SMMT
DRIVING THE
MOTOR INDUSTRY

2015 Automotive Sustainability Report

16th edition - 2014 data

THE SOCIETY OF
MOTOR MANUFACTURERS
AND TRADERS LIMITED

FOREWORD

Mikes Hawes, CEO of SMMT

This report looks at the economic, environmental and social impact of the automotive industry in the UK and, on the whole, performance has once again been very encouraging. These metrics all help demonstrate the competitiveness of the automotive sector in the UK.

The sector has seen turnover rise and an increase in the number of people employed. Vehicle production is expected to grow strongly over the next few years to record levels, as investment spending is realised. The vehicles that are being produced are being done so with less energy, water and waste. The industry also saw safety levels improve, with lost time incidents falling to a new low, while levels of training recorded a welcome increase. The market for new vehicles rose strongly in 2014 and for cars returned to above pre-recession levels for the first time. Those new vehicles are also delivering enhanced fuel efficiency, air quality standards, safety and desirability to the consumer.

However, we cannot rest on our laurels; we must ensure the sector is fit for purpose for the future and this will mean becoming ever more competitive, efficient and dynamic. This year's report looks at the key challenges for the future, namely around new car CO_2 emissions, air quality, and connectivity, as well as ensuring the industry is best placed to design, build, market and use those vehicles – including enhancing the skill sets of those active in the sector. The industry is also well integrated into Europe and maintaining and enhancing those strong links will remain important for the competitiveness of the sector.

We are keenly aware of 'megatrends' in the wider world which will impact on the sector and the types of products it must deliver. Megatrends include population growth, and with it impacts on scarce resources, rises in wealth and urbanisation and, therefore, particular vehicle choices and constraints on the road networks. Technology will be a key enabler to changes in vehicle type, but also to what society wants from a vehicle, through greater access and transparency of information.

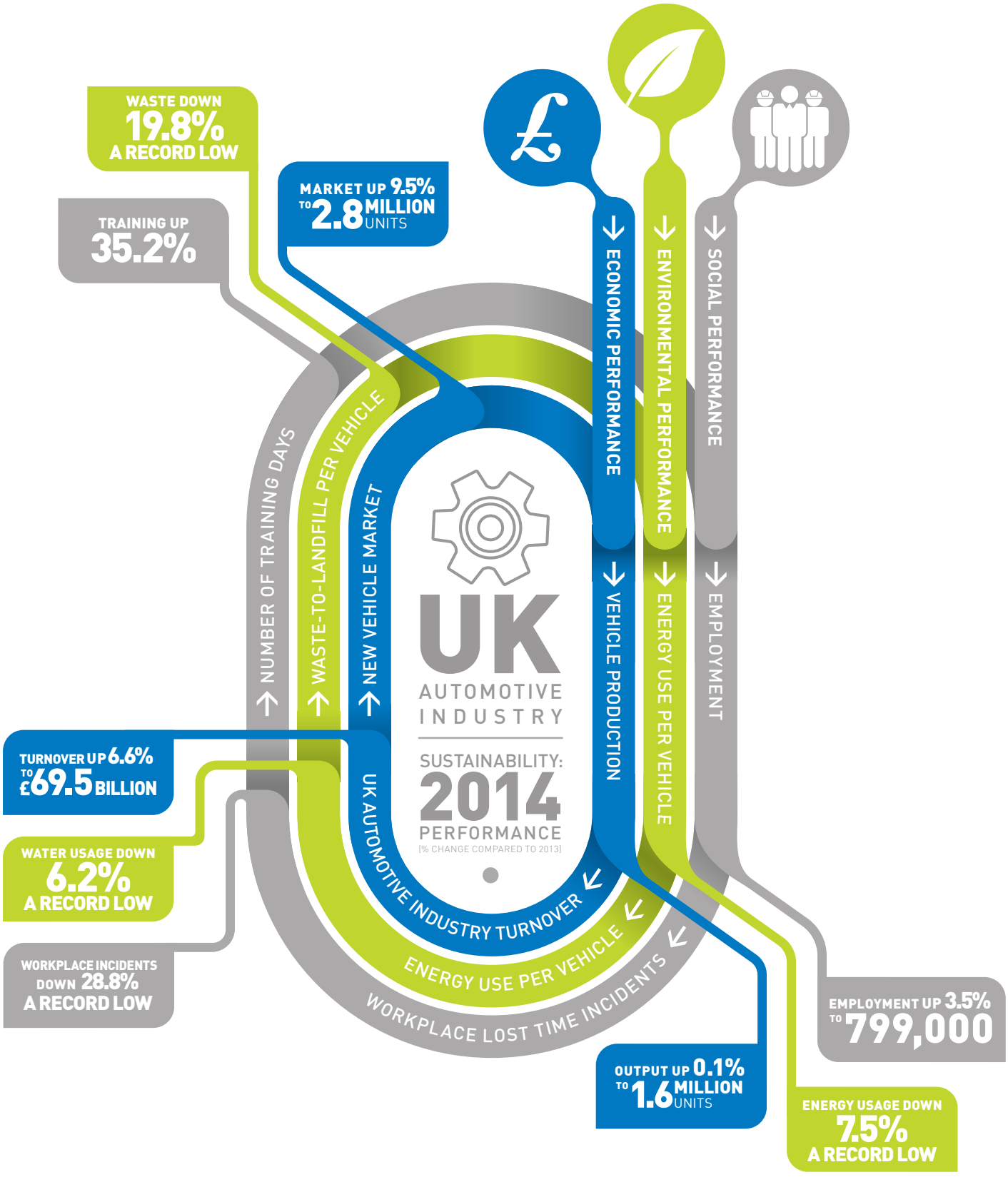
In this 16th Sustainability Report, we welcome several new signatories from the supply chain: CabAuto (makers of interiors), UYT (body-in-white products) and the logistics company DHL. The constituents of the report have changed over time, further demonstrating the highly diverse and competitive nature of the industry. The overall message is clear – the sector is moving in the right direction, delivering growth in volumes, turnover and employment, while improving the environmental impact of the manufacturing process and products it delivers. The industry is looking further to enhance its competitiveness, improving in all these areas, to deliver continued sustainable growth in a circular economy.

Key facts:

- 25 signatories have contributed to this 16th report, the longest standing sector sustainability report available.
- Turnover of UK automotive industry rose 6.6% to £69.5 billion in 2014.
- In 2014, 799,000 people were dependent on the sector for jobs, up 3.5%.
- Vehicle production rose by 0.1% to 1.6 million units.
- New vehicle market up 9.5% to 2.8 million units, with alternatively fuelled vehicles taking a record 2.1% share of the car market.
- Signatories' energy use per vehicle produced fell by 7.5%, water use by 6.2% and waste to landfill by 19.8% in 2014, compared with 2013.
- Compared with 2000 energy use per vehicle was down 48.1%, water use down 49.1% and waste to landfill down 92.4%.
- Number of lost time incidents per 1,000 employees fell by 28.8% to a record low, and 83.9% down on 2002.
- Average number of training days rose by 35.2% in 2014, ahead of new model launches.

Whilst this report aims to convey the key issues, further data and analysis is available online at: **www.smmt.co.uk/sustainability**

SUMMARY


WASTE DOWN 19.8% A RECORD LOW
TRAINING UP 35.2%
MARKET UP 9.5% TO 2.8 MILLION UNITS
ECONOMIC PERFORMANCE
ENVIRONMENTAL PERFORMANCE
SOCIAL PERFORMANCE
NUMBER OF TRAINING DAYS
WASTE-TO-LANDFILL PER VEHICLE
NEW VEHICLE MARKET
VEHICLE PRODUCTION
ENERGY USE PER VEHICLE
EMPLOYMENT
UK AUTOMOTIVE INDUSTRY
SUSTAINABILITY: 2014 PERFORMANCE
(% CHANGE COMPARED TO 2013)
TURNOVER UP 6.6% TO £69.5 BILLION
WATER USAGE DOWN 6.2% A RECORD LOW
WORKPLACE INCIDENTS DOWN 28.8% A RECORD LOW
UK AUTOMOTIVE INDUSTRY TURNOVER
ENERGY USE PER VEHICLE
WORKPLACE LOST TIME INCIDENTS
OUTPUT UP 0.1% TO 1.6 MILLION UNITS
EMPLOYMENT UP 3.5% TO 799,000
ENERGY USAGE DOWN 7.5% A RECORD LOW

