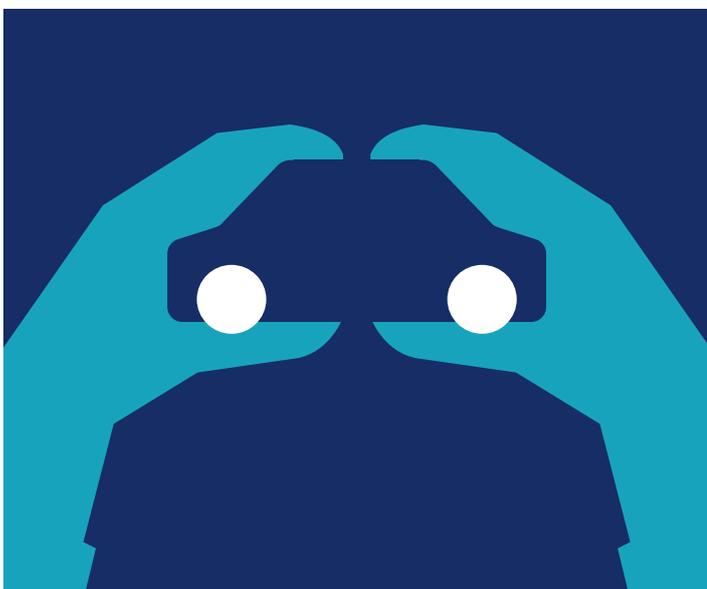


2021 UK AUTOMOTIVE
SUSTAINABILITY REPORT
22ND EDITION - 2020 DATA



“The year 2020 was one like no other. But despite the myriad challenges it brought, the automotive industry’s commitment to sustainability remains unchanged.”

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LETTER FROM THE CEO

When SMMT produced its first annual sustainability report for the automotive industry in 2000, it was the starting flag for two decades of continuous and demonstrable improvement. Manufacturers have invested heavily to increase production efficiency, develop cleaner, greener, lower emission vehicles, and upskill an already talented workforce to meet the challenges ahead. With the automotive sector's reputation for innovation and improvement, the industry could confidently predict it would deliver. What could not have been predicted by anyone, however, was a once-in-a-century global pandemic, which effectively shut down the economy, as society hunkered down, focusing all efforts on tackling the clear and present danger.

Even as this report is published, the pandemic remains the priority, with supply chains disrupted, staff isolating, and economic growth erratic. In 2020, UK new car production fell -29.3% to just 921,928 units – the weakest performance since 1984, as the pandemic stifled demand and shuttered factories. Automotive plants, however, never quite shut - they still require power and water, maintenance and servicing. More importantly, many companies used this downtime as an opportunity to help repurpose production lines to essential PPE and ventilator manufacturing to support the NHS during the crisis.

Unsurprisingly, those unprecedented circumstances and the consequent production stoppages reduced operational efficiency, efficiency that had been refined and honed over many years. Even against the most disrupted production backdrop in history, the industry still built vehicles using, on average, -14.2% less energy and -36.8% less water than in 1999 – a monumental achievement and testament to the progress made over the past two decades. Plus, with electric vehicles accounting for more than one in 10 registrations, 2020 saw average new car CO₂ emissions fall by -11.8% in a single year.

While the pandemic is by no means in the rear-view mirror, the success of the vaccine programme and the reopening of the UK economy means the industry can begin to refocus on recovery and future ambition. With the end of sale of conventional new petrol and diesel cars now confirmed for 2030, and a consultation now open on similar targets for heavy goods vehicles, manufacturers must transition at incredible pace. All are committed to net zero and every signatory to this report has made a commitment to reach net zero by 2050 – with many expecting to achieve this far sooner.

Beyond environmental sustainability, the industry continues to invest in economic development and employment. Success increasingly depends on gigafactory investment, which could create 40,000 further jobs across the wider supply chain by 2040. However, as well as batteries, electrification will require many in the sector to transform their skill sets, and a commitment to upskilling as new technologies emerge and become mainstream.

New jobs are an opportunity to widen diversity in the sector, so that automotive can better reflect the society from which it recruits and the market into which it sells. There is progress, with one in eight people working for this report's signatories women – the highest proportion ever recorded – but this illustrates just how much more needs to be done. Gender is only one attribute of diversity and all signatories are committed to improvement in other areas, but more work is needed before we can say the industry is truly diverse and inclusive.

The year 2020 was one like no other. But despite the myriad challenges it brought, the automotive industry's commitment to sustainability remains unchanged. In the year the UK hosts the COP26 Summit, the sector continues to invest to reduce carbon emissions even further and reach net zero. We must deliver that goal while keeping society on the move and providing mobility for all.

Mike Hawes Chief Executive

The Society of Motor Manufacturers and Traders (SMMT)

2020 SUSTAINABILITY SUMMARY

PRODUCTION

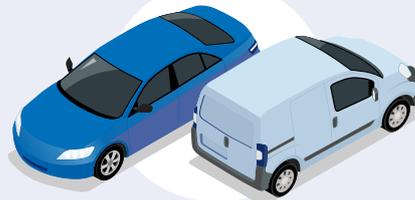


11.2%
Energy per vehicle produced up

5.7%
Relative CO₂ up

8.3%
Water used per vehicle up

USE



112G/KM
Cars average CO₂ emissions down

90%
Increase in number of PHEV models offered

6.6%
Battery Electric Vehicles (BEV) market share

PEOPLE



-10%
Sectoral jobs down

-5%
Employee accidents down

2%
Share of women employed up

SUSTAINABILITY RECOMMENDATIONS FOR GOVERNMENT

01
ENSURE UK SKILLS AND TRAINING UNDERPIN THE TRANSITION TO GREEN JOBS

02
MAXIMISE THE OPPORTUNITY TO DELIVER NET ZERO TRANSPORT

03
SUPPORT SUSTAINABLE AUTOMOTIVE SUPPLY-CHAINS AND SUB-SECTORS

04
ENSURE GROWTH IN CHARGING AND REFUELLING INFRASTRUCTURE MATCHES THE AMBITION OF THE AUTOMOTIVE SECTOR

05
EMPOWER CONSUMERS TO MAKE ZERO EMISSION THEIR FIRST CHOICE

			2019	2020	% change 2020 on 2019	1999	% change 2020 on 1999
AS	Number of signatories		24	19	-20.8%	11	90.9%
Social performance							
WI	Number of jobs dependent on the sector**		866,000	797,300	-7.9%	907,000	-12.1%
	Combined number of employees		87,193	81,200	-6.9%	95,214	-14.7%
AS	Number of lost-time incidents per 1000 employees		1.2	1.1	-5.0%	13.4	-91.6%
	Number of training days per employee		6.5	3.3	-50.2%	3.8	-14.4%
	Share of women employed by signatories (%)		12.0	12.3	2.0%		N/A
Environmental performance							
Production inputs							
AS	Total combined energy use	(GWh)	3,859	3,352	-13.2%	7,013	-52.2%
VMs	Energy used per vehicle produced	(MWh/unit)	3.01	3.34	11.2%	3.9	-14.2%
AS	Total combined water use	(000m3)	4,033	3,437	-14.8%	6,090	-43.6%
VMs	Water use per vehicle produced	(m3/unit)	3.1	3.3	8.3%	5.3	-36.8%
Material inputs							
AS	Total combined CO ₂ equivalents	(tonnes)	850,658	701,280	-17.6%	2,182,926	-67.9%
	CO ₂ equivalents per vehicle produced	(tonnes/unit)	0.66	0.70	5.7%	1.1	-36.5%
VMs	Volatile Organic Compounds emissions (cars)	(g/m2)	24.5	24.1	-1.3%	55.0	-56.1%
	Volatile Organic Compounds emissions (vans)	(g/m2)	36.3	37.1	2.3%	59.0	-37.1%
AS	Total combined waste to landfill	(tonnes)	876	857	-2.2%	80,399	-98.9%
VMs	Waste to landfill per vehicle produced	(kg/unit)	0.6	0.7	19.9%	40.3	-98.2%
Vehicle use							
AC	Average new car CO ₂ emissions	(g/km)	127.9	112.8	-11.8%	181.0	-37.7%
Economic performance							
WI	Automotive manufacturing sector turnover *	(£ billion)	79.8	60.2	-24.6%	47.90	25.7%
	Expenditure on business R&D*	(£ billion)	3.40	2.90	-14.7%	0.86	235.6%
	Total number of cars and CVs produced	(million)	1.38	0.99	-28.5%	1.81	-45.6%
	Total new car and CV registrations	(million)	2.68	1.92	-28.1%	2.52	-23.5%
AS	Signatories' combined turnover	(£ billion)	71.6	64.1	-10.4%	21.0	205%
VMs	Total number of vehicles produced	(million)	1.03	0.74	-28.4%	1.57	23.0%

Key:

AS = All Signatories, WI = Whole Industry, VMs = Vehicle Manufacturers only (WI) Whole Industry data; (AC) All car registrations in the UK; (AS) All signatories; (VMs) UK Vehicle Manufacturer signatories; (CV) Commercial vehicles; (CO₂) Carbon dioxide. The report has 21 signatories which represent 74.8% of vehicle production in the UK. LEVC became a new signatory, whereas ATP, Autocraft, Autoelectro, and Nissan were not able to provide data this year. PSA Group now includes Vauxhall/Opel, previously presented as separate signatories.

*The 2019 and 2020 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 2019 and 2020 figures are based on projections.

***Estimate of manufacturing, distribution, refuelling and repair of vehicles where automotive in 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 Island's 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.

SUMMARY

SMALL VOLUME MANUFACTURERS (SVM) KPIS		2019	2020	% change 2020 on 2019
Economic performance				
Production		14,597	7,790	-46.6%
Environmental performance				
Production inputs				
Total combined energy use	(MWh)	132,720,037	120,597,754	-9.1%
Energy used per vehicle produced	(MWh/unit)	9.1	15.5	70.3%
Total combined water use	(000m3)	148	98	-33.8%
Water use per vehicle produced	(m3/unit)	10.2	12.6	24.1%
Material outputs				
Total combined CO ₂ equivalents	(tonnes)	29,123	24,991	-14.2%
CO ₂ equivalents per vehicle produced	(tonnes/unit)	2.00	3.21	60.8%
Total combined waste to landfill	(tonnes)	2	0	-100.0%
Waste to landfill per vehicle produced	(kg/unit)	0.1	0.0	-100.0%

SMALL VOLUME MANUFACTURERS (SVM) KPIS

SMMT welcomes a new small volume manufacturer (SVM), LEVC, as a signatory to the report this year alongside Aston Martin, Lotus and McLaren Automotive. In 2020 SVM signatories recorded a decline in production levels, consequently the absolute energy use and associated CO₂ emissions decreased but relative performance declined due to efficiency losses. [Please see SMMT UK Low Volume and Specialist Vehicle manufacturers report for further details.](#)



SUPPLY CHAIN KPIS		2019	2020	% change 2020 on 2019
Economic performance				
Output (weight of product produced)	(tonnes)	371,110	252,721	-31.9%
Environmental performance				
Production inputs				
Total combined energy use (reporting weight)	(GWh)	230.7	122.7	-46.8%
Energy used/output (per tonne shipped)	(MWh/tonne)	0.62	0.49	-21.9%
Total combined water use (reporting weight)	(000m ³)	311	165	-46.8%
Water use/output (per tonne shipped)	(m ³ /tonne)	0.84	0.65	-21.9%
Material outputs				
Total combined CO ₂ equivalents (reporting weight)	(tonnes)	49,723	25,352	49.0
CO ₂ equivalents/output (per tonne shipped)	(tonnes/tonne)	0.13	0.10	25.1%
Total combined waste to landfill (reporting weight)	(tonnes)	0	0%	0%
Waste to landfill/output (per tonne shipped)	(kg/tonne)	0.00	0%	0%

SUPPLY CHAIN KPIS

In 2020, three supply chain signatories were unable to provide data due to the challenging situation created by the pandemic. As a result, data from five companies were included in the table above, representing a wide range of activities, ranging from component production to remanufacturing.

Last year, the activity level, defined as the weight of product produced, dropped by -32% year-on-year. All remaining absolute and relative metrics improved by a much higher level compared with the overall production decline. All supply chain signatories have reached zero landfill.





