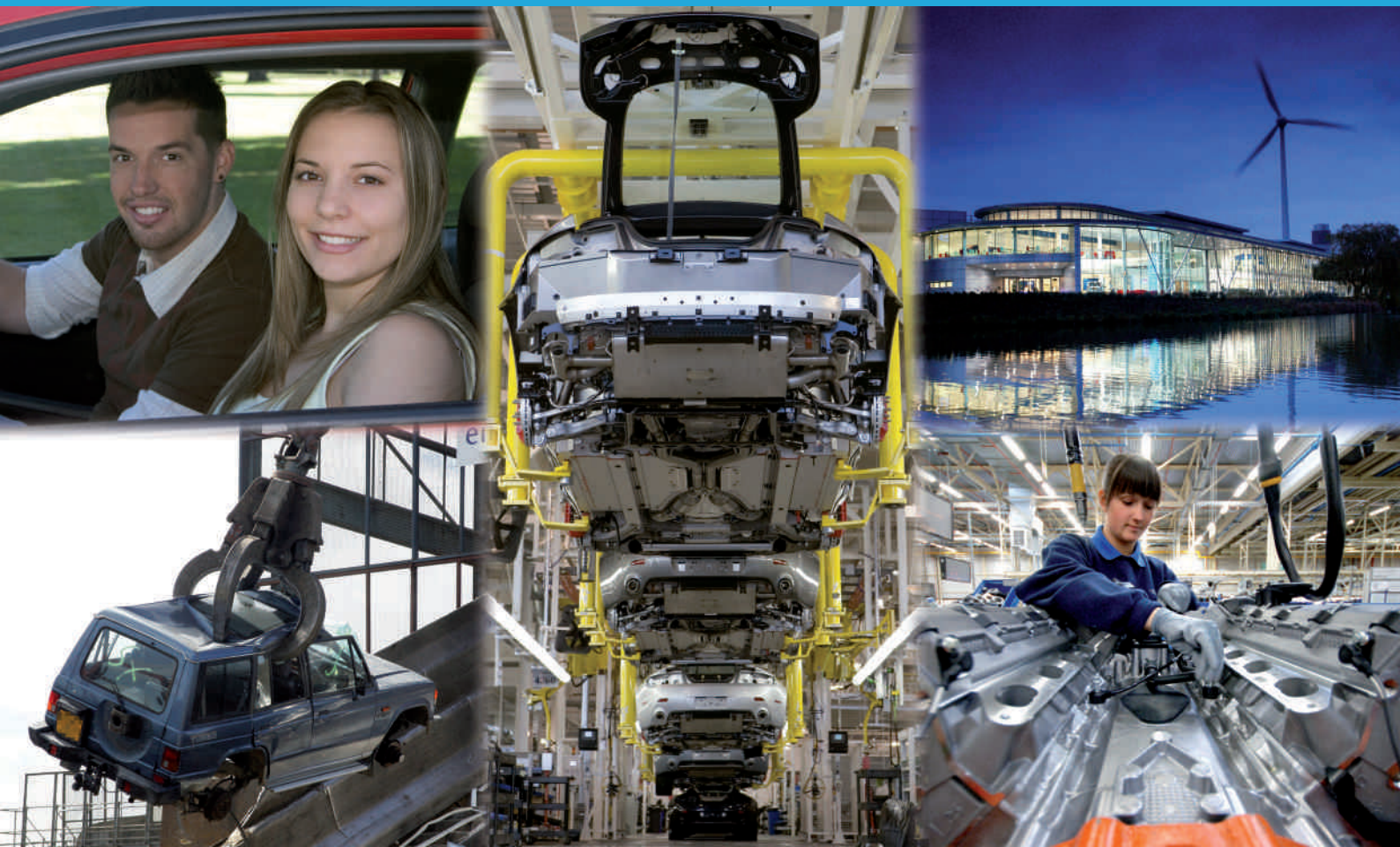


# Tenth annual sustainability report



1999 - 2008

The Society of Motor Manufacturers and Traders

## Chief executive's statement

I am proud to introduce this, the tenth annual sustainability report.

The report's tenth anniversary provides a welcome opportunity to reflect on the great strides the automotive sector has made in reducing its environmental impact and strengthening the social and economic contribution that it makes. It is also appropriate to acknowledge the significant challenges that lay ahead and re-affirm our commitment to sustainable development.

During the last decade, the UK motor industry has made progress against a wide range of environmental indicators, new car CO<sub>2</sub> emissions, total energy consumed and CO<sub>2</sub> emitted from manufacturing. In addition we have seen reductions in workplace accidents and staff turnover demonstrating the strength, advances and flexibility of the UK manufacturing environment and its dedicated workforce.

The UK motor industry faced unprecedented economic circumstances in 2008 and had to adapt quickly to the global credit crisis. Production volumes fell back, as did environmental indicators linked to output. Employment levels fell as the dramatic drop in demand forced manufacturers to make difficult decisions in order to protect their longer term industrial capability. At a time when R&D investment has been crucial, the industry has faced some of the toughest economic conditions in its history.

Despite these difficulties there is now a political and economic acceptance that the UK economy cannot thrive on financial services alone. Manufacturing is an **essential part of the UK's post-recession future** and now is the time to develop an environment that attracts new investment from across this global industry. SMMT supports the New Automotive Innovation and Growth **Team's vision for the future** – a competitive, growing and dynamic industry making a large and increasing **contribution to the UK's employment and prosperity**, playing a decisive role in developing exciting, low carbon transport solutions – and believes now is the time to start delivering.

*Towards Sustainability*, the industry's sustainability strategy was launched by SMMT alongside 11 signatories in 2000. In publishing it, the motor industry became the first sector to issue such an in-depth analysis of its environmental footprint, economic contribution and social responsibility, pioneering an approach which we are pleased to see other sectors have followed. The philosophy behind that first report was to balance economic progress with environmental care and social responsibility – an ethos that, despite the ongoing economic turbulence, remains just as vital to our sector today as it did one decade ago.

Paul Everitt  
Chief Executive  
The Society of Motor Manufacturers and Traders





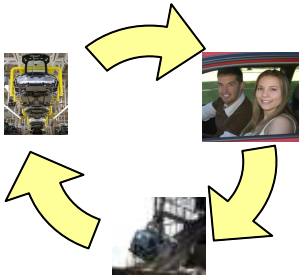




*'Balancing economic progress with environmental care and social responsibility remains just as vital in these turbulent times as it did a decade ago'*





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# Executive summary and key performance indicators

## Ten years' progress

		1999	2008	Percentage change 2008 on 1999	
Number of signatories	(AS)	11	16	45.5	
<b>Economic performance</b>					
Automotive manufacturing sector turnover	(£ billion)	44.1	52.50	19.0	
Total number of cars and CVs produced	(million) (UK) (WI)	1.98	1.18	-40.7	
Total new car registrations	(million) (UK) (AC)	2.19	1.96	-10.5	
<b>Signatories' combined turnover</b>	(£ billion) (AS)	20.10	39.61	97.1	
Total number of vehicles produced	(million) (AS)	1.44*	1.61	11.8*	
Combined number of employees	(AS)	95,214	63,749	-33.0	
<b>Environmental performance</b>					
Production inputs					
Total combined energy use	(GWh) (AS)	6,110	4,491	-26.5	
Energy used per vehicle produced	(MWh/unit) (VMs)	3.10	2.35	-24.2	
Total combined water use	(000m <sup>3</sup> ) (AS)	9,620*	5,688	-40.9	
Water use per vehicle produced	(m <sup>3</sup> /unit) (VMs)	5.3*	2.9	-45.3	
Material outputs					
Total combined CO <sub>2</sub> equivalents	(tonnes) (AS)	1,821,586	1,285,378	-29.4	
CO <sub>2</sub> equivalents per vehicle produced	(tonnes/unit) (VMs)	1.10	0.65	-40.9	
VOC emissions (cars)	(g/m <sup>2</sup> ) (VMs)	55	38	-30.9	
VOC emissions (vans)	(g/m <sup>2</sup> ) (VMs)	59*	71	20.3	
Total combined waste to landfill	(tonnes)(AS)	54,954	24,900	-54.7	
Waste to landfill per vehicle produced	(kg/unit)(VMs)	40.30*	11.90	-70.5	
Vehicle use					
Average new car CO <sub>2</sub> emissions	(g/km) (AC)	185.0	158	-14.6	
<b>Social performance</b>					
Number of lost-time incidents	(AS)	669*	287	-57.1	
Number of training days per employee	(AS)	3.8*	2.9	-23.7	
New car colour- coded label uptake	(% of dealers) AS	74*	91	-22.5	

Out of 21 key performance indicators over 1999-2008






















- Five red, concern
- Zero amber, static
- 16 green, progress

\*When the 1999 value is unknown, the first available figure is given (see appendices)  
The percentage change column is correct based on data to more decimal places than shown above  
Data in the report is quoted in a number of ways:




Whole industry data	(WI)
All car sales in the United Kingdom	(AC)
All signatories	(AS)
UK vehicle manufacturing signatories	(VMs)



## 2008 performance

2003	2004	2005	2006	2007	2008	Percentage change 2008 on 2007	Page
22	20	20	17	16	16	0 	53
<b>Economic performance</b>							
46.30	46.90	48.20	49.30	53.20	52.50	-1.3 	17
1.84	1.86	1.80	1.65	1.75	1.18	-32.9 	16
2.58	2.57	2.44	2.34	2.40	1.96	-18.5 	16
39.16	34.64	39.38	41.87	43.66	39.61	-9.3 	16
1.73	1.61	1.77	1.60	1.71	1.61	-5.8 	16
87,625	76,327	72,337	75,789	65,761	63,749	-3.1 	15
<b>Environmental performance</b>							
<b>Production inputs</b>							
6,126	5,337	5,103	4,851	4,672	4,491	-3.9 	18
2.80	2.50	2.30	2.50	2.20	2.35	6.8 	18
8,404	7,037	7,127	6,779	6,053	5,688	-6.0 	19
3.4	3.4	3.2	3.3	3.0	2.9	-3.3 	19
<b>Material outputs</b>							
1,679,832	1,447,900	1,417,129	1,363,189	1,338,244	1,285,378	-4.0 	20
0.70	0.68	0.62	0.70	0.60	0.65	8.3 	20
47	50	48	49	45	38	-15.8 	23
60	66	67	65	69	71	2.2 	23
56,743	52,842	44,910	39,862	30,004	24,900	-17.0 	21-22
17.90	19.80	14.50	17.00	12.75	11.90	-6.7 	21-22
<b>Vehicle use</b>							
172.1	171.4	169.4	167.2	164.9	158.0	-4.2 	26-28
<b>Social performance</b>							
710	491	410	385	329	287	-12.8 	40
3.8	2.9	3.2	2.7	2.6	2.9	11.5 	38
-	-	-	74	86	91	-5.4 	46

Out of 21 key performance indicators over 2007-2008

-  11 red, concern
-  One amber, static
-  Nine green, progress

# Economic performance

## Employment

- 180,000 jobs directly in automotive manufacturing.
- 640,000 in automotive supply, retail, servicing.
- Competitive labour costs and productivity.
- Labour flexibility through agency workers.
- Manufacturing is generally shifting away from Western Europe to lower cost locations.
- UK auto sector is suffering disproportionately more job losses than other European countries due to relatively flexible labour laws, which are also a strength.
- UK weak on quality and availability of local suppliers and skilled labour.

## Value added

- Contributes £10 billion added value to UK economy.
- Accounts for one-eighth of UK exports by value.
- Value of exports up 35% in ten years.
- £1 billion per year spent on UK R&D, maintained throughout the decade.
- Concern about ability of UK to continue attracting foreign direct investment.
- Economic crisis putting pressure on R&D spending is a concern given the need to invest in low carbon technologies.

## Output

- New car registrations peaked at 2.6 million in 2003 and CV registrations at 392,481 in 2007
- 80% of car production and 60% of CVs exported.
- UK is the second largest premium car producer in the world and a leading engine producer.
- Six of the top ten vehicle makers and 19 of the top 20 automotive parts makers have a manufacturing presence in the UK.
- Global overcapacity, changing consumer demand.
- **UK's share of global assembly down a third.**
- Decline in volume car production.

*'UK is the world's second largest premium car producer and a leading engine producer'*

## 2008-09

- Industry responded quickly to slump in demand with flexible approaches and shift patterns.
- Government supported sector with scrappage incentive scheme to try to boost dramatically dropping sales. The Automotive Assistance Programme has still to deliver investment support on a large scale.
- UK production down over 45% in 2008-09.
- Global car production share now below 3%.
- High energy prices.

*'Manufacturing jobs down 36% in ten years'*

# Environmental performance

## Production

- 40% reduction in CO<sub>2</sub> emissions per vehicle produced and energy consumption reduced by almost a quarter over the last decade.
- 12 wind turbines installed and producing green electricity, with further expansion planned.
- 92% of manufacturing sites have environmental management systems (ISO14001/EMAS).
- Halved water use per vehicle produced.
- Green travel plans in place to reduce carbon footprint of production and commuting.
- 81% surge in waste recycling in the last five years.
- 57% reduction in waste to landfill per vehicle produced since 1999.
- 31% reduction in volatile organic compound (g VOC/m<sup>2</sup>) emissions from car painting since 1999, a result of heavy investment in paintshops. Successfully met the European VOC target of 60g/m<sup>2</sup> by 2007.
- Optimised logistics and supply chain activities to reduce environmental impact and costs.
- Five year development period for a new car.
- Heavily regulated product. Before placing a car on the market, there are 85 regulations to meet.
- More than 20 new environmental regulations since 1999 for production processes.
- Manufacturing is already covered by two energy efficiency regimes (EU ETS, CCL) with a third (CRC) coming into force in 2010.
- Diminishing returns on VOC reduction in terms of both cost and energy requirements.

*'CO<sub>2</sub> per vehicle produced down 40%, VOC (g/m<sup>2</sup>) down 31%, landfill down 57% and water use down 50% in ten years'*



## Use phase

- Successfully decoupled growth from emissions - distance travelled continues to increase, but total CO<sub>2</sub> emissions from road transport are falling.
- 14.6% reduction in average new car CO<sub>2</sub> emissions over the past ten years.
- Further 25% reduction in new car CO<sub>2</sub> through the EC Regulation, to 120g/km by 2012-15, with 10g/km from 'complementary measures'.
- 47 new CO<sub>2</sub>-efficient technologies have been introduced in ten years. More coming each year.
- Two-fold increase in diesel car registrations.
- One in every 135 vehicles sold in 2008 was an alternatively fuelled or advanced propulsion vehicle. This is 45 times the number in 1999.
- CO<sub>2</sub> based Vehicle Excise Duty (VED) introduced.
- Congestion charging in London.
- In ten years, car emissions have been cut by 75% in PMs and 66% NO<sub>x</sub> for diesel vehicles and 64% HC + NO<sub>x</sub> in petrol vehicles.
- Increased use of biofuels through the Renewable Transport Fuels Obligation (RTFO).
- High blend B30 and E85 biofuel-capable vehicles available from a number of manufacturers.
- 34% reduction in serious injuries from road accidents, despite increase in distance travelled.
- A parallel LCV CO<sub>2</sub> regulation with unrealistic target dates is being considered.
- Balancing further financial costs with environmental benefits.
- Balancing CO<sub>2</sub> versus other tailpipe emission reductions and safety requirements.
- Maintaining R&D impetus for conventional technologies and fuels.
- First year rate VED from April 2010 threatens to slow parc renewal and therefore obstruct the economic recovery and efforts to improve CO<sub>2</sub> of the UK fleet.
- Availability of high quality and sustainable biofuels - challenging.
- Globally co-ordinated actions necessary to improve safety and reduce congestion through the Intelligent Transport Systems (ITS).

*'New car CO<sub>2</sub> emissions down 14.6% in ten years'*

*'Serious road injuries down 34% in a decade, despite a 10% increase in traffic'*

7

## Vehicle end of life

- ≥85% recycling/recovery of End of Life Vehicles (ELV) in VMs' authorised networks in the first reporting years of 2006 and 2007 and have confirmed targets met for 2008.
- 10% increase in ELV recycling/recovery since 1998.
- Four heavy metals phased out of new vehicles.
- New car and van types to be 95% recoverable by 2012.
- Future 2015 target of 95% recovery looks challenging but it is encouraging to see new processes being developed and investments being announced.
- Double regulation through the Waste Batteries Directive.

## Social performance

- 42% reduction in staff turnover since 2000.
- 66% reduction in lost time incidents (accidents) at work since 2002.
- Continued engagement with stakeholders to encourage responsible product use.
- 94% of dealerships display the voluntary colour-coded CO<sub>2</sub> label (2009), up 20% since 2006.
- 71% of buyers found the label helpful in choosing the make and model of their new car.
- Reducing employment levels pose a risk to critical mass for vehicle manufacturing in the UK.

*'94% of dealerships display the colour-coded CO<sub>2</sub> label, up 20% since 2006'*

# The future

## Key facts

- Technological progress in both production and products will move us towards a low carbon future.
- Investment in and demonstration of ultra-low carbon technologies is coming.
- NAIGT set out a roadmap of technologies and recommendations to help the UK industry to thrive.
- Implementation of the EC new car CO<sub>2</sub> regulation will ensure tailpipe CO<sub>2</sub> falls 25% by 2012-15. A vans regulation is likely to follow.

- Automotive is a heavily regulated sector. CARS 21 recognised the damaging effects of over-regulation and set out a ten year policy roadmap. It proposed an integrated approach, collective action from the auto and fuel industries, government and consumers to deliver the greatest rewards at lowest cost.
- Carbon Reduction Commitment will drive CO<sub>2</sub> reductions in less energy intensive parts of the sector.



## Background

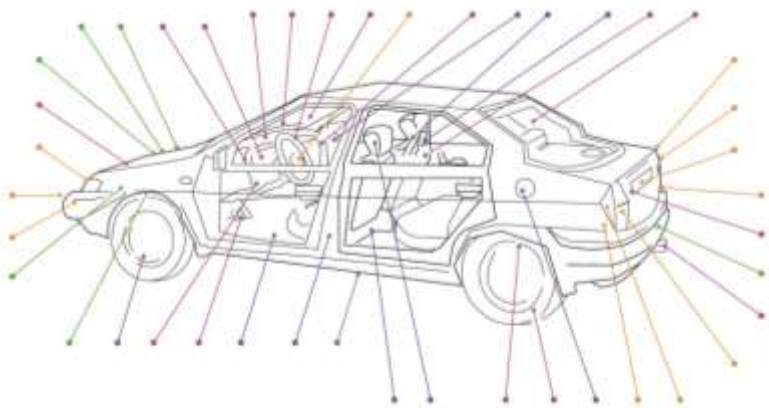
Car manufacturers have made enormous improvements in fuel consumption, CO<sub>2</sub>, air quality emissions and safety over the last 30 years. *The Evolution of the Car* (SMMT) compared real models as they have evolved across the generations.

It is true that rules like limits for exhaust pollutants in Euro engine standards have helped focus investment in engine and exhaust technology to reduce harmful emissions. Equally, safety rules on occupant and pedestrian protection have complemented investment in active safety systems like ABS and ESP, helping halve road fatalities in the UK since the early eighties, and cut pedestrian deaths by a factor of three.

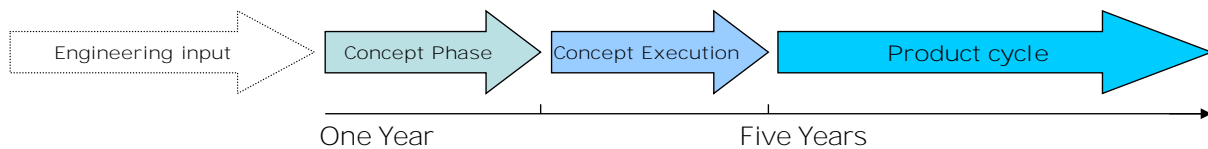
These rules also have unintended consequences in other areas. More pollution abatement technology and safety systems have played a big part in creating larger, heavier and less aerodynamic cars. This negatively affects CO<sub>2</sub> emissions and fuel efficiency.

In 1996 there were 62 bundles of regulations that defined the template for a new car. By 2007, this had risen 37% to 85<sup>(1)</sup>. This is an increasing

pressure on car makers as they develop new models and evolve current variants and is one of the reasons it takes five years to develop a new car (see diagram).