SUMMARY: KEY PERFORMANCE INDICATORS (KPIs)

			2000	2013	2014	% change 2014 on 2013		% change 2014 on 2000	
AS	Number of signatories		17	23	25	8.7%	↑	47.1%	↑
Economic performance									
WI	Automotive manufacturing sector turnover **	(£ billion)	42.1	65.2	69.5	6.6%	↑	65.1%	↑
	Expenditure on Business R&D **	(£ billion)	0.9	2.1	2.4	16.5%	↑	177.8%	↑
	Total number of cars and CVs produced	(million)	1.8	1.6	1.6	0.1%	↑	-11.9%	↓
	Total new car and CV registrations	(million)	2.5	2.6	2.8	9.5%	↑	13.0%	↑
AS	Signatories' combined turnover	(£ billion)	21.0	65.2	67.8	4.0%	↑	222.9%	↑
	Total number of vehicles produced	(million)	1.6	1.6	1.6	0.5%	↑	0.6%	↑
Environmental performance									
Production inputs									
AS	Total combined energy use	(GWh)	7,013	4,773	4,274	-10.4%	↓	-39.1%	↓
VMs	Energy used per vehicle produced	(MWh/unit)	3.9	2.2	2.0	-7.5%	↓	-48.1%	↓
AS	Total combined water use	(000m^3)	9,620	6,072	5,425	-10.7%	↓	-43.6%	↓
VMs	Water use per vehicle produced	(m^3/unit)	5.3	2.9	2.7	-6.2%	↓	-49.1%	↓
Material outputs									
AS	Total combined CO_2 equivalents	(tonnes)	2,182,926	1,449,651	1,448,999	-0.0%	↓	-33.6%	↓
VMs	CO_2 equivalents per vehicle produced	(tonnes/unit)	1.1	0.7	0.7	-5.0%	↓	-40.2%	↓
	Volatile Organic Compounds emissions (cars)	(g/m^2)	55.0	37.1	35.3	-4.8%	↓	-35.7%	↓
	Volatile Organic Compounds emissions (vans)	(g/m^2)	59.0	54.5	47.6	-12.6%	↓	-19.2%	↓
AS	Total combined waste to landfill	(tonnes)	80,399	8,407	6,194	-26.3%	↓	-92.3%	↓
VMs	Waste to landfill per vehicle produced	(kg/unit)	40.3	3.8	3.1	-19.8%	↓	-92.4%	↓
Vehicle use									
AC	Average new car CO_2 emissions	(g/km)	181.0	128.3	124.6	-2.9%	↓	-31.2%	↓
Social performance									
WI	Number of jobs dependent on the sector **		907,000	772,000	799,000	3.5%	↑	-11.9%	↓
AS	Combined number of employees		100,036	85,281	86,971	2.0%	↑	-13.1%	↓
	Number of lost-time incidents per 1000 employees*		13.4	3.0	2.2	-28.8%	↓	-83.9%	↓
	Number of training days per employee*		3.8	2.5	3.3	35.2%	↑	-11.9%	↓

AC - All car registrations in the UK; AS - All signatories; CO_2 - Carbon dioxide; CV - Commercial vehicles; VMs - UK vehicle manufacturer signatories; WI - Whole industry data. GWh – Gigawatt hours; MWh – Megawatt hours.

The 2013 data has been adjusted to take into account the change in signatories and enable year-on-year comparison. The absolute values for 2000 are not directly comparable to the 2014 data, given changes in the signatories over this period.

*When the 2000 value is unknown, the first available figure is given. **Sector turnover, R&D and jobs dependent on the sector are compiled from several official government sources using SMMT analysis, 2013 and 2014 figures are estimates/projections.

Economic performance (p5-6)

- Sector turnover up 6.6% to £69.5 billion.
- £4.7bn invested in UK manufacturing.
- Vehicle production at 1.6 million was the best since 2008.
- New vehicle registrations up 9.5% - to the highest volume since 2004.

Environmental performance (p7-16)

- Products made using 10.4% less energy, 10.7% less water and with 26.3% less waste to landfill in 2014 on 2013.
- Vehicle efficiency improved.
- Total emissions from all vehicles in use fell, despite increases in distance travelled.

Social performance (p16-17)

- Sectoral jobs up 3.5%, with signatories reporting 2% rise.
- Number of training days per employee up 35.2%.
- Accident rate fell to record low.

Outlook (p18-19)

Focus on:

- vehicle emissions
- connectivity
- the manufacturing sector and its competitiveness.

ECONOMIC PERFORMANCE

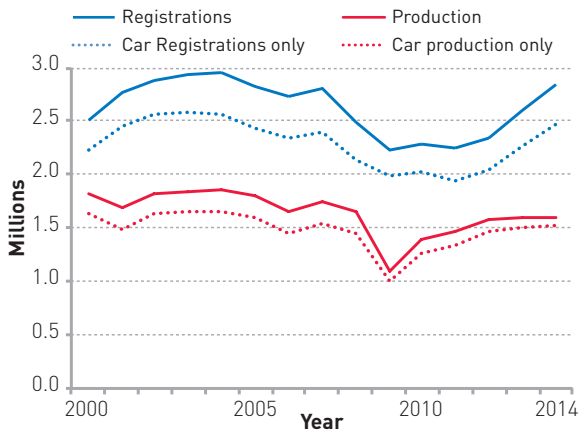
Performance
Sector turnover up 6.6% to £69.5bn, £4.7bn invested in UK manufacturing, vehicle production at 1.6m - best since 2008 and market up 9.5% to best since 2004.

Reasons
Improving economic setting, with attractive finance for buyers. Industry delivering enticing products via flexible and committed workforce.

Challenges
Maintaining growth, enhancing competitivness, attracting further investment , re-shoring the supply chain and improving skills to deliver lower carbon products.

A growing UK market, supported by economic growth plus strong exports, helped the UK automotive industry increase turnover to a record £69.5 billion in 2014. Signatories also reported a 4.0% rise in turnover in 2014. Vehicle output growth was more constrained, up 0.1%, but significant investment is set to lift this over the next few years.

New vehicle registrations and production (and cars only)



Automotive production

UK vehicle production edged up 0.1% in 2014 to 1.6 million units. Car output rose by 1.2% to 1.53 million units - its highest level since 2007. Growth followed increased output for the buoyant domestic market, but exports still represent some four out of every five cars produced in the UK.

The EU remains the UK's key trading partner, and car exports to the EU rose by over 10% in 2014, representing 53% of all car exports. Exports to China rose 14.5% to 137,000 units, and this was a key market for higher-value products.

CV output fell 19.7% in 2014 and was 67.2% below the 2007 outturn, following restructuring, in particular the closure of the Ford Transit plant in Southampton in mid-2013. With the new Vauxhall Vivaro now in production at Luton, CV output should stabilise and recover.

Engine production dipped below the 2.5 million unit mark in 2014, but will grow, supported by the new Jaguar Land Rover engine plant in Wolverhampton.

NISSAN EVs help sustain output

Growing LEAF output helps Nissan surpass 500,000 units, again

Nissan's Sunderland plant remains the UK's largest vehicle producer, manufacturing over 500,000 units for a third successive year in 2014. This was in part due to output for Nissan's 100% electric LEAF model doubling to more than 17,000 units. Production at the UK battery plant increased further as the facility started supplying units for Nissan's Barcelona plant to use in the all-electric e-NV200 van. 2014 also saw output of the Qashqai model passing two million units in record time.

Investment of £4.7 billion was announced in 2014, bringing the total to around £8 billion over the past three years. This includes investments by Jaguar Land Rover in new products and in supporting development of the supply chain; Bentley in a new R&D facility; Vauxhall to increase output of the new Astra in Ellesmere Port and the Vivaro in Luton; Aston Martin for a new model at Gaydon; Nissan and ADV in a taxi joint initiative; and Ford on new low carbon engines at Dagenham.

The net effect is that UK car production is forecast to reach 1.95 million units in 2017 (Source: AutoAnalysis). This would be an all time high, bettering 1972's 1.92 million units. This growth in vehicle output is supporting, and will be supported by, a growing UK supply chain.

