



2018 UK AUTOMOTIVE SUSTAINABILITY REPORT

19TH EDITION – 2017 DATA



SUSTAINABILITY LIES AT THE HEART OF THE UK AUTOMOTIVE INDUSTRY

UK AUTOMOTIVE MAKES A VITAL CONTRIBUTION TO THE UK ECONOMY



► Sustainability lies at the heart of the UK automotive industry. From improving the environmental performance of vehicle and component manufacture, to the investment in the skills of employees, right through to the remanufacturing or “second life” of components and the recycling of end-of-life vehicles, the industry seeks to ensure it is a model of industrial sustainability. We are delighted, therefore, to see this commitment clearly demonstrated in the performance of the signatories to our 19th UK Automotive Sustainability Report.

The significant progress demonstrated comes amidst a more challenging year for UK automotive. 2017 saw UK car production decline by 3%, with 1,671,166 vehicles produced. This was the first decline for eight years, although still the second highest output since 2000, with the industry remaining one of the most productive and efficient in Europe. UK automotive is also facing continued uncertainty caused by Brexit, coming as it does at a time of significant change for the global sector, as new technologies improve air quality and lower CO₂ emissions and cause a fundamental reappraisal of how we view mobility.

Innovation is increasing at a faster pace than ever before. Manufacturers are delivering a range of electrified and alternatively fuelled vehicles, while simultaneously developing the technologies for connected and autonomous vehicles. The latest petrol and diesel engines deliver enhanced emissions performance, improving air quality solutions and lowering CO₂.

As this latest report shows, ambitious internal targets for reducing resource dependency and cutting costs have resulted in impressive achievements, with 2017 demonstrating an improvement in relative performance despite the drop in overall production volumes. This is demonstrated through some of the key performance

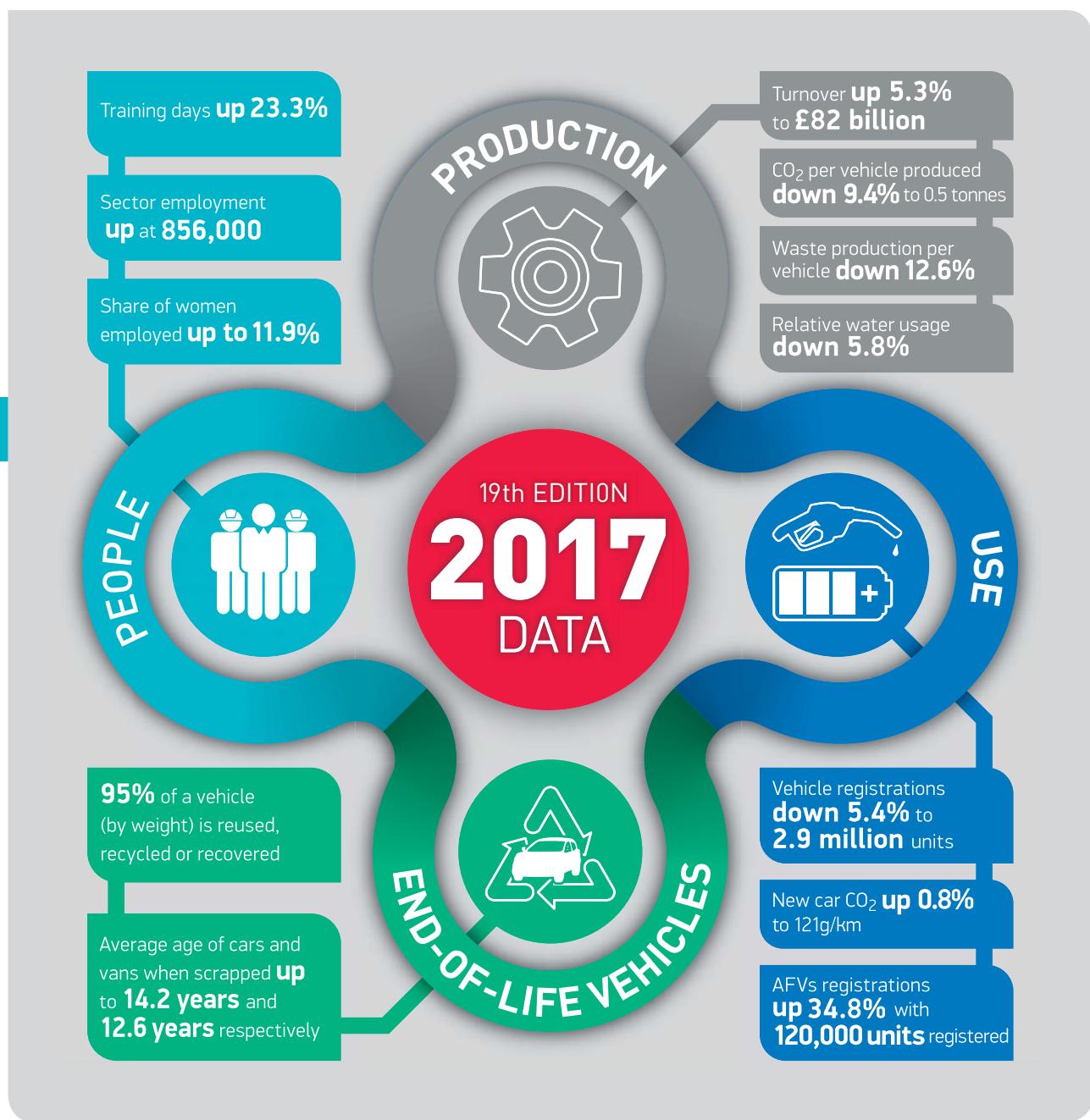
indicators: automotive manufacturing turnover increased by 5.3%; CO₂ emissions per vehicle fell by 9.4%; energy use reduced by 0.7%; water use was cut by 7.9%; and waste to landfill by 12.6%.

Skilled and trained employees are also critical to a successful and vibrant automotive industry. 2017 saw the total number of employees covered by the report signatories increase by 7.5% to 113,500, while the number of jobs dependent on the automotive sector in the UK as a whole increased to 856,000. Direct employment in automotive manufacturing jobs grew by 2.8% to 186,000. This uplift partly reflects the fact that many companies are gearing up for planned increases in output due to a raft of new model launches. However, skills shortages persist and we continue to work closely with government to help develop existing talent and attract the employees of the future. The industry must attract more female employees. In 2017, the number of women employed by the signatories increased from 10.1% in 2016 to 12%. Progress is being made but more needs to be done.

As this report demonstrates, UK automotive makes a vital contribution to the UK economy and we will continue to engage with policymakers to ensure the industry remains competitive, innovative and outward-looking to help maintain jobs and maximise the economic potential of the nation. The government’s Industrial Strategy and bespoke Automotive Sector Deal, delivered in partnership with the Automotive Council, will be a vital part of ensuring the UK is well placed to become a centre of excellence for the development and roll-out of the next and future generations of low and zero emission, connected and autonomous vehicles. ■

A blue ink handwritten signature of the name "Mike Hawes".

Mike Hawes Chief Executive
The Society of Motor Manufacturers and Traders (SMMT)

**PRODUCTION** (pages 5-13)

- Automotive manufacturing turnover up 5.3%
- UK vehicle production 1.75million, down 4%
- Energy use dropped by 0.7% per vehicle
- All relative environmental performance improved

PEOPLE (pages 14-15)

- Signatories' employment up 7.5%
- Number of training days per employee up 23.3%
- Accident rate up 9.4%
- Staff turnover just 5.8%

USE (pages 16-22)

- New vehicle registrations down 5.4% to 2.9million
- Alternatively Fuelled Vehicles grew to 4.7% market share
- New car CO₂ emissions up 0.8% to 121g/km
- Number of low carbon buses on the road increased to 4,860; 5.4% of bus parc

END-OF-LIFE VEHICLES (pages 23-25)

- 95%ELV target met by vehicle manufacturers
- Number of Certificate of Destructions up 25.5%
- Remanufacturing ensures resource efficiency and diversion from landfill

DRIVING TRANSITION TO LOW CARBON FUTURE (pages 26-28)

Data based on SMMT Member survey. Output forecast based on AutoAnalysis, July 2017

SUMMARY: KEY PERFORMANCE INDICATORS (KPIs)

		Units	2000	2016	2017	% change 2017 on 2016
AS	Number of signatories		17	28	27	-3.6%
ECONOMIC PERFORMANCE						
WI	Automotive manufacturing sector turnover *	(£ billion)	47.9	78	82	5.3%
WI	Expenditure on business R&D **	(£ billion)	0.9	3.37	3.65	8.3%
	Total number of cars and CVs produced	(million)	1.8	1.82	1.75	-3.7%
	Total new car and CV registrations	(million)	2.5	3.07	2.90	-5.4%
AS	Signatories' combined turnover	(£ billion)	21.0	73.8	77.1	4.4%
VMs	Total number of vehicles produced	(million)	1.6	1.81	1.75	-3.1%
ENVIRONMENTAL PERFORMANCE						
Production inputs						
AS	Total combined energy use	(GWh)	7,013	4,515	4,354	-3.6%
VMs	Energy used per vehicle produced	(MWh/unit)	3.9	1.97	1.95	-0.7%
AS	Total combined water use	(000m³)	6,090	5,553	5,112	-7.9%
VMs	Water use per vehicle produced	(m³/unit)	5.3	2.4	2.3	-5.8%
Material outputs						
AS	Total combined CO₂ equivalents	(tonnes)	2,182,926	1,282,050	1,123,425	-12.4%
VMs	CO₂ equivalents per vehicle produced	(tonnes/unit)	1.1	0.55	0.50	-9.4%
VMs	Volatile Organic Compounds emissions (cars)	(g/m²)	55.0	32.9	34.6	5.1%
	Volatile Organic Compounds emissions (vans)	(g/m²)	59.0	50.6	49.7	-1.8%
AS	Total combined waste to landfill	(tonnes)	80,399	4,092	4,147	1.3%
VMs	Waste to landfill per vehicle produced	(kg/unit)	40.3	1.4	1.3	-12.6%
Vehicle use						
AC	Average new car CO₂ emissions	(g/km)	181.0	120.1	121.0	0.8%
SOCIAL PERFORMANCE						
WI	Number of jobs dependent on the sector***		907,000	814,000	856,000	5.2%
AS	Combined number of employees		100,036	105,640	113,529	7.5%
AS	Number of lost-time incidents per 1,000 employees		13.4	1.7	1.8	9.4%
	Number of training days per employee		3.8	3.0	3.7	23.3%
	Share of women employed by signatories	(%)		10.1	11.9	1.7

AC All car registrations in the UK **AS** All Signatories **WI** Whole Industry data **VMs** Vehicle Manufacturers signatories

CV Commercial Vehicles **CO₂** Carbon Dioxide

The report has 27 signatories, which represent 99.8% of vehicle production in the UK. A remanufacturing company, Autoelectro, joined last year as a new signatory. Two companies, CabAuto and CovPress Assembly, left SMMT's membership and therefore are no longer signatories to the report.

*The 2016 and 2017 data has been adjusted to take into account new and leaving signatories to enable year-on-year comparison.

**Sector turnover, R&D and jobs dependent on the sector are compiled from several official sources using expert SMMT analysis. The 2016 and 2017 figures are based on projections. The last update on UK businesses' spending on R&D was at November 2017, when the 2016 figure was revised and the provision estimate for 2017 has been compiled to reflect the recent growth trend.

***Estimate of manufacturing, distribution, refuelling and repair of vehicles where automotive is the main activity of the firms.

All per vehicle figures also contain resources used during engine and battery production, some of which are destined for export.

UK Production: the completed vehicles as they leave the production line in a UK facility.

Registrations: vehicles registered for road use in the UK for the first time with the DVLA or the DVLA's equivalent organisation in Northern Ireland, Channel Islands or Isle of Man.

UK Turnover: the money/income that a business generates each year.

UK Expenditure on Business & R&D: the amount, in monetary terms, spent on research and investment each year.

MATERIALITY ASSESSMENT

In 2017, a materiality assessment of the relative importance of specific environmental, social and governance issues to the stakeholders and the automotive industry itself was conducted. The outcomes were reflected in the content of the 2017 report and this year's. Please see page 30 for the materiality matrix.

PRODUCTION

PERFORMANCE

- Car and van output down 3% and 16.7% respectively.
- Energy and CO₂ per vehicle down 0.7% and 9.4% respectively.
- Relative and absolute water use down 5.3% and 7.5% respectively.

REASONS

- Weaker demand linked to subdued economic setting and uncertainty from Brexit.
- Circular economy becoming embedded in production processes to ensure competitiveness.

FUTURE CHALLENGES/OPPORTUNITIES

- Working with UK government and European bodies to ensure industry needs are considered in Brexit negotiations.
- Plans to decarbonise and digitalise manufacturing processes.
- Becoming leader in battery technologies.
- ‘Road to Zero’ impact on market demand and production.

► The success of the automotive industry in recent years is the result of hard work in the sector to balance economic growth and value creation while reducing resources and costs. This must be achieved while satisfying government's ambitions as well as regulatory and customer requirements. In parallel with more traditional production processes, the industry has started gearing up for the digitalisation of production lines, which requires long-term investment. In 2017, the decline in production underscores the fragility of the balance previously achieved and the importance of government and industry working together to ensure the right conditions for the sector. The uncertainty that Brexit brings, needs to be offset by long-term policies and close cooperation with government to ensure a vibrant and growing automotive industry in the UK.

UK AUTOMOTIVE PRODUCTION

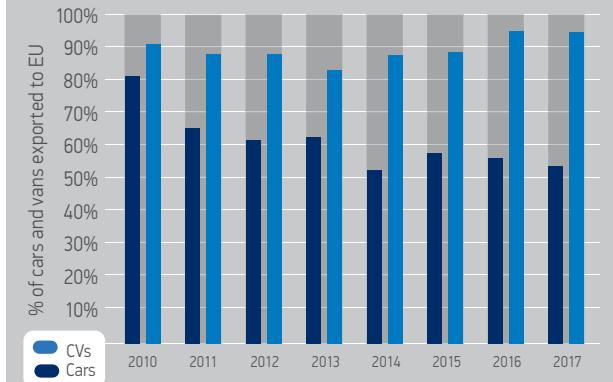
UK car production declined by 3% in 2017, with 1,671,166 vehicles produced. While this was the first decline for eight years, it was still the second highest output since 2000.

A 9.8% fall in output for the domestic market drove the overall decline as the market responded to declining business and economic confidence, as well as concern over uncertainty about the UK government's policy on diesel. Exports also fell, although at a much lower rate, by -1.1%. Overseas demand continued to dominate production, accounting for 79.9% of all UK car output – the highest proportion for five years.

The EU remained the UK's biggest trading partner, taking more than half (53.9%) of exports, while appetite for British-built cars rose in several key markets, notably Japan (+25.4%), China (+19.7%), Canada (+19.5%) and the US, where demand increased by 7.0%.