Source: ACEA



## CARS 21 Competitive Automotive Regulatory System for the 21st century

CARS 21 is a multi-stakeholder initiative launched by the European Commission in 2005 to strengthen the **automotive sector's competitiveness and employment**, while enhancing progress towards safety and environmental goals. It contained a series of vital recommendations for policy makers and a ten year roadmap for implementation.

On safety and the environment, CARS 21 recommended an integrated approach - collective

action from the industry, governments, fuel companies and consumers to deliver the greatest rewards at the lowest cost.

CARS 21 acknowledges the damaging effects of over-regulation on the competitiveness of the automotive sector. In the face of the economic downturn, this is more relevant than ever. Lower sales and an unfavourable economic environment in turn translate into reduced profitability, putting pressure on employment and limiting R&D budgets for, for instance, low carbon products.





## Interventions and trade-offs

The Department for Environment, Food and Rural Affairs (Defra) recently evaluated the sustainability of passenger cars (2008-09) with input from stakeholders<sup>(2)</sup>. The study analysed interventions aimed at reducing the environmental impact of cars, the trade-offs associated with these interventions and gaps in knowledge.

Twelve interventions were selected for detailed analysis through each stage of the car life cycle: hybrids, electric and hydrogen powered vehicles, biofuels, material substitution, end-of-life vehicles, eco-driving, speed control, high occupancy rates, fuel efficiency labelling, early scrappage and road

charging. This identified the barriers to improvement and made recommendations for further research.

It also revealed links between interventions, where resolving a particular issue could result in considerably greater reductions in the environmental impact of the car.

It concluded that, as there are a large number of other initiatives already impacting on the sustainability of cars and transport, no further work is warranted at this time. An industry working group to consider voluntary sustainability targets will be established if and when Defra considers the need arises.

## Regulatory background

### CO<sub>2</sub> regulation for passenger cars

SMMT members have been working hard to reduce CO<sub>2</sub> emissions and have invested heavily over the past decade to make significant advances - average UK new car CO<sub>2</sub> emissions have fallen from 189.8 g/km in 1997 to 158.0g/km in 2008, a fall of 16.8% over the past 11 years.

Last year the EC New Car CO<sub>2</sub> Regulation was agreed and will cut the fleet average of new passenger cars to 130g/km from 2012 through improved vehicle technology. A further 10g/km reduction will come from improvements in other areas, including alternative fuels and tyre pressure monitoring. Together this is a 25% reduction over 2006 at the EU level.

### Proposed van CO<sub>2</sub> legislation

Industry remains committed to reducing CO<sub>2</sub> emissions from its products, but the long product cycles for light commercial vehicle (LCV), more than ten years compared to five to seven years for passenger cars, make the cost of complying with any new LCV regulation on CO<sub>2</sub> prohibitive in the current economic climate and particularly within the timeframe proposed.

Legislation on CO<sub>2</sub> emissions from LCVs needs to be based on a comprehensive impact assessment and

### Trucks makers have *Vision 20-20* for CO<sub>2</sub>

Last year, the European commercial vehicle (CV) manufacturers united behind *Vision 20-20*. This frames technology progress with other factors that will help cut CO<sub>2</sub> emissions and commits European CV manufacturers to reduce fuel consumption of new trucks by a further 20% per tonne kilometre on average by 2020, compared to 2005.

In addition, the industry will actively help strike a balance between mobility and environmental

It is an ambitious piece of legislation and represents a significant challenge to the industry. It recognises the need for long-term investment in the sector and the **phased introduction of the regulation's targets** between 2012 and 2015 takes into account the lead times necessary to ensure the industry is able to achieve them.

The regulation also sets an ambitious long-term target of around 95g/km in 2020.

However, the penalty of €95 per excess gramme of CO<sub>2</sub> is extremely high compared to the price of CO<sub>2</sub> in other sectors<sup>(3)</sup>.

take into account cost-effective approaches to reduce CO<sub>2</sub> emissions from such vehicles.

SMMT has requested that the Commission put drafting the proposal on hold until such a thorough regulatory impact assessment has been undertaken. A Europe-wide CO<sub>2</sub> database has yet to be established and needs to be open to all member states and interested stakeholders. In the UK, SMMT has recently **established Europe's most comprehensive LCV CO<sub>2</sub> database** in cooperation with government and VCA launched on 8 June 2009.

protection through a partnership with political leaders, the fuel industry, hauliers, vehicle operators and, last but not least, the drivers themselves.

**The manufacturers' ambitious strategy fits well with the EU objective to reduce overall greenhouse gas emissions by 20% in 2020<sup>(4)</sup>.**



## Future strategy

### Scrappage and sustainability

Government introduced a vehicle scrappage incentive scheme in May 2009, offering a £2,000 discount to consumers buying a new car or van up to 3.5 tonnes to replace one more than ten years old. The initial government funding of £300m, matched by industry, was extended by another £100m in September 2009 due to the success of the scheme. The age criteria were also changed at this point. The scheme will end when the government funding has been used or in February 2010 at the latest.

The primary purpose of the vehicle scrappage scheme was to provide a boost to new car sales to help the industry, its supply chain and retailers in the wake of falling sales. The scheme encourages replacement of ageing vehicles by newer, safer models with generally

lower emissions, and was expected to have a neutral or modestly positive environmental impact.

In fact, by August, new cars bought through the scheme had 25% lower CO<sub>2</sub> emissions than the cars being scrapped. At 133.9 g/km, cars bought through the scheme are 15.3% below the average CO<sub>2</sub> for new cars (2008). Each scrappage scheme vehicle represents a half tonne of tailpipe CO<sub>2</sub> saved for each year the vehicle is taken off the road earlier than it otherwise would have been.



The improving reliability of vehicles is not expected to lead to a longer life because eventually it costs more to repair than it does to replace. This allows for fleet renewal, which is the only realistic way to fight climate change and improve air quality<sup>(5)(6)</sup>.

### New Automotive Innovation and Growth Team (NAIGT)

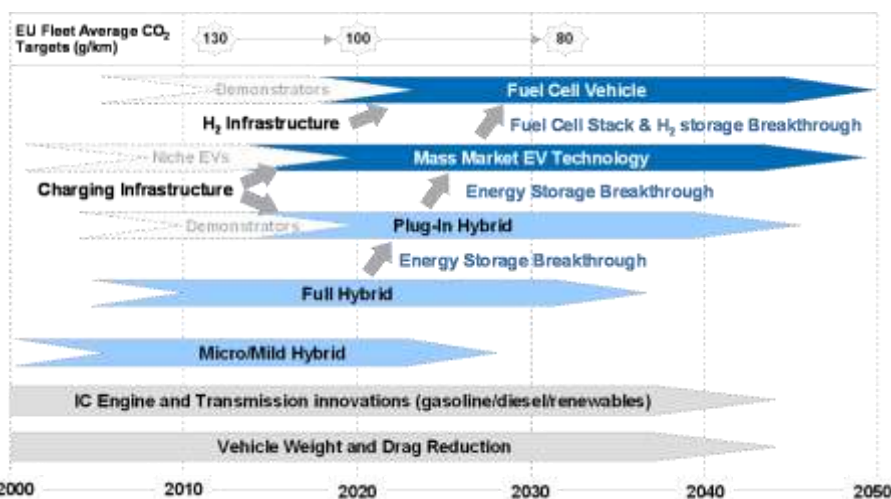
The NAIGT was formed in April 2008 to provide a collective strategic view of the automotive industry on the innovation and growth challenges it faces. NAIGT set out a 20-year vision for the automotive industry and made recommendations to government and industry to realise it.

According to the report the key success factors that need to be protected, developed and nurtured to create the conditions for greater success are:

- A supportive host government – in policy rhetoric, tone and responsiveness.
- Industry collaboration at a high level to facilitate greater non-competitive collaboration and provide consensus leadership with a more coherent and effective interface with government.
- Critical mass or scale for operations.
- Availability of skills.
- A capable, competitive integrated supply chain of strong Tier 1, Tier 2 and Tier 3 suppliers.

#### Recommendations

- Automotive Council - to establish a joint industry/government Automotive Council to develop, guide and implement a strategic framework for the industry. The Council will be tasked with creating a transformed business environment to make the UK a more compelling investment location, agree on technology roadmaps for low carbon vehicles and fuels and to develop a stronger supply base.
- Test Bed UK - to co-ordinate R&D efforts to follow the industry-consensus technology roadmap (above), and as a part of the roadmap to establish a bold, large-scale pilot 'Test Bed UK' to demonstrate and build a new low carbon transport infrastructure. The roadmap should be used to steer publicly-funded R&D projects. Test Bed UK



Source: NAIGT

involves consortia of manufacturers, power companies and local authorities. It proposed that a small scale demonstrator fleet (250+ vehicles) is operational through 2010-11, a larger scale market test to develop business models (5,000 vehicles) in 2011-14, with significant uptake from 2014 to mass scale development by 2020.

- Supply Chain Council - under the leadership of the Automotive Council, this will develop a capable high value integrated supply chain.
- Business Environment - to transform the business environment in the UK for the industry, NAIGT recommends that government adopts the low carbon automotive agenda as a core priority, that the fiscal regime for vehicle ownership is overhauled to incentivise low carbon vehicles and that SMMT should promote the positive image of the industry to the public<sup>(7)</sup>.

**'NAIGT gives a 20-year vision for the automotive sector and an industry consensus technology roadmap'**

## Intelligent future technologies

Air quality emissions from vehicle exhaust are now a fraction of what they once were and the latest models are crammed with passive and active safety systems.

It is proving increasingly difficult to balance these objectives - the need to reduce emissions, improve safety, give customers the comfort features and performance they demand, keep prices down and all within the constraints of a competitive automotive sector.

Success depends on co-ordinated actions of all stakeholders.

The automotive industry is conducting extensive work to revolutionise the whole transport system. This work cannot succeed without government help and global co-ordination.

Some key examples are:

- In-vehicle Information and Communication Technology (ICT)/Intelligent Transport Systems (ITS), for vehicle-to-vehicle and vehicle to infrastructure communication
- Intelligent Speed Adaptation (ISA) systems that inform the vehicle of the speed limit for the road it is travelling on, with the option to override it (voluntary ISA). This technology has the potential to improve road safety by reducing speed, which is directly related to the risk of an accident and the severity of injuries.
- E-call - the system automatically alerts emergency services to the location of an accident. Implementation of this system depends on the co-ordinated work of various stakeholders to provide an infrastructure to answer a distress call.

### The Intelligent Transport System (ITS)

The challenge to developing a sustainable transport system is to consider safety, environment, traffic and economic issues. This can be done by integrating intelligent vehicles and intelligent infrastructure with active driver interaction and the support of international legislation.

This means using information and communication technology (ICT ie satellite, computer, telephone, etc) for the transport system, with the goals of reducing road accidents, improving overall safety and security to travellers and cargo, relieving congestion, reducing emissions and enhancing national productivity.

This transport system has become known as the **'Intelligent Transport System' (ITS)**. Its applications and services are based on the collection, processing and exchange of a wide variety of data, from both public and private sources, including information on traffic and accidents as well as personal data, such as the driving habits and journey patterns of the public.

The European Commission is finalising an **'ITS Action Plan'** and **'ITS Directive'** to accelerate ITS deployment throughout the EU. SMMT is working with government to ensure manufacturers are well placed to respond.



The graphic (above) illustrates ITS, an integrated approach between infrastructure, vehicle, driver and legislation.

Source: European Telecommunication Standards Institute.

#### Challenge

ITS raises a number of privacy and data protection issues that need to be carefully addressed to ensure its workability across Europe.

# Sustainability strategy

## What is 'sustainability'?

The most widely used definition, taken from the Brundtland Report, is that:  
*'Sustainability is the ability to meet the needs of present generation without compromising the ability of future generations to meet their own needs.'*



## Reporting over last ten years

In March 2000, SMMT and the 11 founding signatories launched the sustainability strategy for the automotive sector '*Towards Sustainability.*'

*Towards Sustainability* committed the automotive industry to balance economic progress with environmental care and social responsibility

The report was based on 1999 data and was structured around environmental, social and economic performance.

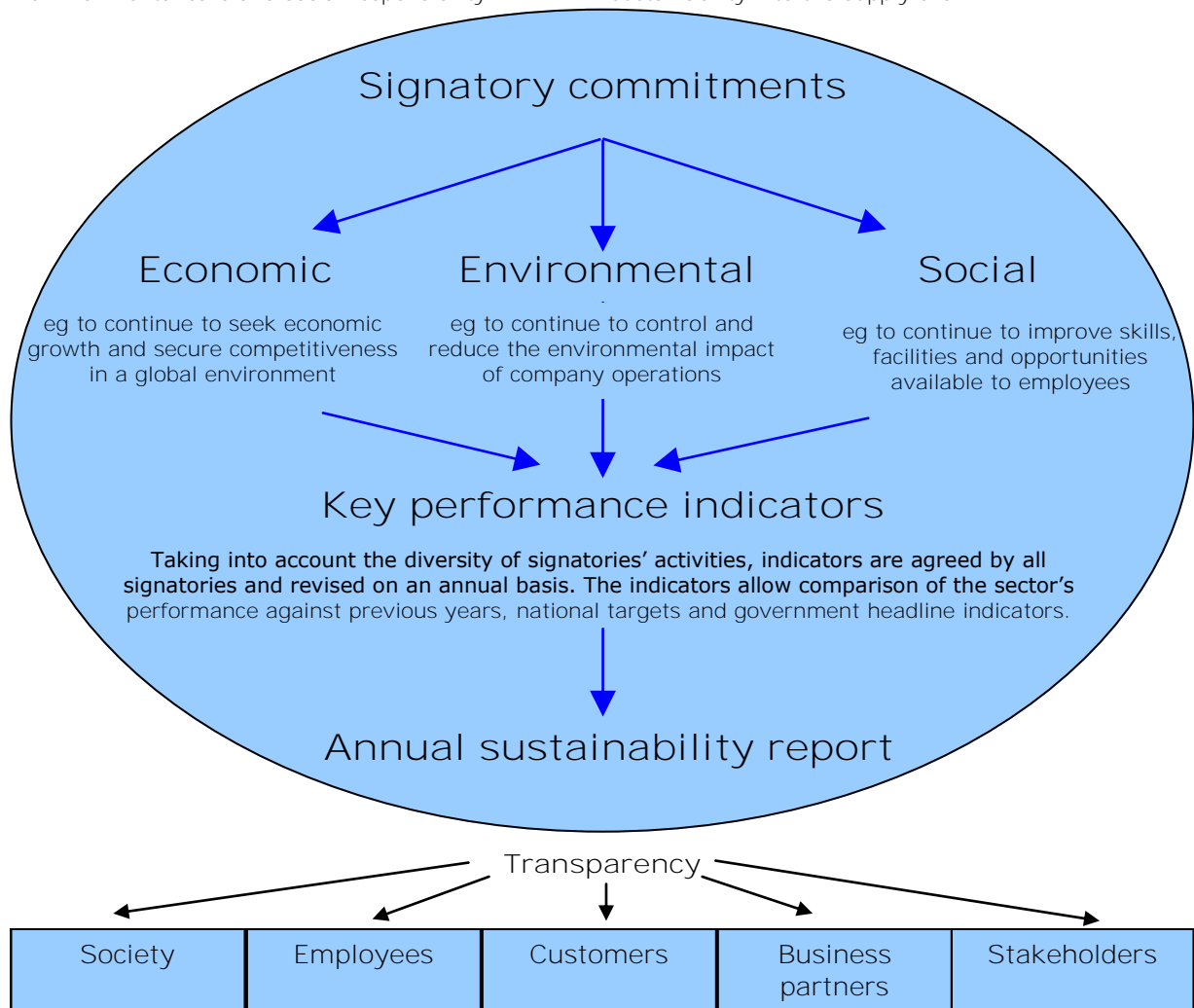
We are proud that automotive was the first sector to do so, pioneering the sector approach.

reporting annually on progress to illustrate transparency.

*Towards Sustainability* committed the automotive industry to balance economic progress with environmental care and social responsibility.

The work programme over the past ten years has focussed on various issues, including integrating sustainability into the supply chain.

12





Over the last ten years, the commitments were achieved by meeting three objectives simultaneously:

- high and stable levels of growth and employment
- effective environmental protection and prudent use of natural resources
- social progress

## Review of commitments

The sector commitments were updated in 2005 when the signatories reviewed the strategy to reflect changes in the sustainability agenda with the development of the integrated approach and changes in the industry structure. The sector also introduced some additional performance indicators and began to report on the issues following a vehicle through its life cycle, ie from production, through its use to the end of life phase.



## Our commitments

### Sustainability reporting

1. Improve and enhance sustainability reporting, respond to stakeholder feedback (pages 12-14).

### Production and distribution

2. Control and reduce the environmental impact of company operations (pages 18-25, 35).
3. Affirm economic growth, turnover and investment toward securing competitiveness in the global economy (pages 10, 15-17).
4. Add value to employment capital through development, skills and training (pages 37-40).
5. Improve the working environment, health and safety of employees (pages 37-41).
6. Improve our understanding of the impact of pre and post production logistics on the environment (pages 24-25).
7. Support development of a high quality and strong environmental supply and reverse supply chain network (pages 24-25).

### Use

8. Improve fuel efficiency of new product design (pages 8, 9, 26-30).

9. Research, develop and bring cleaner technologies to the market to improve tailpipe emission standards and, where practical, to introduce vehicles with higher emission standards in advance of legislation (pages 27-30).

10. Improve the safety of the product (pages 8, 11, 31-32).

### End of life

11. Provide facilities for consumers to return vehicles for disposal at end of life (pages 33-36).
12. Design and build cars to ensure that at least 95% of the weight of materials used can be recovered at the end of life (page 33).

### Engagement and information

13. Engage proactively with external stakeholders (pages 9-11, 31-36, 41-47).

14. Provide information to consumers to enhance **awareness and understanding of the product's** environmental and safety features (pages 8, 19-20, 32, 44-47).

15. Support strategies to reduce the environmental impact of road transport through fuel, driver and infrastructure development and the overall integrated approach (pages 8-11, 21, 27-30, 44-47).

## Carbon footprint through the life cycle

The graphic below illustrates that the majority of life cycle CO<sub>2</sub> emissions of a vehicle come from the use phase.

Although great strides have been made in reducing emissions in the use phase, the proportions have remained fairly constant because emissions in other phases have been reduced too.

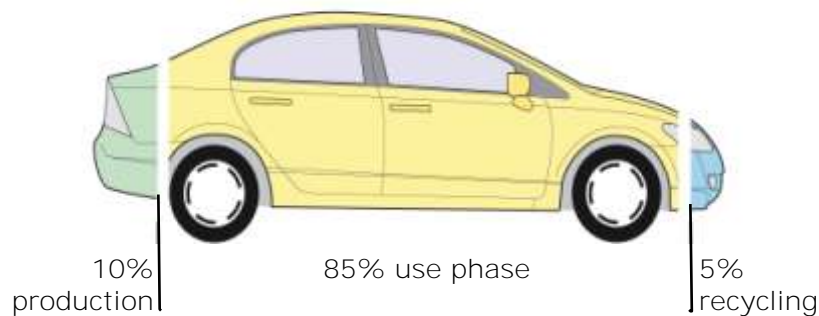
The breakdown of CO<sub>2</sub> life cycle emissions here is based on SMMT data and a range of academic reports

and reflects a generic industry average for the boundaries specified below <sup>(8)</sup> <sup>(9)</sup> <sup>(10)</sup>:

Production: production, logistics and energy for sales and support functions

In-use: CO<sub>2</sub> from distance driven, CO<sub>2</sub> from servicing and after sales functions

Disposal: CO<sub>2</sub> from end-of-life operations



## Sustainability stakeholder event

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In January 2009, ahead of the tenth edition of the SMMT sustainability report, SMMT organised a meeting with stakeholders and other leading sectors. The main purpose of the event was to gauge **stakeholders' opinions on our current approach to sustainability reporting** and to share ideas and experiences. A broad range of stakeholders was invited and attendees included representatives from government, retail, environmental and manufacturing sectors.

The stakeholder meeting was very positive with a great deal of constructive feedback.

We have adjusted our approach to reflect the comments received where possible, resulting in the publication of our tenth sustainability report. The main changes implemented were:

- Vision and ambitions of the automotive industry for the future have been included.
- The key messages have been outlined, explaining the main requirements and challenges as well as major achievements of the industry.
- More narrative instead of just reporting on numbers. The report is less technical and gives more real life examples and case studies.
- Extensive information on investment in R&D and new technologies being implemented have been added (including the technology road map).