FORD spends on high-tech engines

Ford engine production

In 2014, Ford produced more than 1.5 million low emission engines in the UK, almost two-thirds of the UK total. Ford also announced an investment in excess of £475 million at its Dagenham site to produce an all-new, low emission, 2.0 diesel engine. This project will create 318 new jobs and followed investment in 2013 at the Bridgend engine plant in Wales to produce the 1.5 EcoBoost petrol engine. EcoBoost technology delivers the power of a larger engine with smaller unit fuel consumption. The UK also plays a crucial role for Ford globally as the centre of excellence for the engineering, design and manufacture of low-emission powertrains as well as the design and development of commercial vehicles

New vehicle registrations

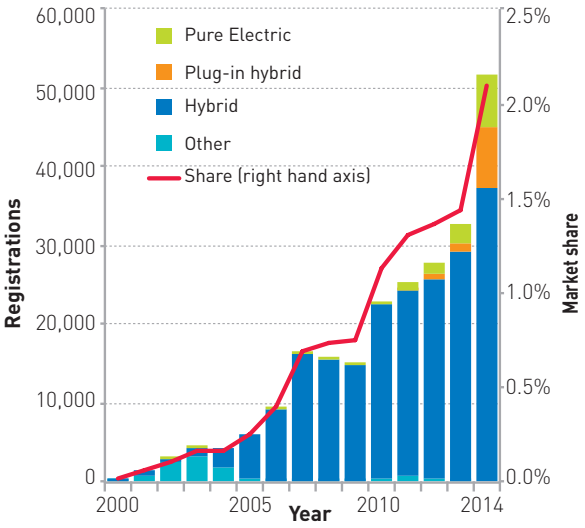
The new car market rose 9.3% in 2014 to its fourth highest annual total ever, and the best since 2004. Growth was supported by an improving economic setting, rising employment and sustained low interest rates enabling attractive finance packages.

The UK cemented its position as the second largest car market in Europe, behind Germany, and outpaced the EU's 5.6% growth in 2014.

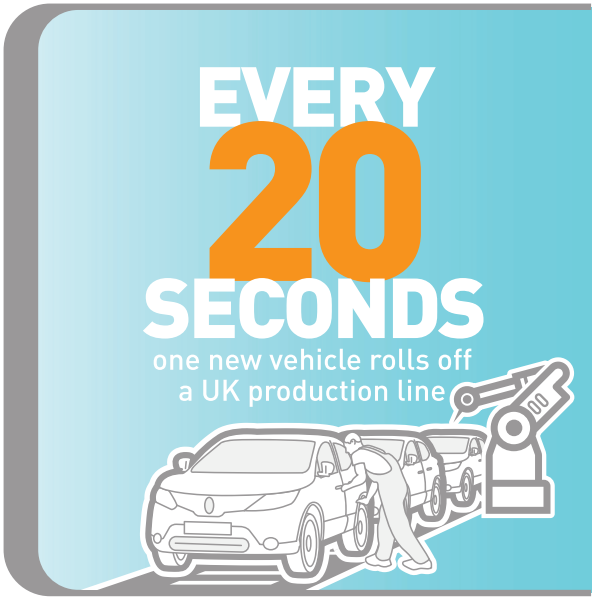
Growth in the UK was evident across both private and fleet demand and within most vehicle classes.

All fuel types also grew in 2014, with diesel share pushing back up to over 50%. Registrations of alternatively-fuelled vehicles (AFVs) rose by 58.1% in 2014 to 51,739 units to account for a record 2.1% share of the market. The number of models using electric power has risen from 36 in 2012, to 47 in 2013 and 58 models in 2014, which includes both pure electric and plug-in vehicles. A handful of hydrogen vehicles were also registered ahead of full commercial sales beginning in 2015.

New AFV car registrations



Commercial vehicle (CV) registrations rose 10.8% in 2014 to 336,590 units, and just 7% shy of the 390,000 unit market seen pre-recession. Growth was led by an 18.7% rise in light commercial vehicle (LCV) registrations, reflecting further economic recovery and ongoing shift to internet shopping. Registrations of heavy commercial vehicles (HCV) fell after the growth in Euro V compliant vehicles in 2013 ahead of the new Euro VI requirement, which came into effect on 1 January 2014.



ENVIRONMENTAL PERFORMANCE

Performance
Products made using 10.4% less energy, 10.7% less water and with 26.3% less waste to landfill.

Vehicle efficiency also improved.

Reasons
Industry investment and resource in the design and manufacture of more efficient and safer vehicles.

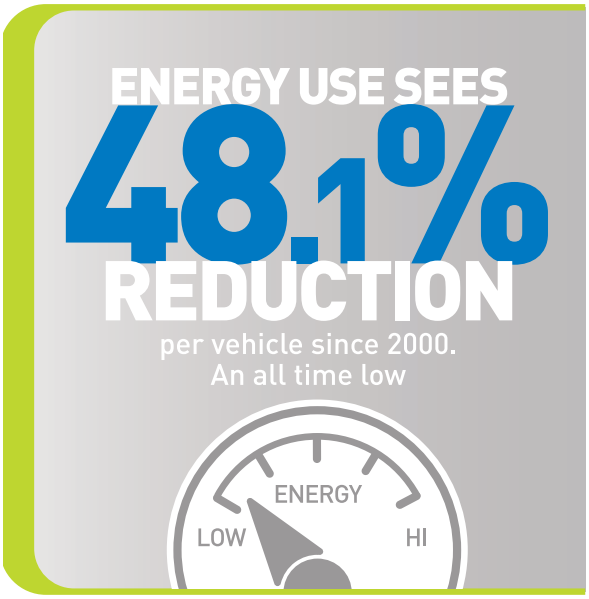
Challenges
Delivering further improvements to meet tougher environmental standards and enhancing the competitiveness of the UK manufacturing base.

The automotive sector takes its environmental responsibility very seriously. While the vast majority of the life-cycle emissions associated with a vehicle is from the in-use phase, the industry has strived to minimise the energy used to make its products, not least because this also helps reduce costs and improve competitiveness.

Manufacturing energy use

Department for Energy and Climate Change (DECC) figures show vehicle manufacturing accounts for around 4% of energy consumption by all industry in the UK.

Within a vehicle manufacturing site the paint shop, boiler house and heating/ventilation account for some 65% of emissions. The industry has made great progress in reducing emissions. Whilst the largest step changes can be made in the paint shops and boilers, these are the most expensive operations to replace and have long replacement cycles. Efficiency gains have also been made using existing plant more effectively, for example, optimising running times, paint oven controls or fan speeds, as well as investing in new equipment such as decentralised heating systems replacing old boilers, improved controls, LED lighting, and variable speed drives.

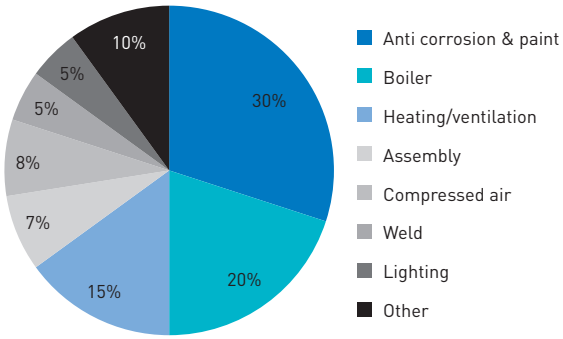


BENTLEY reduces energy and 900t CO_2 using a summer boiler


Summer boiler at Bentley

The paint shop is the single largest energy user in a vehicle manufacturing site, in particular the use of heat to dry the paint. Rather than use the main boilers in the summer, Bentley used a temporary summer boiler which was more appropriate in size for the reduced load needed in the warmer ambient temperatures. This resulted in a 420,000kWh saving in gas use, equivalent to 913tCO_2. The project proved so successful Bentley will repeat it in 2015.

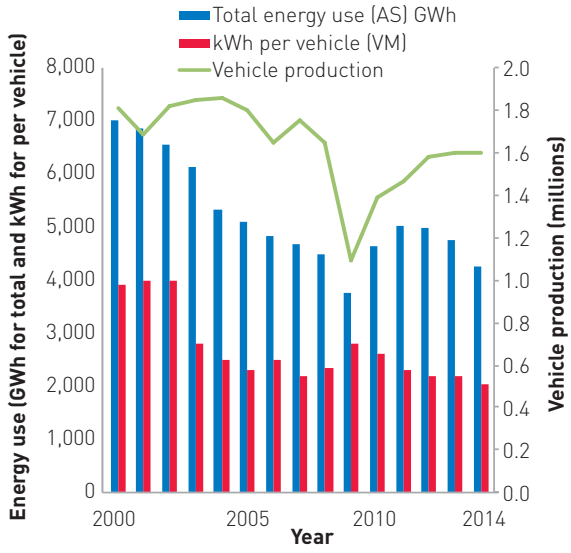
Energy use in a vehicle production plant, estimated (SMMT)



Signatories reduced total energy use by 10.4% in 2014, when production was virtually the same as in 2013, and by 39.1% compared with 2000. This reduction was supported by a 15.1% cut in gas usage as companies moved to more efficient heating systems. The milder winter had a part to play too. On a per vehicle built basis, energy use was cut to its lowest level ever, down 7.5% on 2013 and 48.1% on 2000.

