlation is not perfect the chart does suggest the heavier the weight, the higher the CO_2 emission level.

EU 2005 new car CO_2 emissions vs vehicle weight



Extrapolating the trend line would suggest that if the national average weight was reduced to below 1,300kgs a 140g/km new car market would result. However, one nation (Italy) already has a national weight well below 1,300kgs (at 1,261kgs) and their average new car CO_2 level is 148g/km. The UK has the ninth (of 13) highest weight, some three per cent above the average. The difference between the highest and lowest member states' average new cars weight was 15 per cent.

The data suggests that a 100kg saving in weight could cut CO_2 emissions by up to 20 per cent. To save weight manufacturers have increasingly used alloys, aluminium, plastics and carbon fibre in recent years, replacing traditional steel components. These materials can be very expensive and so tend to find their way into high value products first, but as they prove their advantages and use becomes more widespread, the economies of scale help to bring the prices down.

Cars, however, have been getting bigger, in line with growth in the physical size of consumers. European population statistics show the average height has increased by 40mm in the last 30 years. Models are also made to fit a global market and must meet the size of the largest population type. Increasingly, manufacturers are also striving to introduce models that improve on the previous model, which may be by offering more space. Shifts in the type of vehicle demanded by consumers have also ensured a change in the size profile of the UK marketplace. MPVs and 4x4s are often larger than mainstream models, and with the decline of the supermini market (as outlined on page 21) would also have ensured the average size of the UK car increased in 2005.

The need to enhance the safety features of a car can add weight. Side impact bars, air-bags, crumple zones and the like involve putting additional materials into a vehicle, thus adding weight. Data shows that moving from a Ford Sierra to Ford Mondeo – equipped with safety bags, and a catalytic converter, etc ensured the weight difference between the two models was approximately 25 per cent.

Once the weight of the vehicle increases, the size of the engine and fitment of bigger brakes, power steering, etc usually follows, which also adds further weight to the vehicle.

Consumers expect more creature comforts in new cars. For example, DVD players, satellite navigation systems, air conditioning, cruise control, trip computers, cup-holders, and so forth. Some of these devices may actually reduce the mileage of a vehicle, such as SatNav, so saving fuel, but in terms of the test cycle, they would not have a positive impact.

Some technologies introduced to help the environment can also have a negative impact on CO_2 emissions. This relates to the complex interaction between different emissions. For example catalytic converters help cut NOx, hydrocarbons and CO emissions for petrol (hydrocarbons and CO only for diesels), but again add weight to a vehicle, making the vehicle work less efficiently in terms of CO_2 emissions.

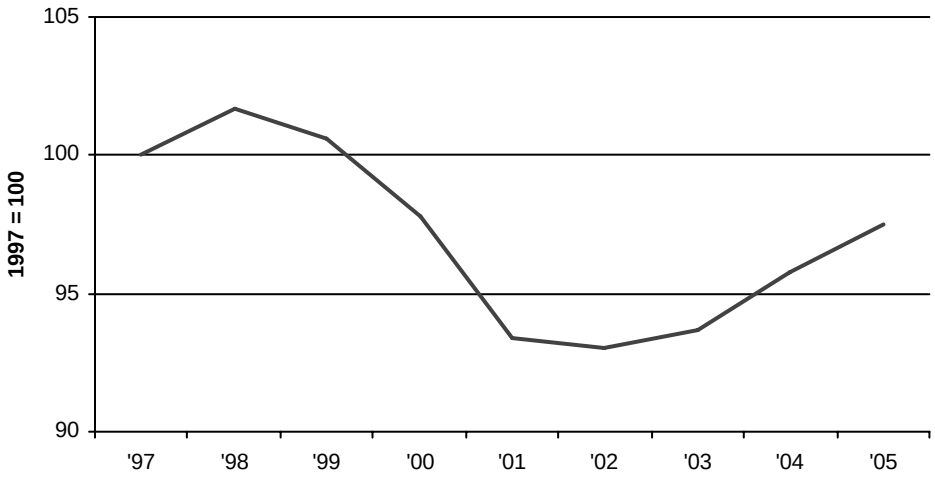
Many of the above issues are unlikely to diminish in the future. Furthermore the pedestrian protection regulations are likely to result in further weight gain in the future. Pedestrian protection is also expected to adversely affect the aerodynamics of vehicles, which will also have a detrimental impact on efficiency. Motor vehicles must strive to achieve a complex balancing act of providing effective and safe transport, whilst at the same time aiming to minimise their environmental impact, whilst being cost effective.

Economic influences

The UK has experienced a period of strong economic growth since 1997. GDP growth (measured in chained 2002 volumes) has averaged 2.8 per cent per annum, or seen a net rise of 24.3 per cent over the period of 1997 to 2005. Growth in 2005, however, was relatively subdued, at 1.8 per cent it was the weakest since 1992. Whilst economic growth does not necessarily ensure growth in road traffic, it does normally follow that demand for vehicles rises. This is acknowledged in the government publication Climate Change The UK Programme 2006 (Defra 2006, £23).

The UK's population has risen by over two per cent, or 1.2 million people, between 1997 and 2003 to 59.6 million. Approximately 54 per cent of those have driving licences. In addition, as well as living longer people generally remain driving till they are older. Increasingly too the proportion of women driving has also risen.

New car price inflation, ONS. 1997 = 100



While economic growth has been robust, vehicle prices have shown little net change. The chart above tracks new car price inflation indices since 1997. New car prices have fallen by 2.5 per cent over the 1997-2005 period, following deflation in 1999-2002. In 2005 new car prices rose by 1.8 per cent, below the general rate of inflation. In addition new car price inflation slowed to just 0.9 per cent by the end of 2005.

As the relative cost of purchasing a car has fallen, people have the ability to move into a relatively larger car. This would have a detrimental impact on CO_2 emissions. Greater wealth has also ensured consumers demand for 'creature comforts' has risen. Vehicles now come with standard fitting, such as air conditioning, CD players, electric windows, seats and so forth. As discussed previously these features all add weight and usually increase the energy use on the vehicle. Lightweight, efficient and environmentally sound vehicles have to compete in a highly competitive market and must usually meet all the general 'standards' of creature comfort consumers now require as well as being competitively priced.

However, whilst new car prices have fallen vehicle running costs have risen, especially in recent years, due to the increase in fuel prices. Between 1997 and 2005 the ONS report the cost of operating personal vehicles rose by 43.8 per cent, including a 7.1 per cent rise during 2005. The UK has the highest duty rate in Europe, but recent price rises reflect the global hike in the price of crude oil.