- The most challenging pieces of legislation have been outlined.
- The social aspects of the industry have been expanded on with real life examples.
- A feature on the supply chain includes an overview of the progress made and challenges ahead.
- More detail on projects and interactions with stakeholders.
- Additional information on consumer engagement is included, eg response to the car CO<sub>2</sub>/fuel efficiency label, the van CO<sub>2</sub> **database and buyers' guide etc.**
- Further information on help required to achieve the targets from government and legislation.
- The trade-offs that the industry faces have been flagged, eg recyclability, safety or carbon footprint.
- Importance of use phase to the environment has been outlined with eco-driving tips included.
- Ethical sourcing feature included.

One of the key suggestions not implemented was setting targets against the key performance indicators. Due to the extreme economic circumstances SMMT felt that it would not be possible to set realistic targets against the **industry's performance.**

# Economic performance

## Key facts

- Recession in 2008-09 reduced demand for vehicles leading to a sharp fall in vehicle production, hence turnover and value added.
- Employment in the sector has been eroded, dropping 36% over ten years in automotive manufacturing and 12% overall.
- Prior to the downturn industry had experienced a period of steady growth, although it has undergone a number of structural changes. There are a relatively large number of manufacturers producing in the UK, but several firms have left or changed their operations over the past decade.

- Output has increasingly been focused on exports, notably to mainland Europe.
- Temporary measures, like the scrappage incentive scheme, are intended to bolster volumes prior to fuller economic recovery restoring demand.

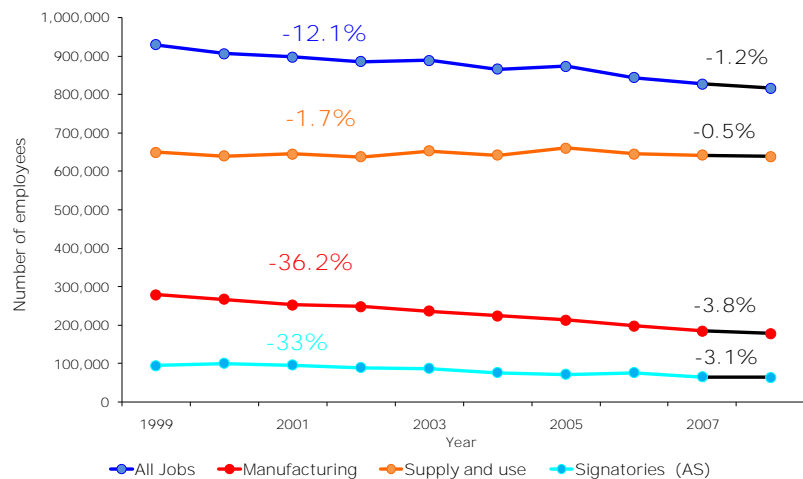


## Employment

Employment has steadily fallen over ten years, 36% in automotive manufacturing and 12% overall and the recession is likely to mean further job losses.

The skills mix is changing and there is potential for growth of skilled jobs as low carbon technologies emerge.

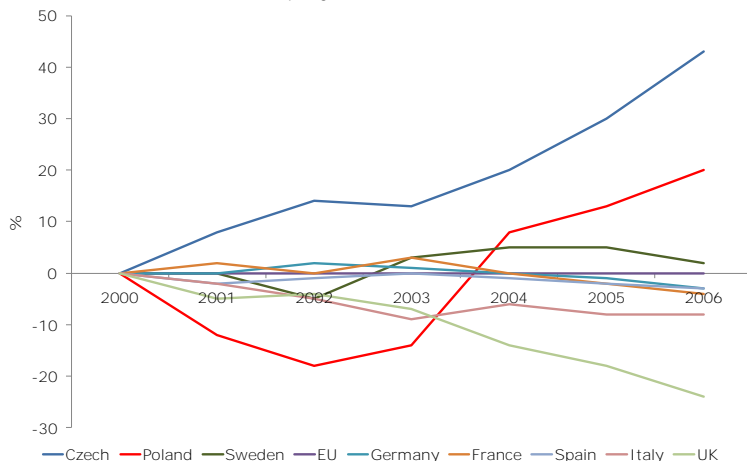
The UK is home to a large number of vehicle producers, with a mix of Japanese, American and European-owned companies. Employment in automotive manufacturing has fallen by around 100,000 in the past decade, reflecting the changing structure of the sector and a transition to more automated production processes. The NAIGT identified that the UK had lost more jobs than its European competitors in the last decade (see graph below).



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While further losses are expected, new technologies - which are likely to focus on design, development and output of low carbon products - could provide a growth element.

Auto sector employment trends (2000 baseline)

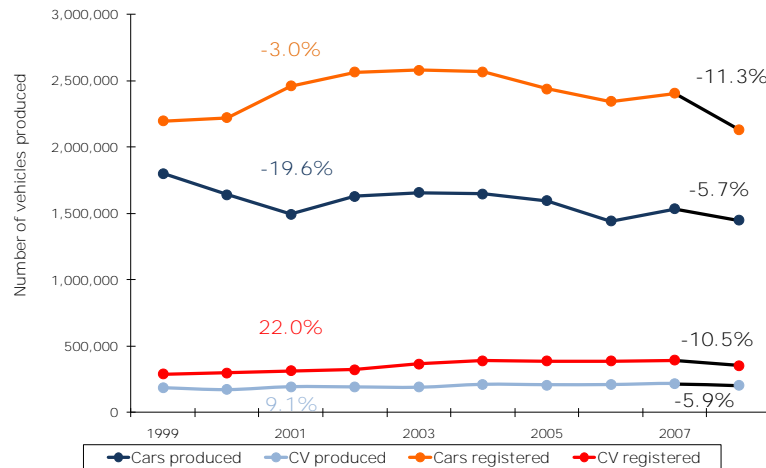


### Nissan to make electric vehicle batteries in Britain

Nissan (2009) will build a new lithium-ion battery plant in the UK as part of its plan towards producing batteries for its Zero Emission Mobility Programme. Its Sunderland site will create up to 350 direct jobs, creating and safeguarding hundreds more in the associated supply chain.

Source: NAIGT report <sup>(7)</sup>

## Production and registrations



Source: SMMT

### Production

UK car production has undergone major change in the past decade. Ford, MG Rover, and Peugeot have ceased car production, while Vauxhall has scaled back production in the UK. Offsetting this has been strong growth by Japanese-owned plants, Honda, Nissan, and Toyota, plus the success of the BMW MINI. Nissan is now the UK's largest vehicle producer.

In 1999 the UK accounted for an estimated 4.5% of world car assembly, given the modest drop in domestic output and growth elsewhere that share is now below 3%. The UK remains the second largest premium vehicle producer in the world. The UK is also a leading engine producer, with around three million a year.

The UK exported 78% of car production and 62% of CV output in 2008, mostly to the EU, but also in large volumes to the USA and Russia.

CV output is focused on two key plants, GM Manufacturing at Luton and Ford at Southampton.

### Registrations

The past decade saw strong growth in both the new car and CV markets as a result of the similarly strong economic growth, consumers taking equity from rising house prices, availability of cheap and easy credit all coupled with intense competition among a growing number of vehicle suppliers.

New car registrations peaked at 2.579 million in 2003, while CV registrations rose to 392,481 units in 2007.

Registrations fell sharply in the second half of 2008 as the recession impacted and those favourable factors were reversed. UK vehicle output, while subject to constant restructuring had been on the increase just prior to the collapse in global demand.

The government stepped in with measures to support demand and help encourage investment, but the outlook remains uncertain with expectations of falling demand in both 2009 and 2010.



### Toyota produces hybrid in the UK

Toyota announced plans to manufacture a full hybrid version of its C-segment hatchback, Auris, in Burnaston, Derbyshire.

Production of Toyota's first European-built full hybrid will start in mid-2010. Engines will be produced at **Toyota's Deeside facility in North Wales.**

### Expenditure on business research and development (R&D)

Automotive R&D spend has held at £1 billion for much of the last decade. The automobile and parts sector was the fourth largest contributor to R&D in the UK top 850 companies <sup>(11)</sup>.

However, the current credit and economic crisis has put pressure on investment at a time when developing low carbon technologies and manufacturing processes are a key imperative of global businesses. The Automotive Assistance Programme is intended to support investment but has yet to deliver on a large scale.

The NAIGT aims to focus both government and industry R&D investment on key strategic technologies to secure the UK's position in the industry's low carbon future (see page 10).





### Automotive value added and manufacturing turnover

- Steady growth in value added, set to be significantly reversed by economic downturn.

The UK automotive manufacturing sector accounts for just under 1% of total gross domestic product. The value added by the UK automotive manufacturing sector had shown steady growth between 2003 and 2007 to an estimated £10.3 billion. This is expected to fall sharply in 2009, before stabilising in 2010, reflecting the major recession. Similarly, turnover is set to fall sharply, as output is cut to reflect weaker demand.

### Value of exports

- Over 75% of UK vehicle production is exported, predominantly to Europe, but also the USA.
- The value of exports had been steadily increasing, but sharp falls in output will erode it.

Automotive exports typically account for 10-12% of total UK trade in goods. The value of automotive exports rose from £19.2 billion in 1999 to £26.6 billion in 2007, an increase of over 35%. The growth reflects the structural change in producers in the UK, with growth in particular from the Japanese manufacturers, MINI and Land Rover, who all have a high degree of export content. Weaker global demand will reduce exports, although the weakness of the pound should help maintain the competitiveness of UK-produced products.

## Market trends

- Diversity has been a major theme in the UK car market over the past decade. Consumers have an increased array of models, body styles and power trains to choose from.
- Significant shift to diesel-powered vehicles, from 13.8% in 1999 to 43.6% in 2008, buoyed by improved refinement and performance.
- Increased choice of models follows the arrival and growth of niche products such as MPVs and 4x4 dual purpose vehicles.
- Small cars have benefitted from improved space and performance, along with the desire for more economical motoring.
- The UK has seen a major overhaul of its vehicle taxation system with vehicle excise duty and company car tax both becoming CO<sub>2</sub> emissions based. This has further helped favour diesel and small cars.
- Tax changes, rising fuel costs and the London congestion charge have boosted the market for alternatively fuelled vehicles, although at 0.7% of the total market in 2008 remains at a low volume for now.
- Steady increase in the proportion of imported cars, with imports' share of the market rising from 71.6% in 1999 to 86.4% in 2008.
- Over the past decade registrations of CVs have shown exceptional growth, despite a 10.5% fall in 2008. Total CV registrations grew by 22.0% between 1999 and 2008, with LCV demand up 24.9%, truck and artic demand up by 10.8%, with bus and coach registrations almost unchanged, down 0.8%.

## Production outlook

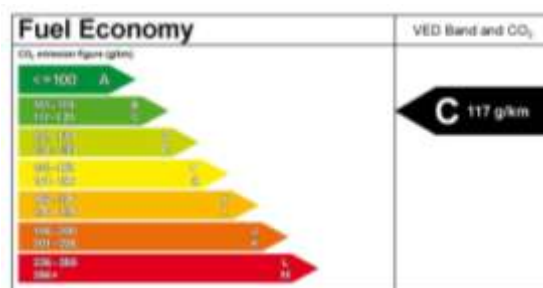
- Reliant upon recovery in demand in UK, Europe and other key export markets.
- Concerns on over-capacity and ability of UK to continue to attract foreign direct investment.
- Growth potential for sun-rise industries, notably in low carbon products and technologies.
- Vehicle production is dependent upon recovery in

the global vehicle markets. The downturn has also refocused the debate on over-capacity in global vehicle supply, especially given the rise of output and growing capacity in China and Eastern Europe. The UK needs to remain a flexible, productive and profitable place to design, develop and build vehicles and components to continue to attract investment.

## Consumer information and rights

The economic performance of the sector has been achieved in parallel with improving consumer rights and information. See pages 45-46 for more detail:

- Motor Codes has transformed consumer rights.
- Labelling and access to CO<sub>2</sub> information, provided by vehicle manufacturers.

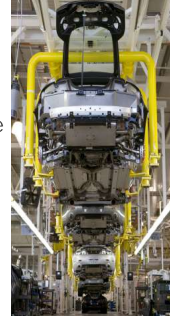


# Environmental performance

## Production phase

### Key facts

- More than 10MW wind turbine capacity, avoiding 11,500 tonnes of CO<sub>2</sub> per year.
- 24% less energy used and reduced CO<sub>2</sub> emissions despite producing the same number of vehicles by optimising production processes and introduction of combined heat and power and wind power.
- 40% less water use per vehicle produced than the European average and 12% less energy, illustrating the efficiency of UK plants.
- Ten times more waste recycled than landfilled.
- 57% less waste to landfill than a decade ago.
- 31% reduction in volatile organic compounds (VOC) from car painting.
- More than 20 new environmental regulations introduced over the last decade that impact on vehicle manufacturing.
- Already covered by two energy efficiency regimes (EU ETS, CCL) with a third one (CRC) coming into force by 2010.



## Environmental input

### Energy use

Over the last decade, motor manufacturers have been working very hard on reducing energy use at production sites and offices, and as a result, they have reduced energy consumption per vehicle produced by 24%.

Contrary to this trend, last year saw a 6.8% increase in energy consumed per vehicle (graph, below) despite a 3.9% reduction of energy use in absolute terms. This is directly linked with reduced production volumes. When demand and production volumes fall, vital energy sources need to remain operational, which means fewer vehicles for relatively steady energy consumption.

The energy efficiency efforts of UK manufacturers is borne out by their 2.2MWh per vehicle produced being 12% lower than with the European average of 2.5MWh<sup>(4)</sup>.

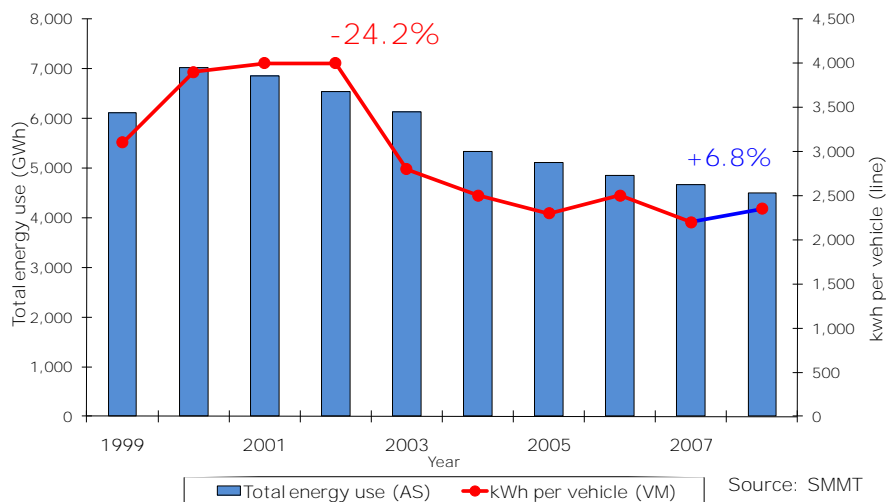
See also CO<sub>2</sub> output on page 20.

### Wind power

Ford will add a third wind turbine at its Dagenham site in 2010, enabling the electricity use of the Dagenham Diesel Centre, where the latest generation of diesel engines are assembled, to remain 100% wind-powered after expansion. These turbines will produce over ten million kWh of green electricity, enough to power more than 3,000 homes. The site has also been awarded the prestigious Business Commitment to the Environment (BCE) award in recognition of this and other environmental actions.

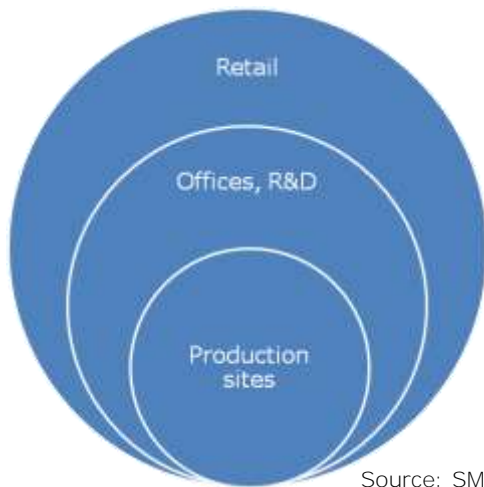


In 2008, Nissan added another recycled wind turbine bringing the total to ten. Its total generated capacity reached 6.6MW, providing around 8% of the plant's energy needs, with an expected CO<sub>2</sub> reduction of 5,000 tonnes per year.



### Challenges

- As cars have become more complex to meet safety and environmental requirements, the production processes had to follow suit, with increased energy demand.
- New emission standards for volatile organic compounds have resulted in extensive investment in paint shops, for instance, to accommodate a switch to water-based paints and their longer drying times. This also increases energy demand.



### Increased scope of energy efficiency regimes

Over the past decade a much greater focus has been put on emissions from the manufacturing process. The voluntary UK Climate Change Agreements (CCAs) have been joined by a mandatory EU Emissions Trading Scheme (EUETS) to encourage greater energy efficiency at plants. The introduction of the mandatory UK Carbon Reduction Commitment (CRC) in 2010 **will further extend the coverage of industry's reduction obligations** to less energy-intensive production processes, offices, R&D facilities and wider retail and distribution facilities.

The broad scope and ambition of these initiatives makes the UK a world leader in the fight against climate change.

Source: SMMT

### Standards and reporting

**92% of signatories' 26 manufacturing sites in the UK** are certified to ISO 14001 or EMAS environmental management standards.

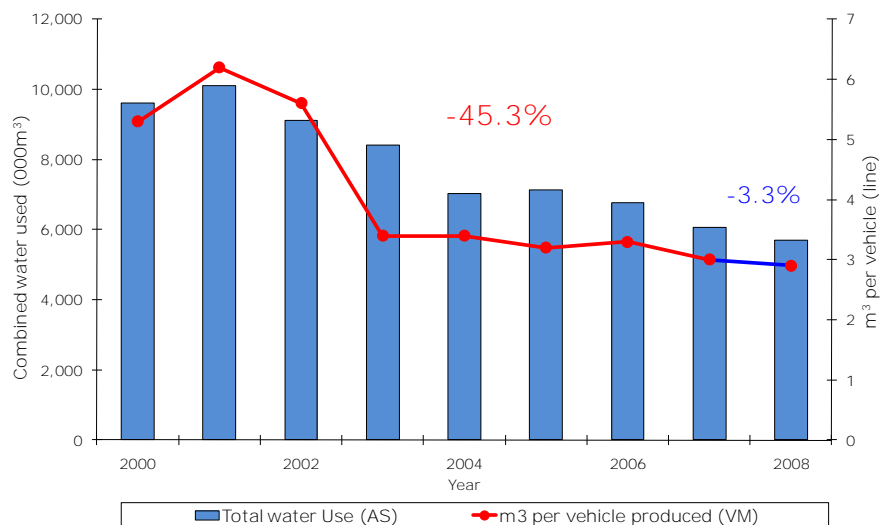
**In line with the sector's commitment to transparency,**

the proportion of signatories producing an environmental report has reached 73%. This is marginally lower than other top UK firms. 81% of the FTSE 100 have produced sustainability reports<sup>(12)</sup>.

### Water use

Long-term investment in water-efficient technologies and gradual adjustment of procedures have made it possible to reduce water use per vehicle by 45% and absolute volumes by 41% since 2000.

As with most efficiency improvements, the results were most visible in the early stages and we are now seeing diminishing returns on further efforts. In 2008 water use per vehicle produced was cut by 3.3% reaching, 2.9 m<sup>3</sup> per vehicle. This is 40% better than the European average of 5m<sup>3</sup> per vehicle produced<sup>(4)</sup>.



Source: SMMT

### Actions to reduce water use

- ⇒ Rinse waters in the paint shop are cascaded in reverse so the dirtiest water is used for the first rinse and so on. This minimises fresh water usage and ensures that only the strongest effluent is discharged to the on site effluent treatment plant.
- ⇒ Water usage in paint sludge treatment reduced by optimising the chemical dosing regime.

- ⇒ Real time detection of leaks allows efficient water system repairs.
- ⇒ Adjustment to water testing regime for the finished vehicle to minimise water loss through evaporation.