ENVIRONMENTAL PERFORMANCE

Energy use



This positive performance is also reflected in the sector's Climate Change Agreements (CCA) and EU Emissions Trading Scheme (ETS) results, with CCA emissions down in line with 7.5% target reduction and ETS emissions down 15% in latest reporting periods.

ALEXANDER DENNIS lighting the way

ADL has installed LED lighting at its Guildford plant and is expected to cut electricity use by 10%. The new lights use less than half the power of the old ones, but deliver the same brightness. They are expected to pay back in less than two years and need less maintenance – saving costs, time and inconvenience. After reducing energy use by 25% in 2014, ADL is looking for new projects to reduce its environmental impact and improve competitiveness.


ADL's new LED lighting

TOYOTA MOTOR MANUFACTURING UK's eco-plant aspirations

TMMUK's is aiming to tackle three core issues: resource depletion, climate change and biodiversity loss by creating an eco-plant. Toyota has a long-term aim to reduce emissions to a sustainable or zero level at sustainable cost. Reducing the cost base also enhances competitiveness. It is also sharing best practice – the 'Yokoten' methodology. Toyota is moving towards being an eco-plant, building eco-products by eco-minded employees.

40GWh renewable energy

The amount of renewable energy produced by signatories passed 40GWh for the first time in 2014. Renewable energy use has more than doubled since 2009. Eleven signatories now produce renewable energy on site, up from only two in 2009. On average, renewable accounted for 3.1% of all electricity used by these signatories, with the highest at 12%. New solar projects at Honda and Jaguar Land Rover's engine manufacturing centre will provide some 10% and 30% of their electricity needs respectively.

BMW MINI installs solar PV in Plant Oxford saving 1,500t CO_2

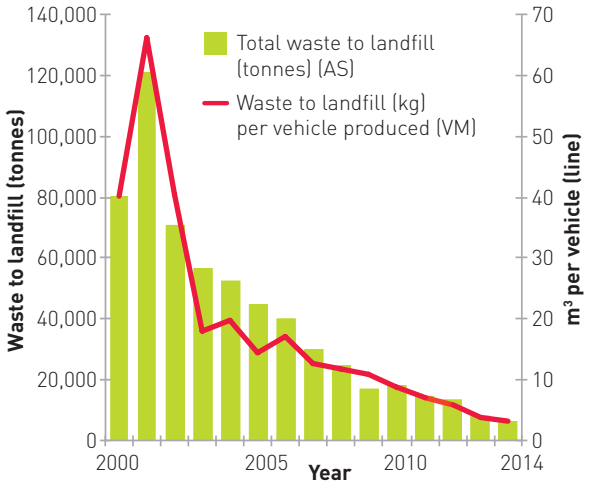
BMW is cutting its carbon footprint by increasing use of self-generated renewable power. Their 3MW solar system consists of 11,500 roof-mounted panels. It is expected to deliver 1,500 tCO_2 saving per annum. The system supplies power to the recently opened body shop.

ENVIRONMENTAL PERFORMANCE

Waste

Waste to landfill fell by 26.3% in 2014, with six signatories now at zero waste to landfill. Waste to landfill has been cut by over 90% since 2000 in absolute terms and on a per vehicle basis. In 2014, less than 2% of waste went to landfill, compared with 26% in 2004, as the amount of waste recycled and recovered has increased significantly. Signatories recorded a 17.4% rise in recovery of waste in 2014, compared with 2013, and a 3.4% rise in recycling.

Waste to landfill



VOCs

VOCs fall 32% since 2000, well below legal limits

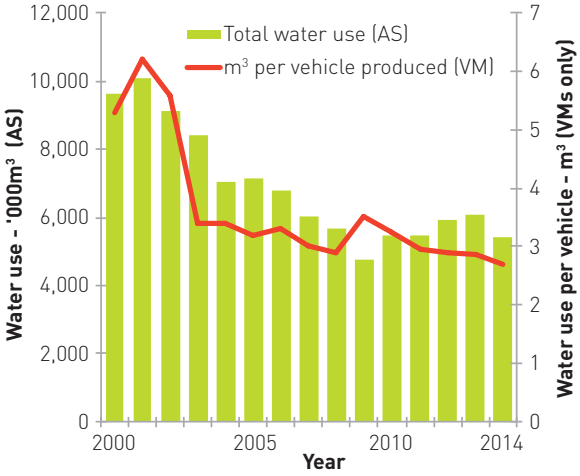
Volatile organic compound (VOC) emissions from vehicle painting operations have been dramatically reduced to well below legal limits. VOC emissions from car painting have been cut by 32.1% between 2000 and 2014, including a 4.8% cut in 2014. For vans and low-volume cars VOCs were down 18.6% since 2000, including a 12.6% drop on 2013 in 2014. Clear and simple requirements have allowed the industry suitable time to plan and invest in emissions reduction technologies, while at the same time ensuring the quality of the paint finish remains.

Water

Water use per vehicle produced fell 6.2% to a new low of just 2.7m^3, down 49.1% since 2000. Total water usage fell by 10.7% in 2014, and was 43.6% down on 2000. This was a welcome return to a downward trend, after the rise in 2013 due to increased production and an issue at one site where a sprinkler reservoir had to be drained and refilled as a precautionary measure.

Water from alternative sources, such as rainwater recovery, rose to just over 10% of water used by signatories reporting on it.

Water use



Globally, there are increasing concerns over the availability and quality of water. Industry is becoming ever more aware of its impact and the synergy between water, energy and biodiversity. Measures to reduce water use and obtain water from sustainable sources can have an impact on the business in terms of business continuity, reputation, financial performance and in a regulatory sense.

The auto sector has made good progress in reducing water usage and increasing use from non-mains supply. Within the vehicle manufacturing sites the paint shops are significant users of water, so industry has focused attention on this area. Closed loop and multi-stage cascade systems in the rinsing zones of the pre-treatment and electro-coating processes have reduced their water use by up to 90%.

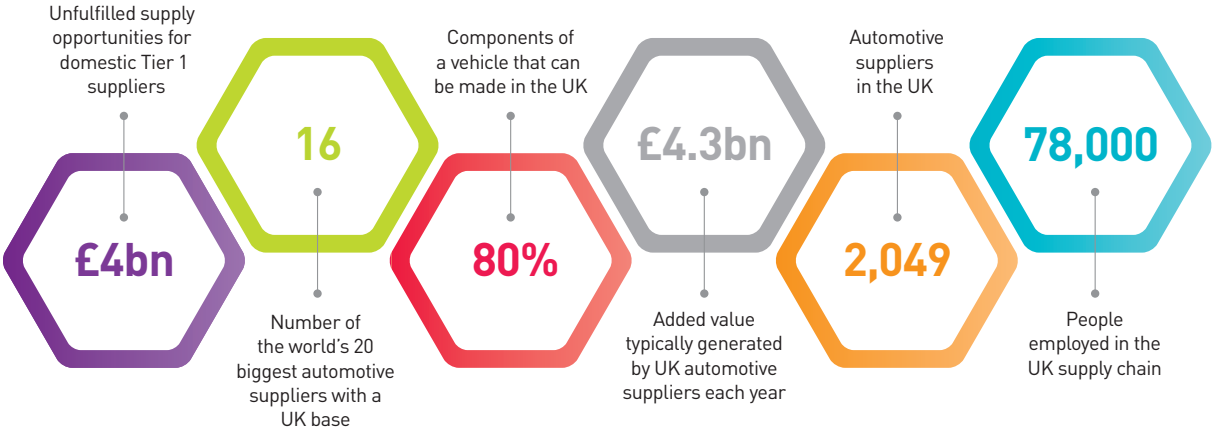
Water use at a new low, -49% since 2000

ENVIRONMENTAL PERFORMANCE – SUPPLY CHAIN

Automotive supply chain

A strong, sustainable and diverse supply chain is important for the well-being of the automotive sector in the UK. The majority of companies and manufacturing employees are found in the supply chain, notably the manufacture of components, sub-assembly and full assembly for the vehicle manufacturers. Suppliers also provide product development, logistics and other support services.