In each of the past two years, a key feature of the UK new car market has been the slowdown of the private sector, which can be linked to the cooling in the overall economic pace, increasing uncertainty over cost pressures (tax rises, energy bills, etc) and the slowdown in the housing market. The loss of demand from the private sector has been especially telling in the small car market – a market dominated by relatively low CO_2 emitting vehicles.

An additional feature of the competitiveness of the new car market and low vehicle prices is that it limits manufacturers' ability to sell advanced new CO_2 improving technologies which carry a cost premium. When first introduced into the marketplace a complex technology is bound to be more expansive than existing technologies. Consumers must see a realistic pay-back period or cost saving for these products to be accepted.

Consumer choice

The type of vehicle bought, and when, where and how it is driven, all comes down to the consumer. Consumers can be influenced by information and advice, as well as by taxation and regulation. Government, the motor industry and the oil industry all have roles to play in helping change consumer choice and try to help people make carbon savings.

The top 10 cleanest models (page 22) and the lowest emitters in each segment as detailed on page 21, show that low CO_2 emitting vehicles are available, but in general their take up has been poor.

Often people will say the environment is important to them, but they will not in reality act – this is known as 'attitude-action gaps'.

Research undertaken by Ben Lane on behalf of the Low Carbon Vehicle Partnership (LowCVP) in 2005 indicated that although consumers in the UK support the concept of purchasing and driving low carbon cars, in reality they do not make low carbon choices.

This work has been supported by the Energy Savings Trust (EST) in 2005, demonstrating that opportunities for reducing carbon through consumer behaviour needs greater, focused, understanding.

SMMT supports further work in this area by organisations such as LowCVP, developing the partnership further from the successful roll-out of the colour-coded emissions and cost label in 2005.

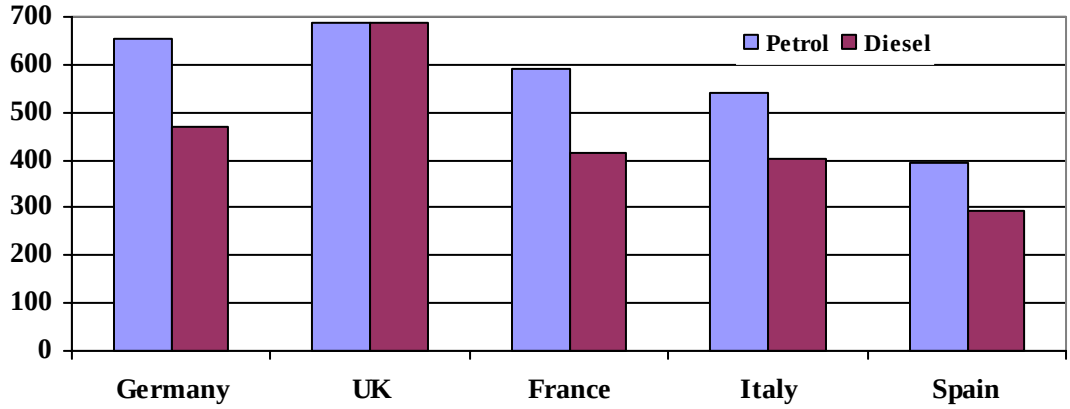
This will help all stakeholders play an active part in effectively engaging consumers on this issue.

Greater diesel penetration

As outlined earlier in the report, diesel penetration in the UK remains very low when compared with other member states. The principal reason for this is fuel duty and the fact that in the UK, both petrol and diesels face the same duty rates, while in other member states, diesel duty is lower than for petrol. Within the EU15 only the UK and Ireland have a pump price for diesel that is higher than that of petrol.

Even with the big hike in the underlying price of fuel in recent years taxes still account for two-thirds or more of the price paid at the pumps for petrol and diesel. This changed from over 75 per cent in 2003. In the UK, the duty rates are the highest in Europe and for petrol and diesel the rates are the same. The chart below shows excise duties on fuel in the five largest markets in Europe – Germany, UK, France, Italy and Spain.

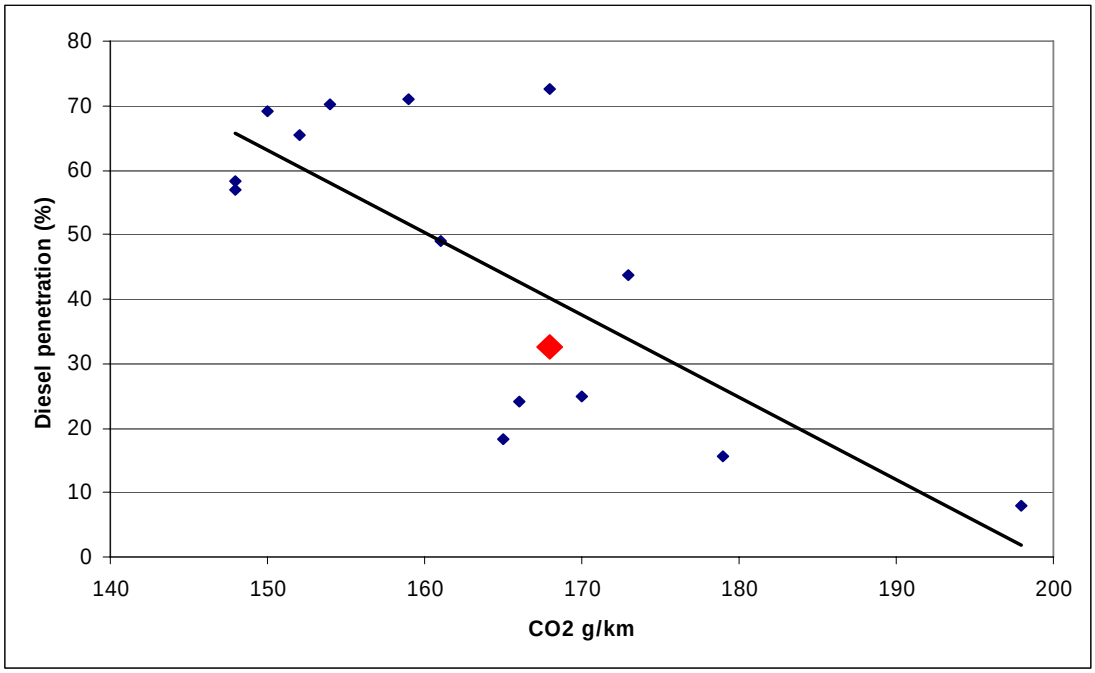
Excise duties on fuels in €/1,000 litres (at May 2004). Source: ACEA Tax Guide 2005



The following scatter diagram depicts CO_2 emissions versus diesel penetration for the different member states in the EU15. All data is taken from ACEA. The red marker represents the UK. A trend line has been added. This trend line suggests that the higher diesel penetration the lower the CO_2 level. Extrapolating the trend line would suggest that if the national average diesel penetration level was some 75 per cent, a 140g/km new car market would result. However, several member states have diesel penetration around the 70 per cent level, but CO_2 emissions levels of over 150g/km.