### Water recycling

**At Toyota's Burnaston plant the waste water is recycled from the car body painting process so it can**

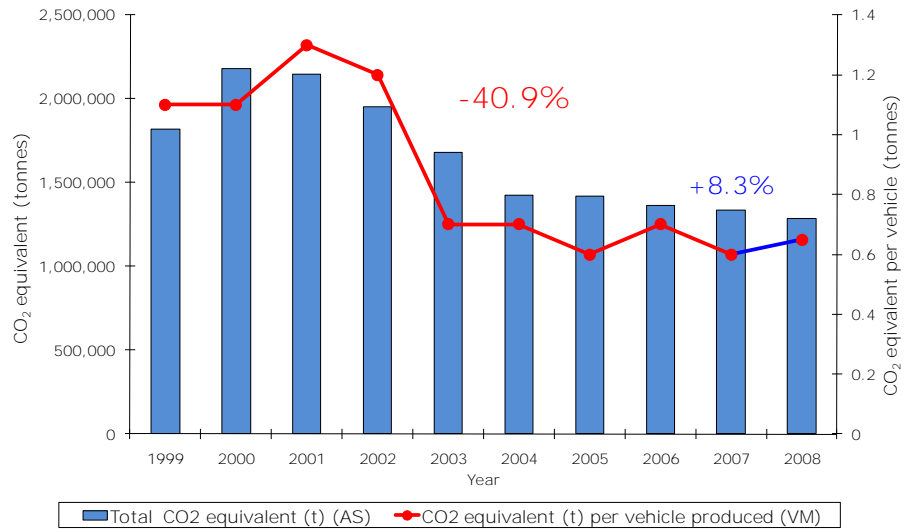
**be re-used within the on-site boilers for steam generation. This reduces water use on-site by over 100,000 tonnes per year.**

# Environmental output

## Carbon dioxide (CO<sub>2</sub>)

Carbon dioxide produced during manufacturing is closely related to production volume and type of energy used. Despite a significant drop in production volumes, signatories achieved almost 41% reduction in CO<sub>2</sub> per vehicle produced over the past decade.

Reduction in production volumes in 2008 resulted in an 8.3% increase in CO<sub>2</sub> per vehicle produced, yet absolute emissions dropped by 4%. The same factors apply as for energy use.



Source: SMMT

### How the CO<sub>2</sub> reduction has been realised

- ⇒ Installation of combined heat and power (CHP), where turbines combust natural gas to simultaneously generate electricity and provide what would otherwise be waste heat. CHP can reach 90% efficiency, whereas conventional electricity generation converts only 30% of fuel into usable energy.
- ⇒ Increased volume of wind power used - see box on page 18.

- ⇒ Switching from using electricity to gas, which has a lower emission factor.
- ⇒ The last coal-fired vehicle production site closed.
- ⇒ Building insulation reduced space heating needed.
- ⇒ Eliminating loss during non-production periods.

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### Offsetting

Land Rover launched a CO<sub>2</sub> offset programme at the British International Motor Show in 2006. This is an integrated programme to offset CO<sub>2</sub> emissions from both manufacturing operations and customer miles driven. Since the programme started and to the end of 2008, it is intended to offset 2.1 million tonnes of CO<sub>2</sub>.

Jaguar offset the CO<sub>2</sub> emitted during the assembly of all vehicles produced at the two assembly plants in the UK, working with carbon offset experts ClimateCare. A mechanism that allows customers **voluntarily to offset their cars' CO<sub>2</sub> emissions** has been introduced which is available to buyers of both new and pre-owned Jaguars.

### Manufacturers' climate change agreements

In 2000, the Climate Change Levy (CCL) agreement was signed by 11 UK vehicle manufacturers and co-ordinated by SMMT. Participants are eligible for an 80% discount on the government CCL in return for meeting challenging energy reduction targets in production processes.

The signatories to the agreement committed to a combined CO<sub>2</sub> reduction of 12% per vehicle produced

between 1995 and 2010, well in excess of the **improvement thought possible by the government's consultants.**

In fact, manufacturers beat their target and reduced CO<sub>2</sub> by 56% below baseline and 46% below target by 2008.

## Responsible car use schemes for employees

The motor manufacturers acknowledge their responsibility for the impact of their operations and travel patterns of their employees. Many companies introduced air, rail and road transport travel mileage monitoring to identify the most environmentally friendly mode of transport, along with cost reductions. Over the last decade all signatories have adopted a series of initiatives to minimise their impact on the local environment. For instance:

- Green travel plans, offering incentives available to employees, associates and contractors.
- Car sharing schemes (using Liftshare, car234 etc).
- Promoting bus travel - a free introductory bus ticket for the first month was arranged for associates to encourage greater use. Interest-free loans are available to employees purchasing bus passes. Free shuttle buses are available from local train stations and from airports and local hotels to reduce the number of individual cars used.
- Pool car for movement of personnel within large manufacturing sites and between other facilities in the area. Pool cars very often include alternative and low emission vehicles.
- Tele-working and other forms of flexible office working arrangements.
- Staff relocation packages to allow new recruits to live locally where this is appropriate.
- Advice to staff on sustainable travel issues using the most appropriate media to develop awareness and encourage car sharing, cycling, walking or other alternative methods of commuting.

### Cycle to work scheme

An in house scheme which offers loans to purchase bicycles and equipment. Staff pay through salary sacrifice over 18 months, with additional tax benefits.

### Cycle paths

Honda has begun an investigation with Swindon Borough Council into the feasibility of improving off-site local cycle routes with the overall objective of improving staff safety when travelling to the facility. This activity continues in 2009.



### Car sharing

Bentley uses Liftshare software which can be accessed online. This online system is shared with a local NHS system, increasing the number of potential car sharers. Currently 856 people have registered to use it.

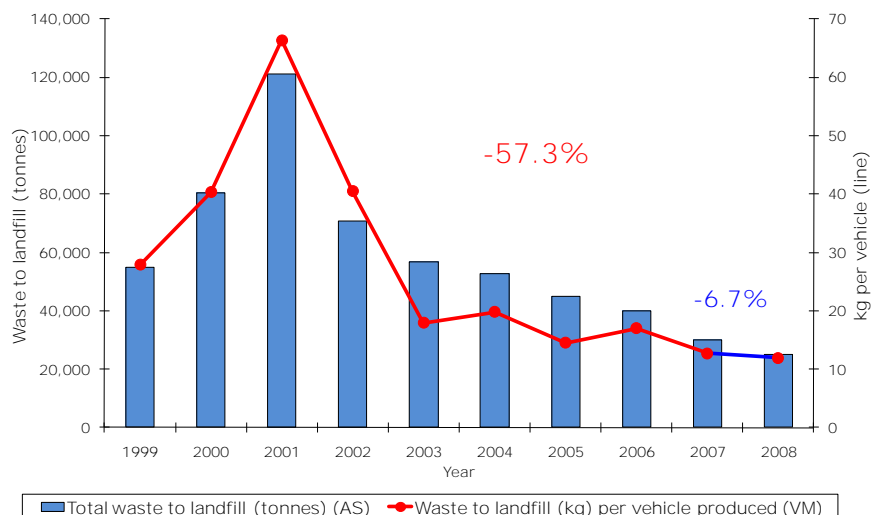
### Local transport

Mercedes-Benz provides two buses three days a week to take staff to the centre of Milton Keynes for shopping in their lunch hour. There are also two electric smart cars available for staff to use for local journeys during the working day.

## Waste to landfill

Extensive review of production processes and a holistic approach to vehicle life cycle resulted in 57% reduction in landfill waste per vehicle produced between 1999 and 2008.

In 2008 the absolute value of waste going to landfill reduced by 17% on 2007 reaching 11.9kg per vehicle produced.



Source: SMMT

### Waste to landfill reduction techniques

- ⇒ Volume of sludge from paintshops sent to landfill has been minimised by reducing the amount of water it contains resulting in dried residue which can be used in the production of cement.
- ⇒ Utilisation of high calorific hazardous waste, such as paint sealer for thermal treatment with energy recovery.
- ⇒ Foundry sand is being sent to construction companies for road fill.
- ⇒ Coolant is being cleaned and processed on site to enable its re-use, reducing the need for transportation of waste coolant and reduced volume of new coolant brought in.
- ⇒ Using reusable packaging - now cardboard accounts for only 10% of all packaging.

### Zero waste to landfill

In 2004, Toyota reached zero waste to landfill for its UK operations. Toyota Manufacturing UK approached its challenging waste reduction goal in three stages. First reducing waste volume, secondly waste that

could not be eliminated was to be re-used or recycled and finally the remainder was treated to reduce its environmental impact.

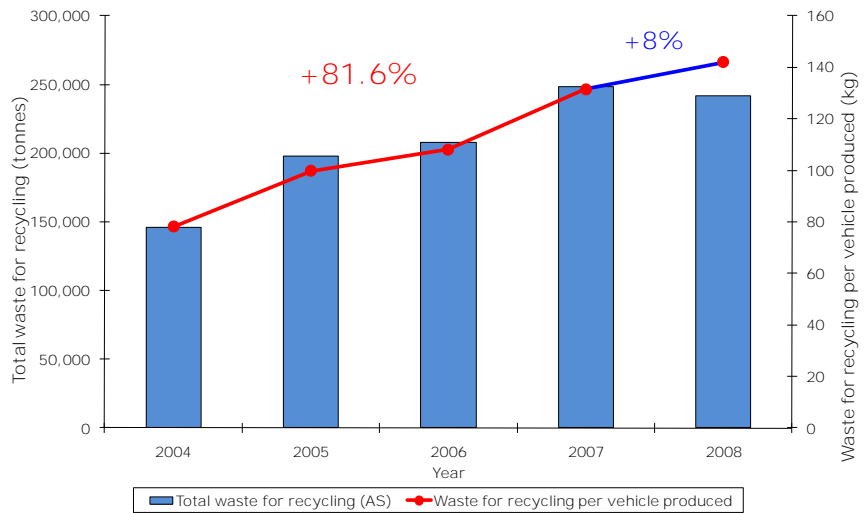
### Recycling and recovery

Waste recycling rates for automotive manufacturing steadily increased over the last five years, surging to 81%.

Value achieved in 2008 of 142kg of waste recycled per vehicle produced is closely related to the active diversion of waste from landfill.

Almost ten times more waste is being recycled than sent to landfill.

Absolute volume of waste recycled declined in 2008 on 2007 due to decrease of production volumes.



Source: SMMT

One of the main sources of waste has traditionally been packaging for transporting components. Most signatories replaced disposable packaging with reusable containers where possible. In the last ten years the packaging waste recovered increased by 72%.

*'Ten times more waste is recycled than landfilled'*



### Registration, Evaluation and Authorisation of Chemicals (REACH) — 'no data, no market'

This EU Chemicals Regulation came into force in 2007 and has significant implications for the automotive industry and its global supply chain. Products that do not comply cannot be sold in the EU.

Vehicles are among the most complex products on the market, with around 10,000 substances used in production. As a result, our supply chains are also among the most complex. The automotive sector already had experience with

phasing out four heavy metals in the past, but this was on a different scale, potentially affecting 1,500 substances, any one of which could stop the production line.

The challenge for the sector was to engage suppliers across the globe and give them consistent advice and timelines. We responded by working together as a sector and setting out a simple list of expectations in the Automotive Industry Guideline on REACH. It is now published in six languages to enable its global adoption.

## Volatile organic compounds (VOC)

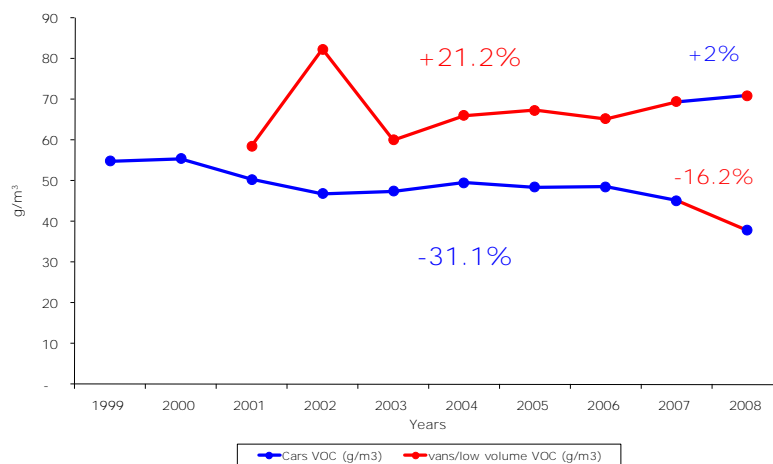
VOC (solvent) emissions from vehicle painting operations are considered one of the key environmental impacts of vehicle manufacturing. VOCs are a precursor to the formation of ground level ozone and photochemical smog. Although industrial processes are only a small contributor to total VOC emissions, they are an obvious target for regulation as are paint source emissions.

Emissions are measured in grammes of VOC per square metre surface area of the vehicle painted. During the last ten years, VMs have invested heavily in their painting operations to reduce VOC emissions from car painting by 31%. They

successfully met the European VOC target of 60g/m<sup>2</sup> in 2007.

Rising VOC emissions from van painting is largely explained by increasing customer demands for metallic paints, with higher VOC contents and more colours. This means less opportunity for efficient batches of vans in a single colour and therefore more flushing solvent between colours. Industry performance of 71g/m<sup>2</sup> remains well below the 90g/m<sup>2</sup> legal limit for vans.

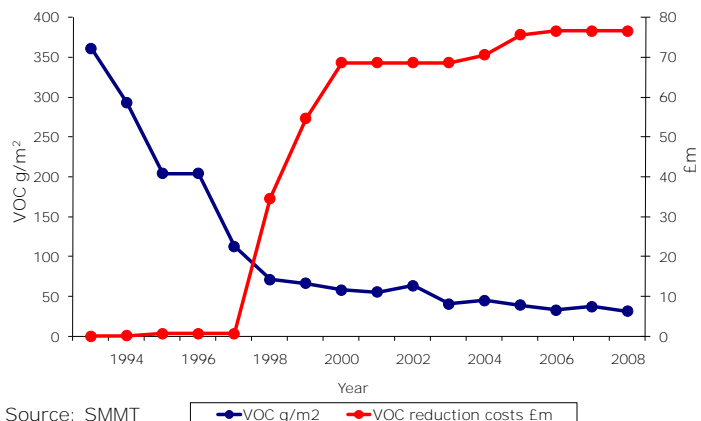
**'VOC emissions down 31% in ten years (g/m<sup>2</sup>)'**



Source: SMMT

### Challenges

- Painting processes are one of the most energy intensive, accounting for about 50% of energy used by an average assembly plant.
- Installation of VOC abatement equipment can be a relatively quick solution, but can also be undesirable in the long run. For instance, additional energy is required to run the abatement plant and this is an 'end of pipe' remedy rather than minimising VOCs at source in the paint.
- Reducing VOC emissions has had an adverse effect on energy consumption. For instance, moving to water-based paints requires longer drying times, so more energy and more space to install drying ovens. At some existing facilities there is a lack of space, making this expansion impossible.
- The graph (below) shows the diminishing returns of VOC reduced for more expensive investments.
- The next EU ambition is to move all plants towards 35g VOC/m<sup>2</sup>, achievable if using cutting edge best available techniques.



Source: SMMT

# Supply chain management

The automotive industry has for many years been aware of the importance of co-ordination of logistics and supply chain management due to their significant effect on environmental aspects of the vehicle life cycle and costs. Because of the large volumes of vehicles and their components being imported and exported, manufacturers must identify national and international developments needed within their complex supply chains and work towards them.

The main driving forces behind environmental protection activities are environmental regulations and business requirements. By effectively managing the supply chain, environmental benefits go in line with a reduction of resource consumption and cost savings.

Research over recent years has proved that moving away from road transport saves a significant amount of fuel which accounts for around 30% of vehicle operating costs, at the same time reducing CO<sub>2</sub> emissions.

Diverting freight from road transport, which on average covers 80% of the tonne mileage, to other alternatives like rail and shipping would cut emissions of various pollutants to the atmosphere and reduce congestion too.



## Challenge

Co-ordinating inbound and outbound logistics is an exercise on a global scale. In some cases it involves just-in-time delivery of parts from over 2,000 suppliers plants in 50 countries to 30 assembly plants and distribution centres. Outbound logistics is an equally complex subject with millions of vehicles to be collected from hundreds of pick-up points and delivered to dealers all over Europe and the world.

It has been proven that switching from road to rail saves 40% of CO<sub>2</sub> emissions, although a lack of unified standards across global **rail networks limits rail's ease of use. The main problems are** a lack of terminals in required places, different gauges meaning trains from one country cannot run directly in another country, lower bridges in some countries outside Europe prevent tall containers being transported.



In 2007 the Lorry-Rail link was launched linking southern France with Luxembourg, enabling standard trailers to be driven directly on the rail wagon to their final station, where they are then taken by road to their destination. At full capacity this train has the potential to keep 40 trailers off the road.

Another approach is to use road-going trailers that can be physically lifted on and off suitably designed rail wagons.

Water plays an important role in moving both components and finished vehicles. Many motor manufacturer operations are positioned in close proximity to water, making European and transcontinental shipments possible.



In recent years, industry has worked on increasing shipping volumes, for example by using wider ocean containers which provide better pallet layout and enable using double-decker trailers. Many companies currently collaborate improving their efficiencies event further by sharing transportation of empty packaging returns.





## Stewardship - feeding sustainability down the supply chain

Our signatories have been working with SMMT's subsidiary company Industry Forum since 1999 on a multi-phase programme to improve partnerships in the supply chain. Signatories have worked with a number of different suppliers from the second tier of the automotive supply chain to reduce lead times, integrate delivery systems and achieve 100% on-time delivery.

Firms also introduced re-usable and dedicated packaging to reduce damage and handling times. The programme also encourages firms to implement a demand-pull system to ensure that orders are placed strictly according to consumption, to minimise lead times.

78% of vehicle manufacturing signatories have supply chain minimum environmental standards requirements applied to UK-based suppliers such as ISO 14001.

Ford has worked with its lead logistics partner, DHL, to develop a calculation tool to measure total CO<sub>2</sub> emissions from inbound road and rail movements to generate base data to help identify improvement opportunities.

The automotive industry has undertaken a fundamental review of the inbound supply chain for road freight both within the UK and mainland Europe.

The main improvements over the years include:

- ⇒ a new set of collection routes and frequencies.
- ⇒ a consolidation of various docks in Europe.
- ⇒ a move to mixed inbound loads to major offload points reducing the number of inbound trucks.
- ⇒ increased part count per container to improve trailer utilisation.
- ⇒ expanded use of sequenced parts loading to enable an increase in the number of direct deliveries from local suppliers and reduced local warehousing.
- ⇒ reduced outer packaging dimensions to increase the number of items per payload, to reduce the number of journeys.
- ⇒ provision of facility to fill up and wash vehicles on site to reduce mileage.
- ⇒ using open transporters to transport more vehicles in one journey.

Further work is also taking place with transatlantic logistics partner UTi to estimate emissions data for ocean shipment. As a separate initiative, Ford has carried out a carrier survey to assess the level of environmental awareness and will use the results to implement best practices to reduce fuel usage and emissions.



### Buyer to supplier improvement

- ⇒ The companies are requesting data from their suppliers in order to monitor and influence the performance of its supply chain logistics and improve sustainability performance. ⇒ Ensure the most appropriate mode of transport is being used and routes optimised to reduce mileage.
- ⇒ Data relating to CO<sub>2</sub> emissions from key suppliers is now requested on an annual basis. This relates to import of vehicles and parts into the UK and distribution within the UK. ⇒ Collection frequencies have been reduced and shipment sizes optimised.
- ⇒ Manufacturers have processes in place to identify and monitor critical suppliers to ensure **specific suppliers' readiness to achieve the objectives.** ⇒ Supplier forums have been set up to highlight areas for improvement with the main purpose to share information and award top achievers.
- ⇒ Quality improvement systems are in place to measure performance, identify non-conforming suppliers and develop countermeasure activities to resolve any issues. ⇒ Extensive defensive and economic driver training conducted with the delivery fleet.
- ⇒ Purchase of more aerodynamic trailers and idle time reduction has been encouraged.

## Use phase

### Key facts

- De-coupling growth from emissions - some success with this key challenge of sustainable development.
- 14.6% reduction in average new car CO<sub>2</sub> emissions over the past ten years, accelerating in 2008.
- 22% further reduction required by 2012-15 under EC New Car CO<sub>2</sub> Regulation to 120g/km, with 10g/km from 'complementary measures'.
- 47 new CO<sub>2</sub> efficient technologies have been introduced in ten years. More coming each year.
- Van CO<sub>2</sub> regulation is being considered in parallel.
- Two fold increase in diesel car registrations.
- Alternatively fuelled or advanced propulsion vehicles are now one in every 135 vehicles sold. This is 45 times the number in 1999.
- CO<sub>2</sub>-based VED and congestion charging in London introduced.
- 75% reduction in particulates, 68% in NO<sub>x</sub> in petrol and 66% in diesel over ten years.
- 34% less serious injuries on the roads despite a 10% increase in traffic in a decade.