SOCIAL PERFORMANCE

→ The harsh reality of the Covid-19 pandemic and resulting global lockdowns, closed markets and shuttered plants, has hit the automotive sector particularly hard. Alongside this unexpected crisis, Brexit uncertainly also affected demand. In the second half of 2020 showrooms reopened and production lines restarted, but unsettled markets meant demand and social distancing continued to slow productivity. The ongoing semi-conductor shortage also started to cause disruption in the latter part of the year. Unsurprisingly, and like elsewhere in the economy, the sector has been forced to reduce head count, resulting in job losses, and reskill its workforce. The sector is now looking to the future to ensure its workforce has the right skill set to effectively fast track the electrification drive and meet its decarbonisation commitments, while supporting, and even growing, its UK industrial base.

Performance

- Sectoral manufacturing jobs down -10%, signatories reported a -6.9% drop.
- Employee accidents down -5%; training days per employee down -50.2%

Reasons

- Production level drop due to pandemic and supply chain problems.

Future challenges/opportunities

- Attracting new talent and upskilling the existing workforce to be able to meet future mobility requirements and carbon reduction ambitions.

EMPLOYMENT

Automotive is one of the UK's major employers, with 156,400 workers directly employed in manufacturing roles in 2020 and a broader 797,300 workers employed in total across the wider sector (including retail and finance). The people involved in the sector and their respective skill sets are just as diverse as the products which the industry offers – whether producing a vehicle for mass market, a luxury sports car, a highly customised specialist vehicle, a light or heavy commercial vehicle, or a bus and coach – the UK's automotive workforce is amongst the highest skilled and most productive in the world.

Automotive employment also stretches into every region and nation of the UK, with concentrated hubs of activity located in the West Midlands, North East and North West of England, and Wales. One in 14 people employed in manufacturing nationwide works in automotive, while in regions such as the North East and West Midlands, automotive accounts for more than one in six manufacturing jobs. Annual salaries for the sector are typically 21% higher than the average across all UK employment, and the combined national salary contribution of the sector amounts to some £6 billion a year.¹ Further details can be found in SMMT's Full Throttle (2021) report.²

¹ ONS (NOMIS) regional / national data sets

² SMMT Full Throttle report
https://www.smmt.co.uk/wp-content/uploads/sites/2/SMMT_FULL_THROTTLE_008-Compressed.pdf

COVID19

IMPACT ON JOBS AND APPRENTICES

The impact of Covid-19 can be seen across the industry, from manufacturing through to retail and aftermarket. With businesses unable to absorb the impact unilaterally, at least 15,000 jobs have already been cut across the industry. Initial feedback from industry, manufacturers and business stakeholders suggests that the number of apprenticeship starts over the course of 2020-21 are expected to be down on the 7,156 full-year figure for 2019-2020. While there is a mixed picture amongst the sector, several of the UK's most recognisable employers will be reducing their take-up of apprentices in 2020-21, and in some cases, are unable to take on apprentices at all. In these circumstances, government support mechanisms have been too small to offset the costs of the pandemic.

Nevertheless, the sector as a whole remains committed to apprenticeships and continuously strives to understand how it can make best use of existing mechanisms, such as the apprenticeship levy. The industry has welcomed recent skills initiatives implemented by government. However, schemes such as Kickstart, Traineeships and Digital Skills Bootcamps are largely under-utilised by businesses in the sector, many of which do not currently have the capacity to engage with such programs or find the associated requirements too constraining to deliver true value.

CASE STUDY: MICHELIN SCOTLAND INNOVATION PARC



Michelin and partners worked to find positive outcomes – such as new jobs, full-time education, business start-up funding and early retirement packages – for all but a handful of its 850 Michelin Dundee workers, before the plant closed in June 2020.

The Michelin Group had also joined forces with Scottish Enterprise and Dundee City Council to create Michelin Scotland Innovation Parc (MSIP), a world-class facility focused on sustainable mobility and decarbonisation.

Just months after the factory closed, MSIP revealed its first tenant: electric battery specialist MEP Technologies. And, despite the challenges of Covid-19, more tenants are set to be unveiled – paving the way for more than 800 jobs in cutting-edge sustainable industries and helping to deliver long-term economic benefits to the region for generations to come.

EMPLOYEE SAFETY AND IMPACT ON COMMUNITIES

Despite financial losses and uncertainty for the sector in 2020, the automotive industry stepped up at a time of crisis. Responding to the urgent need to make ventilators and PPE equipment, the industry mobilised its greatest assets – expertise in manufacturing and thousands of dedicated employees. The industry went above and beyond to support the fight against Covid-19 and protect its workforces' physical and mental health, and wellbeing during this difficult time. The industry introduced home working for office staff and safety measures for those involved in vehicle production, which included on-site rapid testing, effective social distancing, hygiene and health monitoring with thermal cameras.

In May 2020, SMMT published sector specific guidance to ensure all sites are safe spaces for workers, controlling the risk of transmission. The document contains wide-ranging advice covering everything from social distancing and hygiene standards, to personal protective equipment (PPE), mental health and staff communications.

In 2020, signatories reported cash donations to charities of more than £8.9 million and made other contributions worth almost £130,000 along with donations to foodbanks and items of clothing. Signatories also reported giving in excess of 83,000 hours of employees' time to local causes. In addition, a number of companies have donated over 130,000 PPE items to NHS, care homes and local communities. For example, Bentley created a Covid-19 impact fund to support community projects, recognising that many people will have been affected by the pandemic. The fund awarded grants, ranging from £8,000 to £25,000, to 11 projects that tackle food poverty, mental health and wellbeing, debt relief and financial education. It is hoped that over 5,000 people will benefit from these projects.

Companies also donated surplus IT equipment to help connect local students to their online learning. Families were also able to benefit from long-term tech loans including laptops and hotspots.

CASE STUDY: ASTON MARTIN PROVIDING PPE TO FRONTLINE NHS WORKERS

In 2020, Aston Martin joined the campaign to provide Personal Protective Equipment (PPE) to frontline NHS workers during the coronavirus crisis. Working with its project partner, Multimatic, Aston Martin helped the MTC (Manufacturing Technology Centre) to refine and produce a new respiratory protection device and also utilised the state-of-the-art cutting machines at Gaydon to produce the silicone components.



CASE STUDY:
FORD QUICK TO TRANSFORM
WAREHOUSE OPERATION
TO MANUFACTURE
VENTILATORS FOR NHS

In 2020, Ford became a part of the Ventilator Challenge UK Consortium and was making ventilator sub-assemblies for the NHS after transforming an empty warehouse into a manufacturing facility in record time.

Employees worked ceaselessly for three weeks to get the high-tech production line up and running, something which would usually take a full year. Converting a warehouse at the company's Dagenham Engine Plant estate into an ISO9001 accredited facility required the team to repurpose existing equipment and quickly establish a production line, with more than 650 people working in three shifts.



FUTURE SKILLS @ 'GREEN JOBS'
APPRENTICESHIP STANDARDS DEVELOPMENT

The automotive sector is committed to apprenticeships as an ideal tool for bringing talent into the industry but would welcome greater flexibility in the Apprenticeship Levy to maximise its use and ensure more young people are entering the workforce. Employers within the sector are actively involved in the development of apprenticeship standards, largely through the Trailblazer Group, which recently has been working alongside government to review existing apprenticeship modules and standards and assess what changes are required to support the UK's 'green' transition. While developing apprenticeship courses required to deliver the emerging skills associated with future technologies is a necessary endeavour, it is also important to note that apprenticeships cannot be the only provision that supplies skills for emerging and future jobs.

Apprenticeships last for at least one year and require a minimum 20% off the job training. For employees who already have a good base of industry and workplace skills, this is not an effective mechanism to upskill or reskill. Instead, these workers would benefit from shorter, modular, and faster mechanisms to learn new skills. The Automotive Council Skills Working Group and SMMT have been working alongside several manufacturing and academic stakeholders, including the High Value Manufacturing Catapult (HVMC), to help support the pilot stages of the Emerging Skills Project – a programme which has undertaken foresighting analysis to understand the urgent skills needs of the sector and is in the process of developing and rolling-out a limited number of 'train the trainer' courses for emerging automotive skills.



³ SMMT Full Throttle report
https://www.smmt.co.uk/wp-content/uploads/sites/2/SMMT_FULL_THROTTLE_008-Compressed.pdf

DEVELOPING THE EXISTING WORKFORCE

The UK's journey to net zero and digitalisation has brought about rapid societal and mobility changes which, in turn, have driven a huge shift in required workforce competencies for the automotive sector. Government must ensure that the new, green jobs of the future are well-skilled, well-paid, diverse and inclusive. It will be critical to create effective STEM pipelines, as well as upskilling and reskilling existing jobs to become greener. In this context, we welcome government's commitment to place people at the heart of its strategies and recognise the progress made, for example through the work of the Green Jobs Taskforce and publication of the Innovation Strategy.

Currently, specialist skills for electrification and battery production do not exist at scale in the automotive industry. For battery cell manufacturing specifically, the Faraday Institution identifies that several hundred qualified workers are needed now, increasing to 3,000-4,000 by 2025 and 7,500-10,000 in 2030. If the UK takes full advantage of the opportunity to establish a strong industry for battery pack, cell and electrode manufacturing, the Faraday Institution estimates direct employment in automotive and battery manufacturing could grow by 29% from 168,000 to 220,000 by 2040. By contrast, SMMT's Full Throttle (2021) report estimates that if the UK only builds one additional gigafactory, leaving total supply under 15GWh, the UK's transition away from ICEs would be neither successful nor competitive.³ As a result, around 90,000 jobs could be lost.

However, given the automotive sector has historically high levels of workforce retention and an estimated 80% of today's labour force are expected to still be in employment in 2030, upskilling and reskilling across the existing automotive workforce is a significant challenge. Therefore, government should publish a comprehensive and holistic long-term skills and retraining strategy that supports the reskilling and upskilling of the workforce in the design, engineering and manufacture of electric vehicles and related components and systems.

According to the Automotive Council Skills Working Group and Ingenuity, 65% of UK automotive jobs are in engineering or production, which for 2020 equates to over 100,000 employees. Many of them will need some form of upskilling or reskilling, whether through basic awareness-level courses or higher-level practitioner training courses. The estimated 117,000 employees are split between operatives (65% or 76,000), technicians (15% or 17,500), engineers (15% or 17,500) and senior engineers/managers (5% or 6,000). With the sector needing to meet challenging net zero targets, as well as undertake advancements related to digitalisation, automation, connectivity and mobility, the UK must ensure employees have access to the courses needed. The sector has identified the following areas as an urgent priority for modular course development: electric batteries; electric drives and motors; digital reality; data literacy and digital thread; physical reality; and productivity and competitiveness.

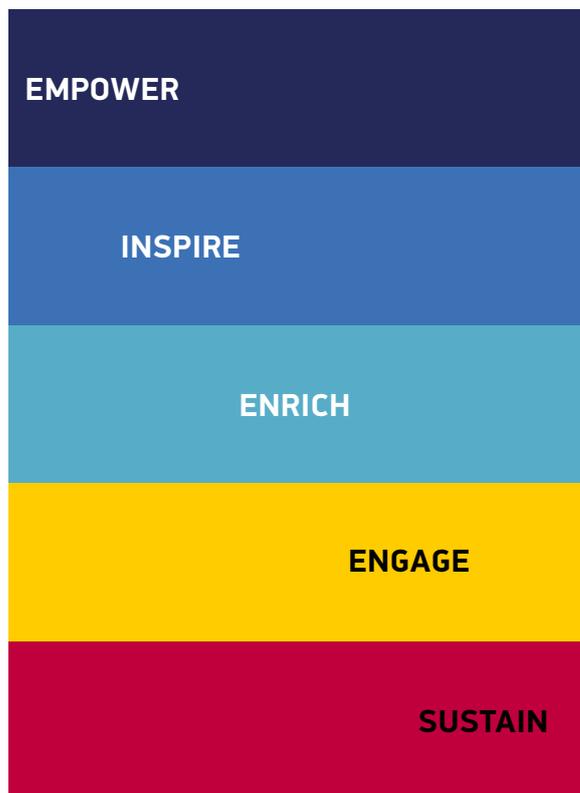
Automotive manufacturers and their supply chains face the dual task of maintaining production of current vehicles and components to remain in business while servicing today's market, while also developing the skills, expertise and engineering infrastructure required to create both new models and electric or other alternatively fuelled zero emission powertrains. Government support and funding is therefore required to reskill and upskill large cohorts of the existing workforce to ensure the right skills are available for designing, engineering and manufacturing electrified vehicles and related components and systems. In this context, the Emerging Skills Project, funded by the Department for Education, must continue its critical role in addressing the future skills gap in manufacturing and the wider engineering workforce. Other projects, like the Faraday Battery Challenge, which supports the quick development of company capabilities and skills to manufacture batteries, scale up and expand to global markets, must also be provided with continued support.