The two nations with the lowest diesel penetration levels, Sweden and Finland, have the two highest CO_2 emission levels.

EU 2005 new car CO_2 emissions vs diesel penetration



Biofuels

SMMT believes that biofuels have an important role to play as part of an 'Integrated Approach' to reducing real-world CO_2 emissions from road transport. Biofuels are processed from biomass, a renewable resource, and can be a direct substitute for fossil fuels in transport. They can, in low blends, be readily integrated into the fuel supply system. All vehicles today are able to operate on a five per cent blend of biofuels in petrol and diesel. This would create an immediate CO_2 saving across not only new cars, but the whole vehicle parc. It would do so in an economical manner, utilising the existing refuelling infrastructure as well as the existing vehicle stock.

Some SMMT members are already demonstrating vehicles in the UK which are capable of operating on higher biofuel blends (e.g. FlexFuel Vehicles - E85). The industry is also working with the oil industry and other stakeholders on future European standards to enable the use of higher percentage biofuel blends in all new vehicles (10 per cent blends - E10, B10 and over).

Biofuels have the potential to reduce a vehicle's well-to-wheel (WTW) emissions by up to 80 per cent. Carbon savings and cost vary significantly between different fuel options, depending on feedstock, production and conversion process and use efficiency. Conventional biofuels, like ethanol from wheat, are capable of reducing WTW emissions between 7 - 77 per cent today. Second generation biofuels - expected from 2010 - promise to optimise these saving potentials even further.

The UK Government has ambitious plans to incentivise the production and use of sustainable biofuels with optimised carbon savings as part of its Renewable Transport Fuels Obligation (RTFO). SMMT supports the development of sustainability standards and carbon certification for biofuels progressed under the auspices of the Low Carbon Vehicle Partnership. However, similar and clear long-term signals should be sent to the market in respect to fuel quality. The UK Government should aim to ensure that biofuels, which are incentivised through the fuel duty rebate and certificates under the RTFO, strictly adhere to existing and future European and UK fuel quality standards.

It is very important that the qualities of renewable fuels are high and consistent. New quality standards for higher blends need to be established in a managed timeframe to ensure fleet reliability, availability and consumer confidence.

UK CO_2 scenarios

It should be noted that the UK does not have its own average new car CO_2 target - the only target that exists is the pan-European one. The voluntary agreement aims to make a 25 per cent reduction on the 1995 baseline. To achieve a 25 per cent reduction on the UK's 1995 ACEA figure of 191g/km would equate to a target figure of 143g/km. Across the whole of the UK, not just ACEA members, the 2005 figure was 169.4g/km. To get to 143g/km requires a further 15.6 per cent reduction over three years, or 5.2 per cent or 8.7 g/km per annum.

Already in this report, we have seen that vehicles are already in the market place which could get to this level. If everyone bought the lowest CO_2 emitting vehicle registered in 2005 the UK average would be over 40 per cent below this target. If everyone in the UK bought the lowest emitter in each segment then the average would fall by over 30 per cent to 118g/km.

If the market segment structure had been unchanged since 1997 then using 2005 CO_2 average segment figures would have made just a 0.7 per cent or 1.2g/km difference from the actual 2005 figures, reducing the UK average to 168.2/km.

If the segment CO_2 levels were still at their 1997 rates, but applied to the 2005 new car market structure, then the UK national average CO_2 figure would be 193.0g/km – 13.9 per cent or 23.6g/km above the actual 2005 level and higher even than the 1997 starting base of 189.8g/km.

If everyone had to drive superminis and some modest annual gains were made to the products over the next three years then the UK average would be down to the required level of 143g/km.

The following two scenarios look at the UK CO_2 performance by fuel type and market structure – in terms of petrol, diesel and other market share. If CO_2 performance split by fuel type continues to make a 1.1 per cent reduction per annum over the next three years (as it did in 2005 compared with 2004), diesel penetration rises to 40 per cent

and hybrids and alternatively fuelled vehicles take a 0.5 per cent market share (doubling their volumes from 6,000 in 2005 to 12,000 in 2008) then the UK average CO_2 figure in 2008 would be 163.6g/km. This is 6g/km or 3.4 per cent below the current level.

To achieve a 143g/km by 2008 would require diesel penetration to climb to 50 per cent, hybrids and alternatively fuelled vehicles to take a five per cent market share and for all fuel types to achieve a five per cent per annum rate of improvement (up from the 2005 1.1 per cent gain). Achieving such a reduction by 2008 is clearly challenging.

Part 3 – Putting the new car CO_2 performance into context – total CO_2 emissions

This next section of the report aims to put the new car CO_2 performance into context. It looks at total CO_2 emissions from road transport and how those emissions are aggregated from the different vehicles types. It looks at how total emissions are derived – from fuel consumption data. The influences on emissions and fuel used comes from the volume of vehicles on the road and the amount those vehicles are used (and also the time of use, etc).

Total CO_2 emissions

Since 1997 CO_2 emissions from road transport have increased by 2.4 per cent, the same increase as total CO_2 emissions. Between 1990 and 2004, emissions from road transport have increased by 9.1 per cent, compared with a 4.8 per cent reduction in the total, according to government figures. Road transport CO_2 emissions accounted for 21.3 per cent of all CO_2 emissions in 2004 – a figure virtually unchanged since 1997, but up from 18.6 per cent in 1990.

CO_2 emissions in the UK, Million tonnes carbon, by source, 1990 – 2004

	1990	**1995**	**1997**	**2000**	**2003**	**2004**
Road	29.9	30.3	31.7	31.7	32.3	32.6
Total	160.7	149.6	149.4	149.1	152.1	153.0

(source Defra 2006)

Changes in overall CO_2 emissions from road transport are derived from the net mix of changes in the vehicle parc, traffic growth and improvements in the environmental performance of new vehicles, as well as congestion levels, infrastructure, etc.

Road transport CO_2 emissions by vehicle type, MtC, by source, 1990 – 2003

	1990	**1995**	**1997**	**2000**	**2002**	**2003**
Cars	19.4	19.2	20.0	20.1	20.3	19.8
LCVs	3.3	3.7	3.9	4.0	4.2	4.4
HGVs	5.9	6.4	7.0	6.9	7.1	7.2
Bus&Coaches	1.3	1.2	1.1	0.9	0.9	1.0
Bikes	0.1	0.1	0.1	0.1	0.1	0.1

(source Transport Statistics GB, 2005 ed)

- Cars accounted for 61 per cent of 2003 CO_2 road transport emissions, a falling share. CO_2 emissions from cars fell by two per cent in 2003, compared with 2002
- Emissions from commercial vehicles are rising, especially light duty vehicles – reflecting increased volume and use, which in turn is driven by economic growth
- Emissions from buses and coaches have fallen historically, although rose in 2003

Total CO_2 emissions projections

In February 2006 the DTI published updated CO_2 projections to 2020. The headline figures for motor vehicles are set out in the below table.