This graphic shows the size and scope of the UK supply chain. For more information please see **www.smmt.co.uk/supply-chain**



Supply chain KPIs

SMMT welcomes three new supply chain companies as signatories to the report – CabAuto, DHL and UYT. Signatories' activities now include electronics and aftermarket products, automotive system solutions (engine, transmission, chassis and e-mobility systems) and supply chain management (logistics, freight forwarding, transportation and distribution management).

Supply chain KPIs all positive in 2014, including 7% rise in output

There are now 10 supply chain signatories – which represent 40% of all signatories to this report.

All the supply chain KPIs detailed below were positive in 2014 and in particular waste and water use, showing double digit reductions.

Supply chain KPIs

	Metric	2013*	2014	% change 2014 on 2013	
Number of signatories		7	10	42.9%	↑
Economic performance					
Output (unit = tonne product shipped)	(tonnes)	529,561	567,671	7.2%	↑
Environmental performance					
Production inputs					
Total combined energy use	(GWh)	550.2	529.7	-3.7%	↓
Energy used per tonne of output	(MWh/tonne)	1.0	0.9	-10.2%	↓
Total combined water use	($000m^3$)	779	545	-30.1%	↓
Water use per tonne of output	(m^3/tonne)	1.5	1.0	-34.8%	↓
Material outputs					
Total combined CO_2 equivalents	(tonnes)	200,513	196,599	-2.0%	↓
CO_2 equivalents per tonne of output	(tonnes/tonne)	0.4	0.3	-8.5%	↓
Total combined waste to landfill	(tonnes)	413	182	-55.9%	↓
Waste to landfill per tonne of output	(kg/tonne)	0.8	0.3	-58.9%	↓

***2013 data revised to reflect 2014 signatories, so reporting on like-for-like basis**

Supply chain signatories saw output, as measured in tonnes of units shipped, increase 7.2% in 2014 on a like-for-like basis. Suppliers are clearly heavily reliant on the fortunes of the vehicle manufacturers they supply, although the sector has been active in developing new markets, notably overseas. The new investment and growth in output expected by the UK vehicle producers over the next few years should support the supply chain.The environmental performance in both absolute and relative metrics improved during the year, with reductions in energy, CO_2, water and waste levels being reported. This bodes well for the enhanced competitiveness of the sector.

The re-shoring challenge

Increased investment and output from vehicle manufacturers in the UK should help grow the supply chain; likewise a vibrant and competitive supply chain makes increasing vehicle production easier. Previous analysis showed that the UK supply chain is capable of providing 80% of vehicle components and the Automotive Council (AC) **(www.automotivecouncil.co.uk)** estimated a £4 billion sourcing opportunity for the sector.

19% rise in sales from domestic suppliers to UK manufacturers

The AC's new Growing the Automotive Supply Chain: The Opportunity Ahead report showed sales from UK suppliers to UK vehicle makers grew by 19% through 2014. There is still considerable margin for growth, given only a third of components in a UK-built car are domestically sourced.

The overall improvement in vehicle volumes forecast should encourage new entrants to the UK and expansion by incumbents. In particular opportunities around castings, forgings, trim, steering systems, pressings and stampings have been identified

The new Luton-built Vauxhall Vivaro has 40% of its components sourced in the UK, more than twice the level of the previous model's 16%. This individual move has reportedly meant an extra £600 million spend on UK suppliers, securing the future of several suppliers.

The government's UK Trade and Investment department has been praised for creating the Automotive Investment Organisation, which has secured and created more than 10,000 jobs and delivered more than £768 million investment into the UK supply chain.

SMMT Meet the Buyer event, where manufacturers and suppliers convene.

SMMT's Meet the Buyer events give vehicle manufacturers and suppliers greater awareness and opportunity to discuss how they can work together to develop a more successful motor industry in the UK. In 2014 a further 360 one-to-one meetings between VMs and suppliers were held, bringing the total to over 2,000 since 2010.

Remanufacturing

Remanufacturing of automotive parts can deliver environmental and economic benefits for the UK automotive sector at the beginning, middle and end of a vehicle's life. Returning faulty or redundant components back into use with a thorough programme of cleaning, fault identification, rectification and testing, remanufacturing can reduce costs and raw materials by using as much of the original part as possible. When incorporated into component design, and considered during procurement, remanufacturing can better deliver these benefits through improved efficiencies.

Remanufacturing can return components to at least as good a condition as new and offers them for use with the same level of warranty. A wide range of high value and/or resource intensive components are ripe for remanufacture including, but not limited to, engines, starter motors, alternators, brakes, clutches, injection systems, pumps, transmissions and super/turbochargers. As component design tolerances, complexity levels and value increase, remanufacturing has an ever greater economic and environmental potential to deliver. Use of remanufactured components can help keep vehicles in use for longer. For example, remanufactured engines in refuse lorries and buses can help local authorities provide services on a budget.

The total remanufacturing sector is already estimated to be contributing £2.4 billion to the UK economy. However, it has the potential to deliver significantly more and an all-party parliamentary group of MPs concluded that remanufacturing has a compelling environmental, social and economic case.

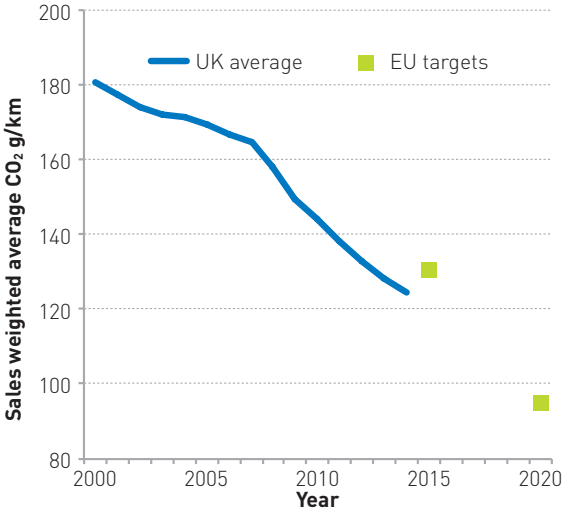
New car CO_2 emissions

The automotive sector once again delivered lower CO_2 emitting models, which helped average new car CO_2 emissions fall to a record low of 124.6g/km in 2014. This was 2.9% lower than in 2013 and 31.2% down on 2000. It was also 4.2% below the 130g/km pan-EU 2015 target. This is helping to reduce consumers' fuel bills and tax burden, but without any compromise to vehicle utility and performance. It has also helped reduce total CO_2 emissions from all cars in use by 17% compared with 2000, despite a 4.3% increase in distance travelled.

The in-use phase from customers is estimated to account for some 85% of the life-cycle emissions associated with a car, and it is the combined efforts of all stakeholders – industry, government, consumers, the media and others – that will deliver the greatest efficiency gains through a comprehensive approach. This on-going collaboration is required to ensure further gains are achieved most efficiently, which will require more fundamental changes than just vehicle technology. The necessity of the comprehensive approach is also highlighted where increased vehicle use can offset the technological efficiency gains made.

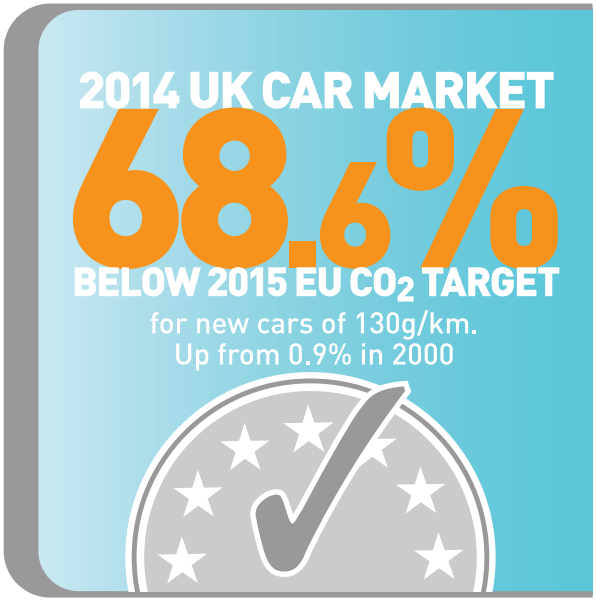
The current progress has been made by across the board improvements by petrol and diesel engines, a market shift to diesels over the past 15 years, and more recently the rapid growth in alternative powertrains. Alternatively-fuelled vehicles (AFVs) had average CO_2 emissions of 75.9g/km, almost 40% below the market average.