Commercial vehicle (CV) manufacturing declined 16.7% in 2017 with 78,219 vans, trucks, buses and coaches leaving production lines. Domestic demand fell to its lowest since 2009, down 25%, at 29,320 CVs. The decline reflected a fall in business confidence and fluctuating buying cycles. The number of CVs produced for overseas markets also fell, albeit by a slightly more modest

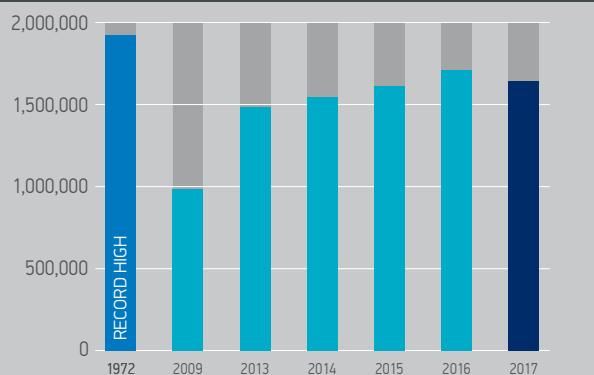
CHART 2 | CAR AND VAN EXPORTS TO EU 27



10.8%. However, exports accounted for 62.5% of overall UK production – up from 58.4% in 2016 – the largest proportion in eight years. The EU remains the UK's largest export market, accounting for 94.1% of CVs produced for international markets.

Demand for UK-built engines grew at home and overseas, with overall output up 6.9% to more than 2.7 million – with 54.7% destined for car and van plants around the rest of the world, the majority in the EU. The growth is the result of significant investment in plants now producing high-tech, low-emission petrol and diesel engines. In 2017, more than 1 million diesel and 1.7 million petrol units were built in Britain.

CHART 1 | CAR MANUFACTURING



PRODUCTIVITY

Labour productivity is typically defined as real value added per hour worked. However, consistent and robust data series on working hours across automotive manufacturing mean that value added per job is the most available measure based on official sources. In terms of current prices, the gross value added per job was £86,000 at 2017; a value which has almost doubled over the decade. When adjusted for inflation, the real gross value added per job is £81,000, up a more modest 17% over the past 10 years. For the automotive manufacturing sector there has been real growth of about 1.6% per annum since 2007.

PRODUCTION

TURNOVER

Despite the drop in output, automotive manufacturing turnover increased by 5.3% to an estimated £82 billion (SMMT estimate based on official data). This rise could be due to a shift to higher value products. SMMT estimates of value added were £20.2 billion. Signatories reported £77.7 billion in turnover (note: signatory activities go beyond manufacturing), representing an increase of 5.4% on the previous year.

DIGITALISATION OF MANUFACTURING

The digitalisation of automotive manufacturing in the UK is expected to bring £6.9 billion annually to the UK economy by 2035, according to SMMT and KPMG report 'The Digitalisation of the UK Automotive Industry'. In order to achieve this, the sector has to remain competitive and embrace digitalisation fully. However, there are challenges that need to be overcome and which require collaboration with government and other industries. These challenges include, but are not limited to, the improvement of the UK's digital infrastructure, development of clear policies on cybersecurity, overcoming the skills gap and accelerating investment in digitalisation.

An independent review commissioned by government entitled 'Made Smarter' was published in 2017. This sets out how UK manufacturing can be transformed through the adoption of industrial digital technology (IDT). The review outlines the main barriers to change, as well as providing steps to address these barriers. For the automotive industry those steps include the creation of a comprehensive network of open-access digital demonstrators, the implementation of a

wholesale supply chain and ensuring the necessary skills and standards are in place.

INDUSTRIAL STRATEGY – SECTOR DEAL

As part of the Industrial Strategy, the Automotive Sector Deal was developed in 2017 and published in January 2018. The sector's deal was among the first to be finalised, highlighting the collaborative approach industry and government are taking to ensure the UK remains a globally competitive place to design, engineer and manufacture vehicles. Key highlights from the deal are:

- £246 million Faraday Battery Challenge – development, design and manufacture of batteries for electric vehicles; this is particularly relevant to the supply chain
- £250 million Connected and Autonomous Vehicle (CAV) funding to be matched by industry
 - Testing and Development of CAVs
 - Deployment of infrastructure for testing
- £16 million Supplier Competitiveness Improvement programme – designed to improve the productivity and competitiveness of manufacturing supply chain companies

Work on the sector deal continues to progress and new strands on skills and digitalisation are being developed. Attention for the remainder of 2018 turns to delivering on this deal and SMMT continues to work with our members, government and other stakeholders to ensure the industry can grow, innovate and compete on the global stage as the industry progresses on its technological revolution.

SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals (SDGs) are 17 global goals set by the United Nations, which form a part of the 2030 Agenda for Sustainable Development. The SDGs replaced the Millennium Development Goals and commit all 193 signatory countries, including the UK, to tackle issues such as gender inequality, climate change, access to quality education and the promotion of peaceful and inclusive societies. One of the main aims of setting the goals was to integrate and balance the three dimensions of Sustainable Development – economic,

social and environmental – in a global vision. The automotive industry welcomes the SDGs and is committed to supporting the actions formulated within them as part of its sustainability strategy, with a focus on its value chain. We believe that companies, governments and other organisations can make a positive contribution towards the attainment of the SDGs. As examples of complementary work undertaken by the industry which can support SDGs, each case study in this report is marked with the goal it could be linked to.



BREXIT

The potential impact of Brexit continues to create significant uncertainty at a critical time for the automotive industry, potentially undermining investment decisions in UK manufacturing. While the transition period should ensure that the UK's trading relationship with the EU remains the same until end of December 2020, a risk remains that barriers to trade will emerge after that which could have a negative impact on the industry, its deeply integrated supply chain and its competitiveness.

NISSAN SKILLS FOUNDATION



Launched in 2014, the Nissan Skills Foundation was set up to encourage young people to take up STEM subjects, and inspire children by offering a unique insight into the world of advanced manufacturing and engineering. The initiative engages children through primary and secondary education across the North East to help foster relevant skills for careers in the industry.

The pilot programme started with four schools and 125 learners. This has now grown to 150 schools and more than 8,500 learners annually. Activities include Nissan's Code Club, where IT apprentices teach children about coding and automation, and Nissan's Monozukuri Caravan, where children design their own car using actual production parts and tools in an interactive workshop. Nissan also hosts GIMME (Girls in Monozukuri, Manufacturing and Engineering) events, where inspirational women from across the company talk to schoolgirls about careers guidance and promote STEM subjects.

In November 2017, the Nissan Skills Foundation reached the 30,000 learner milestone and celebrated the first four people starting apprenticeships with the company, having begun their journey on Nissan Skills Foundation courses.



JAGUAR LAND ROVER GLOBAL SCIENCE, TECHNOLOGY, ENGINEERING AND MATHS (STEM) EDUCATION PROGRAMME



Jaguar Land Rover recognised the need for more talented young engineers to help design and develop its automated, connected, electric and shared future technologies. The company's global school STEM education programme aims to enthuse and inspire more young people to pursue automotive careers.

In 2017, cybersecurity, autonomous car and coding challenges were introduced to its national and global education challenges to help students develop technical skills and emphasise the importance of software innovation in developing clean, safe and smart cutting-edge technologies.

The company also holds the Land Rover 4x4 in Schools Technology Challenge, which is a global competition for teams of secondary school pupils who design, manufacture and test miniature remote controlled 4x4 vehicles. The programme helps students develop engineering and life skills, and prepares them for the company's apprentice and graduate pathways. In 2017, all 150 students participating in the world final in Abu Dhabi completed a new coding challenge.



PRODUCTION: ENVIRONMENTAL PERFORMANCE

ENVIRONMENTAL PERFORMANCE

► The UK automotive industry remains one of the most productive and efficient in Europe. Ambitious internal targets both for reducing resources used and for cutting costs have resulted in impressive achievements year-on-year; 2017 being particularly successful with an improvement in relative performance despite a drop in production. This ongoing drive should support the UK's competitiveness in the uncertain future created by the UK's decision to leave the European Union. Going forward, the industry needs continued alignment between the UK and the EU level environmental ambition post-Brexit, to ensure that the competitiveness is not harmed. The shift to alternatively fuelled vehicles is likely to see a shift in the carbon footprint of the industry, notably with greater emphasis on the production phase.

ENERGY

The overall amount of energy used by vehicle manufacturers has dropped by 3.7%, which in part follows the production drop of 3.1% on the previous year. Typically, when production levels decline, relative figures also suffer due to baseload needed for production. However, in 2017, due to ongoing efforts to preserve resources and create financial savings, signatories managed to improve the relative performance by a further 0.7% on 2016.

In 2016, the revised* figures show that energy usage per vehicle dropped below the 2MW level for the first time.

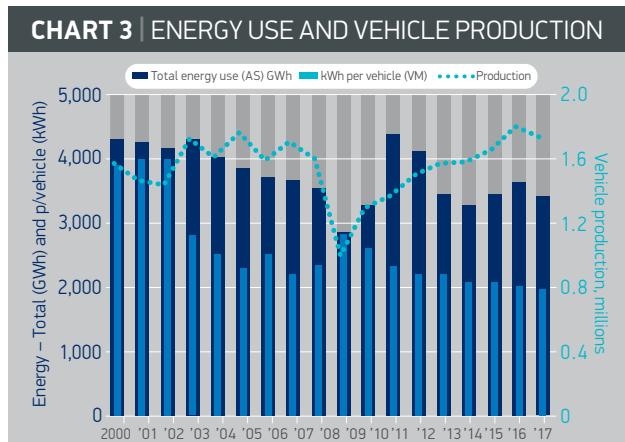
It should be noted that the above figures include the energy used for engines and powertrains, some of which are destined for export. Last year their production was up by 6.9% 2017 and reached 2.72 million, 55% of which were exported.

All vehicle manufacturer (VM) signatories have ambitious internal targets for reducing energy use, and four of them – Bentley, Honda, Leyland Trucks and Toyota – also have an external energy management system ISO 50001, which requires continuous energy efficiency improvements. Automotive companies are striving to reduce their production-related emissions and some, such as Toyota with its 2050 Environmental Challenge, are looking to decarbonise completely.

RENEWABLE ENERGY

In 2017, 11 signatories reported using 60.5GWh of renewable energy produced locally. This would be sufficient to power 15,600 average households. This represents a 4.9% increase on the previous year. Renewable energy accounted for 3.9% of electricity use and 1.7% of total energy usage, of those companies who reported it.

Most manufacturers have installed renewable energy supplies for their sites to use – such as solar and wind-turbines.



*Some manufacturers revised their figures for 2016 following internal checks, therefore some figures have changed slightly.

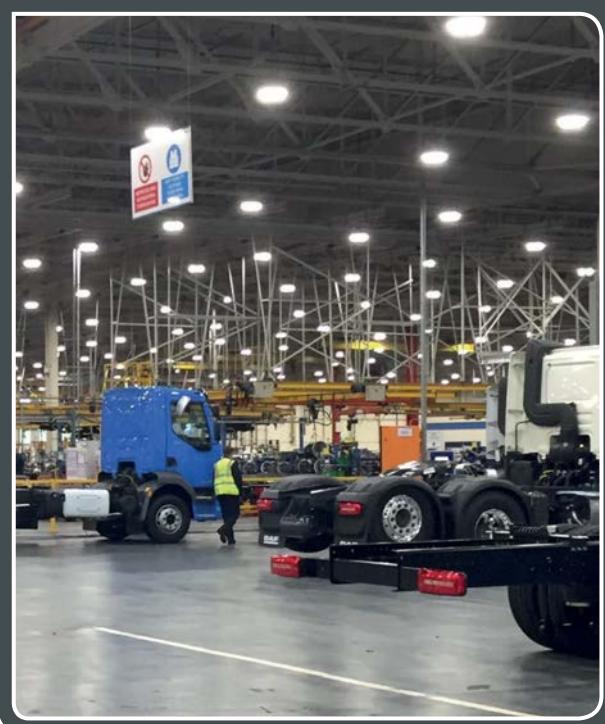
However, some signatories are limited by availability of the appropriate roof space or space around the site to deliver meaningful proportions of their energy needs from such sources.

It should be noted that this year, the above figure includes energy usage of renewable energy produced at one site adjacent to a signatory's production facility of which they have exclusive use.

LEYLAND TRUCKS INVESTS IN FURTHER ENERGY EFFICIENCY



In 2017, Leyland Trucks replaced all internal lights with LED lighting at a cost of £1.2 million, which is expected to deliver a more than 10% saving in electricity consumption – equivalent to approximately 500 tonnes CO₂ savings per year.



Source: Ricardo

CO₂

Grid decarbonisation is an important part of the UK meeting its carbon budgets. As government makes progress on its commitment, the official electricity conversion factors are being revised annually to reflect the increasing share of renewable energy. This has helped reduce carbon emissions from vehicle manufacturing processes over the past two years.

PRODUCTION: ENVIRONMENTAL PERFORMANCE

BENTLEY FIRST TO ACHIEVE CARBON TRUST RECERTIFICATIONS AND ISO 14001 STANDARD



Bentley Motors has become the first UK automotive manufacturer to achieve recertification of the triple Carbon Trust Standard for reducing carbon, waste and water; having first achieved the trio of standards in 2014.

Bentley is also the first UK car manufacturer to achieve the ISO 14001 (2015) Environmental Management Standard. The company has held the original 14001 standard since 1999 and has now been reaccredited to the updated standard, which challenges organisations to widen the scope of their environmental policies.

Bentley's approach to making car production more environmentally efficient begins with sourcing power. The roof-mounted solar panels at Bentley's Crewe HQ can contribute up to 40% of the site's electricity requirements, reducing CO₂ levels by over 2,500 tonnes a year. The company recently announced the construction of an additional 2.7MW solar car port, the largest of its kind in the UK.



In 2017, VMs' absolute CO₂ emissions dropped by 12.5% year-on-year. CO₂ per vehicle produced was down by 9.4% to 0.5 tonnes of CO₂ equivalent.

Electricity accounted for 41.8% of the overall energy used by VMs. Green energy made up 57% of all the electricity used in 2017, up from 11% last year as signatories switch suppliers to further reduce their carbon footprint.

CHART 4 | VM CO₂ PRODUCTION: TOTAL AND PER VEHICLE

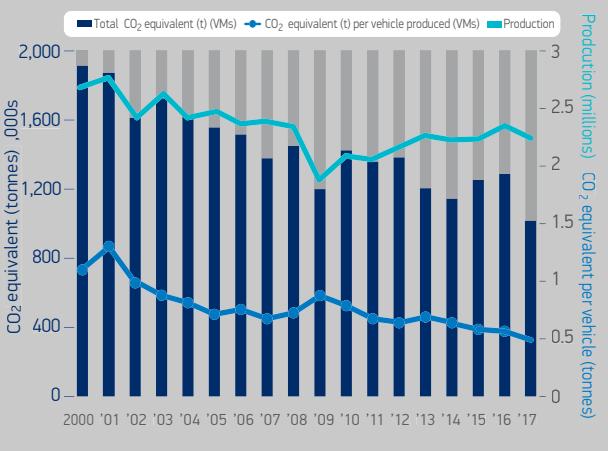
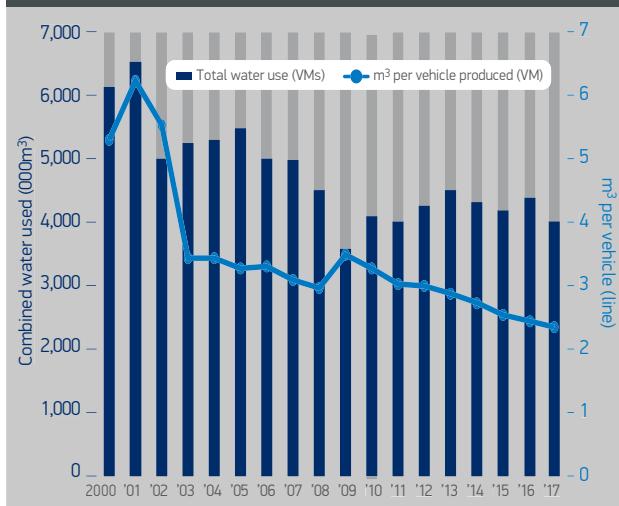


CHART 5 | VMs TOTAL WATER USE AND ON A PER VEHICLE BASIS



WATER

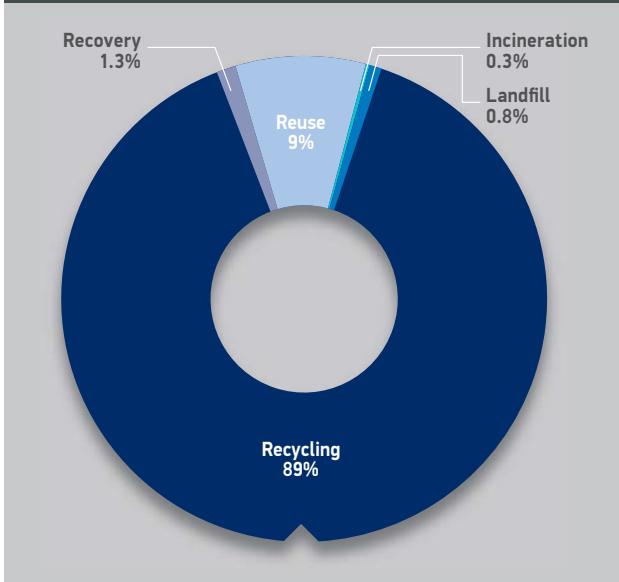
Relative water usage has dropped to a new record low of 2.3m³, which represents a 5.3% improvement on the previous year. Overall water consumption has also dropped by 8.2%. This reflects ongoing efforts to preserve water, both in individual staff consumption as well as in production processes, the painting process in particular.