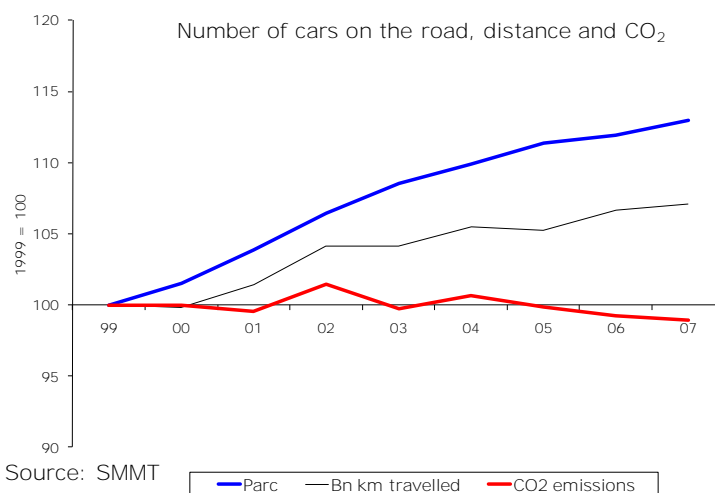


## CO<sub>2</sub>

The automotive industry accepts the part it must play in driving down pollution and it embraces collective action to reduce harmful emissions.

According to National Atmospheric Emissions Inventory (NAEI) statistics, in 2007 road transport accounted for 22.4% of UK domestic CO<sub>2</sub> emissions, of which 58.4% was passenger car related.

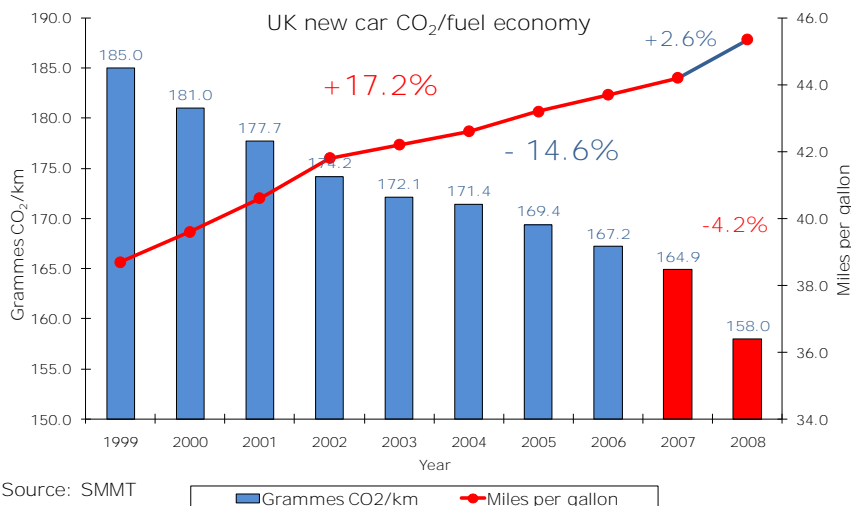
The graph (right) illustrates the significant reductions in CO<sub>2</sub> emissions from the car parc, which fell by 6.6% since 1999, despite a 13% increase in the number of cars on the roads and a 7% increase in kilometres travelled. This illustrates some success with one of the key challenges of sustainable development: decoupling growth from emissions.



Engine efficiency improvements and a shift to diesel have been at the **forefront of manufacturers' agenda over the last decade. This has resulted in a sharp fall in CO<sub>2</sub> emissions with average new car CO<sub>2</sub> 14.6% lower than in 1999 and fuel economy, which is directly related to mass of CO<sub>2</sub> emitted, improved by 17.2%** (see graph, below).

This progress can be attributed to early action taken by vehicle manufacturers, having signed voluntary agreements with the European Commission in 1998-99.

*'Successfully decoupled growth from emissions'*



*'New car CO<sub>2</sub> is down 15% since 1999'*

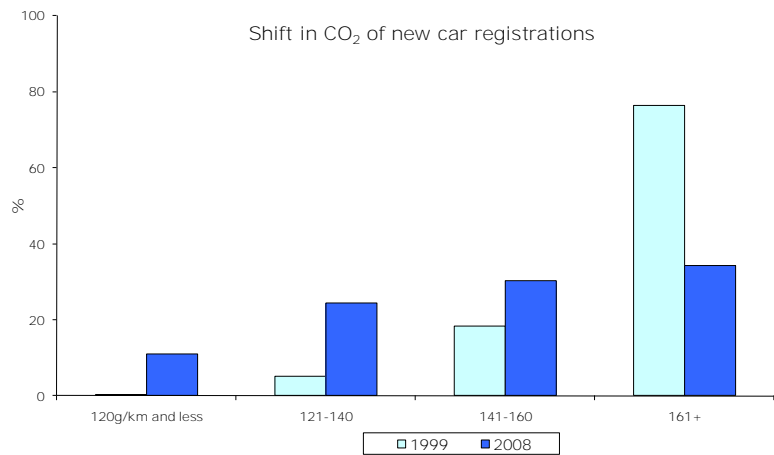
Industry will continue to drive down CO<sub>2</sub> emissions and is on its way to meeting the 120g/km target for 2012-15 required by the EC New Car CO<sub>2</sub> regulation agreed last year. 10g/km will come from 'complementary measures.' Together, this will deliver a further 25% reduction in new car CO<sub>2</sub> at the EU level from a 2006 baseline.

### Challenge

While the industry made CO<sub>2</sub> reduction one of its major priorities, technical difficulties were not the only factors to be considered to progress in this area.

The main challenges include:

- Lightweighting vs safety requirements
- Balancing supply and demand
- Five-year product development cycle
- Consumer demand for additional equipment such as air conditioning etc
- Reduced PM and NO<sub>x</sub> emissions in conjunction with falling CO<sub>2</sub>



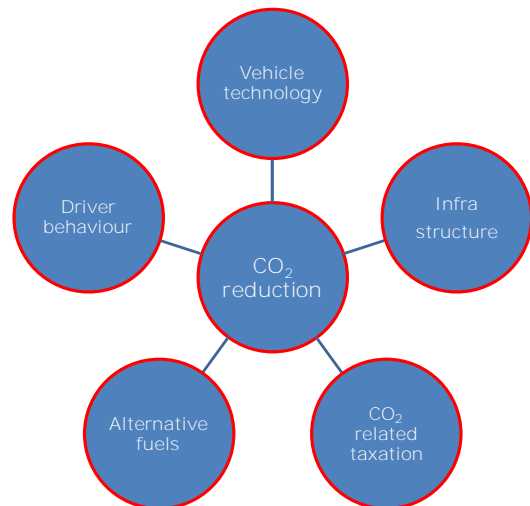
Source: SMMT

### Integrated approach

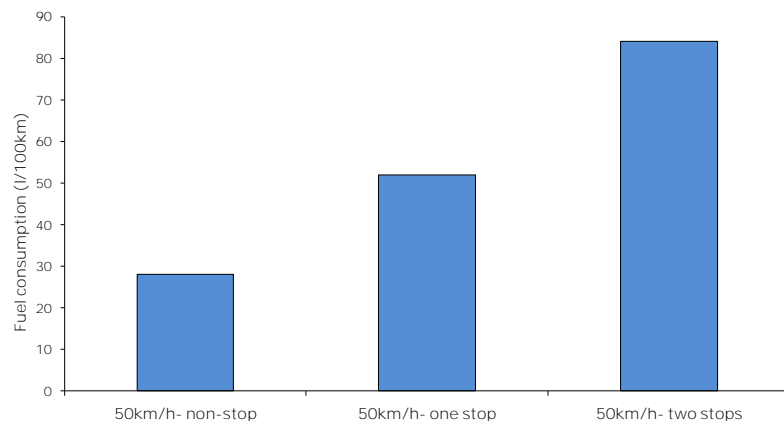
The industry's experience in driving down CO<sub>2</sub> emissions has shown a clear need for co-ordinated actions on various areas of vehicle use (see schematic, right).

A holistic and cost-effective approach that includes better infrastructure, congestion reduction measures, the supply and sufficient infrastructure for alternative fuels and other energy sources as well as taxation based on use will bring the most significant progress in reducing CO<sub>2</sub> emissions.

The graph below illustrates how traffic congestion increases fuel consumption.



Traffic congestion versus fuel consumption



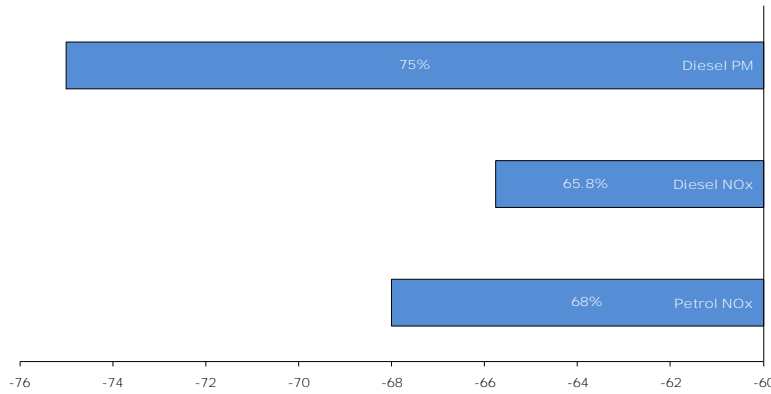
Source: VDA<sup>(4)</sup>

Further details regarding transport-related CO<sub>2</sub> can be found in SMMT's *New car CO<sub>2</sub> report 2009*, see [www.smmt.co.uk/co2report2009](http://www.smmt.co.uk/co2report2009)





Percentage reduction in PM and NO<sub>x</sub>(Euro2 versus Euro4)



Source: SMMT

**Challenge**

The industry will continue to work to improve tailpipe emissions in line with regulatory targets but in these uncertain economic times, the importance of conducting a thorough impact assessment of environmental benefits against the cost to society and industry to achieve new targets is of critical importance.

The introduction of Euro 6 is expected to increase the price of **diesel's cars and vans by around €900**, which could seriously affect **diesel's market share, making it more difficult and expensive** to meet the EC CO<sub>2</sub> targets.

**Technologies improving exhaust quality (innovations)**

⇒ Common rail diesel injection system  
Improved control of fuel injection greatly improving efficiency and emissions.

⇒ Selective catalytic reduction (SCR) in recent years has become utilised in automobile diesel engines to reduce NO<sub>x</sub> emissions. All European truck manufacturers currently offer SCR equipped models, and the future Euro VI emission standard is set to reinforce the demand for this technology.

⇒ Direct injection gasoline  
Improved control of fuel delivery leading to better emissions and fuel consumption.



Diesel particulate matter filters- remove diesel particulate matter from exhaust gas of diesel engines. This device can reduce particulate emissions from diesel and direct injection gasoline vehicles by 99%.



On board diagnostics (OBD) have been used for while but became mandatory in 2001. OBD monitors all vital engine and exhaust after treatment systems to ensure that emissions standards are maintained, drivers are alerted to possible faults with their vehicle that could be damaging to the vehicle, or the environment and servicing technicians are directed to the areas at fault more quickly.

## Diesel vehicles

Year-on-year the market share of diesel vehicles has increased due to improved efficiency, cleaner tailpipe emissions and reduced noise levels. Industry has ensured that diesel vehicles are available in all segments of the market.

During the last ten years diesel penetration of the market increased by 30 percentage points reaching 43.6% in 2008, 8.5% improvement on 2007.

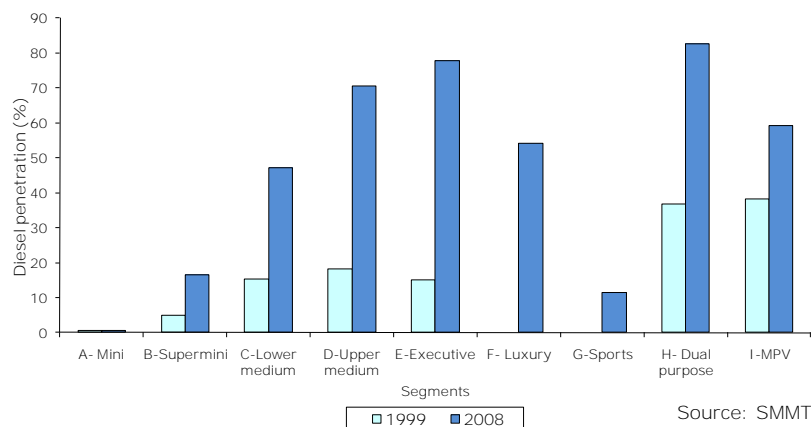
Due to the higher energy content of diesel fuel and greater efficiency, diesel engines achieve better volumetric fuel consumption than petrol cars. This is tempered by the higher carbon content of the fuel ie one litre of diesel produces 2.63kg CO<sub>2</sub> versus 2.32kg for petrol (Defra) and higher pump price. Diesel vehicles are still seen as one path for manufacturers further to reduce their average CO<sub>2</sub> emissions towards the EC targets.

See chart (right) for diesel penetration by segment.

**Challenge**

With an increase in diesel market share and long standing bias of UK refining industry toward gasoline, there is a concern that diesel fuel availability will not meet future demand, despite an increasing proportion coming from renewable sources.

Diesel penetraton by segment



Source: SMMT

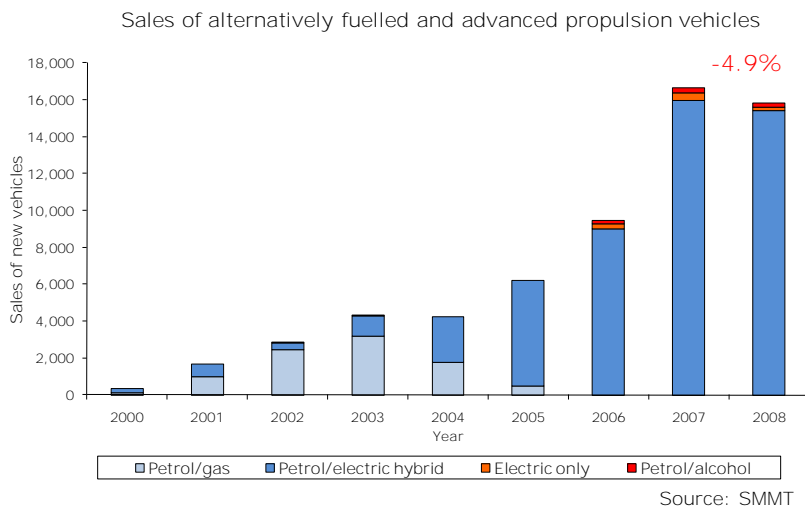
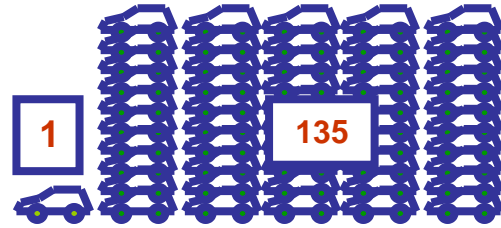
## Alternatively fuelled and advanced propulsion vehicles

Increasing market share of alternatively fuelled and advanced propulsion vehicles, such as electric and hybrid cars proves that the motor industry has been hard at work over the last decade to provide customers with not only environmentally friendly alternatives but commercially attractive and economically viable new technologies.

Over the last decade alternatively fuelled and advanced propulsion vehicles have grown to almost 1% of the market. In 2008, one in 135 cars registered classified as an alternatively fuelled or propulsion vehicle as opposed to one in 6,200 vehicles in 2000.

Despite a dip in 2008, the rate of market penetration is expected to accelerate as the industry brings attractive products to market and government

provides incentives for development, demonstration and consumer uptake of ultra-low and zero carbon vehicles in the UK.



### Challenge

Promoting the uptake up of non-conventionally fuelled vehicles has been the one of the biggest challenges for the industry. Additional production costs and high upfront investment in innovative technology result in a high showroom price which might deter potential customers. It is vital for the industry to ensure government support in implementing demand measures and a sufficient fuelling network.



### Alternative fuels

In the last ten years a number of alternative fuels have come to the market. LPG had a brief surge in popularity with the introduction of the Powershift grants, hybrids have become significantly more popular and the use of biofuels is now standard in all diesel and some gasoline with the overall renewable content of road transport fuels increasing year-on-year. There has also been an increase in the development of electric and hydrogen vehicles and infrastructure with a number of demonstrator vehicles and some niche manufacturers already in production.

The legislated requirements for renewable fuels have also developed greatly. In 2006, the UK introduced the Renewable Transport Fuels Obligation with a target of 5% of all road transport fuels to be renewable by 2013. The European Commission has also introduced the Renewable Energy Directive and the Fuel Quality Directive which push longer term targets of 10% by 2020 with added bonuses for use of advanced fuels and renewable electricity.

A number of options exist for high blend biofuels for both gasoline and diesel powered vehicles. However, most high-blends are not suitable for use in standard vehicles. Exceptions include advanced bio-diesel,

produced using the Fischer-Tropsch process and ethanol derived fuels such as Ethyl Tertiary Butyl Ether (ETBE) and bio-butanol which can be used in relatively high concentrations but tend to be expensive to produce. Some OEMs already offer high blend options for light duty vehicles such as B30 and E85, an option already well established in Sweden. In heavy duty vehicles there are a number of pilot studies underway using bio-methane and bio-diesel and currently some manufacturers offer vehicles approved for high blends with some restrictions on servicing and fuel types.

High blend biofuels offer an excellent means to reduce greenhouse gas emissions if produced from sustainable feedstocks. However, research also suggests that they may reduce particulate emissions but increase NO<sub>x</sub> emissions and a recent decision to remove the duty differential in 2010 will make high blends much less attractive from a cost point of view.



## Road and vehicle safety

Improvements in road and vehicle safety are among the motor industry's key priorities. Thanks to manufacturers, suppliers and other stakeholders, significant progress has been achieved, particularly in the last decade.

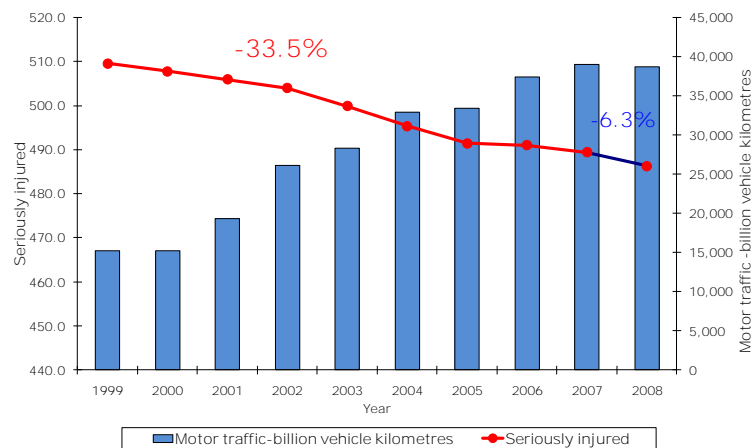
The DfT Consultation paper 'A Safer Way: Consultation on Making Britain's Roads the Safest in the World' states that:

'Vehicle manufacturers have made significant progress during the last decade in making vehicles safer for all road users. This has helped to reduce the number of casualties and the severity of injuries from collisions.'



### Road and vehicle safety improvement

According to recently published statistics on road casualties in Great Britain, in 2008 the number of people killed in road accidents fell by 14% from 2,946 in 2007 to 2,538 in 2008. 28,567 people were killed or seriously injured in 2008, 6.3% fewer than in 2007. There were just under 231,000 road casualties in Great Britain in 2008, 7% less than in 2007. In 2008, the number of people killed or seriously injured was 33.5% below 1999 and the number of **childrens' casualties was almost 50% below 1999**. These figures show a significant improvement in road safety despite of an almost 10% increase in kilometres travelled. This is a reflection of the advances in vehicle technology over the last decade driving these improvements.