New car CO_2 emissions

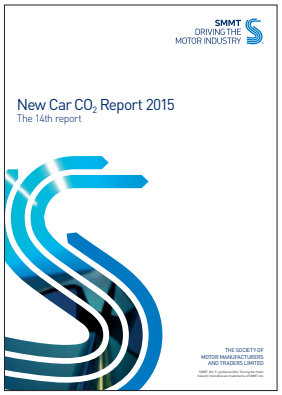


The UK is the fastest growing and largest EU market for plug-in electric vehicles

The UK had the fastest growing market for plug-in electric vehicles in 2014, up 37% and the UK also had the largest market for such vehicles, with more than 15,000 registrations (Source: ACEA – the European vehicle manufacturers' trade association). The UK's average new car CO_2 emissions have converged to within 1% of the EU average, of 123.4g/km, despite our different market mix.



The New Car CO_2 Regulation set an EU-sales weighted average target of 130g/km by 2015 and 95g/km by 2021 (95% of the market by 2020, 100% by 2021). This implies an average reduction of over 4% per annum in the future, compared with nearer 3% since 2008.



Further information on vehicle environmental performance can be found in SMMT's New Car CO_2 Report 2015 **www.smmt.co.uk/co2report.**

ENVIRONMENTAL PERFORMANCE

LCV CO_2 emissions

Average CO_2 emissions for LCVs (light commercial vehicles to 3.5 tonnes) fell 1.8% in 2014 to 182.4g/km and down 12.7% from an estimated 209g/km in 2009, despite a move to larger payload vehicles. Van purchases are based on economic activity and are typically chosen more objectively for their suitability as business tools than cars, based on space, payload and running costs. Vans are almost entirely diesel powered, although registrations of ultra-low and zero emitting models have increased as new products have come to market. As for cars, there is a pan-EU New Van CO_2 target of 175g/km in 2017 and 147g/km in 2020.

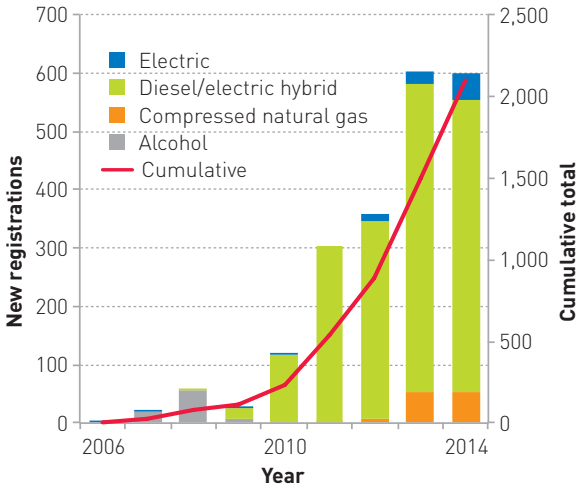
HDV CO_2 emissions

Vehicle manufacturers have long been competing based on operators' demands for ever more fuel-efficient vehicles. However, given heavy duty vehicle (heavy commercial vehicles over 3.5 tonnes, buses and coaches) produce around a quarter of road transport CO_2 emissions in the EU, in May 2014, the European Commission adopted a strategy to tackle their CO_2 emissions (see **http://ec.europa.eu/clima/policies/transport/vehicles/heavy/**). Legislative proposals are expected in 2015-16, with a possible first reporting year in 2018.

Low carbon buses

The number of alternatively-fuelled buses in use surpassed 2,000 units in 2014, after a further 600 new vehicles were registered. While diesel/electric hybrids still dominate, registrations of pure electric vehicles have increased 130% and represented 7.7% of all new low carbon buses in 2014. The low carbon bus market has grown rapidly since 2007 (see chart). In London analysis by the Office for Low Emission Vehicles (OLEV) has shown that a low carbon bus is estimated to be saving 26 tonnes of CO_2 per year.

UK low carbon bus volumes



OPTARE electric buses

Optare electric bus

Optare has fully electric buses designed and built in Leeds. The Solo model has a 100 mile range and can be recharged in as little as two hours, although it would typically be charged overnight. The bus has been introduced in London, Manchester, Nottingham and other cities. Operators are finding that the EV offers significantly lower running and maintenance costs, which are expected to more than offset the initial higher purchase price compared with a conventional diesel product.

GKN Hybrid Power flywheels in 750 UK buses

GKN plc launched the GKN Hybrid Power business on 1 April 2014. The company specialises in flywheel-based energy storage systems, which were originally developed for use in Formula 1 racing. A high speed carbon fibre flywheel stores the energy generated as the vehicle slows, and then uses it to power an electric motor to assist acceleration. This generates fuel savings of more than 20% at a significantly lower cost than battery hybrid alternatives. GKN Hybrid Power has already won contracts to fit its eco-technology to 750 buses in the UK.

GKN hybrid flywheel system

The vehicle parc

In the UK in 2014 there were 37.1 million cars and commercial vehicles in use – the parc. The parc has grown by 18.8% since 2000 and 2014's 2.3% increase was the fastest since 2002. Enhanced reliability of modern vehicles, fewer new registrations during the recession and some people holding onto to their vehicles for longer has led to an ageing vehicle fleet.

Ageing vehicle fleet – average car now 7.8 years old, up from 6.7 in 2007

Increasing fleet renewal will help improve the environmental and safety levels of vehicles in the parc.

Vehicle use rose 2.1% in 2014, the fastest increase since 2002 and compares with an average annual 0.6% decline between 2007 and 2013 (source: DFT Road Traffic Survey).

Parc CO_2 emissions

DECC figures shows that while vehicle use has risen, their environmental impact has fallen. Cars accounted for 13.3% of all UK CO_2 emissions in 2013 (the latest data available), and other road transport a further 9.6%.

CO_2 emissions from all vehicles in use have fallen by 6.8% since 2000. CO_2 emissions from all cars in use fell by 2.1% in 2013, the ninth successive annual decline. Car emissions have fallen by 17.0% since 2000 and by 15.1% since 2007. The recession and then subdued economic growth may have curbed traffic growth, but the introduction of lower CO_2 emitting vehicles has helped reduce the overall emissions from all cars in use. For LCVs CO_2 emissions have risen 22.9% since 2000, after a 31.2% rise in distance travelled.

DHL using Smart Technology to deliver efficiency

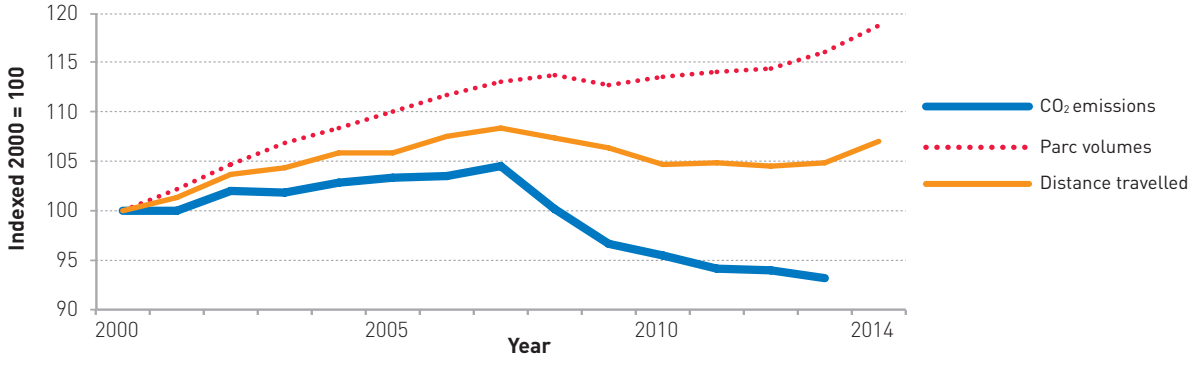
Smart Technology is used in DHL facilities like the Newport Service Centre where new working procedures have helped overcome congestion, health, safety and capacity issues. The site has been equipped with the latest T5 lighting and zoned radiant warehouse heating. Following this, a further 25 facilities in the UK were renovated and certified for their optimisation and efficiency. Smart Technology is also used by DHL for city logistics, for example the London consolidation centre project that aims to improve mobility, reduce the emissions of harmful gases, and cut congestion.