CO_2 emissions, Million tonnes Carbon, 1990 – 2020

	1990	2000	2010	2020
Motor vehicles	30.1	32.0	34.6	36.2
Cars	64.7%	62.8%	63.6%	63.6%
CVs	36.3%	37.2%	36.4%	36.4%

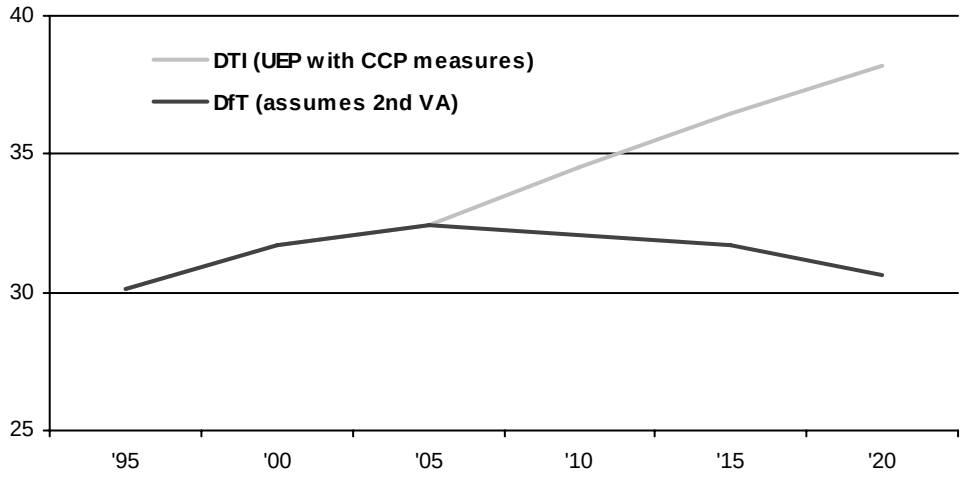
(source: Table 18 Emissions projections (central scenario) UK Energy and CO_2 emissions Projection, DTI, February 2006)

- Motor vehicles emissions set to rise over 20 per cent between 1990 and 2010
- Emission levels from motor vehicles have risen by just 8.3 per cent between 1990 and 2004, so DTI expect more rapid rise moving forward
- Expected rate of growth has been successively trimmed in recent years, as expected increases have not materialised
- Emissions share taken by cars and CVs expected to remain broader similar to current level

- The DTI paper says the UK is 'on track to comfortably exceed its Kyoto commitment'
- Total UK CO_2 emissions expected to be 10.6 per cent below 1990 base by 2010
- Climate change programme looking at what additional measures needed to put emissions back on track to achieve domestic goal
- The motor industry's voluntary agreement (VA) is assumed to be extended beyond current 2008 timeframe, but any potential savings from biofuels are not included in the projections
- The agreement is expected to contribute to 20-25 per cent of the total UK's emissions savings

Both the DfT and DTI make projections for CO_2 emissions from road transport. Because of the different scenarios they use, they come up with very different results, as shown in the chart below.

Road transport CO_2 emissions projections – DfT and DTI, MtC

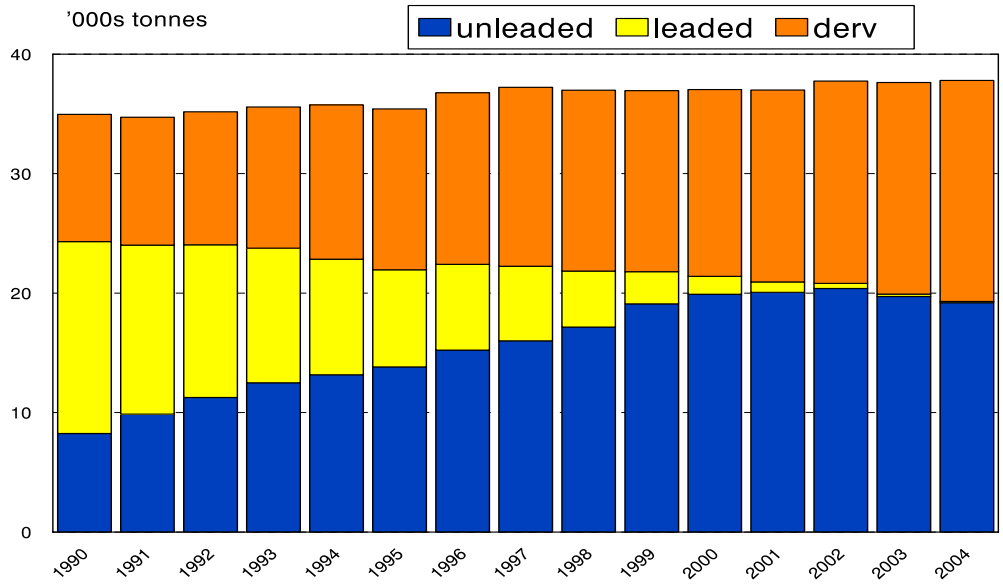


The DfT work includes an assumption that a second voluntary agreement is reached and this (and other measures) will ensure that emissions are constrained. However, the DTI model suggests rapid growth – 18 per cent between 2005 and 2020. Policymakers should carefully consider which forecast to use, and what assumptions lie behind the forecast, when making policy decisions on road transport.

Fuel used

The chart below shows that total fuel consumption has remained constant over the period. There has been a significant shift from petrol to diesel fuel.

UK fuel consumption – 1990–2004 (Source: Transport Statistics 2005)



- Overall motor fuel consumption rose by 1.0 per cent in 2004, compared to 2003
- Since 1997 total fuel consumption has increased by just 2.1 per cent and since 1990 it has risen by eight per cent
- The dieselisation of the fleet and net improvements in vehicle efficiency has helped keep the amount of fuel used relatively stable, while the parc size and distance travelled has increased.
- High fuel prices in the UK (of which some 85 per cent is tax) will also have constrained higher growth.