CASE STUDY: TOYOTA MOTOR MANUFACTURING UK SUPPORT LOCAL COVID-19 VACCINATION CENTRE

Toyota Motor Manufacturing UK (TMUK) helped a group of local GP practices support the set-up of a Covid-19 Vaccination Centre, which puts patient care and safety first, but maximises the throughput of patients handled.

The TMUK team studied the vaccination model and set up trial processes, used video breakdown to understand the work elements and timings, and set a "Takt Time" at 39 seconds. They calculated the capacity in each zone before creating a layout and flow that would minimise any stagnation. They also created a planning tool that would calculate patient booking times for the Practices.





DIVERSITY AND INCLUSION

SMMT DIVERSITY AND INCLUSION

Covid-19 disrupted all of our lives, but not in equal measure. Women and low-paid workers were more likely to be particularly impacted. On top of that, social injustices that sparked a global movement, amplified the clear need for rapid change.

In this context, SMMT is accelerating its work on diversity and inclusion across the SMMT Group. We are working to include diversity and inclusion actions within our everyday work so that it becomes ingrained within our company culture, and to support this we established a dedicated Task Force in 2020.

The role of the taskforce is to ensure the development and delivery of SMMT's diversity and inclusion agenda. We will report on the successful delivery of the actions within the resulting workplan as part of our key performance indicators.

The automotive industry has now embedded the aspirations of an increasingly diverse customer base through diversity in the workplace and an inclusive culture. Many Original Equipment Manufacturers (OEMs) have a range of employee-led networks, e.g. BAME, PRIDE or religious societies, which offer a platform for people to share their ideas and experience, influence leadership and network with each other.

The industry has also had a strong drive to employ women into engineering roles by creating sponsored schemes, offering employment to ex-military staff and other underrepresented groups in its workforce.

The automotive industry has now embedded the aspirations of an increasingly diverse customer base through diversity in the workplace and an inclusive culture.

UK AUTOMOTIVE SUSTAINABILITY RECOMMENDATIONS FOR GOVERNMENT

Ensure UK skills and training underpin the transition to green jobs by:



Publishing a comprehensive and holistic long-term skills and retraining strategy. This should support the reskilling and upskilling of the workforce in the design, engineering and manufacture of electric vehicles and related components and systems. The automotive sector would also welcome the opportunity to pilot greater flexibility of the apprenticeship levy to maximise use and ensure more young people are entering the workforce.



Providing multi-year, funded support for the HVMC's Emerging Skills Project and the long-term continuation of the Faraday Battery Challenge. Both programmes have undertaken extensive foresighting to understand the emerging and future skills required by the industry. The next stage of this work that government must support is the continued development, and subsequent delivery, of modular content in the net zero and digital realm.

ENVIRONMENTAL PERFORMANCE

→ **The automotive industry is fully committed to electrification and the journey towards zero tailpipe emission vehicles and greener and more sustainable mobility. There are currently more than 150 ultra low emission vehicle (ULEV) models available for UK consumers alone with one in three models available to buy today zero emission capable. More than 300 models are expected to be available in the market in Europe by 2025. However, the swift uptake of these vehicles will only happen if supported by equivalent targets for energy and charging providers, on which the owners rely. To support this market transformation, the right policies need to be in place to encourage consumers to make the change ahead of a natural evolution of the market.**

PERFORMANCE

- Both absolute energy and CO₂ down -13.2% and -17.6% respectively
- New car average CO₂ emissions down -11.8% to 112.8g/km
- 2020 AFV registrations at 17.5% market share, of which 6.6% were BEVs

REASONS

- Pandemic caused production drop, resulting in reduced efficiency
- Growing uptake of AFVs

FUTURE CHALLENGES/ OPPORTUNITIES

- ICE phase out and fulfilling electrification commitments
- Meeting net zero GHGs in production operations and supply chain
- Further increase sector's circularity

The shift to decarbonised vehicles needs to be accompanied by a transformation in production facilities and supply chains. SMMT's Full Throttle (2021) report argues that government should set itself an explicit target to provide 60GWh of battery production within the UK by 2030.⁴ This would ensure that the UK has the capacity to produce up to one million electric vehicles a year domestically, sustaining and growing the domestic EV supply chain – power electronics, motors and drives (PEMD). Government should also support the development of a fuel cell gigafactory with 2GWh capacity to support cars, heavier vehicles and rail units by 2030.

Investment in the development of battery recycling facilities is also important, not just to support the circular economy but also to recover raw materials that can be funnelled back into the supply chain. At present the number of ULEV batteries reaching the end of their life is low and those batteries are currently transported to the EU for recycling, resulting in potential raw materials for battery production being lost for UK-based production processes. Establishing battery recycling facilities in the UK would both support circular economy principles and the competitiveness of the UK as a ULEV manufacturing location.

In the immediate term, fleet renewal remains the quickest way to lower emissions, with older, more polluting vehicles being replaced by new vehicles which have significantly lower emissions. This would further support essential net zero technologies, like lightweighting and advanced materials, increasing the UK's capabilities, IP and content in finished vehicles.

A net zero automotive industry will rely on having a net zero supply chain of smaller businesses. While the government-backed UK Business Climate Hub provides a welcome starting point for smaller businesses hoping to make the transition to net zero, many will need more tailored support, based on their own individual circumstances and requirements. Where government is not best placed to provide this directly, it should act as an efficient gateway to those that can.

⁴ SMMT Full Throttle report
https://www.smmt.co.uk/wp-content/uploads/sites/2/SMMT_FULL_THROTTLE_008-Compressed.pdf



CO₂ AND CLIMATE CHANGE SIGNATORIES' NET ZERO COMMITMENTS

OEM	NET ZERO COMMITMENTS	DATE
Bentley	Carbon neutral, manufacturing operation climate positive thereafter	2030
Bosch	Carbon neutral (scope 1,2) Scope 3 15% reduction 2030	2020
BMW	Vehicle production carbon neutral (2021), -80% GHG by 2030	2030
Ford	Carbon neutral	2050
Honda	Carbon neutrality	2050
Jaguar Land Rover	Net zero carbon emissions (supply chain, products and operations)	2039
Mercedes	Vehicle production carbon neutral (2022), New fleet (2039)	2039
Michelin	Carbon neutral across all scopes (1,2,3)	2050
Nissan	Carbon neutral	2050
Toyota	Zero vehicle life cycle emissions and production related emissions	2050
Unipart	Carbon neutral	2030
Volkswagen AG	Carbon neutral	2050
Volvo Cars	Carbon neutral	2040

SCIENCE BASED TARGETS

Science based targets (SBTs) are targets set in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement agreed at COP21– limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C. In 2021 the following automotive companies have committed to SBTs covering their global operations: General Motors and Jaguar Land Rover. They now have two years to get their target approved. So far BMW Group (2021), Robert Bosch GmbH (2020), Ford (2021), Mercedes-Benz (2019), PSA Automobiles (2019), Renault (2019), Volkswagen AG (2020) and Volvo (2020) have had their targets set and approved by the Science Based Target Initiative.

OEM	°C	TARGET
BMW Group	1.5°C	BMW Group commits to reduce scope 1 and 2 GHG emissions -80% per vehicle produced by 2030 from a 2019 base year. BMW Group commits to reduce scope 3 GHG emissions from use of sold products 40% per vehicle kilometer by 2030 from a 2019 base year. BMW Group commits to reduce scope 3 GHG emissions from purchased goods & services and upstream transportation & distribution services 22% per vehicle sold by 2030 from a 2019 base year.
Ford Motor Group	1.5°C	Ford Motor Company commits to reduce absolute scope 1 and scope 2 GHG emissions -17.6% by 2035 from a 2017 base year. Ford Motor Company also commits to reduce scope 3 use of sold products GHG emissions -50% per vehicle kilometer by 2035 from a 2019 base year.
Mercedes-Benz AG	1.5°C	Mercedes-Benz AG commits to reduce absolute scope 1 and 2 GHG emissions -50% by 2030 from a 2018 base year. Mercedes-Benz AG commits to reduce scope 3 GHG emissions from use of sold products 42% per vehicle kilometer by 2030 from a 2018 base year.
PSA Automobiles SA	2°C	PSA commits to reduce absolute scope 1 and 2 GHG emissions 20% by 2034 from a 2018 base year. PSA also commits to reduce scope 3 GHG emissions from use of sold products by -37% per vehicle kilometer by 2034 from a 2018 base year. The target boundary includes biogenic emissions and removals from bioenergy feedstocks.
Renault	Well below 2 °C	Renault commits to reduce scope 1 and 2 GHG emissions -60% per car produced by 2030 from a 2012 base-year. Renault commits to reduce scope 3 GHG emissions from use of sold products -41% per vehicle kilometer by 2030 from a 2010 base-year.
Robert Bosch	1.5°C	Bosch commits to reduce absolute scope 1 and 2 GHG emissions -85% and absolute scope 3 GHG emissions -15% by 2030 from a 2018 base year. Robert Bosch GmbH also commits to increase annual sourcing of renewable electricity from 14% in 2018 to 100% by 2030. The target boundary includes biogenic emissions and removals from bioenergy feedstocks.
Volkswagen AG	Well below 2 °C	Volkswagen AG commits to reduce absolute scope 1 and 2 GHG emissions 30% by 2030 from a 2018 base year. Volkswagen AG further commits to reduce scope 3 GHG emissions from use of sold products of light duty vehicles -30% per vehicle km by 2030 from a 2018 base year. Volkswagen subsidiary Scania CV commits to reduce scope 3 GHG emissions from use of sold products -20% per vehicle km by 2025 from a 2015 base year.
Volvo Car Group	1.5°C	Volvo Car Group commits to reduce absolute scope 1 and 2 GHG emissions -60% by 2030 from a 2019 base year. Volvo Car Group commits to reduce scope 3 GHG emissions from use of sold products -52% per vehicle kilometer by 2030 from a 2019 base year.

COP26 - UN RACE TO ZERO CAMPAIGN

The UN's Race to Zero campaign aims to build momentum ahead of the COP26 UN Climate Change Conference in Glasgow in early November, hosted by the UK in partnership with Italy.

Globally, more than 3,000 companies have joined the campaign to date. In joining Race to Zero, companies commit to setting net zero targets in line with climate science by 2050 at the latest. Companies joining the campaign need to implement decarbonisation strategies in line with the Paris Agreement, through business change and innovations, including efficiency improvements, using renewable energy, materials reductions, and other carbon emission elimination strategies. The residual emissions which cannot be eradicated, can be offset with quantifiable, permanent, and socially beneficial offsets.

CASE STUDY: RALLY OF SCOTLAND (EVROS)

The EVROS is a 'demonstration' of Scottish EV charging infrastructure across the region. During COP26 12+ EVs will set off from Glasgow, for a 5-day, 1234 mile 'e-Tour of Scotland'.



COP26 GOALS INCLUDE

- 01 **Secure global net zero by mid-century and keep 1.5 degrees within reach**
 - accelerate the phase-out of coal
 - curtail deforestation
 - speed up the switch to electric vehicles
 - encourage investment in renewables.
- 02 **Adapt to protect communities and natural habitats**
 - protect and restore ecosystems
 - build defences, warning systems and resilient infrastructure and agriculture to avoid loss of homes, livelihoods and even lives
- 03 **Mobilise finance - at least \$100bn in climate finance per year by 2020**
- 04 **Work together to deliver to finalise the Paris Rulebook and accelerate action to tackle the climate crisis through collaboration between governments, businesses and civil society**

3067
Businesses

733
Cities

624
Education

173
Investors

31
Regions

MANUFACTURING BUSINESS ENERGY

At automotive manufacturing sites, energy is often the second largest ‘in-house’ manufacturing cost, after labour, so it is critical to the competitiveness of UK-based businesses. The automotive sector has made excellent progress in reducing emissions, bringing down costs. However, fully decarbonising automotive manufacturing will take a step-change in technology, requiring innovations which have yet to be developed to a fully commercial stage and are likely to be very expensive.

UK electricity prices (including associated taxes) are now 87% above the EU28 average. In the UK, 38% of the cost of energy is tax, more than double the 17% across the EU27. Between 2010 and 2020, UK taxes rose from -70% below the EU27 average to over 320% above it.

Through investment and hard work, the sector has delivered reductions in energy use – over 14% in terms of this report’s participants on an energy per vehicle basis since 1999. Climate Change Agreement (CCA) participants have delivered a -18% reduction in energy per vehicle in 2019-2020 (target period 4) compared with the 2008 baseline and just bettering our target of a 15% improvement, and EU Emissions Trading Scheme participants gas usage was down -38% on 2013 levels in 2020 (phase 3 of the scheme).