The majority of the water consumed came from mains supply, with only 3.4% coming from ground and surface sources.

WASTE

Vehicle manufacturers recognise their obligation to preserve resources by landfill diversion, as well as reducing the overall amount of waste produced. In recognition of that commitment, the waste related questions for this report data collection have been revised to gain further insight into waste treatment trends in 2016 and 2017.

CHART 6 | VM MANUFACTURING WASTE



PRODUCTION

The amount of waste sent to landfill reached a new low of 0.7% of all waste produced. Waste landfilled mainly includes paint sludge, which, due to its characteristics, has limited uses. In 2017, 87.4% of waste was recycled, a 2% drop on the previous year. While the recovery, including energy recovery rate, increased from 1.3% to 3% year-on-year, the reuse rate of 8.6% remained almost unchanged.

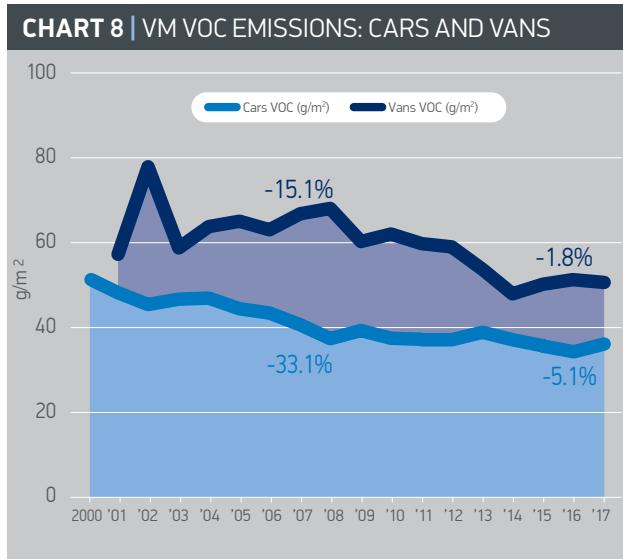


Incineration now represents only 0.3% of waste treated. The overall amount of waste arising fell by 2.3% on 2016.

In 2017, the following signatories were zero to landfill: Ford (in 2016), GM Vauxhall (2015), Honda (2010), Leyland Trucks (2007), Toyota Motor Manufacturing UK (2002), Unipart (2012) and Volkswagen (2016).

VOLATILE ORGANIC COMPOUNDS (VOCs)

VOCs are strictly regulated partly due to their impact as a precursor of smog. Over the years, VMs have continued to invest in the most efficient painting technologies but have also continued to refine their internal processes to improve their performance even further. All signatories met or were well below their legal VOC limit.



In 2017, VOCs measured in g/m² from painting, rose year-on-year by 5.1% for cars and declined by 1.8% for vans.

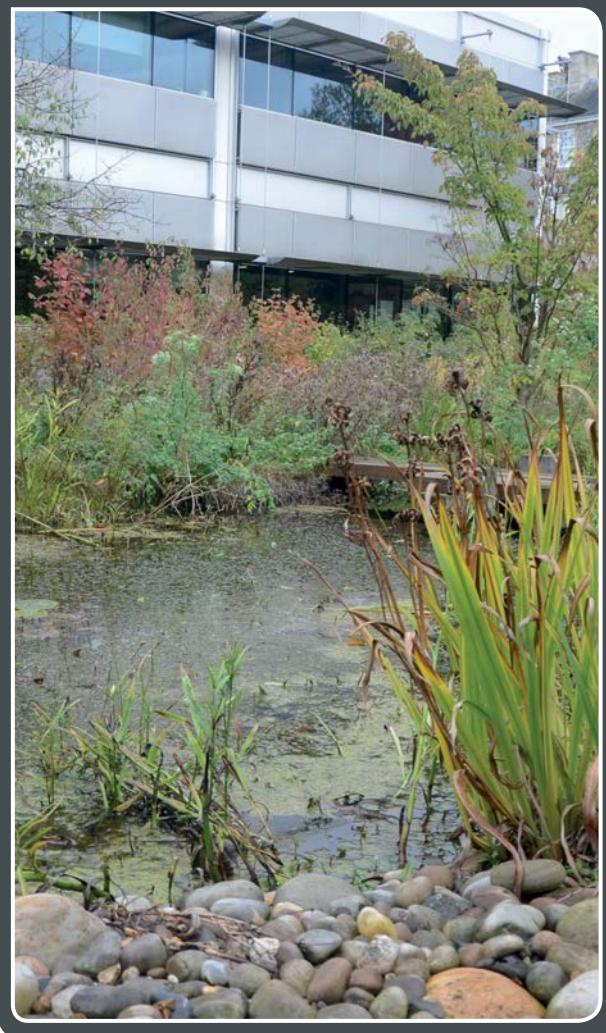
NATURAL CAPITAL

The industry is committed to sustainability not only within its organisations and their products but also within its surroundings. Consequently, some manufacturers ensure that production sites have an ecology strategy, which enables them not only to sustain and manage local biodiversity but also to enhance it. Activities include creation of ecological corridors for wildlife that enable natural movement of species, installing bat boxes, habitat piles, dead wood stumps and insect houses to encourage small mammals, invertebrates, amphibians, bats and birds to the site.

TOYOTA GB'S GARDEN WINS SURREY WILDLIFE TRUST AWARD 2017



Toyota GB won last year's Surrey Wildlife Trust's Best Business Garden Award for its Eco HQ in Burgh Heath. The company created a series of garden margins to increase biodiversity and enable wildlife to thrive, while providing an attractive backdrop for the offices. The outdoor site features a series of areas for staff to walk through and sit in during breaks.



PRODUCTION: SMALL VOLUME MANUFACTURERS

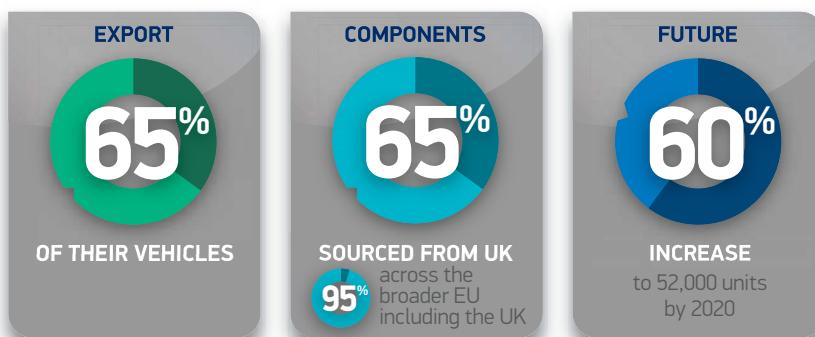
SMALL VOLUME MANUFACTURERS

► The UK is home to more than 60 specialist car manufacturers, which is the highest number in one country. The UK produces some of the most globally iconic brands, including Aston Martin Lagonda, Lotus and McLaren, which are signatories to this report.

Over the years, these brands have also provided innovative new technologies, partly through their roots in motorsport, notably light-weighting and highly efficient powertrains. Typically, they also employ a highly specialised and skilled workforce, which helps them differentiate their products from mainstream production.

Based on the 2017 SMMT report, in 2016, the UK's specialist car manufacturers had a turnover of £3.6 billion, collectively employed over 11,000 people and produced more than 32,000 cars, of which two-thirds were exported around the world. Output is expected to grow to in excess of 50,000 units by 2020.

We define specialist car manufacturers as producing around 10,000 vehicles, or fewer, globally per year. These businesses are highly diverse and produce a vast array of different types of vehicles, from sports cars, luxury tourers, limousines and SUVs, to taxis and wheelchair-accessible vehicles.



Specialist car manufacturers compete in the global marketplace, exporting around the world to markets as diverse as the EU, US, China, Japan and the Gulf States. As such, they need to comply with a huge range of differing regulations and requirements.

While it is encouraging that some policies and regulations already recognise the specialist nature of the industry, greater harmonisation of regulations, which also recognise the particularities of these businesses, would enable the sector to grow further. The right trade and business conditions also need to be in place to ensure the UK's specialist car manufacturers remain competitive.

For further information,
see the SMMT
UK Specialist Car
Manufacturers report 2017.



SMALL VOLUME MANUFACTURER KPIs

Small Volume Manufacturer signatories defied the decline in the overall sector in 2017, achieving an impressive 21% increase in production. As expected, some absolute usage figures increased, although by lower volumes than the rise in output. All relative figures have improved. These impressive results are due to continued efforts to create clean and lean production processes, while maintaining the quality of products.

TABLE 1 |

		2016	2017	% change 2017 on 2016
ECONOMIC PERFORMANCE				
Production	(tonnes)	8,150	9,858	21.0%
ENVIRONMENTAL PERFORMANCE				
Production inputs				
Total combined energy use	(MWh)	86,874	93,570	7.7%
Energy used per vehicle produced	(MWh/unit)	10.66	9.49	-11.0%
Total combined water use	(000m³)	111	113	1.8%
Water use per vehicle produced	(m³/unit)	13.6	11.4	-15.8%
Material outputs				
Total combined CO ₂ equivalents	(tonnes)	26,575	25,629	-3.6%
CO ₂ equivalents per vehicle produced	(tonnes/unit)	3.26	2.60	-20.3%
Total combined waste to landfill	(tonnes)	152	119	-21.9%
Waste to landfill per vehicle produced	(kg/unit)	18.7	12.1	-35.5%

PRODUCTION: AUTOMOTIVE SUPPLY CHAIN

AUTOMOTIVE SUPPLY CHAIN

► A highly efficient and dynamic supply chain is the lifeblood of the automotive industry, producing and delivering parts essential for just-in-time vehicle production. As automotive operations are highly integrated with the supply chain, their futures are also closely interlinked. Consequently, any factors impacting on the automotive industry filter down to the supply chain. In 2017, the consequences of uncertainty brought about by Brexit became visible.

Suppliers are also essential to addressing environmental and ethical impacts arising from the sourcing of raw materials. The new Raw Materials Observatory (see page 15) created by vehicle manufacturers will cooperate closely with all stakeholders along the value chain to ensure all materials used meet the environmental and ethical standards.

SUPPLY CHAIN KPIS

In 2017, Autoelectro, a remanufacturing company, became a signatory, increasing the number of remanufacturing companies to three (including Michelin which also produces new products). Consequently, the report now has 10 supply chain signatories representing a wide range of activities, from component production to freight and remanufacturing.

As a result of the great variety of activities performed by supply chain signatories, it is difficult to reflect on their activity level. It was agreed that weight of product produced is the most appropriate metric available; however, the gradual light-weighting of products might have an impact on this metric. In 2017, the activity level defined by this metric dropped year-on-year, although only marginally. Absolute energy usage remained almost static. One signatory reported having large energy consuming processes that run continuously no matter how many parts are going through them, so it is also possible for output to fluctuate at a higher rate than energy consumption. Water usage and waste to landfill increased in absolute terms, while relative performance got worse. CO₂ emissions, however, both relative and absolute, dropped in

part due to continued decarbonisation of the grid.

UK SUPPLY CHAIN

2017 was a challenging year for the automotive supply chain with the entire industry beginning to feel the effects of the UK's decision to leave the European Union. Without a clear picture of what a post-Brexit landscape will look like, the automotive industry has postponed key investment decisions. Despite this, in 2017 the industry publicly announced £1.1 billion worth of investment earmarked for vehicle and supply chain manufacturing, although this was down 33.7% compared to 2016 (£1.6 billion).

After many years of growth following the global recession, UK vehicle production declined in 2017. However, despite the challenges and uncertainty causing a drop in economic confidence for both businesses and consumers, the supply chain showed its resilience, maintaining historically high levels. Some suppliers exporting to the EU and the rest of the world continued to benefit from the weaker pound as new international market opportunities were created as UK products became more competitively priced.

TABLE 2 | SUPPLY CHAIN PRODUCERS' ECONOMIC AND ENVIRONMENTAL PERFORMANCE

		2016	2017	% change 2017 on 2016
ECONOMIC PERFORMANCE				
Output (weight of product shipped)	(tonnes)	546,208	531,642	-2.7%
ENVIRONMENTAL PERFORMANCE				
Production inputs				
Total combined energy use	(GWh)	440.3	440.5	0.0%
Energy used/output (per tonne shipped)	(MWh/tonne)	0.81	0.83	2.8%
Total combined water use	(000m ³)	564	552	-2.1%
Water use/output (per tonne shipped)	(m ³ /tonne)	1.03	1.04	0.6%
Material outputs				
Total combined CO ₂ equivalents	(tonnes)	127,706	113,967	-10.8%
CO ₂ equivalents/output (per tonne shipped)	(tonnes/tonne)	0.28	0.21	-8.3%
Total combined waste to landfill	(tonnes)	766	768	1.4%
Waste to landfill/output (per tonne shipped)	(kg/tonne)	1.3	1.44	4.2%

Data from logistics companies is not included in the table above to focus on producers and remanufacturers of automotive components and so enable per/unit of output comparisons. Two supply chain signatories left SMMT membership therefore are no longer participants in this report.

Mid-way through 2017, the Automotive Council published the third iteration of its report 'Growing the Automotive Supply Chain: Local Vehicle Content Analysis'. The findings were positive for the UK supply chain, showing that the long-term trend towards reshoring was continuing with the value of locally sourced components rising to 44%¹, compared with 41% in 2015 and 36% in 2011.

Research also showed that UK parts production delivered £3.7 billion more annually than it did six years previously, putting turnover for parts alone at £12.7 billion. Not only does this benefit just-in-time manufacturing, but reshoring could also return more jobs to Britain in the coming years.

The automotive supply chain was once again able to showcase its strength as Automechanika Birmingham returned for its second year. Following a successful inaugural show in 2016, the event grew by 70% in 2017 with more than 800 exhibitors. A new dedicated supply chain zone was introduced, strategically located next to SMMT's Meet the Buyer and Open Forum activities. Further highlighting the UK's increased reshoring activities, Meet the Buyer was the largest to date with more than 60 buyers from 19 OEM and tier 1 organisations. More than 360 one-to-one meetings took place, connecting UK buyers and suppliers to discuss opportunities.