- In 2005 there was a 4.5 per cent rise over 2004 in diesel fuel demand. Petrol consumption fell 2.2 per cent over the same period
- Diesel demand has increased by 43.4 per cent in the past decade. Total fuel consumption rose by just 6.4 per cent in comparison

- Diesel represented 48.9 per cent of all fuel consumed in 2004, up from 47.3 per cent in 2003, 40.4 per cent in 1997 and 36.3 per cent in 1994
- Diesel accounted for 17 per cent of fuel for cars in 2004, compared with just seven per cent in 1994. For CVs the figures were 96 and 85 per cent respectively

- Cars use approximately 60 per cent of total fuel consumed
- In 2004 cars used 1.1 per cent less fuel than in 2003 – the fourth decline in five years and cars used only 0.1 per cent more fuel in total than in 1994. Total car fuel consumption fell by 2.5 per cent between 1997 and 2004
- In 2004 commercial vehicles used 4.2 per cent more fuel than in 2003 and 22 per cent more than in 1994

Fuel used, Million tonnes, by vehicle type, 1997–2004

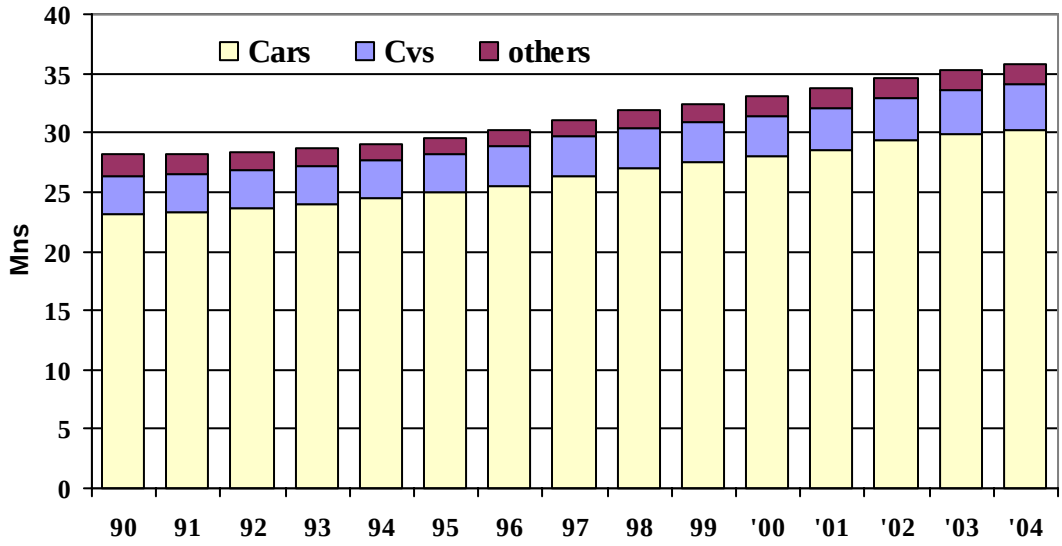
	1997	**2000**	**2003**	**2004**
Cars	62.0%	62.5%	60.5%	59.2%
CVs	34.1%	34.2%	36.2%	37.3%
Bus & Coaches	3.6%	3.0%	3.0%	3.1%

(source: Transport Statistics GB, 2005)

UK parc (vehicles in use) data

- The parc data helps put the new car market in a context of the total number of cars on the roads. New cars account for under a tenth of the overall car parc
- Total vehicle parc was 35.7mn in 2004, of which 85 per cent were cars, 11 per cent CVs and 4 per cent others (eg bikes, agricultural)
- Data shows rise in diesel penetration of car parc
- Data on alternative fuel vehicles unreliable, but confirms low volumes
- Car scrappage rate increased significantly, but higher turnover of the parc would help improve environmental performance of the UK fleet

UK car and CV parc, 1990 - 2004



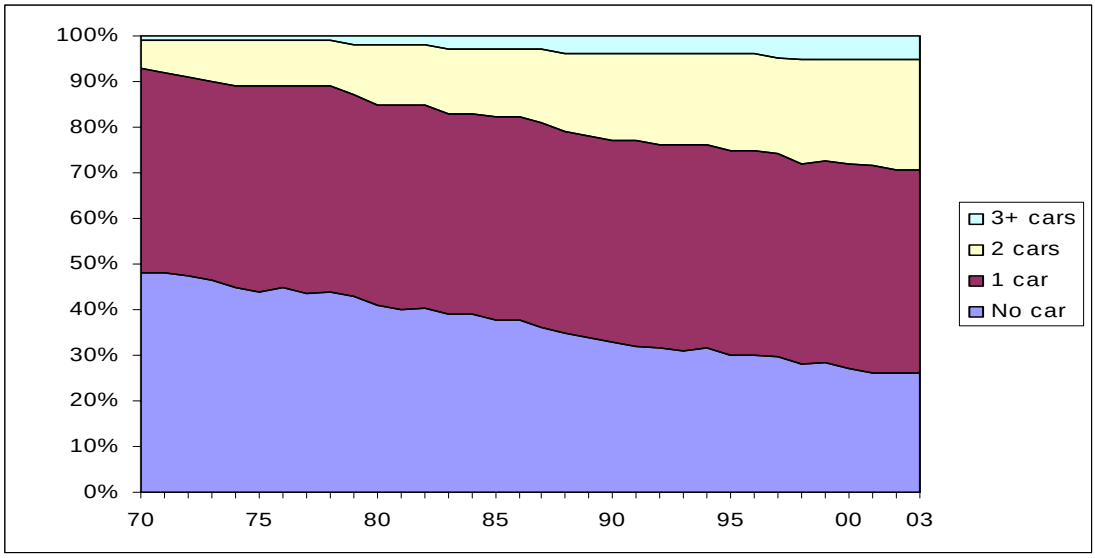
SMMT Motorparc data shows the number of vehicles in use, and has been in operation since 1982. In 2004 the data shows there were some 35.7mn vehicles on the UK's roads. The majority of these were cars, at 30.3mn units. This represents an increase of 1.2 per cent or some 370,000 units over the 2003 level. The parc has grown by 15 per cent or nearly four million units since 1997. The pace of growth slowed in 2004 to around half the rate witnessed over the 1982-2004 period. While in each of the past three years more than 2.5mn new cars have entered the parc, there has also been a large increase in the number leaving the parc – the implied scrappage rate. In 2004 2.2mn cars left the parc, equivalent to a 7.3 per cent scrappage rate – both record levels. This may reflect the large volume of cars going into the market in the

late 1980s, rising maintenance costs meaning cars become uneconomically viable sooner, or tougher MOT standards coming into effect.

With improving economic growth and changing structure of the family unit the percentage of households with regular use of a car has risen. In 2003 74 per cent had regular use of a car, up from 70 per cent in 1997, 60 per cent in 1982 and 50 per cent in the late 1960s. The following chart shows the trend has been to second and third cars. Almost a quarter of all households have two cars and five per cent have three or more. In addition, the number of households is growing – over a million new dwellings appeared between 1997 and 2003, an increase of over four per cent.