Source: DfT<sup>(14)</sup>

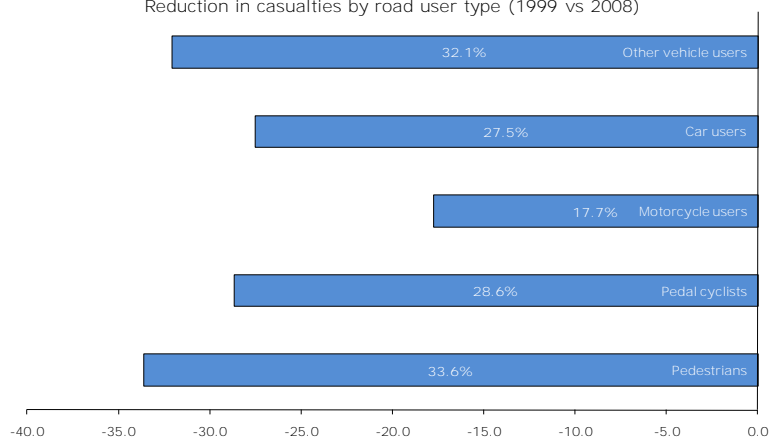
### Integrated approach

The significant improvements made are due to the vehicle manufacturing commitment to work in close contact with government and organisations established to promote road safety and the prevention of road accidents. The industry believes that only shared effort, between drivers, vehicle passengers, pedestrians, cyclists, motor manufacturers, the Highways Agency and government can provide long lasting safety improvements.

Road safety cannot be improved solely by vehicle design or technology but needs all stakeholders working together and taking responsibility for their actions.

Further improvements in safety can be generated by co-ordinated development of an effective infrastructure, not only in the UK but across the EU and globally, to implement initiatives eg Intelligent Transport Systems to increase safety and efficiency of transport.

Reduction in casualties by road user type (1999 vs 2008)



Source: DfT<sup>(14)</sup>

At the same time there is a need for a strong financial incentive (eg insurance premium reduction) to bring new safety technologies to the market quickly so the full benefits can be widely recognised in the shortest possible time.

## Vehicle safety developments

Manufacturers work proactively to identify aspects of vehicle design and construction and in-vehicle technology which could further reduce both severity of accidents and casualty rates.

Vehicle safety can generally be divided into passive safety and active safety where passive safety features designed to protect the passengers in the event of a crash eg air bags, and active safety describes features aiming to avoid a crash.

Many passive safety features that have been around for years may be taken for granted today but without these and improvements like pre-tensioned seatbelts, airbags, and energy absorbing crumple zones, the death toll on the roads would be much greater.

Passive safety is now entering a period of technological refinement and fine tuning to provide smarter and more efficient means of protection for occupants, while at the same time taking into account the environmental impact of these technologies and integrating them into the overall safety systems of the vehicle, including active safety systems.

In the last few years, attention has turned from occupant protection to protection of vulnerable road users such as pedestrians and cyclists.

## Regulation following innovation

- ABS prevents the wheels from locking while braking. All new vehicles under 2.5 tonnes on sale in the EU15 member states are now equipped with ABS as **standard (since 1 July 2001) as a result of ACEA's** voluntary commitment.
- Advanced emergency braking systems (AEBS) and lane departure warning (LDW) systems are obligatory for lorries and other heavy vehicles from 2013.

### Challenge

Balancing safety requirements is a long standing challenge for industry. The safety of passengers is ensured by stiff construction of the cabin of a vehicle combined with energy absorbing structures in the most vulnerable areas in crash. At the same time these measures incur high weight penalties which need to be balanced against trends to achieve lower CO<sub>2</sub> emissions.



## EuroNCAP

The European safety consortium EuroNCAP is an independent organisation which enables buyers to have an indication of the safety features of a car before purchase.

The industry continues to work with EuroNCAP which provides a comparison of vehicle primary and secondary safety to the consumer. The continued dialogue with Euro NCAP demonstrates the

Technologies include pedestrian friendly front-end designs, softer bonnets and collapsible mirrors.

Research and development in active safety has increased and many new developments that can potentially prevent or at least reduce the severity of accidents have been implemented. The



current challenge is accurately to establish which of these safety developments provide the best returns for effort, which will require extensive and better information from accident statistics. Vehicle manufacturers will continue to liaise with the Association of British Insurers to gather such statistics for the UK to help with both the analysis and development of safety technology.

In many cases active systems, unlike passive systems, may need external help from regulatory bodies with issues such as allocation of radar frequencies and databases for speed limits.

- ESP/ESC Electronic Stability Programme/Control The first active safety system introduced by Euro NCAP in the safety rating of new cars. All new cars need to be fitted with ESC from 2012.
- Tyre pressure monitoring system (TPMS) - improves safety and fuel efficiency.

Mercedes-Benz introduced Distronic Plus - an innovative cruise control able to measure the distance of cars or other objects in front and on each side of the vehicle. The onboard computer adjusts the brakes and acceleration automatically in order to maintain a constant distance between vehicle and surrounding objects and if necessary, the vehicle will even be brought to a standstill.

**industry's commitment to road safety along with its ability to respond to new technical demands.**

57% of cars tested in 2008 by Euro NCAP gained the highest rating for passenger safety, whereas no vehicles achieved this level nine years ago. The number of cars awarded four stars or more rose from 46% in 2000 to 94% in 2008<sup>(15)</sup>.



## Vehicle end of life

**Key facts:**

- Vehicles have historically high recycling/recovery rates (approximately 75%).
- 10% increase in ELV recycling/recovery performance since 1998.
- 84% recycling/recovery rate in UK.
- **85% in manufacturers' treatment networks.**
- Four heavy metals phased out in new vehicles: lead, mercury, cadmium and hexavalent

- chromium.
- New car and van types to be 95% recoverable by 2012.
- Recycled material content of new cars increasing.



**ELV re-use, recycling and recovery**

The latest data shows the UK achieved 84.23% re-use, recycling and recovery of end of life vehicles (ELVs) in 2007, representing an increase of 119,000 tonnes over 2006's performance (83.5%). This means the recovery performance is up 10% since 1998 (see graph below). The UK's overall result of 84.23% is calculated from the recovery/recycling achieved by the networks contracted to manufacturers and non-contracted facilities.

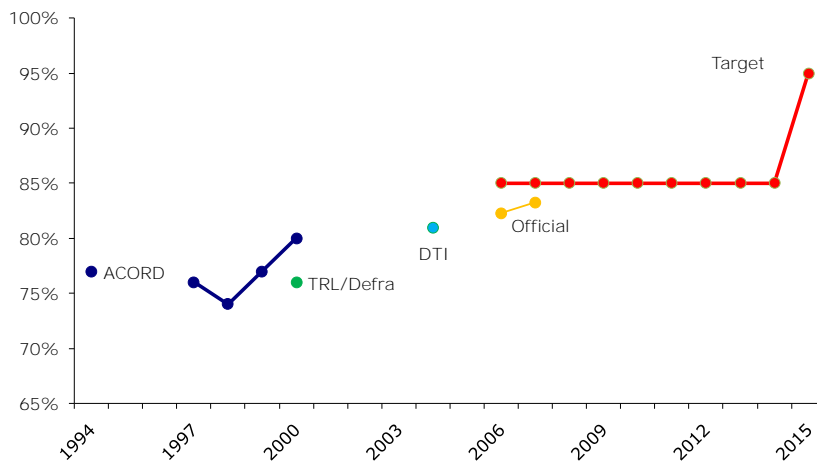
Furthermore, for 2008, all manufacturers have confirmed that their networks again achieved the 85% target.

The latest EU data (2006), shows that 13 Member States reported recovery rates below 85% and a further three failed to report at all.

**'ELV recycling/recovery performance is up 10% since 1998'**

In both 2006 and 2007, vehicle manufacturers' approved networks of authorised treatment facilities (ATFs) achieved the 85% EU target.

ELV recovery: up 10% in ten years



Sources: various, see below

Notes to the graph: the best available data is given in the graph above. The 2006 and 07 data is the most reliable and is officially reported by the UK government to the European Commission.

For instance in 2000, different sources put the recovery rate at different levels. The Automotive Consortium on Recycling and Disposal (ACORD), comprised representatives of the vehicle manufacturing, dismantling, salvage and shredding

industries. Its role has now been assumed by the **Business Department's ELV Consultation Group.**

Defra (the Environment Department) also commissioned the consultants TRL to assess recovery rates in 2000.

DTI (now the Department for Business, Innovation and Skills) made its own assessment of the recovery rate in 2004.

## Processing of an ELV - depollution

The Consortium for Automotive Recycling (CARE) undertook a survey of the dismantling industry in 2001 to identify the gap between their existing treatment practices and the requirements of the EU Directive. There were a small number of high volume salvage dismantlers that had invested in the treatment requirements but they would only be able to deal with around 15% of ELVs due to capacity restrictions and geographic location.



Since then standards have been raised and there are about 1,500 Authorised Treatment Facilities (ATFs) licensed by the Environment Agency and able to meet Directive standards to 'depollute' ELVs.

Hazardous fluids, such as petrol/diesel, oil, brake fluid, antifreeze, coolants etc are removed and collected in separate tanks.

Some can be re-used directly, and some after simple filtration or further processing. At the depollution

point the batteries, wheels and tyres are also removed while pyrotechnic devices such as airbags are safely neutralised or removed.

Non-hazardous items may also be removed at this point if they can be more effectively recycled or re-used at this stage. For example catalytic converters contain high value metals and are best recycled separately from the rest of the vehicle structure.

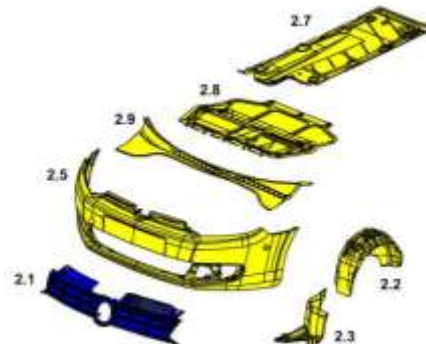
To aid ATF staff in locating materials and components within the old vehicle, manufacturers make available detailed information on dismantling each individual model. For instance IDIS, the International Dismantling Information System, is free to ATFs and **manufacturers are required to ensure a new model's data is available within six months of market launch.**

The purpose of IDIS is three-fold:

1. Provision of treatment information to enable the environmental impact of substances to be negated.
2. Identification of non-metallic materials that have potential for recycling, assuming favourable market economics.
3. Provision of data that enables safe working practices by treatment operatives.

*'In 2001 only 15% of ELVs could be properly depolluted. Now there are 1,500 ATFs licensed to do so'*

IDISonline	
Version 4.27	
COMPONENTS	
2.1	Radiator Grille
2.2	Wheel Arch Closure
2.3	Wheel Arch Closure
2.4	Wheel Arch Closure
2.5	Bumper Cover
2.6	Bumper Cover
2.7	Under Body Finisher
2.8	Engine Under Tray
2.9	Water Shield

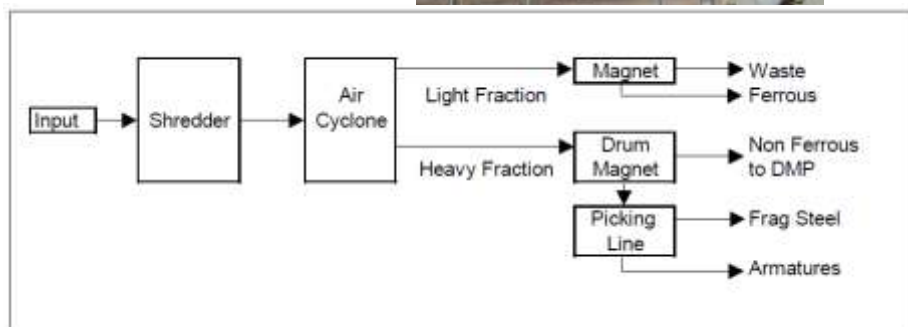


## Processing of an ELV – shredding and post shredding separation

Once the vehicle has been depolluted by the ATF, it will be either crushed into a cube or flattened and transported to a shredding site. Some ATFs will remove engines and gearboxes prior to crushing where there is an economic incentive to do so.

The shredder tears the crushed vehicle into fist sized chunks and various techniques are used to extract the different materials the vehicle was constructed from.

For example, air currents are used to separate light and heavy materials, magnets are used to extract ferrous metals, and 'eddy current separators' used to extract non-ferrous metals.



The remaining mixed materials may be further separated at a dense media separation plant, where other characteristics are exploited. For example, plastics can be separated in tanks of liquid that allow some material to float and some to sink. A series of

'trommels' (rotating mesh tubes), which separate the material by its size, or vibrating tables on which some materials move further than others, all allow for further material separation.



### Markets for recycled ELV materials

Many waste streams from ELVs removed at the depollution stage can go on to serve useful purposes. New uses are being found all the time.

Some individual components from ELVs can be re-used directly or profitably remanufactured and used for servicing and repairing other vehicles, where there is a consumer demand.

- Ferrous metals make up the largest amount of material recovered from an ELV and are in great demand globally, as are non-ferrous metals, for recycling into a raw material.
- Glass is extracted from the shredding process and can be used as an aggregate substitution for virgin materials.

- Fluids like oils can be reprocessed and re-used.
- Batteries are recycled.
- Tyres have an increasing number of recycling applications, including protective surfacing for **children's playgrounds** or used as a fuel in cement kilns. Latterly, the Highways Agency has begun using compressed cubes of used tyres for road construction. They expect that one project alone will absorb 500,000 tyres<sup>(16)</sup>.
- Wheels, both alloy and steel are sent for recycling.
- Lead wheel balance weights are recycled.
- Residual material can also be used for energy recovery and in landfill sites for engineering purposes.

35

### Closing the loop

Vehicle engineers are increasingly specifying parts to have a post-consumer recycled content. For instance:

- The latest Nissan models have over 50 parts with a recycled plastic content. These include radiator grills, coloured lower trim parts and air ducts.

- Other examples include mud flaps that are made from recycled plastic and soundproofing using recycled textiles.

### Alternative routes for engines and gearboxes

An ATF may choose to remove an engine and gearbox and not send this to a shredder. They may send them to a smelter who will place them in a furnace and heat them until the aluminium melts and runs out and can be recycled into ingots.

The remaining materials go to furnaces to be used in component castings.



## The 95% recovery target in 2015

Ten years ago the 85% recycling/recovery target imposed by the EU seemed unattainable but the recycling industry has risen to the challenge and, on the back of sensible UK Regulations and with **manufacturers' support, delivered an outstanding result.**

The leap to 95% might look equally challenging but it is encouraging to see that new processes are being developed to recover more material for useful purposes and capital investments are being announced.

## Future challenges

While the ELV story is undoubtedly one of success, some issues are still to be resolved to improve the **UK's position further.**

### Illegal operators

A **'ghost network' of unlicensed operators still exists** and is capturing ELVs for the value of their metals. To maximise their profits they fail to carry out any depollution, putting the environment at risk. We support enforcement actions by regulators, but more needs to be done in this area and with more urgency.

## Mandatory Certificates of Destruction

When a last owner hands an old car to an authorised treatment facility, they receive a Certificate of Destruction (COD), ending their responsibilities for the car and allowing the DVLA to remove the vehicle from its register. Technical loopholes exist which allow a vehicle to be removed from the DVLA register without the need to have a COD or handing back the car to a legal facility. Until these loopholes are closed illegal operators will be able to exploit them and gain access to ELVs.

## Energy recovery

New technologies and processes will mean that increasing amounts of material will be usefully recovered from ELVs. However, a residual fraction will remain which, due to its nature, will not be able to serve any useful purpose but is not permitted to go to landfill. It is likely to have a high calorific value and would perform well in energy recovery for combined heat and power. The EU directive provides for an amount of energy recovery which is attributable to target attainment, but at present UK energy recovery capacity is too low to allow this to be fully realised.

## New materials

As vehicles are designed to meet the CO<sub>2</sub> targets, new materials (carbon fibre, kevlar, biomixes etc) and changing ratios of existing materials may change the profit model of the recycling network. New and larger material markets need to be **developed to ensure materials that have an 'in use' CO<sub>2</sub> benefit do not have a recycling penalty.**

## Manufacturers working with stakeholders on ELV

In the 1990s a cross stakeholder group ACORD (Automotive Consortium on Recycling and Disposal) comprising representatives of the vehicle manufacturing, dismantling, salvage and shredding industries was formed. Its role has now been assumed **by the Department for Business, Innovation and Skills'** End of Life Consultation Group and manufacturers play an active role in the new group.

CARE (Consortium for Automotive Recycling) Group UK is a collaborative project involving manufacturers

and vehicle dismantlers with the aim of informing the UK knowledge base around vehicle recycling. Its original objective was to research and **technically prove materials' re-use** and recycling processes with a view to reducing the amount of scrapped vehicle waste going to landfill from the disposal of ELVs.

Latterly, CARE has been actively promoting the need for last owners to hand back their old cars to Authorised Treatment Facilities by exhibiting at high profile events such as at the Top Gear show and motor shows. A promotional video is available online [www.youtube.com/watch?v=1RV6go-3UJZc](http://www.youtube.com/watch?v=1RV6go-3UJZc)

## Abandoned cars

In 2000, 224,000 cars were abandoned in England and this rose to a peak of 292,000 in 2002-03 as the value of metal fell. By 2005-06 that number had more than halved. 2007 saw the introduction of free takeback of an old car for the last holder, so the number is thought to have fallen dramatically. Some residual abandonment exists but this is now thought to be mostly through criminal activity<sup>(17)</sup>.



## Social performance

### Key facts:

- Social performance of the automotive sector is made up of several parts: being a good employer, ethical sourcing, community involvement, road safety and engaging with stakeholders.
- Being a good employer through good employee relations, training/development, health and safety etc. One measure of this is the rate of staff turnover, which is down 42% since 2000.
- Continued work with suppliers on ethical sourcing to attain the highest environmental and social standards.
- Community involvement is also important as companies with a large presence in the community have a responsibility to it.

- The automotive sector continues active engagement with stakeholders on an international, regional and local level.



## Employee relations

### Employee suggestion schemes

- These are used in most locations to encourage employees to come forward with good ideas. They can use their ingenuity and problem-solving skills to overcome everyday problems at work.
- Many schemes reward ideas which, when implemented, improve quality or working methods.
- In some cases these are implemented globally.
- For instance, one signatory is implementing the best from a list of over 2,000 ideas generated from a 'cost down clinic.'

Ford's Idea Place is an employee suggestion scheme run through their intranet portal. It is a global site enabling employees to propose, improve and discuss innovative ideas for the future of Ford. Ideas that look promising are reviewed by the appropriate areas of the company and many have been implemented.

### Flexible working

- Arrangements to fit with work and family commitments; variations to start and finish times within standard contractual hours.
- Communication to employees regarding changes in maternity/paternity and family care arrangements in relation to care for dependants.
- Since the introduction in 2003 of the right for parents of young and disabled children to request flexible working (and since 2007 for carers of adults), managers have received training to understand the company approach and the regulations.
- Continued support for mothers and fathers requiring flexible working solutions.
- Part-time working offered to new mothers.

### Drug, alcohol and smoking policy

- Advice and support on giving up smoking.
- Drug and alcohol training for all managers.
- Free counselling services to employees.
- Co-operation between the companies and the trade unions to help employees who have drug or drink problems.

### Rehabilitation or 'return to work schemes'

- Recovery programmes are offered to help employees get back to a full upstanding role after absence, which might have been caused by any number of problems outside work, as well as for work related injuries. These include phased return to work, restricted loading or hours, and special job requirements. Rehabilitation includes: mental health, musculo-skeletal, reactivation programmes etc.
- Return to work and support for employees who are unable to fulfil a full upstanding job.
- Post retirement age working opportunities accommodated.
- Pre-retirement training course.

### Employee Forum

- Created to ensure employee involvement in decisions about working life.

### New Driver Training Programme

- Introduced, tailored to individual needs.

In 2008 Jaguar Land Rover created a nature ECO sanctuary with enhancements to the pond area at its Whitley design and R&D facility, for the enjoyment of employees and to encourage wildlife to prosper in an industrial space (see photo, right).



CLICK SCREEN FOR NEXT PAGE

### VW among FT top 50 'Great Places to Work'

VW conducts an employee opinion/company improvement survey and takes part in the annual Financial Times Great Place to Work survey. In 2008 VW achieved a Top 50 spot.

These surveys gauge employee attitude and feeling and are used to help the HR department identify potential areas for improvement.

### Island expedition

In 2008 Earthwatch and Land Rover established a partnership to offer employees the chance to take part in an expedition. This year, 12 employees joined an expedition to the breathtaking landscapes of Iceland.