Air quality

The automotive industry is committed to tackling all emissions, not just CO_2. Vehicles sold in the UK must meet Euro standards for a range of different air pollutants. These standards have dramatically cut emissions from new vehicles and from 1 September 2015 the toughest new standard, Euro-6, will be introduced for all new cars.

Air pollution is a local issue. At a national level road transport accounts for 39.8% of all nitrogen oxide (NOx) emissions and 23.2% of particulates (PM2.5) (with cars 22.0% and 5.7% respectively).

Road transport CO_2



ENVIRONMENTAL PERFORMANCE

Road transport NOx and PM emissions have fallen faster than UK emissions as a whole, down 53.6% and 40.8% respectively between 2012 (latest data) and 2000. At a local level road transport emissions may be a larger proportion, especially in congested urban areas.

There has been particular concern around the impact of diesel emissions on air quality. The latest Euro standards, with new technologies such as sophisticated particulate filters and exhaust after-treatments, are tackling this. SMMT estimates it would take 42 million Euro-6 diesel cars to produce the same amount of NOx as a single coal-fired power station. At present there are 11.8 million diesel cars in use. See **www.smmt.co.uk/industry-topics/diesel-facts** for more information.

Similarly, tougher Euro VI standards for HCVs and buses are successfully addressing their emissions, since becoming mandatory in January 2014. Advanced new technologies such as selective catalytic reduction and diesel particulate filters are delivering real emissions benefits for fleets across the UK. Tests using the London 159 bus route show a 95% reduction in NOx emissions compared with Euro V (Source: Transport for London).

JAGUAR LAND ROVER new engine plant

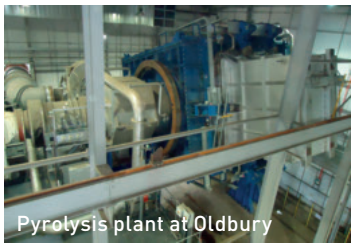
Jaguar Land Rover's new £500 million facility in the West Midlands can produce a new engine every 36 seconds. It will be home to the new Ingenium diesel engine. To help reduce emissions, this engine uses variable exhaust valve timing to shorten the catalyst light-off phase and also improves diesel particulate filter regeneration. The cooled low-pressure exhaust gas recirculation system reduces combustion chamber temperatures, inhibiting NOx formation. In the new Jaguar XE this Euro-6 engine will be capable of CO_2 emissions of 99g/km. The plant will also produce petrol engines.

Jaguar Land Rover Ingenium diesel engine

Re-use, recycling and recovery of end-of-life vehicles (ELVs)

When a vehicle reaches the end of its life it must be disposed of in an environmentally responsible way through an Authorised Treatment Facility. Through the ELVs Directive, vehicle manufacturers (VMs) have an obligation to provide free take-back for cars and light commercial vehicles. VMs have partnered with companies such as Autogreen and Cartakeback that will not only collect vehicles that have reached the end of their usable life and issue the necessary Certificate of Destruction (CoD), but in some cases will pay the last owner for the vehicle. The vehicle can then be disposed of and parts re-used, recycled or used for energy recovery.

From 2015, 95% of a vehicle must be recycled and recovered, up from 85%



Pyrolysis plant at Oldbury

To meet the new tougher recycling and recovery limits considerable investment has been necessary in new processes. The Innovative Environment Solutions site at Oldbury has new processes to recover more materials from the ELVs, then uses a pyrolysis plant to turn the residual into electricity. The 40MW facility will divert over 500,000 tonnes of waste from landfill. The Shredder Waste Advanced Processing Plant in Manchester is also delivering enhanced separation of the constituents of a vehicle, to enable better recycling and energy streams.

With the arrival of innovative new materials and powertrains, the sector is developing processes to ensure the effective re-use, recycling and recovery of future vehicles and their components.

SMMT, on behalf of the industry, made an agreement with Autogreen to provide ELV producer responsibility for orphan vehicles – those brands that are no longer commercially active. This means the entire car and LCV parc is covered by the ELV Directive and consumers can easily dispose of their vehicles in a no-cost, safe and environmentally friendly manner.

SOCIAL PERFORMANCE

Performance
Sectoral jobs up 3.5%, with signatories reporting a 2% rise. Training up 35% and employee accidents at a record low.

Reasons
Investment ahead of new model launches and on-going measures to improve staff skills, retention and safety.

Challenges
Attracting and sustaining a workforce skilled to meet the changing requirements of future vehicle technologies.

Employment

In line with increased growth and recovery in the sector, the number of jobs dependent on the automotive sector in the UK has continued to increase, rising 3.5% to 799,000 in 2014, with direct employment in automotive manufacturing jobs up 0.6% to 158,000.

Signatories reported a 2% rise in employment to some 87,000 in 2014, although performances were mixed. Signatories reported that around 15% of the workforce are agency workers, down from 18% the year before. Since 2000, the total number employed by signatories has fallen by almost 15,000, reflective of increased productivity and automation.

MICHELIN – training apprentices for local companies

Michelin's training centre in Dundee has trained more than 300 of its own apprentices since being established in the early 1970s. Following the collapse of local training providers in the mid-1990s and a shift in emphasis by local colleges away from practical engineering training, Michelin stepped in and offered training for apprentices from other companies, notably SMEs. To date Michelin has worked with more than 45 companies and trained more than 175 such apprentices.

Rt Hon Michael Fallon MP visiting the Michelin training centre

Signatories staff turnover fell from 10% in 2000 to a new low of 5.6% in 2014.

The automotive sector is up-skilling its existing workforce as a strategic priority, and the amount of training provided by signatories was up 35.2% in 2014, from 2.5 days per employee to 3.3. The introduction of new models at several plants led to increased training being provided.

While training days per employee remains the industry norm for measuring training, SMMT did ask signatories for to review reporting metrics and, based on limited data, around three additional days per employee were given through informal training in 2014 and hundreds of nationally recognised qualifications were gained.

More than 500 new apprentices and trainees were taken on by the sector in 2014. Encouraging people into manufacturing, especially the young, remains a key priority for the sector along with ensuring they have the right skill sets. The industry, through bodies such as the Automotive Council, is working hard to address this issue.

Automotive Industrial Partnership

Employers within the UK automotive industry are taking ownership for addressing the skills needs of the sector through the development of the Automotive Industrial Partnership (AIP) see **www.automotiveip.co.uk**, a £30 million joint initiative between government and industry.

The AIP's vision is "to take responsibility for, and to transform, the end-to-end skills system for the sector, enabling automotive employers to attract and develop the current and future skilled workforce that we need in order to compete globally". Initiatives include developing a skills framework, new Apprenticeship Standards, programmes and recruitment initiatives to get more work-ready entrants to the sector, and an Apprenticeship and Skilled Trades Clearing House.

SOCIAL PERFORMANCE

See Inside Manufacturing

The UK automotive sector continued to support government's See Inside Manufacturing initiative in 2014, hosting activities designed to change young people's perceptions of manufacturing and the automotive industry.

Foyer Federation Working Assets project

Supported by SMMT's Charitable Trust and with partnership from BMW, Ford, Toyota and Unipart, this Foyer project aims to develop the skills of disadvantaged young people.

Workplace safety

Safety of the workforce is a key priority for the sector. The total number of lost-time incidents fell by 27.4% in 2014 and was down 71.8% compared with 2002 (when the figures were first collated). This reflects on-going and now embedded safety procedures being maintained and enhanced over the years. The number of incidents per 1,000 employees fell 28.8% to a new low of 2.2 in 2014, and was 83.9% down on 2002.

The introduction of active and passive safety features have helped reduce the chances of a vehicle being involved in an accident in the first instance, and to protect all parties in the event of an accident. In an integrated approach, other stakeholders have also been active in this area.

UYT's safer workplace transport


UYT's road marking helping to improve workplace safety

In the UK every year around 70 people are killed and 2,000 seriously injured by vehicles in the workplace. UYT has made reducing this a focus, introducing new road layouts, with roads and floors painted, increased signage and mirrors on site, and new work instructions given for loading and unloading goods from vehicles. All staff are then informed and trained.

Vehicle safety

Road casualties fell 6.2% in 2013 (latest data), were 42.6% below 2000 levels and 45.3% down on a per mile basis.

The introduction of active and passive safety features have helped reduce the chances of a vehicle being involved in an accident in the first instance, and to protect all parties in the event of an accident. In a comprehensive approach, other stakeholders have also helped improve safety.