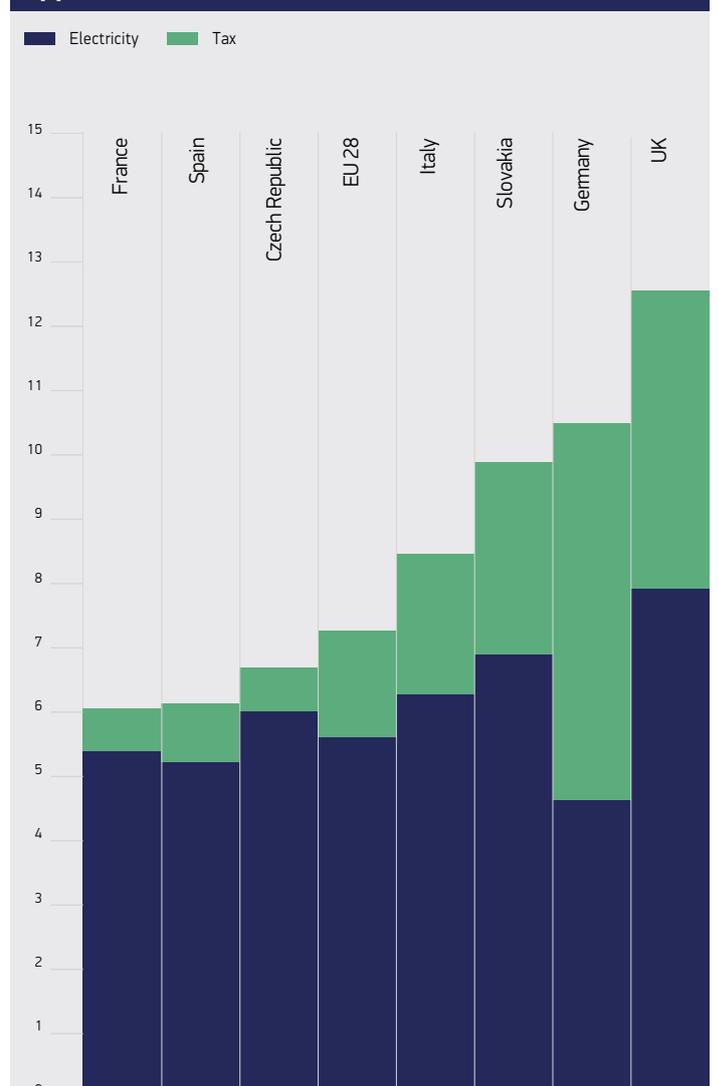
2020 was an exceptional year, with operating hours and output cut sharply by the impact of Covid-19. While overall energy use was lower than usual, performance (expressed as energy per vehicle) was undermined due to the underlying energy needs of a facility even when not producing. It will take some time for things to return towards normality.

Automotive manufacturing sites have invested heavily in renewables – including solar PV and wind turbines – but are restricted by space on existing land to go further. Current business rates policy also deters such investment spend. As large energy users, but not classed by government as energy-intensive (EI), vehicle manufacturers have also faced the high costs placed on industry to support the decarbonisation of the UK energy supply sector without getting any of the discounts or exemptions which benefit EI sectors.

SMMT continues to push for an extension of the CCAs, which are necessary to support the competitiveness of the sector while the climate change levy is in place. The move to the UK Emissions Trading Scheme is broadly welcomed, but to ensure liquidity in the market and the competitiveness of UK industry, the UK scheme should be linked to the EU ETS as soon as possible. Government should also reconsider how it supports strategically important sectors like automotive, which compete in the global marketplace. Compared with the last phase of the EU ETS, automotive participants moving over to the new UK ETS are likely to see cost of emissions rise by around £12 million per annum in 2021 alone. Giving the automotive sector the higher rate of free allocation (by opening up to trade intensive non-EI sectors) could help, but more needs to be done to protect the sector from the UK’s high electricity costs and the ramping up of gas costs.



CHART X Electricity prices 1H 2020 - large users (pp/kwh - source BEIS)



Manufacturers of low carbon, hydrogen and battery vehicles should also be able to access the same benefits and compensation schemes as energy intensive industries and get more support within the UK Emission Trading Scheme (ETS). Climate change agreements should be simplified to enable more automotive sites to qualify, including electric vehicle battery manufacturing. Government should also provide incentives to industry to invest in radical decarbonisation solutions in the manufacturing process, by scaling up and making the industrial energy transformation fund more broadly accessible and attractive.

The automotive industry is also concerned that it could see costs increase if additional measures such as EU Carbon Border Adjustment Mechanisms (CBAM) are introduced, or if the ETS itself is expanded to include sectors which could easily pass the costs onto their customers (eg the road transport fuel industry). Such new measures need careful consideration before being introduced.

The decarbonisation of vehicle fleets and manufacturing processes will lead to a significant increase in electricity use. Higher energy costs, notably for electricity, could perversely undermine investment in plant decarbonisation and the move to electricity intensive electric battery manufacturing in the UK. Decarbonising the manufacturing process largely means a switch away from gas (used for the paint shop ovens and heating). High electricity costs have switched some of the focus to hydrogen as a low carbon alternative, but this remains an unproven and expensive technology lacking the necessary infrastructure provisions. In addition, hydrogen could also create process challenges, such as increased moisture, which may impact paint quality. Therefore, much more government support, and easier access to fiscal support, is urgently needed to encourage trial projects and investment in the infrastructure necessary to enable fuel switching.

CASE STUDY: GREEN POWER DEAL SUPERCHARGES LOTUS' NET ZERO AMBITIONS



Lotus and British Gas Business signed in 2020 a new green electricity deal, which ensure the sports car maker's headquarters and supporting facilities are powered by renewables.

The contract is REGO-backed (Renewable Energy Guarantees of Origin), where the power is purchased from 100% renewable sources, ensuring the electricity used across Lotus' UK sites is carbon neutral.

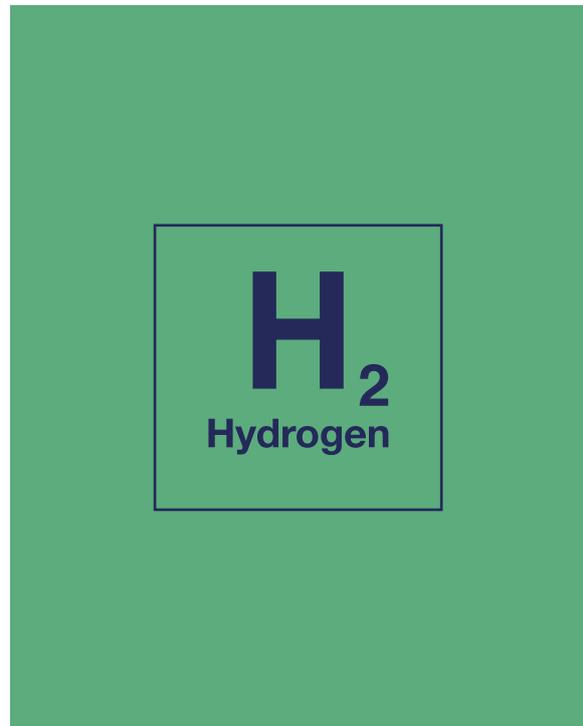


HYDROGEN

In June 2020, SMMT joined the Hydrogen Strategy Now cross-industry campaign, calling on government to develop and adopt a hydrogen strategy for the UK. Such a strategy is essential to ensuring every relevant sector can access the clean hydrogen it needs to offer a viable option to decarbonisation. While there will be differences in the need for dispensing hydrogen, there needs to be a holistic UK wide plan covering its production, transmission, and storage.

With more hydrogen products coming to market across different segments of the automotive industry, alongside developments in other sectors, the publication of a government Hydrogen Strategy is crucial. The strategy will need to design in clean hydrogen from the beginning to avoid locking industries into fossil fuel derived hydrogen. For transport, hydrogen could offer a viable alternative to battery electric for HGVs and buses.

In September 2020, government announced the Teeside Hydrogen Transport Hub with £3m of funding. The competition for funding opened in May 2021. The UK now has 15 hydrogen refuelling stations for cars and buses either opened or in the planning stages (source: the UK H2 Mobility site).



CASE STUDY: VOLVO CAR UK SUPPORTS DURRELL WILDLIFE CONSERVATION TRUST

Volvo Car UK partnered in 2020 with Durrell, the international conservational charity, and donated £100,000 to reflect Volvo's commitment to protecting and improving the natural world, alongside its practical steps to de-carbonise its operations and become a climate-neutral business.

Durrell's 'Rewild our World' strategy aims to RECOVER threatened or missing wildlife; REVIVE and rebuild ecosystems and natural processes; RECONNECT people to the natural world and take RESPONSIBILITY for demonstrating the value of the natural world. Funds will support three projects, including Durrell's 'Recover the Atlantic Forest' initiative, which aims to neutralise around 2,500 tonnes of greenhouse gas emissions.

Durrell works worldwide in its mission to save species from extinction with a focus on long-term restoration of ecosystems in 10 of the world's major terrestrial biomes.





CASE STUDY: TOYOTA GB GIVEN BIODIVERSITY BENCHMARK BY THE WILDLIFE TRUST

Toyota GB's headquarters in Burgh Heath, Surrey, has been awarded in 2020 the Biodiversity Benchmark by the Wildlife Trust in recognition of transformation to create a sustainable wildlife habitat on the grounds.

Toyota has worked closely with the Royal Botanic Gardens, Kew and Land Care Associates to develop an environmentally friendly strategy for the gardens as well as planting and managing the various types of wildlife.

Toyota GB has created enhancements to the site with various additions such as bug hotels, bird, bat, and owl boxes in a hibernaculum for frogs and newts.

The stunning gardens of Toyota GB stretch around the entire site, giving employees great views out of their office windows, plus a great place to socialise or get some peace and quiet.



CASE STUDY: BENTLEY SWITCHES TO WASTE-BASED RENEWABLE FUELS FOR GREENER IN-HOUSE LOGISTICS

In 2020, Bentley Motors became the first luxury automotive brand to run its in-house logistics on 100% renewable fuels. This follows the installation of hydrotreated vegetable oil (HVO) fuelling facilities at its site in Crewe.

A 34,000 litre 'Green D+' HVO tank and pump now fuels the ten HGV logistics trucks that transfer parts between Bentley's Crewe site and storage depot in Winsford on a daily basis and over 20 smaller on-site security vehicles and delivery vans. The 250 plus forklift trucks and tow motors used inside the factory are already being charged with green electricity generated in part by 30,000 on-site solar panels.

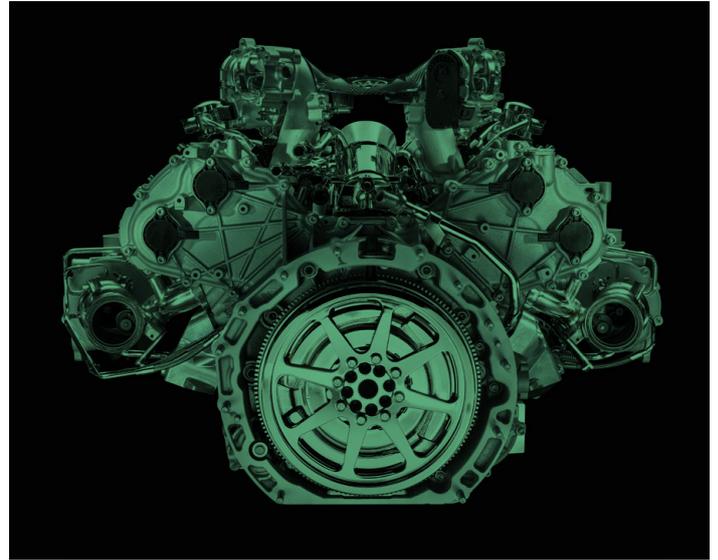
Compared to conventional fuel, the switch will reduce tailpipe CO₂ emissions from logistics vehicles by over -86%, at the same time as reducing nitrous oxide by up to -30% and particulates by up to -80%. With CO₂ emissions reduced by over -86%, of a total of almost 300,000 miles clocked up by in-house vehicles every year, over 250,000 miles of them are now effectively 'CO₂ emissions free'.