**Adoption pay and leave policy** introduced by Peugeot Citroën in 2008. Employees who have been employed by the company continually for six months are entitled to receive Company Adoption Pay. This is 100% of average weekly earnings for six months, followed by 14 weeks at 90% and then 12 weeks at £200 per week or 90% of average weekly earnings, whichever is less. It therefore covers a full year, and is paid in lieu of Statutory Adoption Pay which is less generous.

**Associate Development Scheme** (known as ADS) is an independent organisation within Land Rover, which encourages employees to enjoy and realise the benefits of learning.

ADS is the outcome of negotiations between the trade unions and Land Rover. It helps employees to pursue non-work related learning and training opportunities of their own choice, in their own time. The scheme is run by independent educational staff and has a balanced, representative ADS committee.

### Employee of the month wins the Managing Director's car parking space

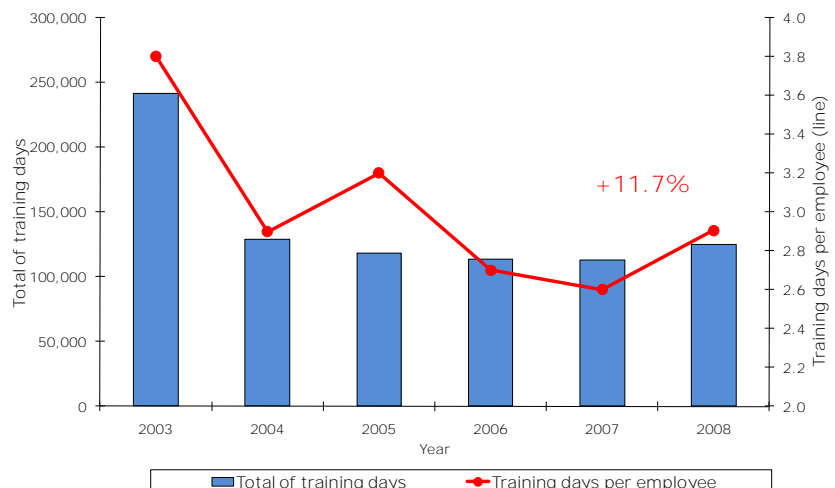
Each month, GM employees are nominated for the EXCITE Award by their colleagues via the GM intranet. Nominations relate to a specific EXCITE behaviour displayed by the nominee or a team.

The winners are presented with the EXCITE trophy to keep for a month, a certificate, and a tax-paid £100 in gift vouchers or to put towards a group activity. In addition the winner can use the **managing director's car parking space for the month.**

## Employee development

The bar graph right shows how the total number of training days has remained fairly stable in recent years after a big fall from 2003. However, the red line illustrates that the number of training days per employee rose by 11.7% in 2008, having fallen for the previous two years.

This may be the first sign of a significant shift towards training initiatives for retained staff in lieu of production during a time of much reduced demand.



Source: SMMT

### Technical academy

In 2008, Jaguar Land Rover opened an environmentally advanced Technical Academy in Warwick to co-ordinate and conduct all product and systems training for technical staff employed in the Jaguar Cars and Land Rover UK and international dealer networks.

- JLR was one of the first training providers to be awarded Training Quality Standard certification by the Learning and Skills Council.
- Instead of using conventional air conditioning, the 4,000m<sup>2</sup> building uses a new type of plasterboard which absorbs and emits heat depending on the temperature.
- Other sustainable solutions include rainwater harvesting tanks, solar/thermal heat, solar water heating, high-efficiency lighting, and spray foam insulation. The improvements are expected to save over 275t of CO<sub>2</sub> per year.



Ford launched a number of training initiatives in 2008, including:

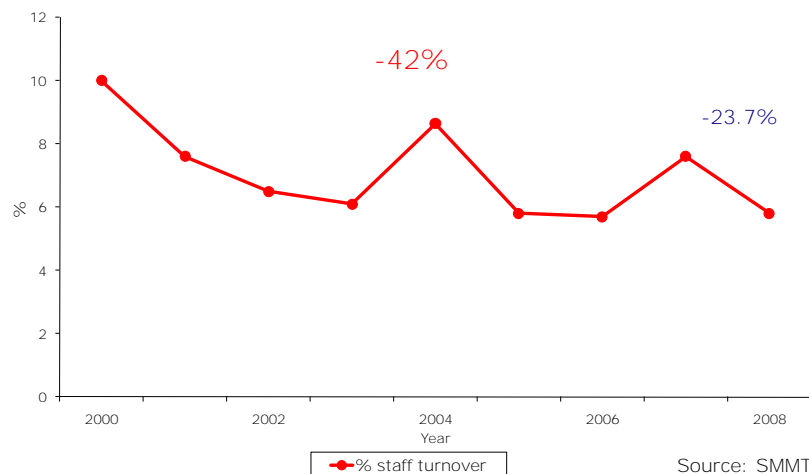
- Business finance course for managers.
- An expanded skills-for-life programme received the 'Big Tick' award from Business in the Community.
- Eighty five employees achieved an academic qualification in 2008.
- Twenty six employees working towards a Ford-sponsored BEng in Manufacturing Engineering Systems at Swansea Metropolitan University and funded one employee to take an Engineering degree at the Open University.
- Launched the Business Improvement Techniques (BIT) NVQ Level 3 for foremen.
- Fifty seven placement opportunities were taken up for modern apprenticeships in both manufacturing and product development. Most of these were external recruits, but six were hourly paid staff who transferred onto the Ford Apprenticeship Scheme.
- Ford drew down £50,000 of matched funding from the Welsh Assembly Government via the Workforce Development Fund.

*'Staff turnover is down 42% since 2000. The sector is a good place to work'*

### Staff turnover

Staff turnover has fallen by 42% since 2000, which reflects the efforts made by the signatories to ensure the automotive sector is a good place to work.

New shift patterns and demand-led scheduling were introduced towards the end of 2008 to try to maintain workforce levels and systems continue to respond to changes in global demand for new vehicles in 2009.



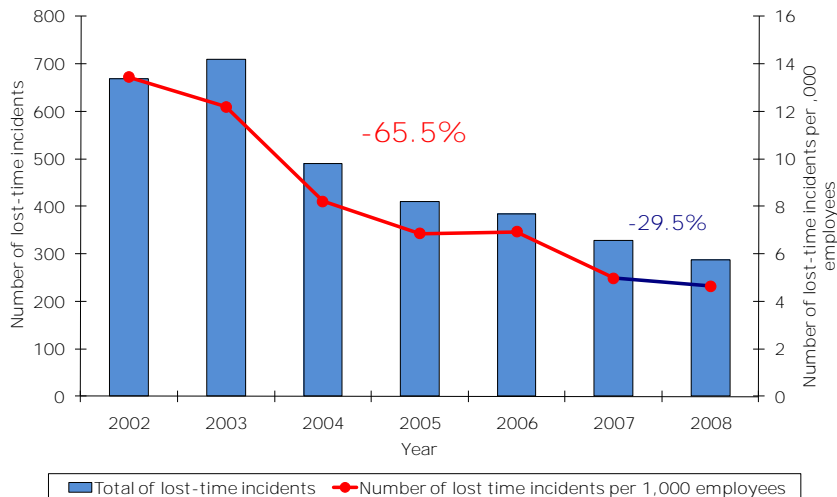
Bentley introduced time-banking in October 2008 to reduce production volumes and ultimately to safeguard jobs given the economic climate. Time-banking allows flexibility in instance of falling demand, with employees remaining at home on full pay. Any

hours not worked are 'banked' and when business circumstances improve, the additional hours worked will be deducted until the balance is zero. Bentley also opened a release scheme for anyone who wished to leave the organisation voluntarily.

## Health and safety

The health and safety of their employees is of prime importance to automotive manufacturers. They have focussed on training and communication of risks to employees and this has significantly reduced accidents in the workplace. The line graph clearly shows the

downward trend in lost-time incidents (registered industrial incident RIDDOR\*) per 1,000 employees, down 66% since 2002.



\*RIDDOR - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations and covers accidents that are reportable to the Health and Safety Executive (HSE).

Source: SMMT

### Examples of signatories' health and safety initiatives:

- Health and safety induction training for all new starters.
- Safety related internal and external programmes to include British Safety Council, Institution of Occupational Safety and Health (IOSH), and risk assessment.
- Extensive training to increase awareness in a wide range of subjects such as road safety awareness for internal site drivers, lifting operations and lifting equipment (LOLER), confined spaces, fire, Control of Substances Hazardous to Health (COSHH) and risk assessment.
- Employees working in manufacturing facilities are encouraged to identify and address risks each week through hazard-tracking initiatives.
- Weekly safety briefing on particular safety related items.

- Reward and recognition for making a significant contribution to health and safety.
- In-house DVDs and web-based training to raise awareness of health and safety in the workplace.
- Free in-house employee medicals.
- Free flu vaccinations for all employees.
- Health campaigns throughout the year (breast cancer aware, healthy eating).
- Occupational health professionals oversee the effects of work upon health and also the effects of health upon work capacity. They give advice on rehabilitation and phased return-to-work after **sickness absence. Very often, 'in-house' physiotherapists are available for pro-active and reactive treatment.**
- Employees accepting recognised treatment during working hours at an appropriate centre **are considered as 'absent sick', with normal company policies applying.**

### Physiotherapy and injury rehabilitation

Honda operates an on-site physiotherapy and injury rehabilitation centre to respond to accidents and injuries caused at work. There is a strong evidence based approach to injury management, which uses the biopsychosocial model involving a three tiered approach:

1. Triage - manage injuries in the acute stage to reduce likelihood of further absence and re-occurrence.
2. Evidence based physiotherapy - work focused treatment of injuries taking into account psychosocial factors with the aim of returning to full duties.

3. Functional restoration programme - an intensive programme to address the physical deconditioning and psychosocial changes that can occur with the long-term injured 'legacy' cases.







## Ethical sourcing

Vehicle manufacturing is a global operation involving direct employees and supply chain workforce all over the world. Signatories have been involved in various initiatives to ensure that human rights are respected by suppliers, concentrating on countries where there is a higher risk of substandard working conditions.

**The industry's primary focus is on building capability** among suppliers to manage working conditions responsibly. This includes meeting legal requirements and expectations, and promoting sound working conditions responsibly in their own facilities and supply chains.

A number of automotive companies have developed and delivered tailored training programmes for suppliers in select countries in co-operation with the Automotive Industry Action Group, a North American member-based, non-profit industry group specialising in supply chain issues.

The training workshops emphasise the interpretation and application of legal standards and international best practice. By interacting with managers from the human resources, health and

safety, labour affairs and legal departments of participating companies, the workshops provide a two-way learning experience touching on the areas of interest for each company.

The supplier training sessions are customised to align with the unique laws, customs, cultures and needs of each location. After completion, suppliers move on to self-assessing their facilities for compliance with local law and vehicle manufacturer expectations. The final stage of the programme is for the supplier to communicate expectations to both workers and their own suppliers.

Working conditions programme countries:

- Americas: Argentina, Brazil, Colombia, Mexico, Venezuela and Central America (Dominican Republic, Honduras, Nicaragua).
- Asia and Africa: China, India, Korea, Malaysia, the Philippines, South Africa, Taiwan, Thailand, Vietnam.
- Europe: Romania, Russia, Turkey.

### Human rights workshops

During 2008, Ford held training workshops in China, Mexico and South Africa. Some 1,600 managers from 1,300 different supplier companies have completed the training on human rights since the inception of the programme in 2004.

The training normally consists of:

- Developing and confirming an understanding of **Ford's expectations, local employment law, best practices and management systems** through a

full day interactive workshop facilitated by qualified trainers and involving multiple automotive suppliers.

- A confirmed cascade for providing information obtained during the classroom training to all supplier personnel at each factory and direct sub-tier suppliers.

Ford has plans to conduct supplier training programmes in Brazil, China, India, the Philippines, Romania, South Africa and Turkey.

### FTSE4Good

The FTSE4Good index was launched in 2002 and measures the performance of UK companies that meet globally recognised corporate responsibility standards. In the UK, the FTSE4Good indices have a criteria for stock selection which includes the environment, universal human rights, social issues and stakeholder relations. Three of our signatories, Ford, Toyota and Volkswagen, are meeting the

required criteria and are currently listed in various FTSE4 Good Index Series (FTSE4Good Environmental Leaders Europe 40 Index, FTSE4Good Global Index, FTSE4Good Europe Index), the Ethibel Excellence Europe and Ethibel Excellence Global indices and the ASPI (Advanced Sustainable Performance Index).

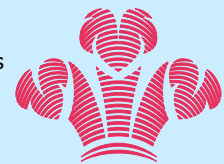
## Community involvement

Some of the initiatives undertaken by GM in 2008:

- Over 150 employees took part in the London to Brighton Bike Ride and raised £37,000 for British Heart Foundation, aided by GM (see photo, right).
- Sponsored summer sporting activities for over 2,000 local children.
- Purchased valuable equipment for local hospitals and hospices.
- Provided vehicle support for local charities.
- Fun days held at each manufacturing plant for family and friends of employees. Rides were given on in-house fire engines and families were treated to displays of robotics in the bodyshops.
- Support for community projects with many local agencies to deliver a safety initiative for over 600 local school children, educating them on aspects of home, internet, fire and road safety along with first aid and drug awareness.
- An air quality partnership with the local council at Ellesmere Port.
- The use of a minibus for a local school with a special unit for deaf students. Over 1,000 11-16-year-olds in the community have given their time.
- Annual award ceremony which recognises worthwhile projects in the local area. It rewards charities and employees and young people in the community who have given their time.



- Heritage Centre opens its doors to the public to see an exceptional collection of vehicles.
- Important relationships have been developed with local universities around the Ellesmere Port area, encouraging activities such as getting women into manufacturing and engineering.
- Plant tours provided on a regular basis for students, **young people and the Prince's Trust.**
- Blood donor sessions at the plants.



**Prince's Trust**

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### Corporate social responsibility at VW

VW has created a committee to focus attention on the company's awareness on Corporate Social Responsibility, incorporating the work of the Environmental Steering Group and Donations Committee.

These committees are made up of employees at all levels of the business and help to link the **organisation's values and actions to the community** around it.

### Ground Work School For Sustainable Development 2009 Campaign

School children across the UK are giving their schools an MOT to test their environmental worthiness and ability to tackle climate change, thanks to a unique partnership between Toyota and the environmental charity Groundwork.

(including staff from the local Toyota Retailer) to lessen its impact on the environment.

Youngsters in Derby, Durham, Leeds, London, Medway and Wrexham will advise on ways their school can save energy and water, reduce waste and implement recycling schemes.

The Schools for Sustainable Development - Community Action Programme, backed with funding by Toyota (GB) and Toyota Motor Europe, will involve school children in the whole process of monitoring, action planning and decision making in the sustainable development of their school by forming an action team with local adults

They will encourage action that will benefit their school by increasing its environmental performance and ability to lower its costs, and learn about the global significance of local actions by exchanging ideas with schools in the Czech Republic and Poland.

### Training scheme at Aylesbury Young Offenders Institution

**Toyota's ground-breaking** training scheme at Aylesbury Young Offenders Institution was established ten years ago, giving prisoners the opportunity to work towards a Level 3 Technical Certificate accredited by the Institute of the Motor Industry. Operating to exactly the same standards **as Toyota's other UK training centres, the 18-**

month course has so far trained more than 240 vehicle technicians. It is now possible to reach a higher qualification with the introduction of Level 4 **which requires a further six months' training.** Inmates have to earn the right to attend the course and are screened and hand picked by the YOI authorities. The course is funded by Toyota which supplies all the training materials, tooling, cars and equipment necessary.



The industry is actively engaged with the Motor Industry and Allied Trades Benevolent Fund (BEN) which provides care and support for employees and their dependants in time of need. One of the **most successful of BEN's fundraising events is the annual BEN Ball** (see picture, left) usually raising in excess of £250,000 of vital funds for the charity and the people it helps.

In the last decade charity donations to BEN reached almost £15,000,000 in direct and in kind donations.



#### Wiltshire Fire Brigade 'Safe Drive', Stay Alive Road Show

Honda sponsored a Wiltshire Fire Bridge programme to encourage safe driving practices in 16-18-year-olds. It was delivered to 8,000 school children in 56 different schools and colleges within Swindon.

#### Junior Good Citizen

Honda also sponsors The Junior Good Citizen Scheme, which is designed to engage young people from Year 6 (10-11-year olds) in a fun learning environment. The aim is to equip them with life skills as they make their transition from primary to secondary education. Schools, emergency services and local authorities work together in partnership to promote the safety of young people.

#### Swindon Academy

Honda also continued to provide the Academy with practical support in the form of recruitment fairs held at the manufacturing site where students were put through a formal assessment and interview day; provided a robot display and skills challenges at an engineering exhibition at the Academy and co-ordinated job experience for Academy students with other businesses.

A senior manager continues as deputy chair of the board of governors and also supports with business input for premises, safety and finance.

#### Car donations

GM donated 23 pre-production Vauxhall Insignias for educational purposes in 2009. They were placed in colleges and universities throughout the country to enable young people to access the most up to date automotive technology to work with.

This has opened doors for many young people to undertake a more in-depth study of automotive manufacture, design and repair. Two of the vehicles were placed at units for reducing re-offending in Cambridge and Suffolk and two with Bedfordshire Police and the Metropolitan Police to assist with skid pan training. This instruction is usually directed at young drivers and is a useful tool to encourage and demonstrate safer driving.

#### Time donations

GM runs a staff-based initiative where a charity of the quarter is elected and employee participation is encouraged to raise funds for it. Employees nominate charities close to their hearts and with support from across the UK workforce, have raised record amounts. GM raised £2,240 for Red Nose Day for the first quarter of 2009 and in the second quarter GM had 94 riders taking part in the London to Brighton for the British Heart Foundation (see above for 2008 funds raised).

#### Loan vehicle donations

GM also runs a charity grace and favour fleet where a 12-strong fleet of vehicles, ranging from saloon vehicles to 16-seater minibuses, is loaned to charities.

# Stakeholder engagement

Many voluntary initiatives have been developed by SMMT and its members to engage in everything from the sustainability of the supply chain through CO<sub>2</sub>

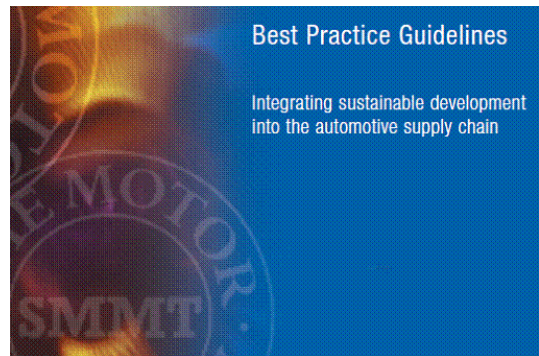
information and labelling for customers to consumer rights.

## Encouraging responsible product use

The following are some of the initiatives the industry has developed in the last decade to engage with our stakeholders to improve our approach to sustainability

reporting and to help consumers make informed decisions, encourage safety and responsible product use.

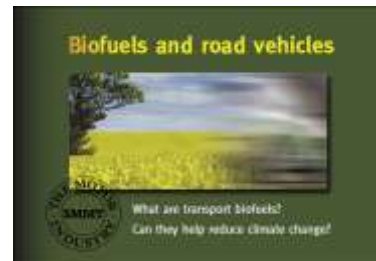
**Sustainability - supply chain best practice guidelines** (SMMT, 2002) were part of a DTI-funded project to build the business case for sustainability in the automotive supply chain and to disseminate the strategy to suppliers. The guidelines provide a route map for suppliers to address the challenges of sustainable development. They provide advice on where to start, and show how the various components fit together. The aim is not to reproduce guidance provided elsewhere, but to signpost to it.



**Drive Green - Drive Safely** (SMMT, 2006) is a handy reminder that there are simple things we can all do to make for cleaner, safer journeys. Following some of the hints and tips in this booklet can improve safety on the road and cut down on pollution.



**Biofuels and Road Vehicles** (SMMT, 2006) answered many of the most common questions asked by the public on the issue of biofuels. It includes advice on different types of biofuel – biodiesel, bioethanol and biogas; how biomass performs better than fossil fuels on CO<sub>2</sub> emissions; blends in biofuels and quality control issues.



**Right Van Man** (2009) was produced by SMMT with the Vehicle Certification Agency (VCA) and the Department for Transport (2009). This guide gives individual van buyers and drivers top tips on van choice and use to help cut running costs and CO<sub>2</sub> emissions.