In addition, 2017 saw the Long-Term Automotive Supply Chain Competitiveness programme head into its final few months (ending in March 2018). The programme successfully delivered £13.3 million in government funding to a diverse collection of UK supply chain companies for investment

in R and D, Capex and skills training. Although a success in its own right, there is a need for more support from government, ideally following a similar blueprint. There was welcome news at the end of 2017 with the announcement of a £16 million fund (matched by industry) for investment in skills required to drive competitiveness.

The government's commitment to boosting the automotive supply chain and investing in the industry to ensure that it is a global player and, indeed, a leader in emerging technologies such as CAVs and Alternatively Fuelled Vehicles (AFVs), will help create new and exciting opportunities for the automotive supply chain. This, coupled with the UK's competitiveness (UK plants are considered to be among the most competitive and productive across Europe), means that the sector should remain positive about its future. However, the automotive supply chain is embedded throughout Europe and significant challenges lie ahead, with Brexit threatening to create additional barriers to trade and competitiveness. Rules of Origin will also need to be factored in for any future trade deals the government makes. These challenges will need to be met head on to ensure that the UK's key manufacturing sector can continue to thrive. ■

PRITEX CONTRIBUTES TO VEHICLE FUEL ECONOMY IMPROVEMENTS

During 2017, Pritex launched a new high performance composite material AcuLite®Duo, used for sound insulation, which is typically five to seven times lighter than other products on the market. Vehicle light-weighting is a key aspect of future vehicles where each 100kg of mass reduction can save as much as 8g/km of CO₂ by improving fuel economy. AcuLite®Duo also has an improved acoustic performance, resulting in a quieter environment and greater comfort for the vehicle driver and passengers. The composite is lightweight and can be flat packed (unlike heavy layer solutions which are pre-shaped), allowing greater packaging density and reduced logistics costs throughout the supply chain.



¹ The value of locally-supplied components figure is only an indicator of the geographical source of UK car industry purchasing volume. This indicator cannot be used as a definitive source when considering trade and tariff issues such as preferential rules of origin and originating content. The proportion of content actually originating in the UK is supposedly lower than the proportion of parts sourced in the UK.

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► Behind any successful industry, there are talented people. The automotive industry recognises the value of its employees, something reflected in the report's materiality assessment (see page 30) as one of the most significant aspects of the sector's operations.

The industry is committed to nurturing talent and investing in the education and training of all of its employees, increasing retention while also helping to develop the workforce of tomorrow. This is essential to addressing skills shortages, working to close the industry's gender gap and tackling demographic trends such as an ageing workforce. The industry also strives to be an inclusive employer, welcoming all genders and ages.

EMPLOYMENT

Despite the decline in manufacturing output, the number of employees reported by signatories in 2017 increased by 7.5% to 113,500. Agency workers accounted for 17.4% in total employment, a drop of a percentage point on the previous year. This uplift reflects industry gearing up for planned increases in output ahead of new model launches.

The number of jobs dependent on the automotive sector in the UK increased to 856,000, with direct employment in automotive manufacturing jobs growing by 2.8% to 186,000.

The number of women employed by the signatories increased from 10.1% in 2016 to 12% in 2017. Women accounted for 14.1% of engineers in the automotive sector and 11% of the overall engineering workforce.

This year, we introduced a new metric to analyse the age profile of new employees. According to the feedback from 17 signatories, 34.7% of new intake was below 30 years of age, 51.5% was 30-50 and 13.8% above 50.

TOYOTA HOSTS INSPIRATION DAY FOR YOUNG WOMEN STUDENTS



In 2017, Toyota opened its doors to provide the opportunity for up to 100 female secondary school students to discover the career and apprenticeship opportunities available in its UK retail and manufacturing operations. The event, hosted at the Toyota Academy training centre in Derbyshire, supported the company's mission to increase the representation of women within the UK motor industry and Toyota business, as a member of the Automotive 30% Club (see page 15).

The female students were invited from 10 schools and the agenda included group activities focusing on different work disciplines, including technical, customer care and manufacturing. The sessions included interactive activities and the chance to meet and talk to current apprentices, trainees and Toyota staff about their work and career opportunities.



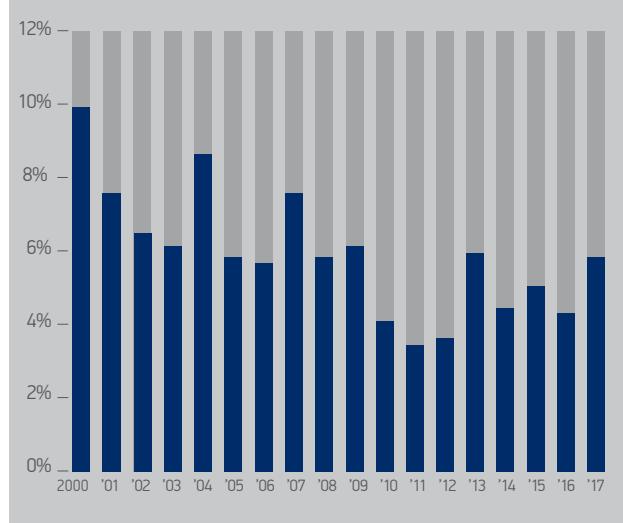
GENDER PAY GAP

From 5 April 2018, all employers with legal entities in the UK that employ 250 or more employees are legally required to report the gender pay and bonus gaps for their organisation. According to the Office of National Statistics, on average in 2017, men in the UK workforce and manufacturing overall were paid 18.4% and 20.8% more than women respectively, based on median hourly earnings. The gender pay gap in UK automotive manufacturing (including SMEs) is close to the national average but better than in manufacturing overall, with men paid 18.9% more than women. However, the gender pay gap for 24 signatories to this report covered by the obligation was a more modest 4.9% (median). The gender pay gap for all engineering professionals was 4.4% in favour of men. In the mechanical engineering discipline, which is likely to be where most of those working for the automotive industry are captured, women were paid 6.1% more than men.

STAFF TURNOVER

In 2017, staff turnover increased to 5.8% from 4.3% in the previous year. Employees' satisfaction with remuneration and the working environment is reflected in the overall relatively consistent staff turnover trend.

CHART 9 | STAFF TURNOVER



HEALTH AND SAFETY

In 2017, the number of lost time incidents increased by 9.4% to 1.8 per 1,000 employees. Safety of staff is of paramount importance to the industry, hence a large amount of training is dedicated to job induction and accident prevention.

ASTON MARTIN LAGONDA AWARDED PRESTIGIOUS HEALTH AND SAFETY MANAGEMENT AWARD

3 GOOD HEALTH AND WELL-BEING



In 2017, Aston Martin Lagonda was awarded its sixth consecutive Sword of Honour by the British Safety Council last year. The company was one of 57 organisations worldwide that achieved the award, which is given to companies that have demonstrated excellence in the management of health and safety risks at work.



TRAINING

Continued upskilling of its workforce enables the industry to stay competitive and prepare for future challenges. The number of formal training days per employee reported by signatories increased in 2017 by 23.3%, from 3 to 3.7 days. This is in addition to informal training such as e-training, 'gate to great' coaching, daily coaching, toolbox talks and shadowing, which is not officially measured. Signatories also reported their staff achieving 3,160 nationally recognised qualifications.

In 2017, more than 700 new apprentices were taken on, while 950 from previous years were retained by signatories.

CHARITABLE DONATIONS

In 2017, signatories reported cash donations to charities of more than £8.6 million and made other contributions worth almost £600,000. Signatories also reported giving in excess of 180,000 hours of employees' time to local causes. In addition, a number of companies have given away experiences/test drives and VIP tours, merchandise and hampers each year for charitable purposes.

VOLKSWAGEN'S VOLUNTEERING DAY

Nearly 40 members of staff from Volkswagen Commercial Vehicles and other teams spent a day renovating a park and playground area in Milton Keynes. The team painted the woodwork in the play area, and cleared overgrown trees, bushes and weeds.



CAR MAKERS MAKE OFFICIAL COMMITMENT TO ETHICAL RAW MATERIALS DRIVE

In 2017, Drive Sustainability, a partnership between 10 automotive companies (BMW Group, Daimler AG, Ford, Honda, Jaguar Land Rover, Scania CV AB, Toyota Motor Europe, Volkswagen Group, Volvo Cars and Volvo Group), announced the setting up of a Raw Materials Observatory to identify and address ethical, environmental, human and labour rights issues in the sourcing of raw materials.

The Raw Material Observatory will assess the risks posed by the top raw materials (such as mica, cobalt, rubber, leather and others) in the automotive sector. Based on the risk assessment results and the input received from stakeholders, Drive Sustainability is to announce its action plan in 2018 to address these risks. ■

5 GENDER EQUALITY



UK AUTOMOTIVE 30% CLUB

The UK Automotive 30% Club is a voluntary group of MDs and CEOs from automotive manufacturing, retailing and supplier companies. The club builds relationships between employers, schools and universities, with the purpose of achieving a better gender balance within the automotive industry, and the aim of filling at least 30% of key leadership positions in the member organisations with women by 2030 through a "30 by 30" strategy.

Automotive members include: Bentley, Ford, Kia, Toyota, Mazda, Renault and VW Group. The club also works in partnership with charities and supporters such as Speakers for Schools, the Inspiring Women campaign, McKinsey, the Institute of the Motor Industry and Loughborough University School of Business and Economics. www.automotive30club.co.uk



USE

PERFORMANCE

- Decline in uptake of all new vehicle segments, except dual purpose.
- AFV registrations up 34.8%, accounting for 4.7% market, but BEV registrations still remain below expectations at 0.5%.
- Average CO₂ emission increased to 120.1g/km due to decline.
- Overall transport CO₂ emissions rise as vehicle usage increase.

REASONS

- Customer shift to larger vehicles, which tend to have higher CO₂.
- Government policy on diesel impacting uptake.
- Growing range of AFV and charging infrastructure.
- Increased distance driven.

FUTURE CHALLENGES/OPPORTUNITIES

- Re-engage with public on decarbonisation of road transport.
- Work with local authorities on improving air quality.
- Encourage update of new technologies, including CAV and AFV.
- Reinstate industry's credibility.
- Provide driver mobility solutions.
- Communication of new test cycle results (WLTP).

► Since their invention, road vehicles have provided convenience, flexibility and value creation across the world. As their popularity and numbers grew, so did their carbon footprint and air quality implications. To reinvent itself as a clean and sustainable means of transport, the industry has invested heavily in technological solutions to improve conventional powertrains and develop AFVs and CAVs. These investments should enable the industry to meet the government's ambition to end the sale of new conventional petrol and diesel cars and vans by 2040 and for almost every car and van on the road to be a zero emission vehicle by 2050. However, this cannot be achieved by the industry alone. Consistent policy drivers from the government are needed to instil confidence in the general public that electrified vehicles are a realistic proposition for their needs, by overcoming the 3As: range Anxiety, infrastructure Accessibility and product Affordability. Only then will it be possible to achieve decarbonised and clean road transport.

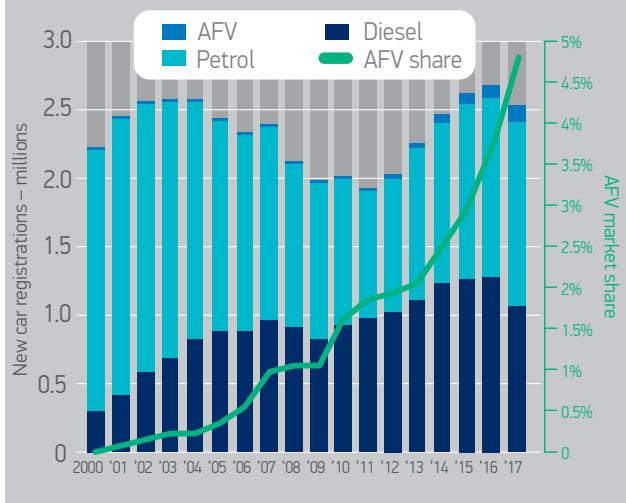
NEW VEHICLE REGISTRATIONS

The UK new car market declined in 2017 for the first time in six years. The market fell 5.7% to 2.54 million units registered.

Despite the overall decline, the market remained the second biggest in the EU, behind Germany.

The most popular vehicle choices were superminis, small family cars and SUVs (dual purpose), with the latter the only segment to show growth in demand in 2017. Around one in every five new cars sold in the UK in 2017 was dual purpose, up from one in 10 in 2012.

CHART 10 | NEW CAR REGISTRATIONS AND FUEL TYPE

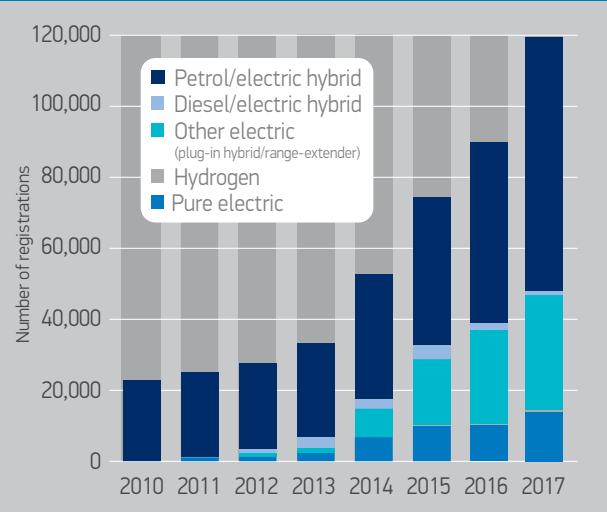


The AFV market grew by 34.8%, with almost 120,000 units registered. This represents the sector's highest annual market share of 4.7%. Hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), battery electric vehicles (BEVs) respectively made up 60.6%, 28.1% and 11.4% of the AFV market.

Demand for petrol cars also rose by 2.7%, with diesel registrations declining by 17.1% owing to anti-diesel rhetoric and policy change announcements.

The new light commercial vehicle (LCV) market declined in 2017 by 3.6% but remained at more than 360,000 units. The new heavy goods vehicle (HGV) market declined by 2.6%, with 45,045 trucks registered.