Fleet renewal remains the quickest way to lower emissions, with older, more polluting vehicles being replaced by new vehicles which have significantly lower emissions

VEHICLES END OF SALE OF INTERNAL COMBUSTION ENGINE 2030

In November 2020, as part of its Ten Point Plan for a Green Industrial Revolution, the UK Government announced that the end of sale mandate for new cars and vans equipped with conventional petrol and diesel engines would be brought forward to 2030. This now makes the UK the most ambitious of all G7 countries for mandating the end of sale for pure petrol and diesel fuelled vehicles.

A second stage was announced that would allow the sale of some plug-in hybrid vehicles and non plug-in hybrids until 2035 for new cars and vans. From 2035, new cars and vans will need to be fully zero emission, resulting in powertrain options such as BEV or Fuel Cell Electric (FCEV). SMMT believes that the transition period of 2030-2035 for hybrid vehicles is needed to support a sustainable transition to full zero emission alternatives, and to ensure suitable and affordable vehicles continue to be available for customers and fleet owners in the foreseeable future. Electric vehicles and charging infrastructure are continuing to mature, while new vehicle launches saturate the market and provide wider segment coverage, in addition to becoming more affordable. This strategy supports the drive down of emissions from light duty transport, while ensuring continued fleet renewal by giving consumers growing confidence in electrified vehicle technologies.



Signatories' electrification global commitments

OEM	Electrification commitments	Date
Aston Martin	Aim to have 90% of its range of models fully electrified	2030
Bentley	PHEV or BEV only 2026; Full electric 2030	2030
BMW	50% of sales to be electric	2030
Ford	All electric line-up in Europe (petrol and pure diesel by 2026, then hybrids)	2030
Honda	All electric globally	2040
Jaguar Land Rover	Jaguar will be pure-electric by 2025, and all Land Rover nameplates will be available as BEVs by 2030. Diesel to be phased out from 2026. Zero tailpipe emissions globally by 2036.	2036
Lotus	All electric	2028
Mercedes	Over 50 % car unit sales with plug-in hybrids or all-electric	2030
Nissan	Every all-new Nissan vehicle offering in key markets will be electrified	2030
Stellantis	BEV and PHEV to account for 70% of European sales and 40% of its US sales by 2030. By 2030 80% of sales BEVs. Vauxhall-Opel fully electric by end of 2028.	2030
Toyota	70 electrified models (including 15 BEVs) by 2025.	2025
Volvo	50% of sales electric 2025. Fully electric 2030	2030
Volkswagen AG	70 all electric models. Production of 26m electric cars until 2030	2030

TRANSPORT DECARBONISATION PLAN

In July 2021, government published the Transport Decarbonisation Plan – Decarbonising Transport: A Better, Greener, Britain. The document sets out government’s high-level proposals for decarbonising all forms of transport. SMMT welcomes the TDP, which is a necessary first step to creating a clear and supportive framework to accelerate the transition to net zero mobility.

Alongside existing commitments, like the phase out date of all petrol and diesel cars and vans by 2030, the TDP includes plans to consult on the phase out dates for petrol and diesel coaches and HGVs by 2040. However, for this to be achieved, government must introduce a supportive policy and regulatory framework which enables such a quick transition in a sector where zero emission technologies are in their infancy.

The TDP was also accompanied by the publication of a Green Paper on a New Road Vehicle CO₂ Emissions Regulatory Framework for the United Kingdom, which will govern the end of sale of petrol and diesel vehicles, as well as finalise plans for the use of hybrids and a Zero Emission Vehicle Mandate.

While the automotive sector is committed to playing its part in creating a UK zero carbon economy, the TDP contains little in the way of detailed mechanisms for achieving the highly ambitious new targets that have been set for all vehicles. The automotive industry should be given flexibility in meeting its 2030 and 2035 zero emission requirements in a way that works best for them, both in terms of technology neutrality and in meeting interim CO₂ targets. This will allow the spectrum of transitional and future technologies to be utilised to deliver net zero ambitions, while acknowledging the non-linear and lengthy nature of investment cycles.



It is imperative that the right policy and support framework is put in place to enable this transition to happen. As such, the automotive sector is keen to work with government, during the next phase of consultations, to enable the quickest and most equitable transition to zero emissions in road transport. Regulation must minimise complexity and avoid the unnecessary introduction of expensive new metrics and frameworks for measuring and monitoring progress. Acknowledging the global nature of car manufacturing and sales, regulation should also reduce as far as possible any unnecessary duplication or deviation across global, EU and devolved markets.

As the UK leads the world in transitioning to zero emission vehicles, it is critical that we remain an attractive place to invest in low carbon transport manufacturing. SMMT’s Full Throttle (2021) report concluded that the UK retains many of its traditional strengths – a strong science, engineering and innovation base; a flexible and highly productive workforce; and a strong domestic market – and, with the right investment, we have the potential to secure and grow the automotive industry for decades to come.⁵

However, the report also found that the UK is increasingly falling behind our international competitors on metrics like high business electricity costs, high business rates, relatively few tax incentives for investment and, unlike many of our competitors, no longer have frictionless access to a large regional trading bloc. If these fundamentals don’t change, UK competitiveness could rapidly decrease in future years. This should inform government decision making about the required level of automotive support and taxation during the transition to net zero, particularly when compared to other competitor nations such as France, Germany and Spain. Government should introduce a new ‘Build Back Better Fund’ to support good manufacturing jobs for the future and help lower manufacturing costs such as energy.

Extensive investment by manufacturers into advanced powertrains, lightweight materials and aerodynamics means that new cars now emit, on average, some -29.3% less CO₂ than models produced in 2000.

New cars now emit, on average, some -29.3% less CO₂ than models produced in 2000.



5 SMMT Full Throttle report
https://www.smmt.co.uk/wp-content/uploads/sites/2/SMMT_FULL_THROTTLE_008-Compressed.pdf



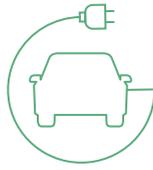
Accelerating modal shift to public and active transport

- Help make public transport and active travel the natural first choice for daily activities
- Support fewer car trips through a coherent, convenient and cost-effective public network and explore how we might use cars differently in future
- Encourage cycling and walking for short journeys
- Explore how to best support the behaviour change required



Decarbonising how we get our goods

- Consider future demand and changing consumer behaviour for goods
- Transform 'last-mile' deliveries – developing an integrated, clean and sustainable delivery system
- Optimise logistics efficiency and explore innovative digitally-enabled solutions, data sharing and collaborative platforms



Decarbonisation of road vehicles

- Support the transition to zero emission road vehicles through:
 - regulatory framework
 - strong consumer base
 - market conditions
 - vehicle supply
 - refuelling and recharging infrastructure
 - energy system readiness
- Maximise benefits through investment in innovative technology development, and development of sustainable supply chains



Place-based solutions

- Consider where, how and why emissions occur in specific locations
- Acknowledge a single solution will not be appropriate for every location
- Address emissions at a local level through local management of transport solutions
- Target support for local areas, considering regional diversity and different solutions



UK as a hub for green transport technology and innovation

- Utilise the UK's world-leading scientists, business leaders and innovators to position the UK as an internationally recognised leader of environmentally sustainable technology and innovation in transport
- Build on expertise in the UK for technology developments and capitalise on near market quick wins



Reducing carbon in a global economy

- Lead international efforts in transport emissions reduction
- Recognise aviation and maritime are international by nature and require international solutions
- Harness the UK as a global centre of expertise, driving low carbon innovation and global leadership, boosting the UK economy

EV CHARGING INFRASTRUCTURE

Government policy to bring forward the end of sale of internal combustion engine (ICE) cars and vans to 2030 requires a comprehensive infrastructure delivery plan to ensure there is adequate charging infrastructure for consumers by 2030. It is of paramount importance that the accelerated transition timeframe for zero emission vehicles is matched by an equally accelerated programme that expedites infrastructure rollout, regulates the standard of consumer experience and safeguards social equity.

Government must commit to uplifting the amount of public chargepoints to ensure consumers have the confidence to switch to EVs and to make a success of its end of sale policy. In the UK, as many as 2.3 million public chargepoints will be needed by 2030 if consumers' preference is to charge at home, which is the most convenient form of charging. The charging infrastructure sector must step up by investing in chargepoint provision ahead of consumer demand, recognising that adequate infrastructure provision will drive accelerated EV uptake (not the other way around), which will in turn increase chargepoint utilisation. Therefore, government should publish its Infrastructure Strategy without delay and introduce ambitious binding targets for charging infrastructure rollout that exceed those set across the EU as part of the recent Fit for 55 package. For example, in EU competitor countries, 1kW additional public charging must now be added for each newly registered light-duty BEV, while TEN-T core and comprehensive road networks will require a charging stations at least every 60km. Similar targets have also been set for heavy-duty vehicles.

The key to a successful rollout of infrastructure is a nationally coordinated but locally delivered Infrastructure Plan involving all key stakeholders. In addition, greater support, including clear and consistent guidance, must be provided to local authorities to plan for, approve and commission the installation of chargepoints.

Government should also regulate to improve the consumer experience of charging infrastructure, focussing on improving ease of payment, real-time public chargepoint data availability, reliability and pricing transparency. A new, dedicated regulatory body should be set up to monitor compliance and enforce these measures. This regulatory body should also be empowered to monitor for social equity, to ensure no socio-economic groups or communities are disadvantaged or left behind in the rollout of charging infrastructure.

The increased electricity demand associated with a transition to EV vehicles, and the need to socialise the up-front costs of new grid connections, makes it even more important that both business and domestic customers get a good deal from their energy providers. Government should work with Ofgem to require energy retailers and network operators to adopt fair, transparent and smart pricing mechanisms that are clearly understood by the consumer, as well as continuing to support an increase in renewable energy able to meet the new level of demand.

CASE STUDY:

LEVC LAUNCHES NEW ELECTRIC VAN



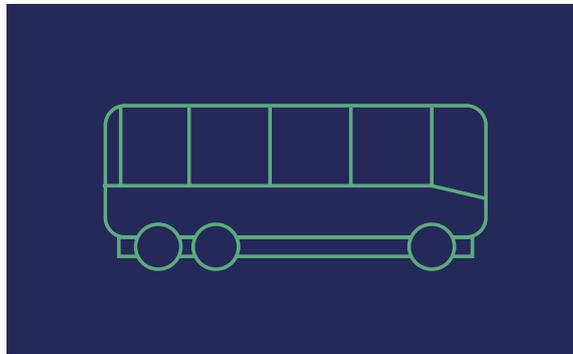
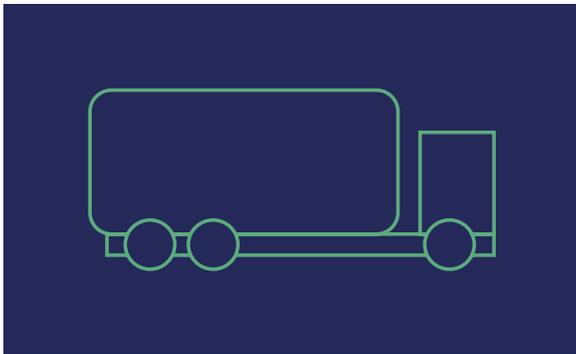
In 2020 LEVC launched its new electric light commercial van VN5, which has a flexible range of over 300 miles (up to 75miles range in pure EV mode) delivered by LEVC's eCity electric technology. It also uses with the same construction as LEVC's highly successful TX taxi. With up to 5.5m3 capacity, VN5 cargo capacity easily accommodates two Euro sized pallets with a gross payload of 830kg. It has also the ability to go from zero charge to 100% in 30 minutes thanks to its 50kW DC charging capability,



END OF SALE OF NON-ZERO EMISSION HGVS AND BUSES

As part of the UK's transition to net zero by 2050, and in line with the Climate Change Committee's advice on the Sixth Carbon Budget, the UK Government has committed to reducing CO₂ emissions by -78% by 2035 compared to 1990 levels. Recognising that road transport is the biggest contributor to UK carbon emissions, the recent Transport Decarbonisation Plan reaffirmed government's prior commitment to end the sale of conventional petrol and diesel cars and vans by 2030, stating that all such vehicles must be zero emission at the tailpipe by 2035.

The Transport Decarbonisation Plan also sets out government's intention, subject to consultation, to phase out the sale of new diesel and petrol heavy goods vehicles (HGVs), with a 2035 date for vehicles weighing 3.5 to 26 tonnes and a 2040 date for vehicles weighing more than 26 tonnes. Compared to zero emission cars and vans, the deployment of technology, products and infrastructure for zero emission heavier vehicles is still in its infancy and needs time for further development.