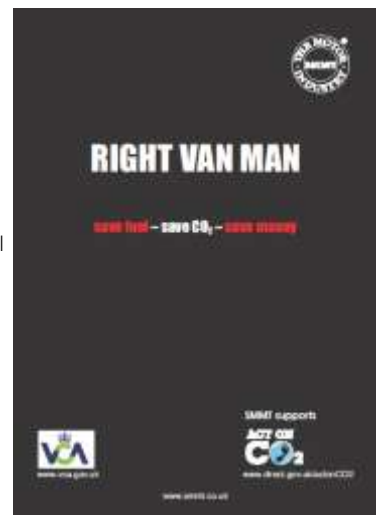
The double-sided colour leaflet aims to

- Encourage van buyers to choose the right vehicle for their usage.
- Inform van buyers about the link between CO<sub>2</sub> emissions and running costs.
- Help van buyers reduce the environmental impact of their vehicle choice.

The advice includes:

- Choose the van size that best suits the job.
- Pick the right engine for the motoring you do.
- Check tyre pressures regularly.

- Change your **vehicle's oils** according to servicing schedules.
- Replace blocked air filters.
- Keep your speed down to save fuel and CO<sub>2</sub>.
- Improve your driving technique.
- Use technology such as sat nav to improve efficiency.





Van CO<sub>2</sub> database (2009) was created jointly between SMMT, the Vehicle Certification Agency (VCA) and the Department for Transport (DfT). The database allows consumers to search for new van models on the UK market and compare CO<sub>2</sub> emissions and fuel consumption.

The industry believes that this consumer information initiative will help buyers select the best van for their business and improve CO<sub>2</sub> emissions at the same time.

[www.businesslink.gov.uk/vanfueldata](http://www.businesslink.gov.uk/vanfueldata)



The Motor Industry Code of Practice for New Cars was the first code of practice in any industry to gain full approval from the Office of Fair Trading (OFT) in 2004, when it was launched as the SMMT New Car Code. The Code commits car manufacturers to providing high levels of customer satisfaction as a core element of their business. Over 99% of all new cars registered in the UK are covered by the Code.



The Motor Industry Code of Practice for Service and Repair (2008) was a major development in consumer protection in the automotive sector. With the support of government, the National Consumer Council (NCC) and Trading Standards, the Code has **completed stage one of the OFT's Consumer Codes Approval Scheme** and is now active in more than 5,000 garages across the country.

The Code is significant because it enables the industry to regulate its own performance, whilst providing motorists with the reassurance of a tough enforcement regime to ensure fair and honest treatment by garages. Backed by vehicle manufacturers and retailers, through trade associations representing the franchised and independent sectors, the Code aims to boost consumer confidence in the sector by demonstrating the responsibility of garage owners.

The Motor Industry Code of Practice for Service and Repair was developed in response to the NCC's 'At a Crossroads' paper in which it challenged the industry to resolve the image of shoddy repairs.

The new Code commits subscribing garages to:

- Honest and fair services.
- Open and transparent pricing.
- Completing work as agreed.
- Invoices that match quoted prices.
- Competent and conscientious staff.
- A straightforward, swift complaints procedure.

It offers motorists:

- An online search facility allowing consumers to locate their nearest subscribing garage.
- A free consumer advice line.
- Free conciliation and low cost, legally binding arbitration.



The Motor Industry Code of Practice for Vehicle Warranty Products was launched to the public in July 2009, replacing the longstanding SMMT Code of Practice for Mechanical Breakdown Insurance Schemes. The Code covers numerous aftersale products such as extended warranties, roadside assistance and MOT insurance.

[www.motorindustrycodes.co.uk](http://www.motorindustrycodes.co.uk)

Environmental labels



In 1999, SMMT launched an industry-wide voluntary label for new cars to provide clear and consistent information for customers on the environmental performance of new cars. It contained information on fuel consumption, emissions standards and noise. In January 2000 the

European Commission adopted Directive 1999/94/EC designed to ensure the availability of consumer information on fuel economy and CO<sub>2</sub> emissions in the marketing of new passenger cars to allow consumers to make an informed choice. SMMT participated in the development of UK regulations implementing EU Directive 1999/94/EC.

In 2005, SMMT built upon the success of the label by working with the Low Carbon Vehicle Partnership to design and introduce a colour-coded fridge-style energy efficiency label for new cars.

To provide an evidence base for further fuel economy awareness, research was undertaken among new car buyers and those intending to buy soon.



Used car CO<sub>2</sub> label

The next step in providing consumer information is already in hand. The aim is to complement the new car label and make colour-coded labels available to consumers on cars for sale in dealerships. Data is available back to 1 March 2001 when the CO<sub>2</sub> graduated tax (VED) system began.

The proposal for such a label originated in the King Review (2008) and was endorsed by government in its response. The Department for Transport (DfT) has commissioned the Low Carbon Vehicle Partnership to manage the start-up project and it is a joint DfT, Vehicle Certification Agency (VCA), SMMT, LowCVP and Retail Motor Industry

ACT ON CO<sub>2</sub>

Industry has also worked to increase consumer understanding of CO<sub>2</sub> emissions from cars through the 'Act on CO<sub>2</sub>' campaign, part of which is an online tool to help potential new car buyers pick the lowest-emitting vehicle to meet their needs (ie 'best-in-class').

The research was designed to assess the impact of the 'car fuel economy label' on car-buyers' awareness and the extent to which this affects their purchasing behaviour.

The colour-coded CO<sub>2</sub> label is important in nearly three quarters (71%) of buyers' decisions for which new car to buy<sup>(18)</sup>. It is displayed in 94% of dealerships (2009), up 20% since the first full survey in 2006.



The colour-coded approach adopted voluntarily in the UK in 2005 is seen as best practice in Europe and is likely to be rolled out in other Member States when the EC Labelling Directive is reviewed next year.

[www.vccarfueldata.org.uk/green-label/](http://www.vccarfueldata.org.uk/green-label/)

*'The colour-coded CO<sub>2</sub> label is important in nearly three quarters of car buying decisions. It is displayed in 94% of dealerships'*

Federation initiative. SMMT has recommended that its members encourage their dealers to adopt it.

The format will deliberately look the same as the new car label. The distinguishing feature is the headline 'Fuel Economy - Used Cars.'

This will mean that used car buyers have the same information as a new car buyer has available to help them decide which car to buy.

The scheme was promoted to the trade in summer 2009 and is expected to be launched to the consumer in early November 2009.

[www.vca.gov.uk/fcb/used-car-labelling.asp](http://www.vca.gov.uk/fcb/used-car-labelling.asp)

[actonco2.direct.gov.uk](http://actonco2.direct.gov.uk)





**The Automotive Innovation and Growth Team**  
AIGT was the first IGT to be initiated by the Department for Trade and Industry (DTI) in 2002. AIGTs represented a new way of working with government and others in sectors to formulate and deliver policy. The main role of the AIGT was to identify factors affecting competitiveness and growth, and to establish a vision for a future automotive sector that enabled the UK to make the most of its opportunities as the global industry restructures and develops. The AIGT also intended to ensure a continuing dialogue between industry, government and other stakeholders, such as consumer groups, to ensure

**Stop Fuming! Campaign (1999)**

In September 1999 motor manufacturers, in partnership with a diverse range of business, organised a free nationwide emissions checking programme for the general public. About 4,000 private passenger cars were inspected, of which

**Sustainability—DTI Pioneers Group**

The DTI established the sectoral sustainability Pioneers Group in 2001. This brought together trade associations from an extensive range of major sectors to exchange experiences and develop forward thinking approaches to the promotion of best practice in sectoral sustainability reporting.

**Commission for Integrated Transport (CfIT)**

An advisory non-departmental public body that provides independent advice to the government on transport policy is an opportunity for SMMT to

**Motorists’ Forum**

This was established by CfIT in 2000 and aims to ensure that the use of the car continues to develop in a manner that respects the environment, safety and social inclusion, and that the interests of car users are reflected in the development of



SMMT and many of its members sponsor **RoadSafe**, created to encourage careful behaviour and enhance road safety. SMMT is also a co-opted member of the Royal

**Foresight Vehicle Programme** (1999) was created to develop technology for road vehicles and promote quality of life and wealth creation in the UK.

From this brief, a Steering Group devised a programme to develop lighter and more fuel efficient bodies, new sources of motive power to

that the future policy making process is as efficient as possible. AIGT gave rise to initiatives such as the National Supply Chain Groups Programme; the Low Carbon Vehicle Partnership; the Automotive Academy (now part of the National Skills Academy for Manufacturing); and two technology centres of excellence – Cenex for low carbon and fuel cells technologies and innovITS for intelligent transport systems.

NAIGT has refreshed this work in 2008-09, see page 10.

approximately 14% exceeded mandatory emissions levels.

The aim was to encourage owners to keep emissions under control by keeping their cars regularly serviced.

SMMT became a leading member of the group, having been the first sector to produce a sustainability strategy. It provided a good opportunity for engagement with industry, government and non-governmental organisations.



engage, with Defra, the Highways Agency and the Institute for European Environmental Policy. [www.cfit.gov.uk](http://www.cfit.gov.uk)

government transport policies. SMMT has been an active member since it was established. [www.cfit.gov.uk/mf](http://www.cfit.gov.uk/mf)

Society for the Prevention of Accidents (ROSPA) National Road Safety Committee, which identifies, debates and lobbies for policies, strategies and projects that will reduce the number and severity of road accidents. [www.roadsafe.com](http://www.roadsafe.com)

reduce emissions and CO<sub>2</sub>, and telematics and communications technologies to combat congestion and increase safety.

Originally a DTI programme, it is now administered by SMMT. [www.foresightvehicle.org.uk](http://www.foresightvehicle.org.uk)



## Appendices

Appendix Table 1. Sector fact sheet	1999	2000	2001
Automotive manufacturing sector turnover (WI) (£ billion)	44.1	42.2	42.6
Share of total transport manufacturing turnover (UK turnover) (%)	64.4	64.5	64.1
Total net capital investment (WI) (£ billion)	2.1	2	2.1
Automotive sector value added (WI) (£ billion)	9.7	8.4	9.4
Total employees directly dependent on the automotive sector (WI)	929,000	907,000	898,000
Value of exports (WI) (£ billion)	19.3	19.8	18.0
Percentage of total UK export (%)	11.5	10.5	9.5
Sector value added share of UK GVA (%)	4.0	3.5	3.8
UK sector share of global passenger car production (%)	4.5	4.0	3.7
Number of UK volume passenger car manufacturers (WI)	-	9	9
Number of UK commercial vehicle (CV) manufacturers (WI)	-	10	10
Number of cars and CVs produced (million)	1.98	1.81	1.69
New car registrations (AC) (million)	2.19	2.22	2.45
Cars and light CVs on the road (million)	30.10	30.58	31.27

Appendix Table 2. Economic indicators	1999	2000	2001
UK automotive manufacturing sector turnover (£ billion) (WI)	44.1	42.2	42.6
Signatories' combined turnover (£ billion) (AS)	20.1	21.0	24.4
Total UK number of new cars produced (AC)	1,799,004	1,641,452	1,492,365
Total UK number of new CVs produced	185,905	172,442	192,872
Total UK number of new vehicles produced	1,984,909	1,813,894	1,685,237
Total number of new vehicles produced by signatories		1,572,642	1,470,659
Total number of new car registrations (AC)	2,197,615	2,221,647	2,458,769
Total number of new CV registrations	288,100	298,043	313,411
Total number of new vehicle registrations	2,485,715	2,519,690	2,772,180

Appendix Table 3. Employment indicators	1999	2000	2001
Number of jobs dependent on the sector	929,000	907,000	898,000
· Automotive manufacturing	279,000	267,000	253,000
· Automotive supply and use	650,000	640,000	645,000
Signatories' total combined employees (AS)	95,214	100,036	96,357

Data in the report is quoted in a number of ways:

Whole industry data	(WI)
All car sales in the United Kingdom	(AC)
All signatories	(AS)
UK vehicle manufacturing signatories	(VMs)





2002	2003	2004	2005	2006	2007	2008
44.7	46.3	46.9	48.2	49.3	53.2	52.5
67.6	68	67.1	67.7	66.7	66.6	65.2
1.3	1.2	1.4	1.3	1.4	0.9	0.8
9.4	9.2	9.4	9.4	9.9	10.3	10.1
886,000	889,000	866,000	874,000	844,000	841,000	827,000
20.9	21.9	22.5	23.7	24.1	24.5	26.6
11.2	11.6	11.8	11.2	9.9	11.8	10.6
3.7	3.7	3.4	3.3	3.2	3.3	3.1
4.0	4.0	3.7	3.5	3.0	2.8	2.9
9	9	9	8	7	7	7
9	9	9	9	9	9	9
1.82	1.85	1.86	1.80	1.65	1.75	1.65
2.56	2.58	2.57	2.44	2.34	2.40	2.48
32.05	32.70	33.20	33.70	34.24	34.65	34.85

2002	2003	2004	2005	2006	2007	2008
44.7	46.3	46.9	48.2	49.3	53.2	52.5
35.7	39.2	34.6	39.4	41.9	43.7	39.6
1,629,744	1,657,558	1,646,750	1,595,697	1,442,085	1,534,567	1,446,619
191,267	188,871	209,293	206,753	207,704	215,686	202,896
1,821,011	1,846,429	1,856,043	1,802,450	1,649,789	1,750,253	1,649,515
1,441,794	1,731,894	1,614,981	1,769,810	1,597,921	1,708,048	1,608,911
2,563,631	2,579,050	2,567,269	2,439,717	2,344,864	2,404,007	2,131,795
322,258	363,687	389,923	385,969	386,968	392,481	351,384
2,885,889	2,942,737	2,957,192	2,825,686	2,731,832	2,796,488	2,483,179

2002	2003	2004	2005	2006	2007	2008
886,000	889,000	866,000	874,000	844,000	827,000	817,000
248,000	236,000	224,000	213,000	198,000	185,000	178,000
638,000	653,000	642,000	661,000	646,000	642,000	639,000
89,455	87,625	76,327	72,337	75,789	65,761	63,749

Appendix Table 4. Production and distribution inputs	1999	2000
Total combined energy use (GWh) (AS)	6,110	7,013
Energy use per employee (kWh) (AS)	64,175	70,108
Energy use per £1million turnover (kWh) (AS)	303,828	309,717
Energy use per vehicle produced (MWh/unit) (VMS)	3.1	3.9
Total combined water use ('000m <sup>3</sup> ) (AS)	-	9,620
Water use per employee (m <sup>3</sup> ) (AS)	-	96.2
Water use per £1million turnover (m <sup>3</sup> ) (AS)	-	457
Water use per vehicle produced (m <sup>3</sup> ) (VMS)	-	5.3

Appendix Table 5. Production and distribution material outputs	1999	2000
Total combined CO <sub>2</sub> equivalent (tonnes) (AS)	1,821,586	2,182,926
CO <sub>2</sub> equivalent per employee (tonnes) (AS)	19.3	21.8
CO <sub>2</sub> equivalent (tonnes) per £1million turnover (AS)	90.6	95.3
CO <sub>2</sub> equivalent per vehicle produced (tonnes) (VMS)	1.1	1.1
VOC emissions (cars) (g/m <sup>2</sup> )(VMS)	55.0	55.0
VOC emissions (vans) (g/m <sup>2</sup> )(VMS)	0.0	0.0
Total combined waste to landfill (tonnes) (AS)	54,954	80,399
Waste to landfill per employee (tonnes) (AS)	0.6	0.8
Waste to landfill per £1million turnover (tonnes) (AS)	2.7	3.7
Waste to landfill per vehicle produced (kg) (VMS)	-	40.3
Total combined site waste for recycling (tonnes) (AS)	-	-
Site waste for recycling per employee (kg) (AS)	-	-
Site waste for recycling per £1million turnover (kg) (AS)	-	-
Site waste for recycling per vehicle produced (kg) (VMS)	-	-
Total combined site waste for recovery (tonnes) (AS)	-	-
Site waste for recovery per employee (tonnes) (AS)	-	-
Site waste for recovery per £1million turnover (tonnes) (AS)	-	-
Site waste for recovery per vehicle produced (kg) (VMS)	-	-

\* Large vehicle manufacturer excluded from 2004 data

Data in the report is quoted in a number of ways:

Whole industry data	(WI)
All car sales in the United Kingdom	(AC)
All signatories	(AS)
UK vehicle manufacturing signatories	(VMs)



2001	2002	2003	2004	2005	2006	2007	2008
6,857	6,540	6,126	5,337	5,104	4,851	4,672	4,491
71,166	74,685	69,912	69,923	70,559	64,007	71,051	70,446
281,036	186,943	156,419	154,062	129,602	115,847	107,010	113,374
4.3	4.0	2.8	2.5	2.3	2.5	2.2	2.4
10,105	9,108	8,404	7,037	7,127	6,779	6,053	5,688
104.9	101.8	95.9	92.2	98.5	89.4	92.0	89.2
414	255	215	203	181	162	139	144
6.2	5.6	3.4	3.4	3.2	3.3	3.0	2.9

2001	2002	2003	2004	2005	2006	2007	2008
2,149,771	1,954,295	1,679,832	1,447,900	1,417,129	1,363,189	1,338,244	1,285,378
22.3	23.9	19.2	19.0	19.6	18.0	20.4	20.2
88.1	59.9	42.9	41.8	36.0	32.6	30.6	32.4
1.3	1.2	0.7	0.7	0.6	0.7	0.6	0.7
50.0	47.0	47.0	50.0	48.0	49.0	45.0	38.0
59.0	82.0	60.0	66.0	67.0	65.0	69.0	71.0
121,207	70,897	56,743	52,842	44,910	39,862	30,004	24,900
1.3	0.8	0.6	0.7	0.6	0.5	0.5	0.4
4.9	2.0	1.4	1.5	1.1	1.0	0.7	0.6
66.4	40.5	17.9	19.8	14.5	17.0	12.8	12.8
-	-	-	145,797	197,752	207,832	248,437	241,630
-	-	-	1,910.2	2,733.8	2,742.2	3,777.9	3,790.3
-	-	-	4,208.7	5,021.4	4,963.3	5,689.9	6,100.1
-	-	-	78.2	99.7	108.2	131.64	131.64
-	-	-	3,373	2,506	1,566	3,019	2988
-	-	-	0.0	0.0	0.0	0.0	0.0
-	-	-	0.1	0.1	0.0	0.1	0.1
-	-	-	2.2	1.5	0.9	1.7	1.9

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### Signatories to this report

Bentley Motors  
BMW Group including Rolls-Royce Motor Cars Ltd  
Chrysler UK Limited\*  
Ford Motor Company Limited  
General Motors Manufacturing  
General Motors UK Limited  
GKN Driveline Limited  
Honda of the UK Manufacturing Ltd  
Jaguar Cars Limited  
Land Rover  
LDV  
Mercedes-Benz UK Limited\*  
Nissan Motor Manufacturing (UK) Limited and Nissan Technology Centre Group  
PSA Peugeot Citroën Automobiles UK Limited  
Toyota (GB) plc and Toyota Motor Manufacturing UK Ltd  
Volkswagen Group (UK) Limited  
Volvo Cars UK Limited

### Brands

Bentley  
BMW, MINI, Rolls-Royce  
Chrysler  
Ford  
Vauxhall, Nissan and Renault vans  
Cadillac, Chevrolet, Corvette, Hummer, Saab, Vauxhall  
GKN  
Honda  
Jaguar  
Land Rover  
LDV vans  
Mercedes-Benz, smart  
Nissan  
Peugeot, Citroën  
Toyota, Lexus  
**Audi, SEAT, Škoda, Volkswagen Passenger Cars, Volkswagen Commercial Vehicles**  
Volvo

\* Chrysler UK Limited and Mercedes-Benz UK Limited are now separate organisations, but are considered as a single signatory for the purposes of this report as they were still linked to the same organisation during 2008.

### Report coverage

Unless otherwise stated:

- the data in this report relates to the 2008 calendar year
- sector data was provided by SMMT and relates only to the UK automotive sector activities
- signatory data reported for 2008 relates to the signatories listed above
- case studies are based on initiatives introduced between 1999 and 2008

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### The golden rules of eco-driving

- ⇒ Shift into a higher gear early.
- ⇒ Maintain a steady speed in the highest possible gear.
- ⇒ Look ahead and anticipate traffic flow.
- ⇒ Switch off the engine at short stops.
- ⇒ Check and adjust the tyre pressure regularly.
- ⇒ Make use of in-car fuel saving devices such as on-board computers and dynamic navigation to avoid congestion.
- ⇒ Get rid of surplus weight and unused roof racks.

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