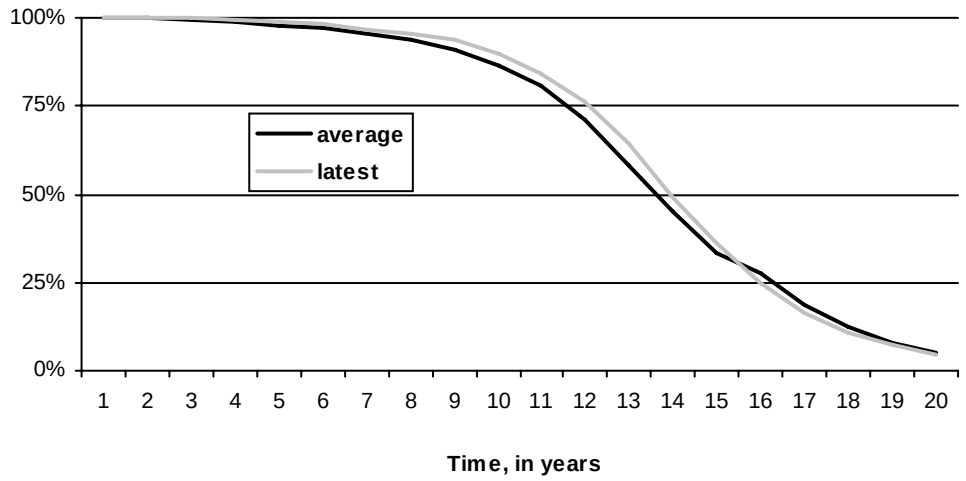
New cars (less than one year old) accounted for 8.5 per cent of the 2004 parc. Cars registered since 2001, when taxes were first realigned to CO_2 values, represent a third of the overall car parc. By 2008 an estimated 60 per cent of the parc will be of cars registered since 2001. In 2004 around a quarter of the parc was still 10 or more years old. The average age of the parc has been steadily improving, from 7.3 years old in 1997 it was 6.7 years in 2004, having been 6.8 years old in 2003.

Households with regular use of a car 1970–2003 (Source:Transport Statistics 2005)



Data suggests that over the first five years of a cars life virtually no scrappage takes place. By 10 years, on average, 86 per cent of the cars will still be on the road. However, thereafter the survival rate changes dramatically.

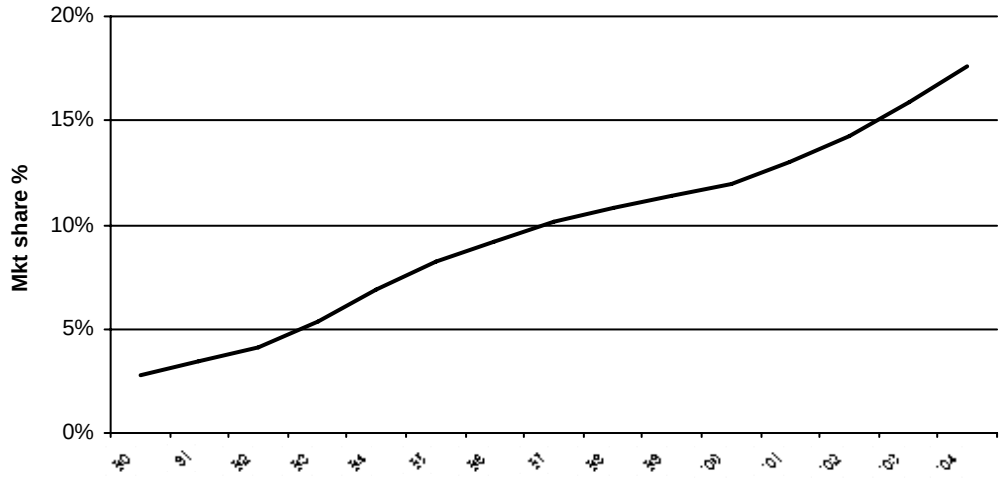
GB car parc survival rate, percentage of total (Source: SMMT)



By 14 years after first registration, less than half the original tally is still on the road. By 15 years that is down to just a third and by 20 years only five per cent will still be in use. Recently, an improvement in the durability of cars has ensured that more and more cars are surviving – till a certain age. Up to approximately 15 years old, the more recent cars seem to be surviving better, but thereafter the scrappage rate has been increasing over time. This may reflect the impact of the economic cost of replacing parts in modern cars, which are increasingly a sealed unit and provide less opportunity for 'cheap fixes'. Moving forward we would expect this trend to continue. A tighter MOT testing regime could also impact the survival rates.

Rapid growth in the diesel new car market has led to a correspondingly big increase in the diesel car parc in Great Britain. The diesel parc rose by 12.6 per cent in 2004 to 5.18mn units to represent 17.6 per cent of the total parc. This was a record volume and penetration level. The diesel parc was less than a million units in 1992 and the penetration rate did not surpass 10 per cent until 1997.

Diesel penetration of the GB car parc, 1990-2004 (Source: SMMT)

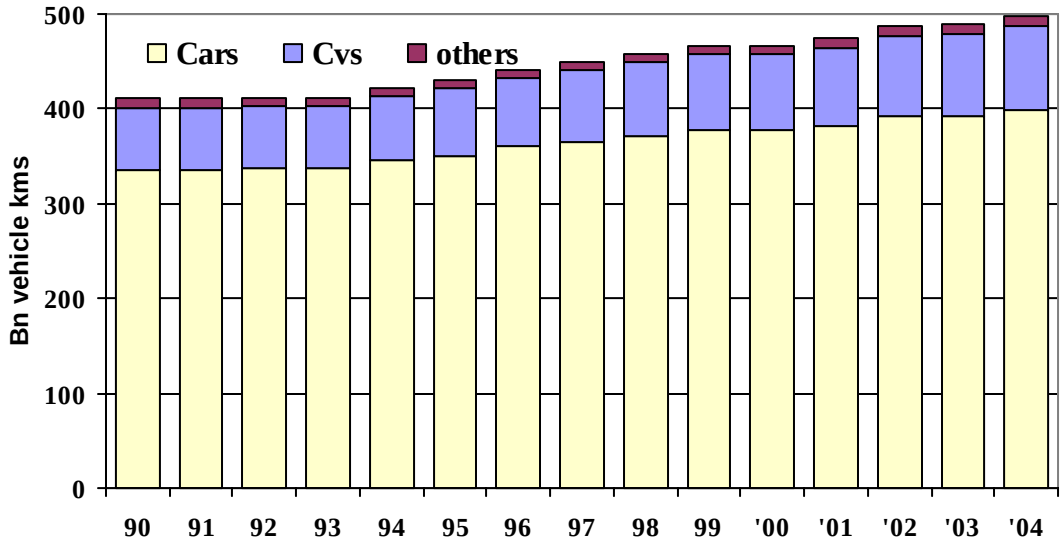


The diesel parc rose by 580,304 units in 2004. A total of 798,112 new diesel registrations took place in Great Britain in 2004, creating an implied scrappage volume of 217,808 units – just 4.2 per cent of the total diesel parc. This low figure follows as not many diesels are of an age to be scrapped. Indeed 40 per cent of the diesel parc is less than three years old, compared with a total parc figure of 26 per cent. Over 15 per cent of the diesel parc is less than one year old, compared with 8.5 per cent for the overall parc.