HGVs

Manufacturers are developing zero emission technology for the heavy-duty sector. However, advancements in suitable technology are still in their infancy. The key challenges to operators are practicality and affordability, with the main issues being cost, range and weight-payload trade-off. HGVs carry out essential services for business and society. Operators cannot easily switch to alternative modes or powertrains as the technology is not yet available to achieve a like-for-like efficient operation that is both affordable and maintains existing payloads. These vehicles are business tools and are not chosen or renewed in the same way as a passenger car. The approach to decarbonisation of HGVs must be considered differently to that of other vehicles, particular given their vital importance to society as a whole.

Achieving zero carbon in the HGV sector needs to be through a phased transition that allows manufacturers to develop new products and supports operators to introduce new technology into their fleet without raising costs for consumers. To enable a BEV solution for the very largest and heaviest commercial vehicles, further breakthroughs in battery technology will be needed to provide the necessary vehicle range that is affordable to the consumer. Euro VI diesel and gas technologies, which are available now, play a key role in reducing emissions in the short to medium term until electric and fuel cell technologies, as well as any future innovations, have sufficiently matured for full operation in the heavy-duty sector.

BUSES

Government continues to consult on an appropriate date to end the sale of new non-zero emission buses and on the appropriate supporting policy and regulatory framework required. In this context, the UK bus sector is a global leader and technological centre of excellence, operating Europe's largest EV bus fleet. The UK market's structure and outlook has encouraged the industry to make significant investments in innovative, efficient lightweight platforms and pioneering ultra low and zero emission technologies.

Buses provide an affordable and accessible mode of transport for members of the public, especially those in isolated communities and rural areas, and play a crucial role in improving air quality in cities and urban areas. While the bus provides a vital lifeline for many across the country, and in many places is the core element of public transport services, bus patronage has seen a continuous decline in recent years. Covid-19 has impacted the sector even further, creating severe financial impacts for bus operators that leave them unable to commit funding for the purchase of new vehicles. In this regard, there should be particular focus on support for rural bus operators.

In March 2021, government published its Bus Back Better Strategy for England, which sets out how to launch a revolution in bus services. The policies included need to be implemented rapidly to allow bus manufacturers and operators to transform services to make them sustainable, affordable and attractive to the passenger.

CO₂ EMISSIONS

New car average CO₂ showed a marked decrease of -11.8% over 2019 figures as the EU industry faced the combined challenge of new more stringent targets in 2020, the disruption to development, production and sales caused by the pandemic, and the final transition from the New European Driving Cycle (NEDC) to Worldwide Harmonised Light Vehicle Test Procedure (WLTP) for CO₂ measurement. The EU target of 95g/km was set against the NEDC test and the introduction of the more representative WLTP has resulted in an uplift in measured CO₂ of between 20% and 40% for the majority of models. The change from NEDC to WLTP has been very positive for consumers who can now better understand their vehicle’s fuel efficiency and CO₂ performance.

The decrease has been achieved to a large extent thanks to the growing market for alternatively fuelled vehicles (AFVs) and the strong performance of plug-in vehicles.

The light commercial vehicle sector has faced the same challenges, but the switch to plug-in vehicles is slower at this stage. So while there was a decline of -1.8% over 2019 figures, there remains some work to do in developing the market and uptake of ultra low emission vehicles.

The UK’s exit from the EU at the end of 2020 means that the UK will introduce and operate its own fleet average CO₂ regulations from 2021. Initially, the domestic regulations will follow the framework and ambition of the EU regulations, which the UK was involved in developing. However, the recent publication of the Transport Decarbonisation Plan sets out UK’s ambitions outside of the EU and proposes changes to the next phase of vehicle efficiency regulations. For the industry, which operates across international markets, any fundamental divergence from the EU regulations could result in unintended negative impacts on the UK market, risking the slowing of fleet renewal with the associated detrimental impact on the environment. For this reason, SMMT and its members are keen to work closely with government to ensure that all implications are fully evaluated and understood.

CHART 01 UK Average new car CO₂

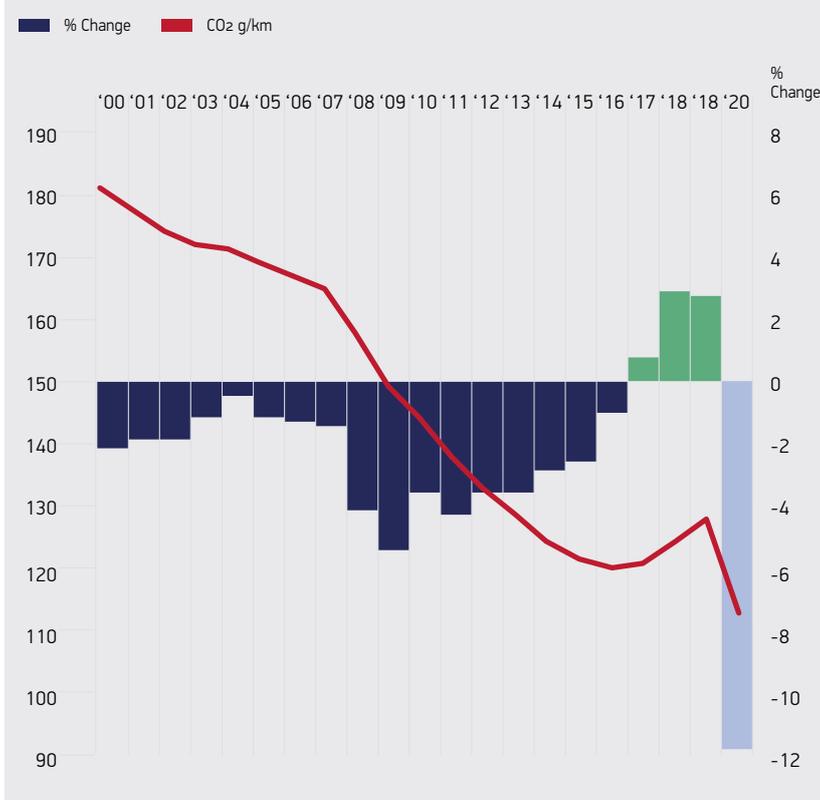


CHART 02 LCV UK Fleet Average CO₂



CASE STUDY:
VOLKSWAGEN GROUP UK
SIGNS DEAL WITH OCTOPUS
ENERGY TO OFFER GREEN
HOME ENERGY TO ITS
CUSTOMERS

As part of its commitment to CO₂-neutral vehicle manufacturing, Volkswagen Group UK in 2020 started offering free driving miles to customers who move to a 100% renewable dual fuel Octopus Energy tariff, when they purchase an electric vehicle. This will be presented in the form of a credit of £90 to their energy account – the equivalent to several thousand miles, depending on the model.



octopusenergy

OVER £30 MILLION GOVERNMENT INVESTMENT
TO BOOST BATTERIES AND HYDROGEN VEHICLES

In March 2021, Government announced £9.4 million of funding for 22 studies to develop a lithium extraction plant in Cornwall, a plant to build specialised magnets for electric vehicle motors in Cheshire and lightweight hydrogen storage for cars and vans in Loughborough.

The government-backed Faraday Institution is also committing the first year of a £22.6 million programme to continue its work to further improve the safety, reliability and sustainability of batteries.



AIR QUALITY

COVID-19 IMPACT ON AIR QUALITY

Behavioural changes resulting from the Covid-19 pandemic led to traffic volume reductions of between 50 and 70%⁸ in 2020, and an average reduction in NOx concentration of about -40%⁹ was observed after weather effects had been taken into account. The most drastic changes in concentrations were observed in urban areas. Particulate matter (PM) concentrations recorded the highest level in Spring 2020 while lockdown measures were in place, mainly due to meteorological conditions.

The reduction of traffic as a result of "stay at home" policies and reduced economic activity has led to an improvement in air quality. However, the adverse economic and social impacts of the restrictions put in place to limit the spread of the virus have been severe. The challenge for both central and local government remains to maintain the improvement in air quality while achieving and sustaining economic growth.

As the UK economy recovers from Covid-19, there is concern that people will remain reluctant to use public transport, meaning car use will increase. Government has awarded funding to local authorities to mitigate this risk by creating and introducing low traffic neighbourhoods (LTN). A low traffic neighbourhood is an area that is closed to through-traffic, usually residential neighbourhoods, thus redirecting traffic onto the main road. The concept of a low traffic neighbourhood is not new and has been successfully implemented in Barcelona and other European cities¹⁰ for a number of years. While many of the UK LTNs have received praise and support from those that benefit from them, there has been wide criticism from some groups. A lack of consultation has led to some of these plans being put in place without a full understanding of the impact they will have on all groups in particular, disabled people.¹¹ Additionally, the pace of change has not allowed full air quality assessments to be made to determine the changes in air quality that may occur on the main roads, many of which are in residential areas themselves.

⁶ https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2007010844_Estimation_of_Changes_in_Air_Pollution_During_COVID-19_outbreak_in_the_UK.pdf

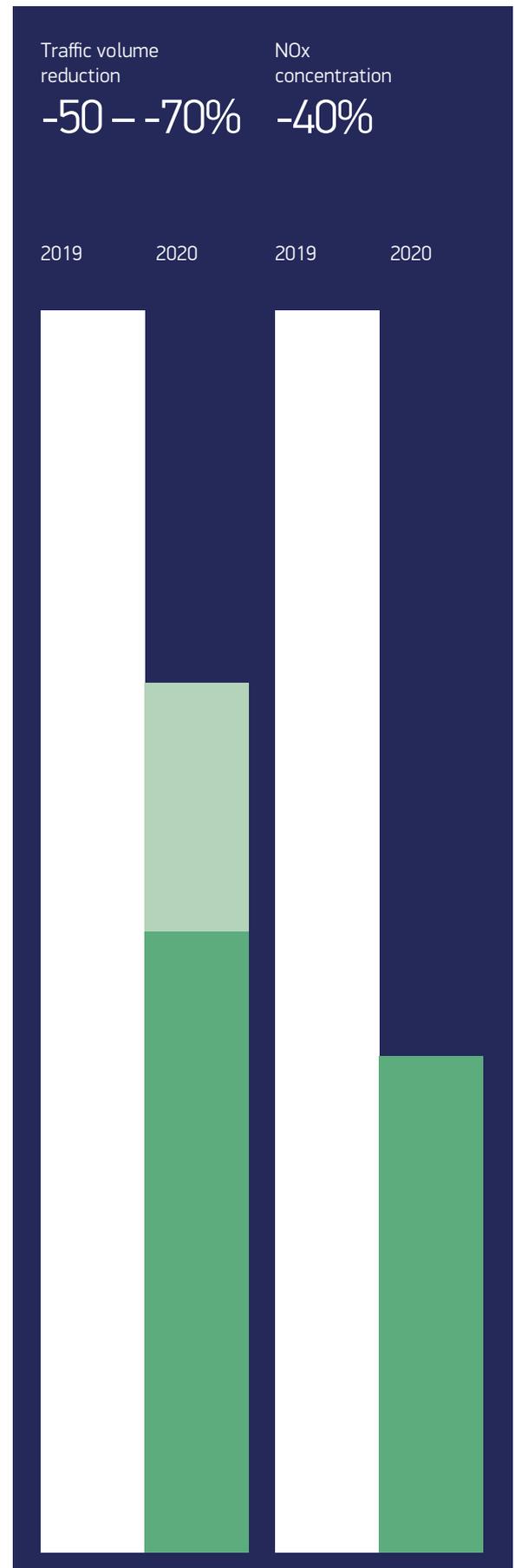
⁷ <https://ee.ricardo.com/news/analysis-of-covid-19-lockdown-on-uk-local-air-pollution>

⁸ https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2007010844_Estimation_of_Changes_in_Air_Pollution_During_COVID-19_outbreak_in_the_UK.pdf

⁹ <https://www.theguardian.com/cities/2016/may/17/superblocks-rescue-barcelona-spain-plan-give-streets-back-residents>

¹⁰ <https://www.goodnet.org/articles/9-european-cities-that-are-making-great-strides-to-become-car-free>

¹¹ <https://www.transportforall.org.uk/wp-content/uploads/2021/01/Pave-The-Way-full-report.pdf>



CLASS	TYPE	STANDARD
A	Bus	Euro 6
A	Coach	Euro 6
A	Taxi and Private hire	Euro 6 (diesel) Euro 4 (petrol)
B	Bus	Euro 6
B	Coach	Euro 6
B	HGV	Euro 6
B	Taxi and Private hire	Euro 6 (diesel) Euro 4 (petrol)
C	Bus	Euro 6
C	Coach	Euro 6
C	HGV	Euro 6
C	Large van	Euro 6 (diesel) Euro 4 (petrol)
C	Mini Bus	Euro 6 (diesel) Euro 4 (petrol)
C	Small van/light commercial	Euro 6 (diesel) Euro 4 (petrol)
C	Taxi and Private hire	Euro 6 (diesel) Euro 4 (petrol)
D/ULEZ	Bus	Euro 6
D/ULEZ	Coach	Euro 6
D/ULEZ	HGV	Euro 6
D/ULEZ	Large van	Euro 6 (diesel) Euro 4 (petrol)
D/ULEZ	Mini Bus	Euro 6 (diesel) Euro 4 (petrol)
D/ULEZ	Small van/light commercial	Euro 6 (diesel) Euro 4 (petrol)
D/ULEZ	Cars/taxis and private hire	Euro 6 (diesel) Euro 4 (petrol)
D/ULEZ	Motorcycles and mopeds (options)	Euro 3

UPDATE ON CLEAN AIR ZONE IMPLEMENTATION

The first government-mandated Clean Air Zones (CAZs) were originally planned to come into force in Spring 2020. However, the government delayed implementation of new charging zones until 2021 at the earliest to mitigate the financial impacts of the coronavirus pandemic. In some cases, the hiatus has provided additional time and opportunity to re-evaluate air quality projections, based on updated data, meaning a CAZ is no longer required.