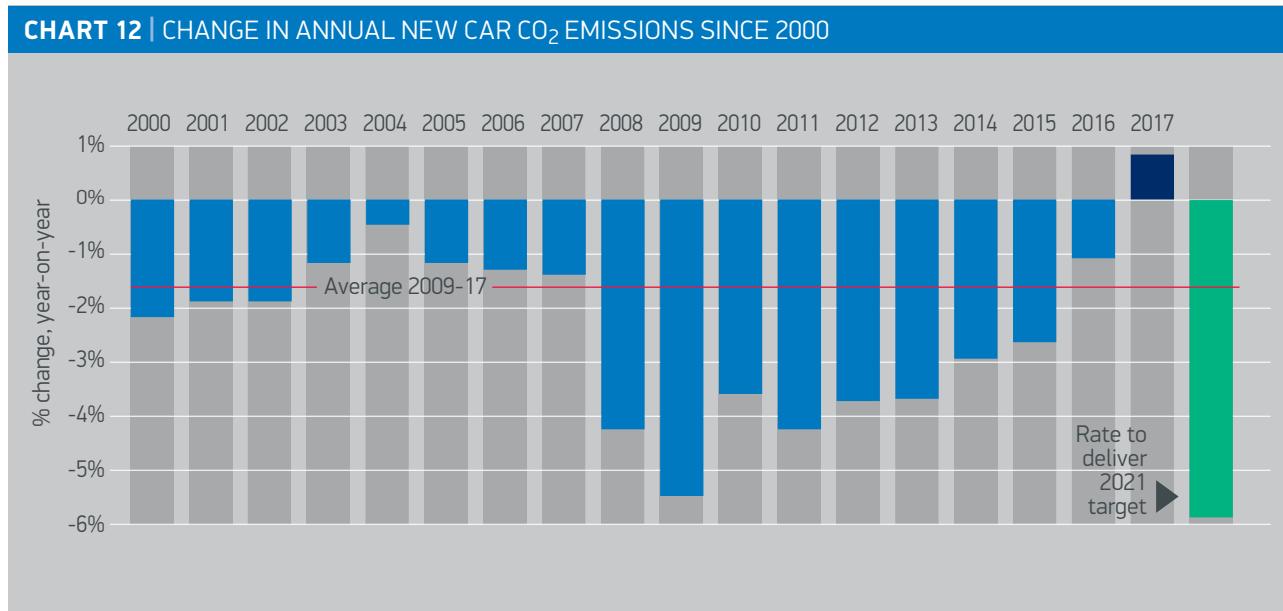
CHART 11 | AFV REGISTRATIONS



EMISSIONS: NEW CAR CO₂

Average new car CO₂ emissions in the UK rose for the first time in 2017, by 0.8%, from 120.1g/km in 2016 to 121.0g/km. However, some manufacturers managed to improve their vehicles' performance. The 2017 overall performance is still 33.1% below the 2000 level. This report uses CO₂ figures from the official NEDC (New European Drive Cycle) laboratory test. Since September 2017, a new laboratory test has been in place, known as the Worldwide Harmonised Light Vehicles Test

CHART 12 | CHANGE IN ANNUAL NEW CAR CO₂ EMISSIONS SINCE 2000



Procedure (WLTP), designed to be more akin to typical driving patterns and with more clearly defined test procedures. By September 2018, virtually all new passenger car registrations will need to comply with the new test cycle.

The rise in emissions in 2017 reflected the decline in diesel sales – given diesels are, on average, 15%-20% lower CO₂ emitting than a like-for-like petrol car – and consumer demand shifting from lower emitting segments to higher, with superminis, in particular, showing a 14.3% drop in registrations (at almost 125,000 units down). This represented just over 80% of the overall market's volume loss in 2017. SMMT estimates that the rise in average new car CO₂ emissions in 2017 was broadly 55% the result of the segment shift and 45% the result of the loss in diesel volumes.

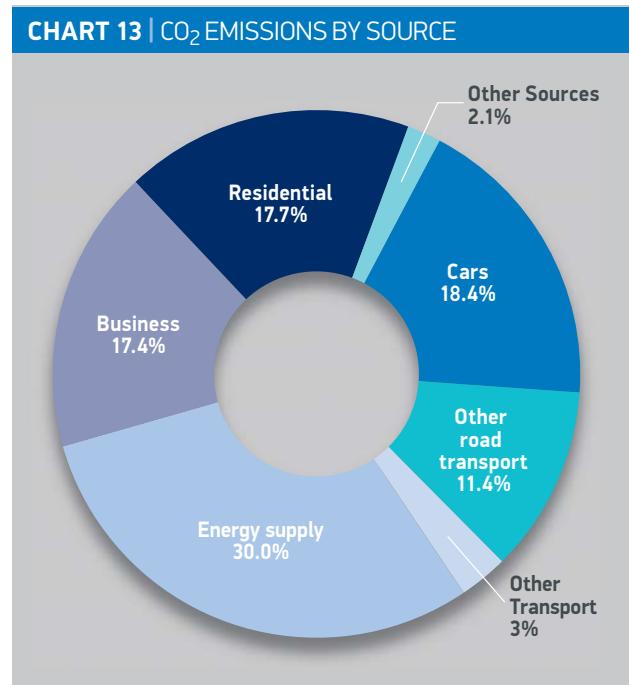
Manufacturers are delivering lower CO₂ emitting models and data shows that new models introduced in 2017 were on average 12.6% lower CO₂ emitting than the models they replaced. The rate of progress in reducing average new car CO₂ emissions had already been moderating ahead of the rise in 2017.

In November 2017, the European Commission published proposals for post-2021 new car and LCV CO₂ Regulation – see: https://ec.europa.eu/clima/policies/transport/vehicles/proposal_en

The proposals must now go through the European Parliament and Council, as well as public consultation, before being adopted – expected by summer 2019.

Transport was the largest source of CO₂ emissions in 2016 for a second successive year, having surpassed the energy supply sector. Road transport, at 113 Mt CO₂e, accounted for 91% of all transport emissions in 2016 and was almost as large as the energy supply sector. Emissions from road transport have risen in each of the past three years, as vehicle use has increased. The rise has largely offset the gains made between 2008 and 2013, leaving emissions just 1.3% below their 2000 levels. Vehicle use since 2000 has increased by 11.7%.

CHART 13 | CO₂ EMISSIONS BY SOURCE



(Source: BEIS 2016)

Cars accounted for 61.6% of all road transport emissions in 2016. This share has fallen steadily from 65.7% in 2000, but emissions from cars also rose in each of the past three years, with a 2.1% rise in 2016 alone. CO₂ emissions from cars since 2000 have fallen by 7.4%, despite an 8.1% rise in vehicle use. Heavy Commercial Vehicles (HCVs) were the second largest source of road transport emissions in 2016, at 5.3%, but LCVs closed the gap and have seen emissions rise by 34.1% since 2000 after a sharp uplift in vehicle use.

TRANSPORT CO₂ PERFORMANCE

Overall UK CO₂ emissions have fallen by 31.6% since 2000, to 378.9 million tonnes of CO₂ equivalent (Mt CO₂e) in 2016. They fell by 5.9% in 2016 compared with 2015, after a sharp fall in emissions from the energy supply sector. Since 2000, the drop has also been largely as a result of the energy supply sector moving from coal to gas and now to renewables, as well as the closure of some manufacturing businesses (such as steelworks).

Given limited road space, extra journeys often create congestion, which increases emissions and economic loss through wasted time. Stop-start technologies, as well as electrified vehicles, can help limit some of the impacts of stationary traffic but measures that can speed up the flow of traffic and enable vehicles to operate more effectively should be sought.

The automotive industry recognises its role in reducing total emissions from the fleet, but vehicle use, driving style, traffic flow and congestion, weather and other variables can influence performance. Therefore, ongoing and collective action is required from all stakeholders to deliver the necessary emissions reductions.

The industry is working on a number of different aspects of vehicle design, capability and use, which, while not measured on the test cycle, could help reduce CO₂ emissions. For example, the introduction of intelligent transport systems (ITS) and CAVs could help reduce congestion, CO₂ emissions and other pollutants, and improve safety.



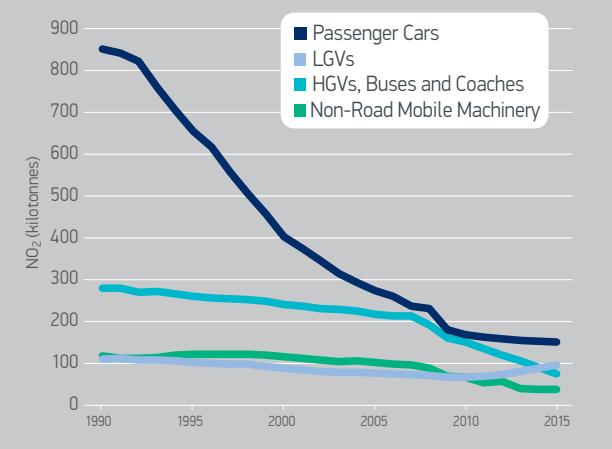
Further information on vehicle environmental performance (alternative fuels, petrol, diesel, alternative powertrains) can be found in SMMT's New Car CO₂ Report 2018
[www.smmt.co.uk/
CO2report](http://www.smmt.co.uk/CO2report)

AIR QUALITY

Air pollution is caused when harmful chemicals are released into the atmosphere. In the UK, this is caused mainly by the burning of fossil fuels for energy generation, transport and industrial emissions. Some sources are natural such as sea salt, pollen and soil particles, and these can also be blown in from other countries; Saharan dust, for example. Concentrations of air pollutants are highest in urban areas where emissions cannot easily disperse; nitrogen dioxide is usually highest at the roadside. Rural background concentrations account for around 60-80% of the overall mass of PM2.5 in urban areas. Congestion and the design of cities can restrict the dispersion of pollutants causing greater concentrations at ground level where there is significant exposure.

The automotive industry understands it has an important role in improving air quality and protecting the health and well-being of the population. Manufacturers have invested billions of pounds in the engineering of cleaner technologies and now produce the cleanest vehicles in history. Data provided by Defra¹ shows that nitrogen dioxide (NO₂) and particulate matter (PM) emissions from road transport in 2015 decreased by 75% and 87% respectively since 1990. With the introduction

CHART 14 | NITROGEN DIOXIDE EMISSIONS 1990-2015



of the latest Euro 6 emissions standard in new vehicles, these are expected to decrease even further.

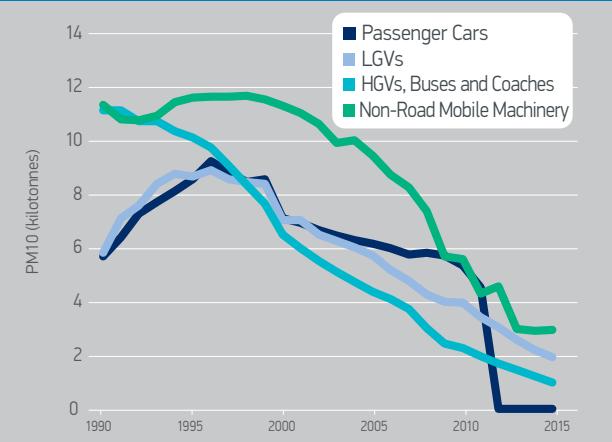
Road transport was responsible for 49% of NO₂ and 12% of PM emissions in the UK during 2016. The greatest contribution to particulate pollution is derived from industrial sources and combustion in residential, public, commercial and agricultural sectors.³

The UK government published its plan for tackling NO₂ at the roadside in July 2017. This sets a requirement for a number of cities across the UK to implement a charging clean air zone (CAZ). All new vehicles sold today comply with the minimum CAZ requirements. In addition, manufacturers are continuing to develop zero emission and zero emission capable vehicles, which will allow for even greater improvement in air quality. While the sale of these vehicles is growing, they still only made up 0.3% of the number of vehicles in use (parc) in 2017.

It is essential that a coordinated approach to improving air quality be taken by both local and national policymakers in partnership with industry. This will allow us to find complementary solutions to improving air quality and reducing carbon emissions from all sectors.

The automotive industry is spending billions of pounds to develop new technologies to reduce CO₂ and other environmental impacts of its products.

CHART 15 | PARTICULATE MATTER EMISSIONS 1990-2015



In the short to medium term, this will include the latest petrol and diesel fuelled vehicles, hybrids and plug-in hybrids, and industry looks for a technology neutral approach to enable the market and consumers to decide which solutions best suit their needs.

DHL TESTS CARGO BICYCLES FOR GREEN URBAN DELIVERIES

DHL Express is piloting a new City Hub concept that will enable increased use of cargo bicycles for inner-city deliveries. The City Hub is a customised trailer which can carry up to four containers for the DHL Cubicycle, a customised cargo bicycle, which carries a container with a load of up to 125kg (one cubic meter in volume). A DHL van delivers the trailer into the city centre, where the containers can be quickly loaded on to two Cubicycles for last-mile inner-city delivery. It can then be reloaded for outbound shipments. Each City Hub can replace up to two standard delivery vehicles, with an equivalent CO₂ saving of more than 16 tonnes per year and a significant reduction in other emissions. The Cubicycle uses electric pedal assistance for additional speed and support in climbing hills, which is self-powered through the use of solar panels.



HEAVY GOODS VEHICLES

In 2017, the European Commission agreed that, from 1 January 2019, vehicle manufacturers will have to declare the fuel consumption and CO₂ emissions from new trucks placed on the market. The regulation uses a simulation tool called VECTO (Vehicle Energy Consumption Calculation Tool) to calculate the fuel efficiency and CO₂ for each new vehicle based on certified input data taken during type approval. The mandatory declaration of truck fuel consumption and CO₂ emissions will enable operators to compare different vehicles' CO₂ and fuel efficiency in a standardised way.

A political agreement has been reached on further EU legislation on CO₂ Monitoring and Reporting. This will require vehicle manufacturers to report fuel consumption and CO₂ emissions data for every new truck placed on the EU market. These data will be reported annually to the European Commission (commencing in 2020 for all new trucks registered in 2019), along with all truck registration data held by National Registration Authorities with Member States. Emissions and registrations data will be matched by the European Commission to help monitor the CO₂ baseline for the new truck market and inform the development and introduction of EU CO₂ standards for HCVs.

The European Commission in May announced proposals to

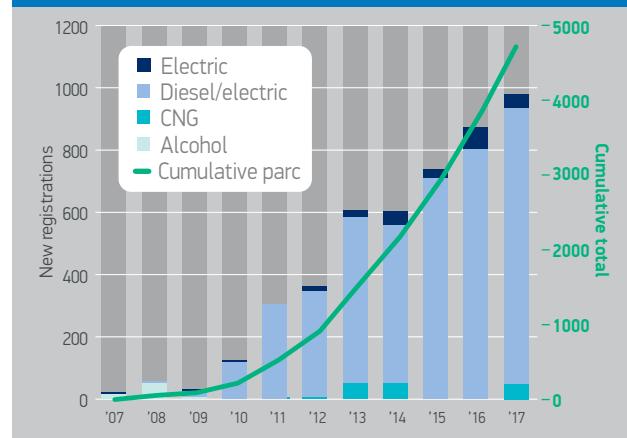
introduce CO₂ standards for trucks, with targets of 15% reduction by 2025 and 30% by 2030, on a 2019 basis – when the first VECTO data will be available. With the VECTO tool to be extended to the bus and coach sector, future standards for these vehicles may also follow.

ALTERNATIVELY FUELLED BUSES

The bus and coach sector can be very cyclical, mainly due to the fluctuating nature of fleet purchasing. Recently declining business confidence and passenger numbers exacerbated a reduction in conventional bus registrations during 2017. However, the proportion of buses that are alternatively fuelled continues to rise steadily. In 2017, the number of alternatively fuelled buses on UK roads grew to 4,860, accounting for 5.4% of bus parc. Some 90% of the alternatively fuelled parc is diesel-electric, 4.7% electric and 3.4% Compressed Natural Gas (CNG).

A number of technology companies has also developed retrofit systems to upgrade older buses to the Euro VI standard. These systems have to conform to an accreditation scheme. Additionally, the government is closing the legislation loophole which has allowed the continued registration of Euro V buses in certain circumstances. This should ensure more of the latest low-emission Euro VI vehicles come on to the roads and improve air quality in towns and cities.

CHART 16 | LOW CARBON BUSES REGISTRATIONS



CONSUMER INFORMATION: ALTERNATIVE FUELS INFRASTRUCTURE LABELLING

To further improve customers' information on the fuel compatible with their vehicle, from October 2018, fuel dispensers and filling nozzles will be labelled with symbols: E5, currently used for petrol, and B7 for diesel vehicles. The numbers 5 and 7 indicate the percentage content of the ethanol and biodiesel respectively. Vehicles will also be labelled with equivalent symbols on or near the filler flap. This will allow the customer to match the label on the car with the label on the dispenser. On petrol cars, there may be two labels, E5 and E10, which means that either can be used. E10 is not yet available in the UK.