DVLA fuel code data reports 43,255 hybrid and alternatively fuelled cars in the GB parc in 2004. This was a 14 per cent rise on the 37,949 in use in 2003. Hybrid and alternatively fuelled cars represent just 0.1 per cent of the parc. The DVLA data shows 3,474 new vehicles in the parc registered in 2004. This compares with 4,218 reported new in the MVRIS system. Of the total in use 98.6 per cent used some form of gas as their alternative fuel. Just 22 cars were reported as being petrol/electric in the total parc, which compares to 2,462 new registrations in 2004 alone under the MVRIS system. Data on the size of the AFV market is patchy, but volumes appear very low.

Road traffic growth

Road traffic – 1990-2004 (Source: ONS)



- Road traffic rose by 1.7 per cent between 2003 and 2004, and has risen by 10.7 per cent since 1997
- Cars account for some 80 per cent of all road traffic, compared with 60 per cent of fuel used and 90 per cent of the vehicle parc
- Traffic from cars has risen by 1.3 per cent between 2003 and 2004 and by 8.8 per cent since 1997
- CV traffic rose by 4.4 per cent between 2003 and 2004 and increased by 19.5 per cent between 1997 and 2004
- The growth in out-of-town shopping centres and longer commuting patterns has been key to some of this growth in traffic
- Just-in-time production techniques and increased home delivery services have added to the mileage covered by CVs

Other emissions from transport

While this report concentrates on CO_2 performance it is noticeable that other emissions from road users have fallen. The table below shows key pollutant emissions between 1990 and 2003.

Pollutant emissions in the UK, MtC, 1990 – 2003, by end user

	1990	1995	1997	2000	2002	2003
NOx – road	1.41	1.10	1.02	0.81	0.69	0.63
NOx – total	2.90	2.24	2.00	1.74	1.58	1.57
CO – road	5.56	4.18	3.65	2.29	1.61	1.35
CO – total	7.38	6.34	5.73	4.12	3.34	2.77
Lead – road	2.20	1.05	0.78	0.00	0.00	0.00
Lead – total	2.70	1.55	1.15	0.16	0.14	0.13
PM10 – road	0.07	0.05	0.05	0.04	0.04	0.04
PM10 – total	0.31	0.24	0.20	0.17	0.15	0.14

(Source: Transport Statistics 2005, DfT)

- All emissions listed in the above table have more than halved since 1990
- Lead emissions have seen the largest drop – down to virtually zero
- Emissions of particulates (PM10) have fallen by over 20 per cent since 1997, despite hike in diesel demand. Road transport represent a quarter of total PM10 emissions, a figure largely unchanged since 1990
- Carbon (CO) emissions from road transport have declined by almost 65 per cent between 1997 and 2003. Road transport now accounts for less than half the UK total CO emissions – had been 75 per cent in 1990
- Nitrogen Oxide (NOx) emissions from road transport have fallen by almost 40 per cent since 1997. Road transport accounted for 40 per cent of total NOx emissions in 2003, down from over 50 per cent in 1997

Conclusions

This report has three distinct messages; 1) that average new car CO_2 emissions are continuing to fall; 2) that overall CO_2 emissions from road transport are holding steady and from cars falling; and 3) to achieve further real world CO_2 reductions need an integrated approach with all parties acting to introduce, purchase and use lower CO_2 emitting vehicles.

The report demonstrates that in 2005 the average new car is almost eleven per cent or 20g/km cleaner than it was in 1997. This saving follows the introduction of improved technologies, a dieselisation of the market, and also changes in taxes to make low CO_2 emitting vehicles more attractive, and high CO_2 emitting vehicles less so. There is also far greater public awareness of the issue and consumers have been given more information to help them make an informed choice.

This report is focused primarily on CO_2 emissions from new cars. But new cars only make up a proportion of the number of vehicles in use. Also cars only make up a proportion of the vehicle fleet. Efforts need to be made to ensure the vehicle fleet as a whole shifts towards lower CO_2 emitting vehicles. It is also noticeable when the total CO_2 emissions from road transport are broken down as to where the issues lie. The fact is that CO_2 emissions from cars have remained broadly constant, despite big growth in the number of cars on the roads and increased distances being travelled. Much of the growth in road transport CO_2 emissions comes from commercial vehicles, which in turn is driven by growth in the economy at large.

No industry though can rest on its laurels. The motor industry still has a challenging pan-European voluntary agreement to strive for. The oil industry has work to do on introducing renewable fuels and in particular the RTFO. Government has important contributions to make in terms of setting the correct policy structure to enhance the UK's environmental profile, whilst ensuring the competitiveness of the UK remains intact. Finally, of course, the user decides which vehicle to purchase, which journey to make and when to make it. Ensuring all these stakeholders play their role is the integrated approach. Buy pulling together, more effective CO_2 savings can be achieved more efficiently.