In Leeds, the Clean Air Fund was used to support drivers of older, more polluting vehicles to upgrade to new, lower-emission ones which, alongside natural fleet renewal, achieved the required improvements in air quality. After further assessment, the decision was made to cancel the Clean Air Zone.¹² The assessment showed that even if traffic in Leeds returned to pre-pandemic volumes, or even increased by 5%, the NO₂ objective limit would not be exceeded. Funding that had previously been awarded for the installation of CAZ enforcement cameras has now been re-allocated to support further fleet renewal.¹³ Leicester and Coventry City councils have also scrapped their plans for a CAZ, while Sheffield is awaiting approval.

The first charging zone outside of London was introduced on 15 March 2021 in Bath¹⁴ where all non-compliant vehicles, except private cars, are charged to drive into the designated area. Birmingham followed on 1 June, where all vehicles are charged.¹⁵

¹² <https://democracy.leeds.gov.uk/ielssueDetails.aspx?Id=111279&PlanId=0&Opt=3#A180129>

¹³ <https://democracy.leeds.gov.uk/documents/s215547/Report%20to%20the%20decision%20maker.pdf>

¹⁴ <https://beta.bathnes.gov.uk/bath-clean-air-zone>

¹⁵ https://www.birmingham.gov.uk/info/20076/pollution/1763/a_clean_air_zone_for_birmingham/3

CASE STUDY: BMW LAUNCHES ITS WORLD-FIRST EDRIIVE ZONES TECHNOLOGY IN UK



In 2020, BMW launched eDrive Zones in London and Birmingham, a new digital service which automatically switches a BMW plug-in hybrid vehicle to use electric-only power when it enters a defined area of these cities.

The service also automatically ensures that the electric power is conserved for use during the part of the journey within the low emission zone, if the journey destination is entered into the vehicle's navigation system. BMW plans to introduce this technology in additional cities across the UK and Ireland in the future.

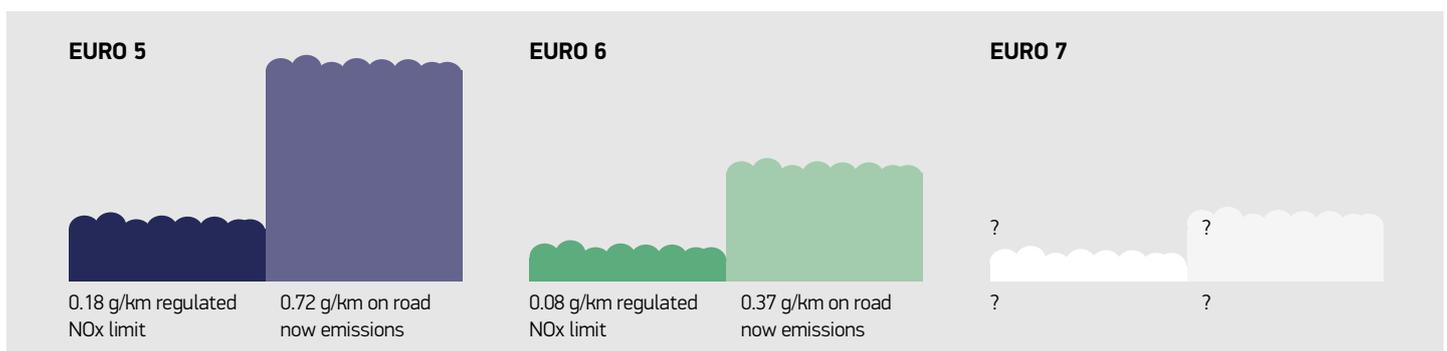
With electric ranges of up to 54 miles, BMW plug-in hybrid models can complete most commuting trips on pure-electric power.

VEHICLES: TAILPIPE EMISSIONS

The testing framework for both the Worldwide Harmonised Light Vehicle Test Procedure (WLTP) and Real Driving Emissions (RDE) is now fully implemented for passenger cars, with the final stage of RDE coming in January 2022 for all other light duty vehicle registrations. Heavy-duty vehicles also move to their final phase of Euro VI from January 2022, applicable in Northern Ireland although this is yet to be legally binding in Great Britain following the UK's exit from the EU.

The next stage of EU emission regulations for light and heavy-duty vehicles (currently known as Euro 7 / VII) continued to be discussed throughout 2020, via the expert Advisory Group on Vehicle Emission Standards (AGVES) under the European Commission, with input from member states, industry and a variety of other stakeholders from academia, environmental NGOs etc. The EU is set to publish draft legislation for Euro 7/ VII by the end of 2021. The European Commission appointed a Consortium for ultra Low Vehicle Emissions (CLOVE) to provide data-backed proposals to this expert group. Although the content of the draft legislation itself cannot be predicted, proposals by CLOVE include considerable reductions in all tailpipe emissions, and wider regulation of vehicle operating conditions (including cold engine start and usage scenarios such as towing and high altitude driving). CLOVE also recommends alignments between petrol and diesel emission limits, and alignment of lower class N1 homologated light commercial vehicles with M1 passenger vehicles. Larger LCVs above 2.5t, with a power to weight ratio less than 35kW per tonne, would retain differing limits, but adjusted for reductions as brought in by Euro 7. Proposals also include the introduction of nitrous oxide regulation (N₂O) for both light and heavy-duty vehicles, and methane limits for light duty vehicles. Although both emissions are commonly considered greenhouse gases, the CLOVE consortium recommends regulations as part of Euro 7/VII due to potential health implications.

The proposals from CLOVE also include the monitoring and control of tailpipe emissions during the usage of the vehicle. Onboard emission monitoring will be a further advancement in the regulation and reporting of real-world vehicle emissions, with vehicles recording emission data and prompting vehicle repair if emissions hardware becomes ineffective. This addresses widening concerns over the durability and transparency of emissions generated by vehicles under all vehicle usage scenarios. It is also essential that new emission limits, and hence the technologies needed to deliver them, do not have a negative impact on vehicle-generated CO₂ emissions.



NON-TAILPIPE VEHICLE: EMISSIONS

Although tailpipe emissions and the migration to zero emission vehicles are a primary focus for the industry, emissions from all vehicle sources remain a key consideration for improvements in air quality. Proposals by CLOVE for Euro 7 / VII include reductions in vehicle evaporative hydrocarbon diurnal emissions, building upon existing regulation of evaporative emissions.

CLOVE also proposes to include regulation and measurement of particulate emissions emanating from vehicle brake wear. Brake wear is seen as a significant contribution source of particulate matter emitted by vehicles and will remain a key focus during the migration to zero tailpipe emission vehicles. Tyre and road wear is also a desired area of focus. However, controls on tyre wear are not expected to be included at the introduction of Euro 7 / VII, and not until a feasible technical method of measuring and identifying vehicle emission can be determined and separated from road surface contribution.



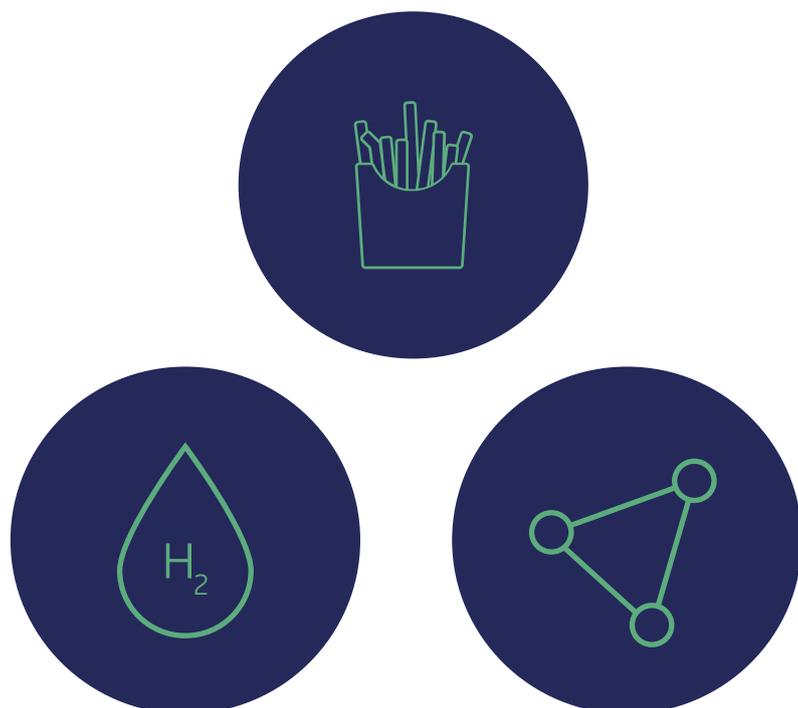
ALTERNATIVE FUELS

As large parts of the UK transport sector transition to electrification, low emission fuels will play an important role. Advanced alternative fuels provide considerable CO₂ reduction in production and usage compared to petrol and diesel. Hydrogen produces no tailpipe CO₂ emissions, while synthetic fuels provide the ability to offset 100% of CO₂.

Following a consultation during 2020, the UK confirmed that E10 petrol would be introduced to national forecourts in September 2021, consisting of a maximum 10% bioethanol blend. It replaces current E5 95RON unleaded and is compatible with 95-98% of vehicles on the UK roads today. The E5 blend will continue to be available as super unleaded (with higher octane rating) for incompatible vehicles. Government figures show that the equivalent reduction in CO₂ as a result of E10 take up will equate to a saving of 750,000 tonnes of CO₂ annually emitted from road vehicles, contributing to the government’s road map to net zero emissions by 2050, and helping compliance with the UK carbon budgets between now and then. This 2% transport CO₂ saving is in addition to the 2% saving afforded by the original introduction of E5 petrol in combination with the existing Renewable Transport Fuel Obligation (RTFO).¹⁸

Following the 2020 Budget, the UK Government announced that the rebates currently awarded to red diesel (also known as gas oil) will be scrapped from most applications from 2022. This is designed to encourage a focus towards developments in low carbon technologies and usage of alternative fuels for vehicles currently using red diesel, such as non-road mobile machinery (NRMM) applications. It is expected that the added taxation will help fund and ease the transition to alternative technologies.

The future of hydrogen as a fuel is dependent on an upscaled, cost optimised, green-hydrogen industry. Learning from the Tees Valley Hydrogen Hub will prove valuable, but industry, the EU, and global markets will need to focus on identifying demand and supply to ensure hydrogen provides a viable and complimentary method to transport decarbonisation, along with electrification and alternative fuels.



¹⁸ Introducing E10 petrol: outcome and summary of responses - GOV.UK (www.gov.uk)

CIRCULAR ECONOMY RE-USE, RECYCLING AND RECOVERY OF END-OF-LIFE VEHICLES (ELVS)

More than 20 years have passed since the ELV Directive came into force in the EU and was subsequently transposed into UK regulation in 2003 and 2005. The regulation has been very successful and helped to address vehicle abandonment issues, ensured the phase out of hazardous substances (in particular lead, mercury, cadmium and hexavalent chromium), and continues to promote the re-use, recyclability and recovery of end-of-life vehicles. The UK regulations ensure agreements are in place to facilitate the acceptance of all qualifying end-of-life vehicles at authorised treatment facilities (ATFs), at no cost to the last owner, and with a Certificate of Destruction (CoD) issued.