INFRASTRUCTURE:

ELECTRIC VEHICLE INFRASTRUCTURE

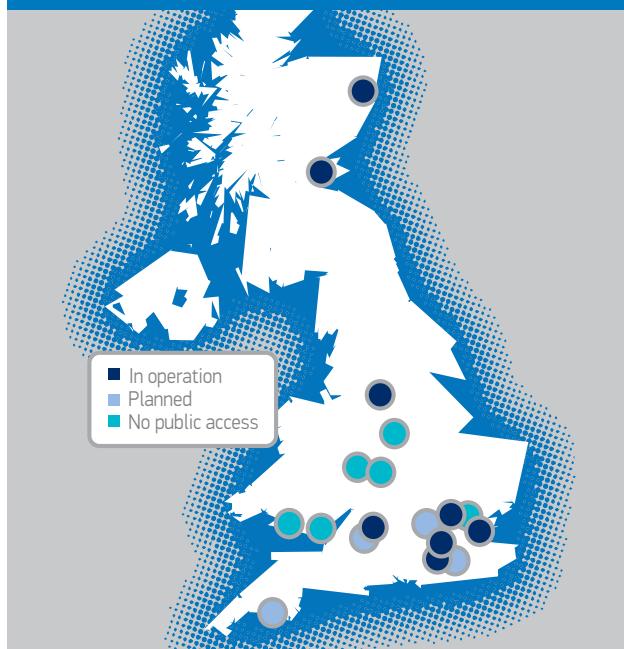
The UK charging infrastructure is growing rapidly with new charging points installed daily, reaching 14,800 connectors in 5,100 locations by the end of 2017. Government is encouraging the charging infrastructure to grow with various incentives for public, home and workplace charging. Government recognises that public charging remains crucial, thus has set out new measures in the Automated and Electric Vehicles Bill (AEV Bill), including a requirement for large forecourts and motorway service areas to provide charging infrastructure.

To ensure further growth, a coordinated approach is needed between all relevant stakeholders and the government to plan for roll-out and overcome barriers jointly. It must involve vehicle manufacturers, charge point manufacturers/suppliers, network operators, energy retailers and distributors, local authorities, fleet operators, fuel retailers and highway authorities. Some already successful initiatives include:

- Ionity, backed by Ford, BMW, Daimler and Volkswagen, to provide Electric Vehicle (EV) ultra-fast 350kW chargers at 80 of its biggest roadside filling stations. Ionity targets 400 sites across Europe covering 18 countries by 2020.
- E-STOR, which collaborates with Renault to enable the installation of rapid electric vehicle charging on sites where connection capacity would be a constraint, using second life batteries to supplement energy supply.
- Government investment of £30 million in Vehicle-to-Grid (V2G) technologies (Feb 2018).

Many more initiatives are arising, which shows how the market is trying to overcome the infrastructure barriers of Accessibility, range Anxiety and product Affordability (known as the 3A barriers) to EV adoption.

CHART 17 | HYDROGEN REFUELLED STATIONS



HYDROGEN INFRASTRUCTURE

By the end of 2017, 11 hydrogen-refuelling stations (HRS) were publicly accessible in the UK (see Chart 17, below left). They were developed with the help of government's Hydrogen for Transport Advancement Programme (HyTAP), which provided £5 million. In March 2017, a further £23 million funding from government was announced, which will support hydrogen vehicle and infrastructure development.

The existing stations are geographically located to support vehicle manufacturers' initial fuel cell electric vehicle (FCEV) launch plans and are a significant first step towards building the national network of 65 stations proposed by UK H2 Mobility.

ROAD SAFETY

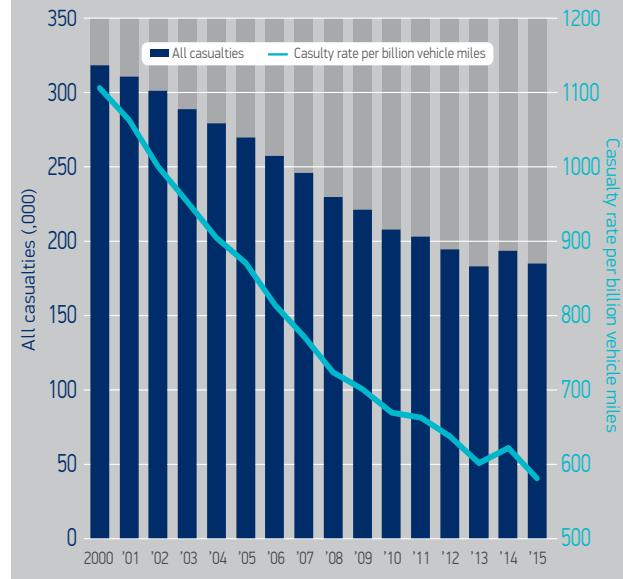
The Organisation of Economic Cooperation and Development (OECD) has established a strong link between accidents/casualties and increasing economic development, because greater traffic volumes result in more incidents. This continues until a critical threshold in economic development is reached. At that point, better training, vehicle standards, enforcement and design, and road engineering counteract the effects of traffic increase.

The automotive industry has been actively contributing to increased road safety by adopting more innovative vehicle designs and introducing advanced safety technology such as autonomous emergency braking or collision warning systems installed as standard or available as an option.

In 2016, there were a total of 181,300 road casualties on UK roads – the lowest level on record. This is 43% and 3% lower than 2000 and 2015 levels respectively, and was achieved despite a 2% increase in distance driven in 2016. This represented 560 casualties per mile driven, which represents a 4.4% drop on the previous year.



CHART 18 | NUMBER OF CASUALTIES VS DISTANCE DRIVEN



FUTURE MOBILITY: SHARED MOBILITY

In recent years, a clear shift from traditional vehicle ownership to usership has emerged. Individual vehicle ownership is still generally the preferred option, however, an increasing number of people opt for long-term vehicle rental (a form of leasing) or avoid car ownership altogether by using pay-as-you-go schemes, for example, Zipcar or on-demand mobility services such as Uber. The trend is most visible in the younger generation using smartphone technologies and living in large cities where car sharing, carpooling and eHailing is easily available. According to CarPlus, there was a 765% increase in car club membership across the UK between 2007 and 2017. Car clubs also seem to encourage the reduction of private car ownership. In 2016/17, each car club resulted in members selling or disposing of 10.5 private cars; with 26,400 of them in London alone (2017 CarPlus survey). Car club members are also two to three times more likely (depending on their membership type) to use a wide range of public transport, walk and/or cycle.



Source: CarPlus

However, individual car access is still highly valued for its flexibility and convenience and car sharing needs to provide the same level of service to become the dominant mobility method (besides public transport) in the future.

This trend suggests that the traditional sales business models may be under threat, as the number of individuals having exclusive access to individual cars reduces. However, vehicles used as part of car sharing, carpooling or eHailing typically have much higher usage rates, which is likely to result in a higher rate of repairs and replacement cycles than those vehicles under individual ownership. In recognition of the market shift, some vehicle manufacturers have embraced shared mobility, diversifying their business model by enabling alternative mobility solutions such as car sharing to accommodate customers' needs and optimise vehicle use.

The shift has the potential to generate environmental and congestion benefits. According to the International Transport Forum, replacing half of all private car trips with rides in shared vehicles would deliver a 20% reduction in CO₂ emissions and reduce congestion by 17%. If one in five private car trips was taken over by shared mobility services, CO₂ emissions would still be reduced by 15% and congestion reduced by 8%.

PEUGEOT CITROËN LAUNCHES FREE2MOVE MOBILITY SOLUTION



The PSA Group launched a new Free2Move sub-brand designed to offer sustainable, smart, safe and shared mobility solutions. The Free2Move app enables users to identify all available shared vehicles in their vicinity in just one click on their smartphone: cars, bikes, scooters. Users can compare the location, characteristics and operating cost of available vehicles. They can either book or immediately access the vehicle of their choice for a period ranging between a few minutes and several days.



Free2Move is involved in mobility under numerous forms: electric vehicles, one-way or round-way trips and peer-to-peer car sharing. The Free2Move application

is available in North America and Europe (France, UK, Germany, Austria, Italy, Spain, Sweden) on iOS and Android.

CONNECTED AND AUTONOMOUS VEHICLES (CAVS)



CAV technologies are fundamentally changing the driving experience and revolutionising vehicles. The overall economic benefits of CAVs to the UK are expected to be in the region of £51 billion per year by 2030, of which £16 billion accrue to adjacent industries such as telecoms, technology, digital services and freight.

CAVs are also expected to reduce congestion, contribute to cleaner mobility and increased productivity, create new jobs, reduce traffic accidents and help to solve mobility restrictions for infirmed, minors and older people. The promise of these benefits will come to fruition when the vehicles in the future will be able to perform at higher levels of autonomy. Latest data from SMMT and JATO Dynamics shows that some 66.8% of new cars are offered with at least one self-activating safety system, either as standard or as an optional extra. Nearly 1.8 million new vehicles a year are now available with collision warning systems alone, up 20% in comparison with 2015 (Table 3). This is just one of a raft of technologies now in showrooms, including autonomous emergency braking (AEB), parking assistance, adaptive cruise control and overtaking (or blind spot) sensors.

In order for the UK to become a centre of excellence in CAVs, government must develop a clear and joined-up national strategy to make the most of the publicly funded CAV projects, create conditions that will make the UK attractive for CAV investment and encourage the inflow of highly skilled engineers from non-traditional automotive engineering backgrounds.

In October 2017, the government introduced the AEV Bill (formerly called the Vehicle Technology and Aviation Bill), in which it proposes a single insurer model for AVs.

BOSCH BRINGS AUTONOMOUS DRIVING ONE STEP CLOSER**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE

Fully autonomous vehicles are one step closer to arriving on the UK's streets, thanks to groundbreaking research from MOVE_UK. The consortium, led by Bosch, has completed the first phase of the three-year project designed to accelerate the development of automated driving systems, getting them on to the UK's roads quicker. The project has enabled the MOVE_UK consortium to develop a new validation method that will reduce the time taken to test automated driving systems and bring them to market. The MOVE_UK consortium includes Transport Research Laboratory (TRL), Jaguar Land Rover, Direct Line, the Royal Borough of Greenwich and The Floow.

www.bosch.co.uk/news-and-stories/autonomous-driving-one-step-closer/

**TABLE 3 | SEMI-AUTONOMOUS SAFETY TECH ON UK NEW CAR REGISTRATIONS**

		Fitted as Standard	Optional fitment	Total
Collision Warning System		1,071,728 (39.8%)	727,052 (27.0%)	1,798,780 (66.8%)
Parking Assistance		589,720 (21.9%)	993,638 (36.9%)	1,583,358 (58.8%)
Automatic Emergency Braking		764,751 (28.4%)	665,118 (24.7%)	1,429,869 (53.1%)
Overtaking Sensor		140,024 (5.2%)	993,638 (36.9%)	1,113,662 (42.1%)
Adaptive Cruise Control		185,802 (6.9%)	788,986 (29.3%)	974,788 (36.2%)
Blind Junction View		8,078 (0.3%)	253,121 (9.4%)	261,199 (9.7%)

Another step to support CAVs was the launch of MERIDIAN, a hub to coordinate, promote and signpost CAV technology and testing capabilities in the UK.

In August 2017, The Department for Transport (DfT) also published The key principles of cybersecurity for connected and automated vehicles, which aims to ensure that cybersecurity is properly considered at every level, from designers and

engineers, through to suppliers and senior executives.

In addition, the EU General Data Protection Regulation (GDPR), which makes personal data exchange more challenging owing to its new requirements, became enforceable in all member states on 25 May 2018. This will impact on the industry's handling of customer data. ■

END-OF-LIFE VEHICLES (ELVS)

PERFORMANCE

- The industry has met the 95% target since 2015.
- There was a 300,000 increase in Certificates of Destruction (CoDs) issued in 2017 compared with 2016.

REASONS

- Continued engagement with regulators and recycling industry.
- Enforcement agencies stepped up their efforts to close illegal operators.

FUTURE CHALLENGES/OPPORTUNITIES

- Ensuring a level playing field for legal waste processors.
- Increasing the level of penalties to act as deterrent for illegal operators.
- Continued achievement of UK recycling target.

The principles of the circular economy have been embedded strongly in the ethos of automotive industry for some time now. At the design stage, it is required that at least 95% of each vehicle by weight can be recovered at the end of its end of life. To facilitate effective depollution and parts dismantling, the industry created an online International Dismantling Information System (IDIS). The high metal content in vehicles, 75% on average, lends itself well to being recovered and used in new vehicle production. The remaining 20%, mainly plastics and other materials, are also reused or recovered to produce new products or energy.

The industry recognises its role in increasing the amount of recycled plastic used as part of the circular economy's plastic strategy. Further increasing the recycled content is in line with the industry's overall environmental objectives; however, this needs to be balanced with safety and quality requirements.

PRODUCER RESPONSIBILITY

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Since the implementation of the ELV regulations, the industry has successfully taken on the producer responsibility for vehicles reaching their end of life by establishing two vehicle collection networks, Autogreen and Cartakeback. This ensures ELVs can be handed over to an Authorised Treatment Facility (ATF) that will recycle the car in an environmentally responsible way and without any costs to the last owner. Consequently, vehicles have become one of the most recycled retail products on the market. As required by the ELV Regulation, since 2015, 95% by weight of vehicles processed by manufacturers' recycling networks has been recycled or recovered. This represents an increase of 10% on the previous target which was introduced in 2006.

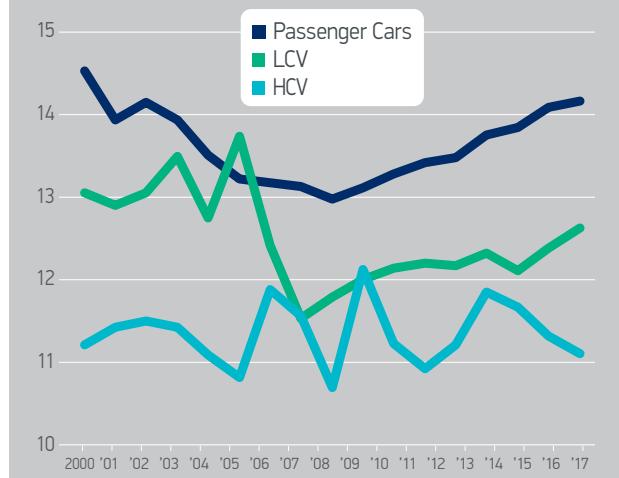
LEVEL PLAYING FIELD

Handling ELVs is a profitable business due to the value of the metal which can be recovered and from the resale of used parts. Consequently, legitimate ATFs can face competition from illegal operators, which do not have permits and haven't made the necessary investment to meet permit requirements. The Environment Agency (EA) has recently stepped up its enforcement efforts, which may have contributed to a 25.5% increase in the number of CoDs issued in 2017 on the previous year. The EA has started to adapt its enforcement techniques to address new sales channels such as eBay, which may be used by illegal operators. In the future, all stakeholders need to ensure that the momentum gained within the EA is maintained.