Appendix 1 – MVRIS Segment definitions

A	=	MINI	(e.g. smart)
B	=	SUPERMINI	(e.g. Nissan Micra)
C	=	LOWER MEDIUM	(e.g. Vauxhall Astra)
D	=	UPPER MEDIUM	(e.g. Ford Mondeo)
E	=	EXECUTIVE	(e.g. BMW 5 Series)
F	=	LUXURY SALOON	(e.g. Rolls Royce Phantom)
G	=	SPECIALIST SPORTS	(e.g. Porsche 911)
H	=	DUAL PURPOSE	(e.g. Land Rover Freelander)
I	=	MULTI PURPOSE VEHICLE	(e.g. Renault Espace)

SEGMENT A - MINI
Normally less than 1.0 cc, Bodystyle “miniature”, Normally 2 Door, Length normally not exceeding 3050 mm (10 Feet)

SEGMENT B - SUPERMINI
Normally between 1.0 - 1.4 CC, Bodystyle bigger than Mini, Length normally not exceeding 3745 mm (~ 12.5 feet), Performance greater than Mini

SEGMENT C - LOWER MEDIUM
Normally between 1.3 - 2.0 CC, Length of saloon not exceeding 4230 mm (~ 14 feet)

SEGMENT D - UPPER MEDIUM
Normally between 1.6 - 2.8 CC, Length of saloon normally not exceeding 4470 mm (~ 14.9 feet)

SEGMENT E - EXECUTIVE
Normally between 2.0 - 3.5 CC, Bodystyle generally bigger than Upper Medium, Normally 4 doors, Length of saloon normally not exceeding 4800 mm (~ 16 feet), More luxuriously appointed

SEGMENT F - LUXURY SALOON
Normally upward from 3.5 CC, Most luxurious available

SEGMENT G - SPECIALIST SPORTS
Sports coupes, Sports saloons, Traditional sports

SEGMENT H - DUAL PURPOSE
4x4 off – road

SEGMENT I - MULTI PURPOSE VEHICLE
4x2 or 4x4 estates with a seating capacity of up to 8 people

Appendix 2 - UK new car market CO_2/km figures, by county

	CO2					
	2001	**2002**	**2003**	**2004**	**2005**	**% ch '05vs'04**
Avon	176.6	172.7	170.2	170.3	166.2	-2.4%
Bedfordshire	179.0	176.1	175.5	174.5	171.5	-1.7%
Berkshire	188.3	182.1	179.1	175.4	170.8	-2.6%
Border	173.8	172.2	170.8	168.3	167.2	-0.6%
Buckinghamshire	181.2	178.0	177.8	175.6	173.0	-1.4%
Cambridgeshire	181.1	175.9	174.1	171.0	170.2	-0.5%
Central Scotland	173.5	170.6	168.0	166.1	164.4	-1.0%
Channel Islands	179.8	174.4	168.2	168.1	162.3	-3.5%
Cheshire	180.7	174.8	172.2	171.7	169.7	-1.1%
Cleveland	170.5	168.8	167.4	167.6	167.3	-0.2%
Clwyd	172.3	169.0	168.1	169.3	165.9	-2.0%
Cornwall	173.4	169.6	169.5	168.9	167.2	-1.0%
Cumbria	176.6	172.2	169.4	168.8	165.6	-1.9%
Derbyshire	175.8	174.4	171.5	172.9	171.0	-1.1%
Devonshire	176.6	173.7	172.8	171.2	167.9	-1.9%
Dorset	177.5	175.0	174.4	175.2	171.5	-2.1%
Dumfries and Galloway	173.1	171.2	168.2	167.2	165.6	-1.0%
Durham	168.5	166.8	165.3	167.0	166.5	-0.3%
Dyfed	171.3	169.4	167.3	167.8	165.5	-1.3%
East Sussex	178.9	175.7	174.1	173.6	170.9	-1.6%
Essex	184.1	181.0	176.2	174.8	173.1	-0.9%
Fife	171.1	167.4	167.4	166.9	167.0	0.0%
Gloucstershire	182.1	177.6	177.1	176.9	176.5	-0.2%
Grampian	177.7	174.1	171.4	171.4	171.5	0.1%
Greater London	184.8	181.9	179.4	180.0	178.0	-1.1%
Greater Manchester	173.5	167.9	166.6	166.2	166.8	0.3%
Gwent	173.4	171.0	169.5	170.5	168.1	-1.4%
Gwynedd	174.4	170.8	170.9	170.4	167.3	-1.8%
Hampshire	179.3	176.5	174.1	172.0	172.0	0.0%
Hereford and Worchester	180.9	176.7	167.7	166.4	164.9	-0.9%
Hertfordshire	180.0	175.9	173.8	174.1	173.1	-0.5%
Highlands	174.1	171.4	168.6	168.1	167.6	-0.3%
Humberside	173.1	169.8	170.5	171.5	168.4	-1.8%
Isle of Man	178.5	174.5	171.8	173.8	170.8	-1.8%
Isle of Wight	174.3	171.3	170.7	169.4	165.3	-2.4%
Kent	179.2	177.1	175.3	175.4	172.6	-1.6%
Lancashire	171.6	169.6	167.3	167.5	164.9	-1.5%
Leicestershire	174.4	172.6	170.2	167.9	164.4	-2.1%
Lincolnshire	176.3	174.0	172.9	173.2	170.1	-1.8%
Lothian	177.9	175.0	172.2	169.2	166.7	-1.5%
Merseyside	170.3	167.7	166.8	168.2	165.8	-1.4%
Mid Glamorgan	170.2	167.0	165.8	166.6	164.3	-1.4%
Norfolk	176.1	174.1	171.8	171.2	169.7	-0.9%
Northamptonshire	179.2	173.0	172.4	171.7	171.3	-0.2%
Northern Ireland	169.7	166.1	170.9	164.8	169.4	2.8%
Northumberland	170.4	169.4	163.8	168.1	164.3	-2.2%
North Yorkshire	178.4	174.5	168.0	173.0	166.7	-3.7%
Nottinghamshire	175.1	173.1	172.2	171.5	169.1	-1.4%
Oxfordshire	182.3	179.9	177.0	178.0	179.0	0.6%
Powys	177.5	173.2	173.0	172.7	169.6	-1.8%
Shropshire	177.5	173.0	172.5	173.0	171.2	-1.1%
Somerset	177.8	174.4	172.2	173.3	171.3	-1.2%
South Glamorgan	174.5	172.8	170.8	168.9	167.6	-0.8%
South Yorkshire	173.0	169.2	167.6	169.6	174.2	2.7%
Staffordshire	172.9	172.4	169.8	167.2	167.0	-0.1%
Strathclyde	170.5	169.2	166.7	165.8	163.7	-1.3%
Suffolk	177.5	175.8	174.0	172.9	171.2	-1.0%
Surrey	187.3	180.2	182.3	181.8	178.5	-1.8%
Tayside	173.7	171.4	169.8	168.3	168.3	0.0%
Tyne and Wear	167.8	167.0	165.0	165.7	166.6	0.6%
Warwickshire	175.5	183.4	181.8	185.2	190.6	2.9%
West Glamorgan	170.2	166.9	163.7	164.8	162.1	-1.7%
West Midlands	178.5	173.2	169.6	167.5	164.0	-2.1%
West Sussex	178.9	175.9	175.6	175.5	173.9	-0.9%
West Yorkshire	174.8	170.8	169.0	168.5	166.0	-1.5%
Wiltshire	174.2	170.8	173.4	170.8	167.1	-2.1%
Total	177.6	174.2	172.1	171.4	169.4	-1.2%

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