Community engagement and charitable donations

In 2014, signatories reported making charitable donations of almost £4 million, plus other forms of contribution worth more than £1.75 million, and gave over 175,000 hours of their time. The money goes to local and national charities, including via a long-standing programme that provides donations to BEN, the national automotive charity, on a per car sold basis. Several companies also work closely with schools and other educational facilities. This supports education and can encourage people to take an interest in the automotive sector.

GM Corporate Social Responsibility (CSR) days

All staff at Vauxhall, including contractors and hourly staff, are encouraged to volunteer or participate one day a year - fully paid - to work on local causes as part of their CSR programme. Team working is encouraged. Examples include supporting a Luton food bank, 90 engineers repairing community centres, and the Board of Directors renovating a house for young, vulnerable and disadvantaged homeless people.


Tim Tozer and other Vauxhall board members renovate a home for a local homeless charity

OUTLOOK

Vehicle Emissions

The UK has set itself a legally binding target to reduce the UK's greenhouse gas emissions by at least 80% by 2050, from a 1990 baseline. Transport will be tasked with delivering its share of this. The Office for Low Emission Vehicles (OLEV) has ambitions for almost every new car and van to be zero emitting at the tailpipe by 2040, in order that the fleet renewal delivers a zero emission parc by 2050.

Government and industry share the view that positioning the UK at the forefront of ultra-low emitting vehicle development, manufacture and use will be of significant benefit to both the environment and the UK economy.

The EU's New Car and Van CO_2 Regulations set out the fleet average CO_2 emissions required of manufacturers at 95g/km for cars and 147g/km for vans by 2020. Discussions about targets beyond 2020 are already beginning. These long term targets need to offer stability and planning certainty, which is important for industry competitiveness and development.

The methodology for determining a vehicle's CO_2 performance will be moving from the current New European Drive Cycle (NEDC) to the Worldwide harmonised Light vehicles Test Procedure (WLTP) and cycle. This will be used to inform consumers better about the efficiency of their vehicle, although actual performance in each journey will depend upon a range of unique factors – including driving style and driving conditions. In addition, a system of Real Driving Emissions (RDE) measurement is being established for cars to illustrate performance on the road as well as in the test cycle, like trucks already do.

The automotive sector will continue to develop vehicle efficiency and consumer choice. As well as further improvements in internal combustion engine technologies, an ever broader array of alternatively-fuelled variants will be offered. For instance hydrogen vehicles are set to be offered commercially in the UK in 2015.

Industry recognises that CO_2 is just one of the environmental challenges it faces, and impacts such as on air quality, increased use of electricity from the grid and whole life-cycle emissions will also be important. Policymakers will therefore need to consider all these points carefully to ensure a coherent policy framework is in place. Industry also needs appropriate lead times to develop new models and the rate of fleet renewal needs to deliver a suitable vehicle mix.

HONDA solar-powered hydrogen station launched

The UK's first commercial scale solar-powered hydrogen production and refuelling facility was launched in 2014, developed at Honda of the UK Manufacturing. The station will produce commercial volumes of 'green' hydrogen from solar power. It is intended to be a benchmark for other refuelling stations, to reinforce the UK's attractiveness as a location to roll out fuel cell vehicles and encourage the growth of a national refuelling infrastructure.

Government is also supporting emerging technologies, through OLEV and Innovate UK. The Advanced Propulsion Centre (APC), which opened in November 2014 as part of the automotive industrial strategy, will channel £1 billion of investment from government and industry over the next 10 years to help support the UK in designing and delivering these lower emission technologies.

The Advanced Propulsion Centre

Taxation can also play an important role. SMMT recently commissioned the Centre for Economic and Business Research (CEBR) to deliver a report on The Future of Motoring Taxation **(www.smmt.co.uk/CO_2report/)**. Industry looks for progressive, predictable and well designed tax measures and policies, ideally developed collaboratively with industry, to help achieve environmental and fiscal objectives, while

ensuring a dynamic, diverse and competitive automotive industry.

Government and several vehicle manufacturers have also collaborated on the Go Ultra Low.com campaign to promote ultra low emission vehicles and encourage market transformation.

Connectivity

Connected and autonomous vehicles could prove transformational for the automotive sector, as well as society – providing huge social, environmental, industrial and economic benefits. Connected vehicles use technology to connect to devices within the vehicle itself, as well as external networks, whilst autononomous vehicles are capable of functioning without a human operator.

Some of these technologies, such as emergency braking, lane assist and congestion avoidance, have already become commonplace. However, while vehicles that are capable of driving without human input are now being tested, it will take a number of years before they are available on the market. These technologies can help cut accidents, but can also enable the existing road infrastructure to be used more effectively, reducing congestion and improving traffic flow. This has the benefit of reducing emissions, as well as allowing the occupants to do more productive things while on the move.

An SMMT-commissioned report by KPMG in March 2015 demonstrated that the overall economic and social benefits of such vehicles could be £51 billion per year by 2030, create an additional 320,000 jobs (25,000 in manufacturing), save 2,500 lives and prevent more than 25,000 serious accidents in the UK.

In the 2015 Budget, the government announced a £100 million fund, to be match-funded by industry, to develop connected and autonomous vehcles, including a number of vehicle trials on the UK's roads in 2015.

Such technologies could have significant impacts on the current business models for manufacturers and the servicing industry, as well as potentially the life-cycle of the fleet, as the technology in the vehicle will increasingly influence consumer demand, rather than the hardware of the vehicle itself.

Manufacturing

UK automotive manufacturing output is expected to grow significantly towards two million units over the next few years. Recent and planned investment should help create jobs and expand the supply chain, too. Improving the competitiveness of the sector will help sustain inward investment. This competitiveness will be influenced by general economic performance and government policy, eg around local demand, exchange rates, access to finance, a skilled labour force and affordable low carbon energy.

Through industry and government collaboration, the Automotive Council was established in 2009. This produced an Automotive Sector Strategy in 2013, which aims to ensure the right conditions for further growth in the sector. It sees particular opportunities for the supply chain and ultra-low emission vehicles. The business environment and skills working group includes workstreams on UK international competition and Europe.

On Europe, an SMMT-commissioned KPMG survey of automotive companies in 2014 showed 92% believed staying in the EU was best for their business, with the majority seeking reform. Access to the single market, the integrated supply chain, innovation funding, free movement of labour, and the ability to influence harmonised technical regulations and product standards were reported as key benefits of EU membership.

SMMT also supported the Wright Review of Manufacturing in 2014, which led to a research paper by AutoAnalysis highlighting five key cost areas to address: labour, energy, transport, property and tax.

2015 has already seen further UK investment announcements at Honda, Jaguar Land Rover, and the London Taxi Company, totalling £1 billion. As the industry looks to the future it aims to maintain the long-term industrial strategy, create the right conditions for further and sustained investment in the UK, to deliver global competitiveness on innovation and support the transition to a low carbon industrial base and vehicle fleet.

Signatories to this report	Brands
Alexander Dennis	Alexander Dennis
Bentley Motors Ltd	Bentley
BMW Group UK including Rolls-Royce Motor Cars Ltd	BMW, MINI, Rolls-Royce
Bosch	Bosch
CabAuto	CabAuto
Caterpillar	Caterpillar, Perkins
CEVA Logistics	CEVA Logistics
DHL	DHL
Ford Motor Company Ltd	Ford
General Motors UK Ltd	Vauxhall
GKN Driveline Ltd	GKN
Honda (UK) and Honda of the UK Manufacturing (HUM) Ltd	Honda
IBC Vehicles Ltd	Vauxhall
Jaguar Land Rover Ltd	Jaguar Cars, Land Rover
Leyland Trucks	DAF Trucks
Michelin Tyre plc	Michelin
Nissan Motor Manufacturing (UK) Ltd and Nissan Technical Centre Group	Infiniti, Nissan
Optare	Optare
PSA Peugeot Citroën Automobiles UK Ltd	Citroën, Peugeot
Schaeffler	Schaeffler
Toyota (GB) plc Toyota Motor Manufacturing (UK) Ltd	Lexus, Toyota
Unipart	Unipart Logistics
Volkswagen Group (UK) Ltd	Audi, SEAT, ŠKODA, Volkswagen Passenger Cars, Volkswagen Commercial Vehicles
Volvo Cars UK Ltd	Volvo
UYT (changed name to Covpress Assembly in 2015)	UYT

Online content

Further details and data on the automotive industry's performance can be found at **www.smmt.co.uk/sustainability**.

The webpage also contains links to signatories' sustainability websites.

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