AVERAGE VEHICLE AGE

The average age of ELVs (cars, LCVs and HCVs) varies depending on their purpose and it is also influenced by economic factors. The average age of scrapped cars had

CHART 19 | AVERAGE VEHICLE AGE AT SCRAPPAGE



reached the all time low of 13 years in 2009 when the scrappage scheme took place, and it has been continuously increasing since, reaching 14.2 years in 2017. The average age of LCVs has also been increasing since 2008, from 11.5 years to 12.6 in 2017 (see Chart 20, page 24). A HCV's end of life age is very much linked to fleet replacement cycles. See the graph above for details.

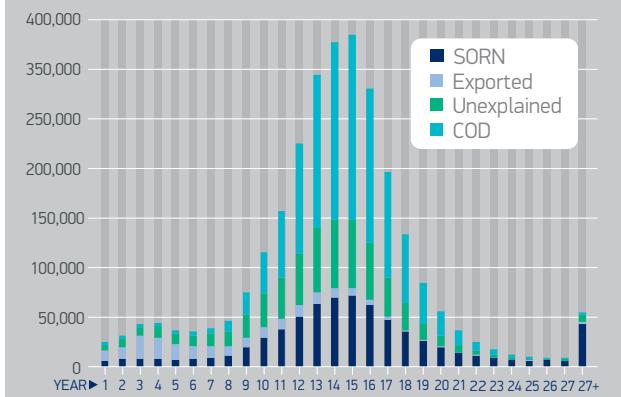
In 2017, the average car parc age was 7.83 years, remaining unchanged three years running. This means that vehicle replacement cycles may need to be speeded up to ensure the latest environmental and safety technologies reach the market in a timely manner.

In 2017, numerous manufacturers conducted scrappage schemes of vehicles above nine years old and as a result more than 23,000 vehicles were removed between 1 August 2017 and the end of February 2018.

END-OF-LIFE VEHICLES (ELVs)

See the graph below for the 2017 age profile of vehicles removed from the Driver and Vehicle Licence Agency register in 2017. For full details please contact data@smmt.co.uk

CHART 20 | AGE PROFILE OF VEHICLES LEAVING PARC IN 2017



FORD SCRAPPAGE SCHEME DRIVES AIR QUALITY IMPROVEMENT ACROSS UK



In September 2017, Ford launched a car and van scrappage scheme aimed at improving air quality by enabling its customers to trade-in and scrap their old vehicles (pre-Euro 5) for new Ford cars and CVs with significantly lower emissions. The scheme enabled eligible consumers to benefit from a scrappage incentive of between £2,000 and £7,000. From the launch of the scheme until the end of 2017, 11,901 vehicles were scrapped and replaced with cleaner, more fuel-efficient vehicles. Due to the popular demand, the scheme has been extended into 2018 and a further 7,379 vehicles were scrapped in Q1.



2017, THE 20,000th CUSTOMER TOOK ADVANTAGE OF VAUXHALL'S SCRAPPAGE ALLOWANCE

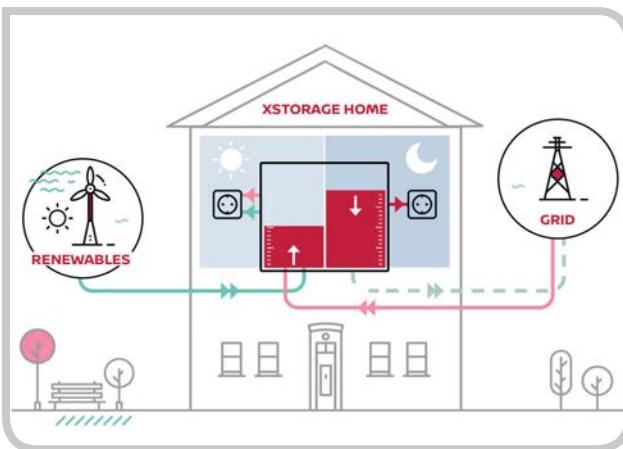
The allowance gives a £2,000 incentive off a new Vauxhall when trading in a vehicle from any brand to be scrapped. The scheme was re-introduced in May 2017, having run in both 2015 and 2016, and saw more than 5,000 vehicles removed in 2017 alone. The scheme can be combined with other finance offers from Vauxhall and replaces older more polluting vehicles with new more efficient products, meeting the latest environmental standards and featuring up-to-date safety features.



HIGH VOLTAGE BATTERIES

As the uptake of AFVs increases, the carbon footprint of the use phase diminishes and the end of life stage gains increased importance. All AFV batteries can be recycled in accordance with the EU Battery Directive requirements. To extend the batteries' useful life, in line with the circular economy principles, the industry is focusing its efforts on the reuse and remanufacture of EV batteries. When an EV battery is no longer suitable to sufficiently power a vehicle, there is still plenty of life left in it to fulfil a non-automotive purpose such as energy storage, to balance renewable energy production. A growing number of companies, including some vehicle manufacturers, use this potential for private and business purposes. EV batteries can help make the most of on-site renewable energy production, reduce electricity bills and carbon emissions, while preserving resources needed to produce new products for the same purpose.

Vehicle-to-grid technologies are also expected to play an increasing role in making the UK's electricity supply network smarter and in encouraging EV take-up. EVs that can take electricity from the grid when demand is low and return it when demand is high could help to even out peaks and troughs and make the grid more efficient.



(Source: NISSAN)

REMANUFACTURING

► As the backbone of the circular economy, the importance of remanufacturing has been growing over recent years. Hence last year, a separate section in this report was dedicated to this area. This year, remanufacturing company Autoelectro become a signatory, joining ATP and Michelin, which also produce new products. As an important part of the supply chain, their environmental data has been added to the supply chain chapter.

Three remanufacturing signatories diverted almost **17,500** tonnes from landfill, **5.4% up** on last year

Remanufacturing is the process of returning a used product to at least its original performance with a warranty that is equivalent to, or better than, that of the newly manufactured product. It involves dismantling the product, restoring and replacing components and testing the individual parts and whole product to ensure that it is within its original design specifications.

Remanufacturing has a long history in the UK, across the whole range of industrial sectors. Mostly, remanufacturers are producers of durable (usually metal) manufactured assemblies.

The inherent value of the materials and the cost of production enable this equipment to be remanufactured to an as new condition. Most good quality parts can be remanufactured multiple times. Remanufacturing also tends to be labour-intensive, which can benefit the local economy by creating jobs. ■

TABLE 4 | BENEFITS OF REMANUFACTURING

ENVIRONMENT	CUSTOMER
REDUCED RAW MATERIAL CONSUMPTION by preserving much of the material in the original product, less raw material is used than during the manufacture of new products.	VALUE FOR MONEY remanufactured products can have longer durability than some original parts of lower quality.
REDUCED ENERGY CONSUMPTION AND CO2 EMISSIONS by limiting the amount of raw material extracted and the manufacturing of new components, remanufacturing typically uses less energy than manufacturing a new product.	AVAILABILITY may allow the customer to continue to use equipment no longer manufactured. Remanufactured components may also have a shorter lead time than products made abroad.
REDUCTION OF MATERIAL SENT TO LANDFILL by keeping material in use for longer.	DESIGN IMPROVEMENT may improve the original design by engineering out any design faults.

It needs to be noted that the benefits listed above can only be released when the original part is of good quality. Some parts do not meet the requirements needed to enable their remanufacture. Consequently, a large number of resources ends up at landfill prematurely and legitimate part manufacturers and remanufacturing companies are being undercut. This results in environmental penalties and the UK economy being disadvantaged.

MICHELIN AND RESOURCE EFFICIENCY



Michelin's truck tyre retreading plant in Stoke-on-Trent takes suitable worn out tyres and gives them a new life using its modern hi-tech process, and the performance of the finished retreaded tyre is equal to that of a brand new tyre.

Before acceptance for retreading, every used tyre is rigorously examined and tested for internal and external damage and the retreading process is subject to strict conformity testing to ensure every tyre is made to the same exacting standards.

Reusing more than 85% of the original worn out tyre, the process is extremely efficient at conserving scarce natural resources, saving some 30kg of rubber, 20kg of steel and an estimated 60kg of CO₂ each time a tyre is retreaded.



DRIVING TRANSITION TO LOW CARBON FUTURE

► The automotive industry in the EU spends some €50 billion on research and development each year, a large proportion of which is spent on reducing emissions. Most manufacturers have announced plans to bring to market lower CO₂ emitting vehicles, particularly electrified products. However, the availability of such vehicles must be combined with efforts to gain buy-in from customers and the right policies from government, including around infrastructure, so that low carbon transport can become a reality.

GOVERNMENT

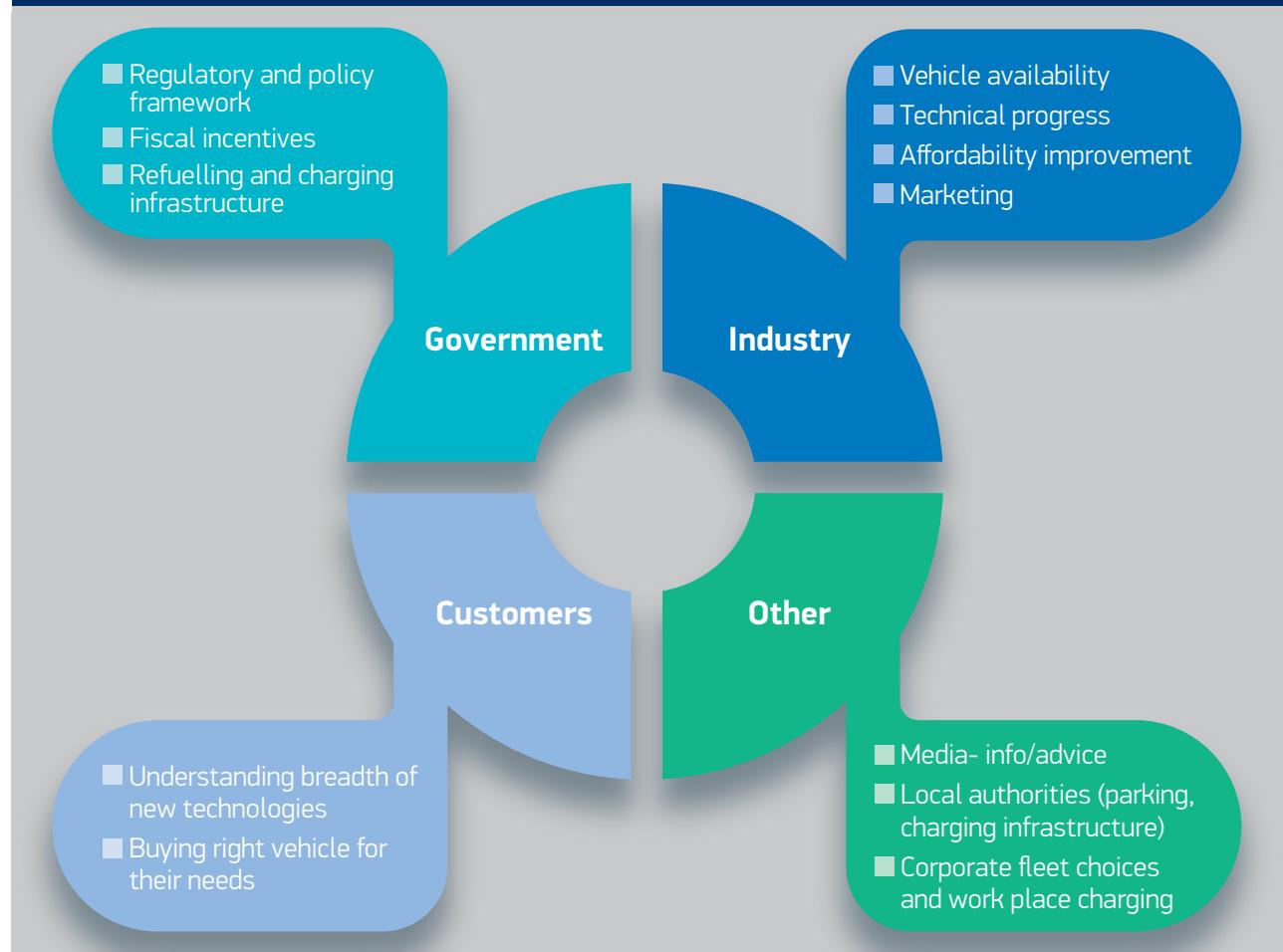
Government plays a key role in enabling industry to deliver lower CO₂ emissions, setting the legislative framework to which industry must comply in terms of technical regulations, environmental standards and policies. It also sets fiscal policy (taxes and incentives), influences infrastructure provision, and delivers information and signals to consumers. It can shape action at local authority level and is also a large buyer of vehicles through its own fleet procurement. Industry therefore looks to government to support the transition to electrified and fuel cell vehicles by overcoming the 3As – range Anxiety, infrastructure Accessibility and product Affordability.

Government has outlined its ambition to end the sale of new conventional petrol and diesel cars and vans by 2040. The automotive industry remains supportive of the objective to accelerate and maximise the opportunities from market transformation towards low, ultra-low and zero emission

vehicles. The government's transport strategy plays an important role in recognising the challenges in creating a significant market shift to new technologies and the breadth of stakeholders involved in its delivery, including local authorities, energy providers, consumers, government itself and the automotive industry.

Given the early stages of the low, ultra-low and zero emission vehicles market, government will need to continue to play a critical part in helping achieve a significant uptake in these vehicles through continued financial incentivisation across the technology portfolio and a stable and predictable incentive structure into the 2020s. Government also has an important role in ensuring the correct charging and refuelling infrastructure is in place to overcome consumer concerns about infrastructure accessibility.

CHART 21 | STIMULATING LOW CARBON VEHICLES UPTAKE



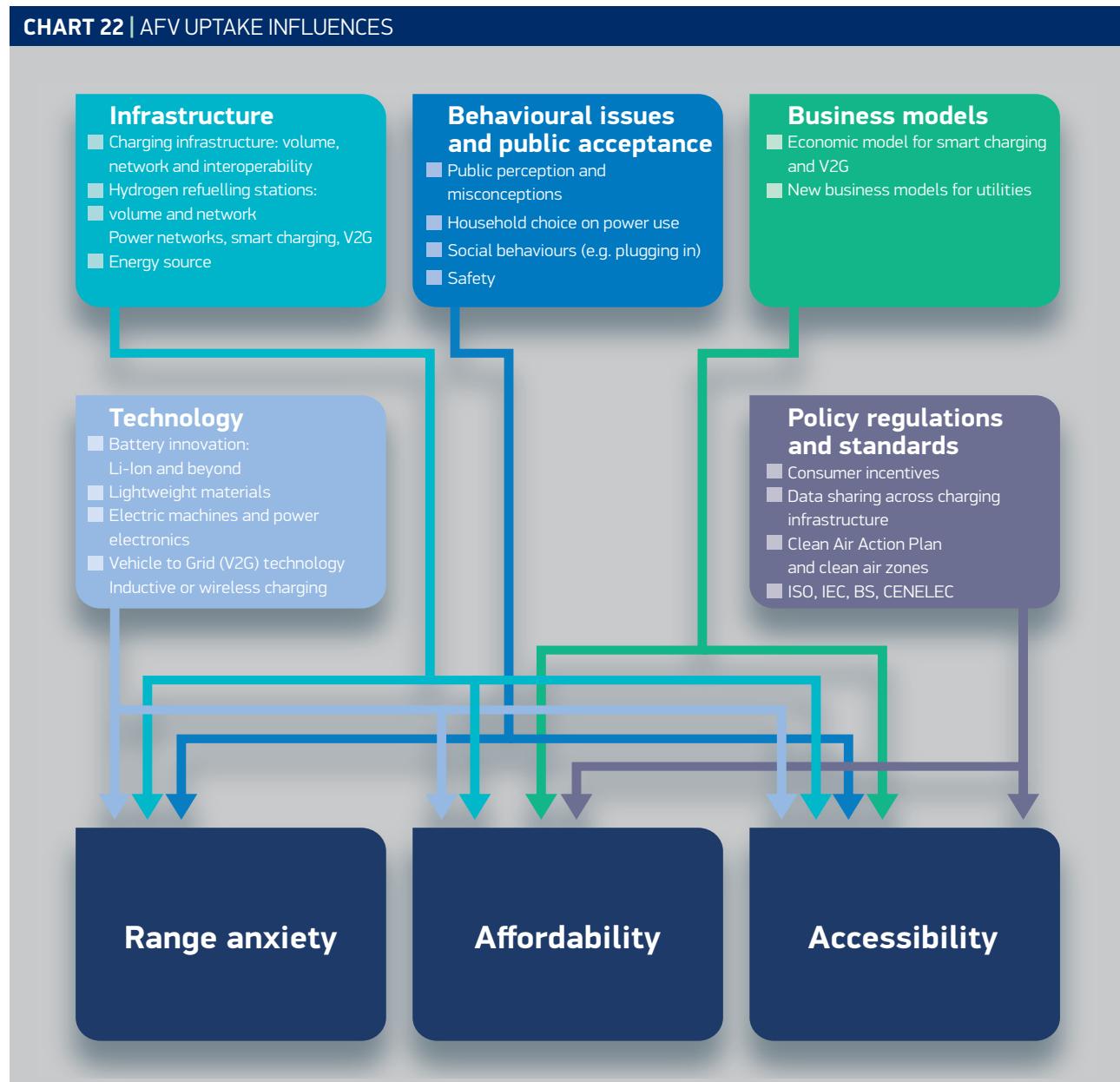
INDUSTRY

There were 76 alternatively fuelled models with registrations in 2017, up 7.3% on 2016. These represent more than 20% of all the different models offered by manufacturers and include petrol and diesel-electric hybrids, petrol and diesel plug-in hybrids, pure battery electric and hydrogen fuel cell vehicles. During the year, most manufacturers announced plans to bring further AFVs to market.

CONSUMERS

Given the breadth of changes at present, there is an opportunity to re-engage with consumers, fleet operators and professional drivers to ensure they are aware of the importance of purchasing and using the right vehicle for their needs. This will help them minimise their CO₂ impact, their broader environmental impact and the impact on their own personal economics. More fuel-efficient vehicles help reduce CO₂ emissions, as well as minimise fuel costs and can lower tax liabilities related to CO₂ emissions. ■

CHART 22 | AFV UPTAKE INFLUENCES



DRIVING TRANSITION TO LOW CARBON FUTURE

TABLE 5 | MANUFACTURERS CURRENT AND FUTURE CAR ELECTRIFICATION PLANS

Manufacturer	Current	Future
Ford	1 BEV, 1 PHEV	70% of models electrified by 2025, 16 BEVs and 24 PHEVs by 2022
Volkswagen	2 BEVs, 2 PHEVs	Every model to have an electric option by 2025 and 25% of sales to be electrified
Vauxhall		By 2020 4 electrified models (e.g. Grandland X PHEV and Corsa BEV). By 2024, all models electrified – including BEV or PHEV versions
Mercedes	1 BEV, 3 PHEVs, 4 hybrids	15-25% of sales to be electrified by 2025, 10 EV models by 2022
BMW Group	1 BEV, 5 PHEVs, 2 hybrids	25 pure EV and hybrids by 2025
Audi	2 PHEVs	Every model to offer an electric option by 2025 and 25% of sales to be electrified
Nissan	2 BEVs	20% of sales to be BEVs by 2020
Toyota	6 hybrids, 1 PHEV, 1 FCEV	An electrified option across every model by 2025, 60% of UK sales be electrified (HEV, PHEV, FCEV) by 2020. BEVs from 2020s
Hyundai	1 BEV, 1 FCEV, 1 PHEV, 1 hybrid	Up to 38 green models by 2025, many BEVs
Kia	3 PHEVs, 1 hybrid	11 new models by 2020 – including BEV, FCEV, PHEVs and hybrids
Lexus	9 hybrids	98% of UK sales full hybrid electric and a diversity of electrified options by 2025 (PHEVs, BEVs, FCEV)
Mitsubishi	1 hybrid	20% of cars to be EV-based by 2020
Jaguar Land Rover	2 hybrids	Every model from 2020 to have electrified variant
Aston Martin		100% hybrid by mid 2020s
LEVC	PHEV	All PHEVs, including new van
McLaren Automotive		Following the PHEV P1TM model (the first hybrid supercar) 50% of cars will feature hybrid technology by 2022. Full electric prototype being tested.

Source: various manufacturer announcements and media articles. SMMT takes no responsibility for the accuracy of future plans, and plans may be subject to change.

To note: BEV – battery electric vehicle, FCEV – fuel cell electric vehicle, PHEV – plug-in hybrid electric vehicle, hybrid – hybrid electric vehicle. Electrified could be all of above, plus 48v mild hybrid.

GO ULTRA LOW 2017



The government's announcement in July 2017 of its plan for reducing roadside NO₂ concentrations saw online searches for electric vehicles rise by 30% in comparison to the previous year.

To capitalise on this improved awareness, Go Ultra Low (a joint government and industry initiative) dedicated its 2017 campaign to educating consumers and fleets about the different types of electric vehicles and how they can fit into their lives. Consequently, eight 'hero' films were created, each tackling a different consumer barrier such as charging, range, practicality and driving experience.

In October 2017, a revamped Go Ultra Low website was launched to improve the customer journey and saw the introduction of a set of tools to help people understand the benefits of electric vehicles. The site now includes a journey cost savings calculator, home charging tool, journey range calculator, car tax calculator and car selector and charge point map. www.goultralow.com

GO ULTRA LOW CITIES

First launched in 2016, the Go Ultra Low Cities initiative by the Office for Low Emission Vehicles (OLEV) aims to position eight UK cities as exemplars, showing how others can follow their lead and increase the uptake of ultra-low emitting vehicles (ULEVs). A total of £40 million was awarded in January 2016, £35 million split between London, Milton Keynes, Nottingham and Bristol with a further £5 million awarded to York, the North East, Dundee and Oxford. Many of the initiatives funded by the money were undertaken in 2017.



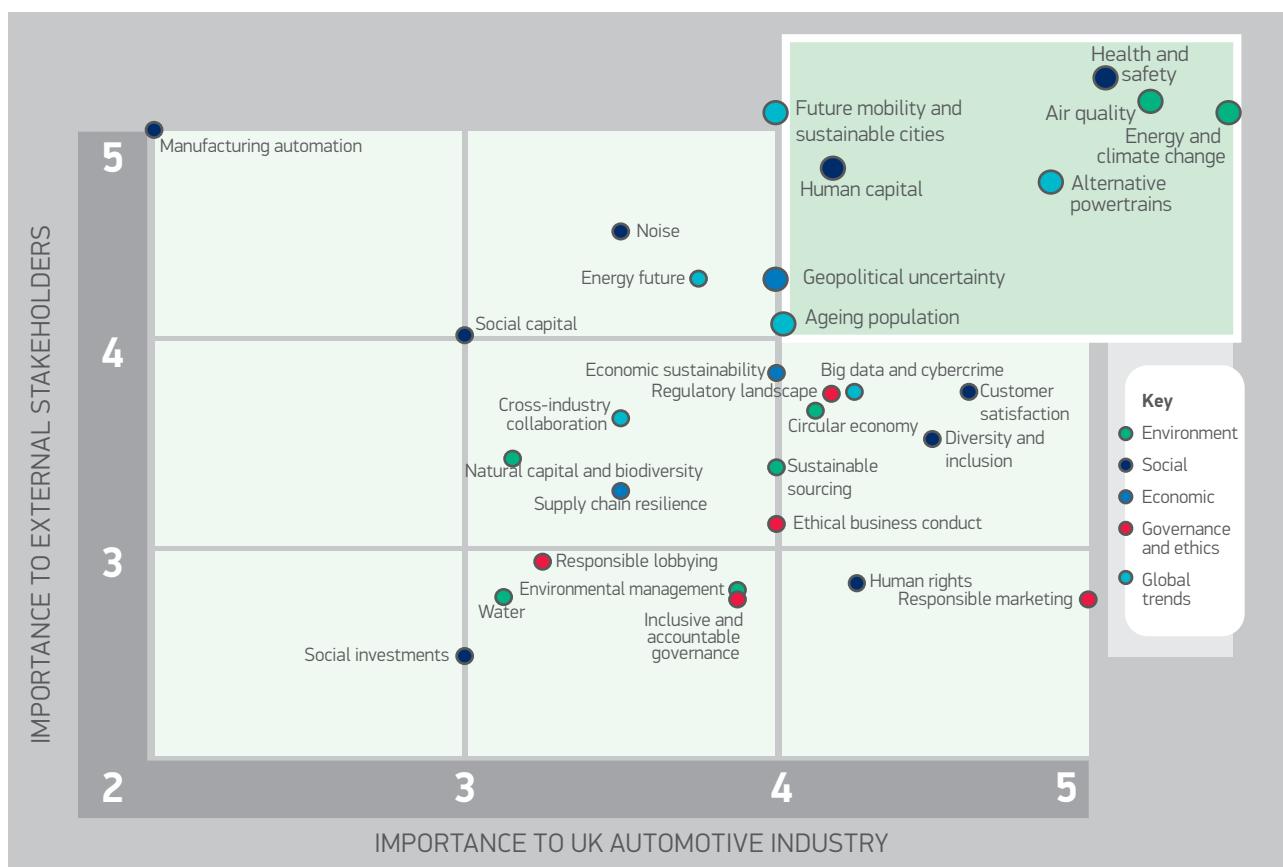
SIGNATORIES TO THIS REPORT

Signatories to this report	Brands
ATP	ATP
Autoelectro	Autoelectro
Aston Martin Lagonda Ltd	Aston Martin, Lagonda
Bentley Motors Ltd	Bentley
BMW Group UK including Rolls-Royce Motor Cars Ltd	BMW, MINI, Rolls-Royce
Bosch	Bosch
Caterpillar	Caterpillar, Perkins
Covpress Assembly Ltd	Covpress Assembly
DHL	DHL
Ford Motor Company Ltd	Ford
General Motors UK Ltd	Vauxhall, Opel and Holden
GKN Driveline Ltd	GKN
Honda (UK) and Honda of the UK Manufacturing (HUM) Ltd	Honda
IBC Vehicles Ltd	Vauxhall, Opel
Jaguar Land Rover Ltd	Jaguar Cars, Land Rover
Leyland Trucks	DAF Trucks
Lotus	Lotus
McLaren	McLaren
Michelin Tyre plc	Michelin
Nissan Motor Manufacturing (UK) Ltd and Nissan Technical Centre Group	Infiniti, Nissan
Optare	Optare
Pritex	Pritex
PSA Group	Citroën, Peugeot, DS Automobiles
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 Car UK Ltd	Volvo

REFERENCES AND ONLINE CONTENT

MATERIALITY ASSESSMENT

Please see below outcomes of the materiality assessment performed in 2017, which outlines the key areas for the industry and external stakeholders. See the 18th Sustainability Report for details.



REFERENCES AND ONLINE CONTENT

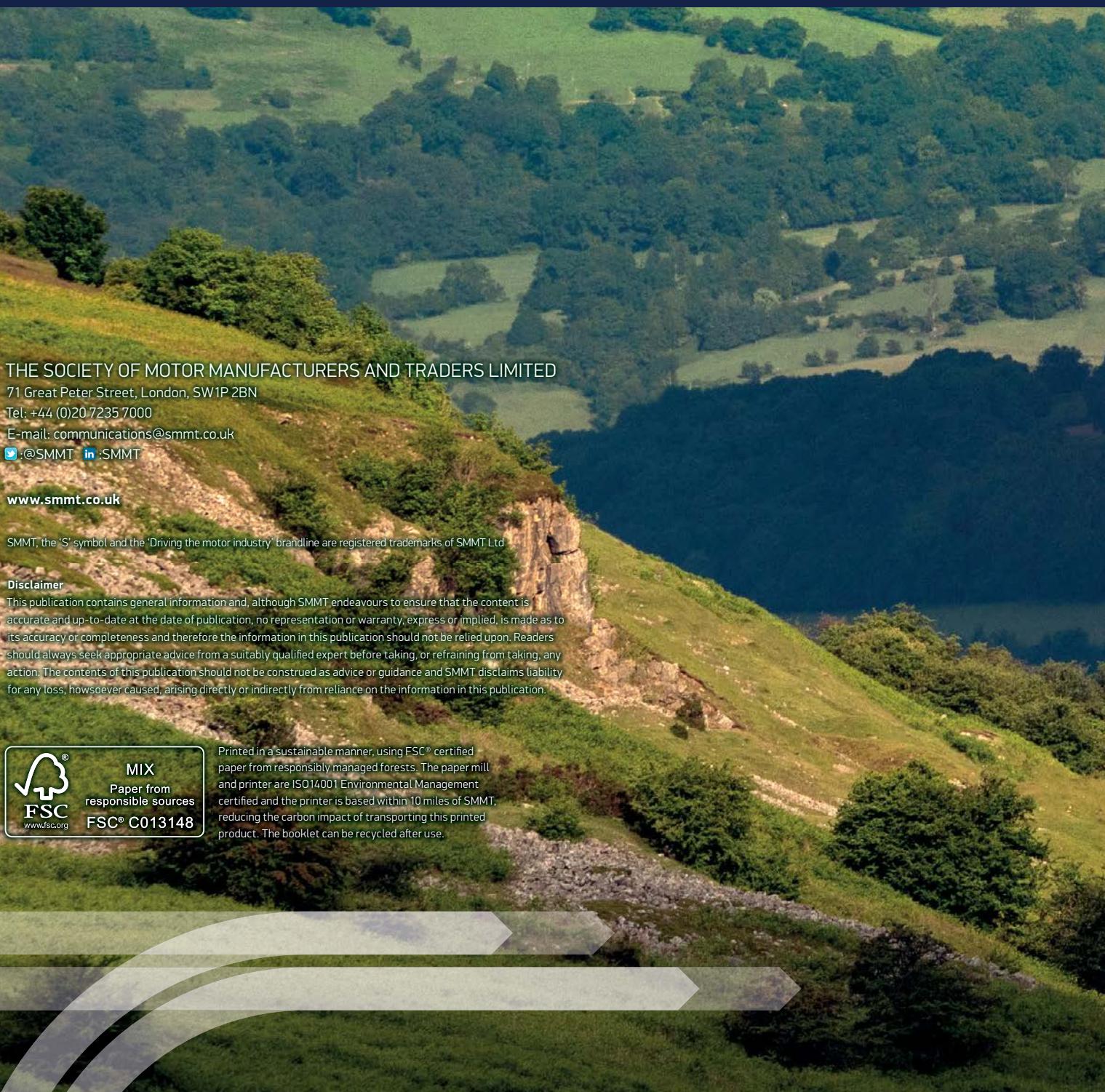
References and detailed data on the automotive industry performance can be found at www.smmt.co.uk/sustainability

The webpage also contains links to signatories' sustainability websites.

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THE SOCIETY OF MOTOR MANUFACTURERS AND TRADERS LIMITED

71 Great Peter Street, London, SW1P 2BN

Tel: +44 (0)20 7235 7000

E-mail: communications@smmt.co.uk

 @SMMT  SMMT

www.smmt.co.uk

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