However, there is some scope for improvement, in particular in tightening the vehicle deregistration system to ensure ELVs and their parts do not fall into the hands of illegal operators, undermining legitimate businesses. Also, the responsibility for meeting the ELV target achievement should be spread across the value chain to further improve performance. Both the European Commission and the UK are preparing to review their ELV legislation, with proposals expected in 2022.

In line with the ELV regulation requirements, vehicle manufacturer-approved networks of ATFs achieved 85% re-use and recovery of materials from ELVs each year from 2006, when the requirement came into force. Since 2015, the industry has improved its performance by a further 10 percentage points to reach the 95% target. This performance means vehicles have one of the highest recycling rates of any product. This has been facilitated at the vehicle design stage, in accordance with the Reusability, Recyclability and Recoverability (RRR) directive, which requires any vehicle to be 95% recyclable, based on its materials composition.

The regulation has been very successful and continues to promote the re-use, recyclability and recovery of end-of-life vehicles.



VEHICLE LIFE CYCLE ASSESSMENT

Conducting a Life Cycle Assessment (LCA) is a very complex and time-consuming exercise, which creates valuable outcomes only if conducted using a consistent scope, data sets and assumptions. On a wider scale beyond individual company use, an LCA is currently better suited to detect emission hotspots rather than comparing the overall scores of individual products. An LCA is a great tool to ensure environmental burdens are not shifted from one part of the vehicle's overall life cycle to another. This is usually done in line with ISO standards 14040 and 14044, using consistent assumptions and data sources to ensure comparability.

For ICE vehicles, most life cycle CO₂ emissions arise from the use phase. For Battery Electric Vehicles (BEV), most emissions (up to 60%), are linked to production of the vehicle. On average, around 30%- 40% of lifecycle emissions of Battery Electric Vehicles (BEVs) are linked to battery production (source: Ricardo). The LCA for a BEV is highly sensitive to regional variations, mainly due to the carbon intensity of the grid electricity used for battery production and vehicle charging.

As batteries are one of the key enablers for transport and energy decarbonisation, their life cycle will need to be optimised further, to maximise the environmental benefits from the transition to electrification. Emission hot spots should be addressed to prevent shifting adverse environmental consequences from one source to another. To achieve this, UK electricity generation needs to be 100% renewable. Other actors in the battery value chain, such as mining companies and smelters, also need to contribute to overall carbon reduction. Wider availability and increased use of recycled raw materials would also significantly reduce the environmental impacts of battery manufacturing.

CASE STUDY: JAGUAR LAND ROVER TO USE PLASTIC WASTE IN NEXT-GENERATION SUSTAINABLE LUXURY INTERIORS

As part of Jaguar and Land Rover's Reimagine vision of modern luxury by design, next-generation vehicle models will have floor mats and trims made with ECONYL[®] fibre from recycled industrial plastic, fabric offcuts from clothing manufacturers, fishing nets from the farming industry, and those abandoned in the ocean – known as 'ghost nets'. Every 10,000 tonnes of ECONYL[®] raw material produced saves 70,000 barrels of crude oil avoids the equivalent of 65,100 tonnes of carbon emissions.



BATTERIES

In recent years, the battery technologies landscape has undergone significant change, particularly for EV batteries, and is expected to evolve. In recognition of this, both the European Commission and the UK have started the process of reviewing the applicable legislation.

In December 2020 the Commission published the draft regulation concerning batteries and waste batteries, which, when finalised, will be directly applicable in 27 Member States and Northern Ireland. Amid expectations of soaring demand, these proposals aim to address the environmental impacts of batteries and their social impacts. The draft regulation builds on the current extended producer responsibility for end-of-life batteries and adds requirements outside the scope of current regulation. These include new requirements related to calculating battery carbon footprint, certain maximum life cycle thresholds, and recycled content and recovery provisions for cobalt, lead, lithium or nickel. Economic operators dealing in the battery value chain will also be obliged to set up supply chain due diligence policies, to identify and address social and environmental risks linked to the extraction, processing and trading of certain raw materials used in battery manufacturing. EV batteries will also be required to have an electronic record ('battery passport') with a unique identifier (printed or engraved), which links to certain battery characteristics and tracks changes in its status due to repairing or repurposing activities.

The EU regulation is expected to be finalised in 2022 and the UK is expected to follow a similar path, with draft regulation scheduled to be published in Q4 2021.

SUSTAINABLE SOURCING

Drive Sustainability (DS) is a collaborative partnership between 11 automotive companies – BMW Group, Daimler AG, Ford, Honda, Jaguar Land Rover, Scania CV AB, Stellantis, Toyota Motor Europe, Volkswagen Group, Volvo Cars and Volvo Group. It continues its work to create a more sustainable automotive supply chain. As the next step of the journey, DS in association with CSR Europe, launched the Drive+ platform to foster dialogue between Tier 1 suppliers and supplier associations. Drive+ stems from the need for DS partners to engage in closer collaboration with their stakeholders. This follows their adoption of a new long-term strategy that moves beyond supply chain due diligence to include ambitions such as carbon neutrality, circular use of resources, and workforce wellbeing. In this respect, Drive+ will offer suppliers and supplier associations a space to:

01

Engage with Drive Sustainability OEM partners.

Suppliers will take part in consultations on key sustainability topics and will receive structured updates on the decisions taken by the Drive Sustainability group.

02

Learn and share best practices with OEMs and peers.

They will work together on how to effectively implement impact-oriented activities; respond to sustainability challenges; and operate within the regulatory environment through a series of webinars and workshops.

03

Access the Drive Sustainability Toolbox.

The tools will be available for suppliers in the same conditions as for the OEM partners. Furthermore, suppliers will be able to participate in masterclasses dedicated to sustainable supply chain management.



SECURING RARE EARTH METALS

UK Research and Innovation (UKRI) has awarded the University of Birmingham £4.3m to establish a plant, located at Tyseley Energy Park, to enable the UK to create a circular economy around the magnets and rare metals needed for electric vehicles (EVs) and renewable technology. The plant will be able to recycle materials from a variety of magnet-containing waste streams including electric vehicles, audio products, and hard disk drives.

Also in 2020, a three-year research study titled OCTOPUS (Optimised Components, Test and simulatiOn, toolkits for Powertrains which integrate Ultra high-speed motor Solutions) was announced. It plans to transform electric vehicle powertrains, utilising a fully integrated, free from rare-earth magnet e-axle that supports electric vehicle architectures. The study follows an initial 18-month investigation that delivered a technological breakthrough in electric drive systems while simultaneously removing the need for both rare-earth magnets and copper windings. OCTOPUS is an OLEV funded project delivered in partnership with Innovate UK, which brings together Bentley Motors and nine other partners.

FUTURE MOBILITY

Private cars are, and will remain, an essential part of the transport system in the UK. They offer a valuable mobility option for the public and are still the best option for numerous journeys. Technological developments will ultimately open up new ways of using cars, for example, autonomous car sharing. However, the Covid-19 pandemic has obviously placed pressure on shared forms of transport, and this impact is likely to be felt for a while. Once it is safe to do so, government should support car sharing schemes and make it easier for local authorities to operate them.

Buses and coaches play an important role in providing sustainable transport options and government must support the industry during this critical period, when public transport usage is down due to the pandemic. It should also support the bus sector to accelerate the transition towards zero emission vehicles in the medium to long term. The industry supports government competitions for all-electric and all-hydrogen bus towns and sees them as useful drivers for the technological developments required to decarbonise these vehicle types.

In November 2020, government opened a call for evidence on its Future of Transport: Rural Strategy. SMMT believes that more needs to be done to support rural areas with the shift to zero emission mobility. This could include, for example, ensuring equitable access to EV charging infrastructure, and improving digital connectivity to support the rollout of new mobility services and connected & autonomous vehicles. There should also be for services to find feasibility pathways.

Private cars will remain a crucial option for people, especially in rural and suburban areas that lack the public transport services and other mobility solutions that are readily available in urban areas. Decisions to re-allocate road space away from private vehicles to active travel, for example, or new micro mobility options, need to take a holistic view of the local transport system. They should be delivered in a way that provides consumers with mobility options and ensures that different modes can operate safely together.

2020 saw several e-scooter trials commence across the UK, including in Birmingham, Norwich, Liverpool and Middlesbrough. The official trials, run by local authorities alongside the Department for Transport, were originally due to run for 12 months from the summer 2020, and have now been extended to the end of March 2022. This is to gather the most comprehensive set of data. Risk and wider impact assessments should be completed using this data to ensure that all measures are taken to avoid undermining road safety in the UK, to better protect e-scooter users, pedestrians and vulnerable road users, and to ensure that they are compatible with all other road vehicles.



UK AUTOMOTIVE SUSTAINABILITY RECOMMENDATIONS FOR GOVERNMENT

Maximise the opportunity to deliver zero carbon transport by:

- Collaborating and engaging with the automotive sector on both the targets and delivery mechanisms for a zero carbon road transport sector. The automotive sector is keen to work with government to enable the quickest and most equitable transition to zero tailpipe emissions.
- Providing the automotive sector with flexibility in meeting its future zero emission requirements in a way that recognises the needs of both business and policy delivery. The automotive industry's transition to zero emission vehicles should provide a technology-neutral approach, while recognising variations in how and when manufacturers meet interim CO₂ targets. This will allow a spectrum of efficient and cost-effective transitional and future technologies to be utilised to deliver net-zero ambitions, while acknowledging the non-linear and lengthy nature of investment cycles for new products and technologies.
- Ensuring the UK regulation of zero emission targets for road transport fully embraces the principles of better regulation and minimises complexity. New regulations to meet CO₂ targets should rely as much as possible on existing metrics and frameworks for measuring and monitoring progress, and reduce as far as possible unnecessary duplication or deviation from global, EU and devolved markets.
- Making the UK the most attractive place to invest in low carbon transport manufacturing, matching the automotive support packages advanced by other nations – such as France, Germany and Spain. The UK should aim to have the most competitive environment for investors, reflected through taxation, the skills base and energy costs. A new 'Build Back Better Fund' should be introduced to support good manufacturing jobs for the future and help lower manufacturing costs such as energy.
- Ensuring an abundant supply of low-carbon electricity at a cost that is comparable to competing automotive manufacturers in other countries. The decarbonisation of vehicle fleets and manufacturing processes will lead to a significant increase in electricity use. After labour, energy is typically the second largest in-house cost to vehicle manufacturers, with UK electricity prices 87% above EU competitors. Manufacturers of low carbon, hydrogen and battery vehicles should be able to access the same benefits and compensation schemes as energy intensive industries and get more support within the UK Emission Trading Scheme (ETS). Climate change agreements should be simplified to enable more automotive sites to qualify, including electric vehicle battery manufacturing. Government should also provide incentives to industry to invest in radical decarbonisation solutions in the manufacturing process, by scaling up and making the industrial energy transformation fund more broadly accessible and attractive.

Support sustainable automotive supply-chains and sub-sectors by:

- Setting an explicit government target to provide 60GWh of battery production within the UK by 2030, and developing a 2GWh capacity fuel cell gigafactory. This would ensure that the UK has the capacity to produce up to a million electric vehicles domestically, sustaining and growing the domestic EV supply chain – power electronics, motors and drives (PEMD).
- Further supporting technologies that are essential to delivering decarbonisation, like lightweighting and advanced materials, to increase UK capabilities, IP and content in finished vehicles. In the immediate term, fleet renewal remains the quickest way to lower emissions, with older, more polluting vehicles being replaced by new vehicles which have significantly lower emissions.
- Recognising the value of, and opportunities for, remanufacturing in delivering net zero and a sustainable, circular economy, ensuring a supportive policy framework. For example, investment in the development of battery recycling facilities is important not just to support the circular economy but also to recover raw materials that can be funnelled back into the supply chain. At present the number of ULEV batteries reaching the end of their life is low and those batteries are currently transported to the EU for recycling.
- Supporting businesses throughout the supply chain – particularly smaller businesses – to navigate the road to net zero. A net zero automotive industry will rely on having a net zero supply chain of SMEs. While the government-backed UK Business Climate Hub provides a welcome starting point for smaller businesses hoping to transition to net zero, many will need more tailored support, based on their own individual circumstances and requirements. Where government is not best placed to provide this directly, it should act as an efficient gateway to those that can.

Ensure growth in charging and refuelling infrastructure matches the ambition of the automotive sector by:

- Publishing a target-based infrastructure strategy to ensure that at least 2.3 million public charging points are in place by 2030. Infrastructure must be in place to encourage consumers to zero emission vehicles, and ambitious targets for investment must be integrated into strategic policy and delivery plans, as has been done through the EU's Fit for 55 package. Current levels of private and public funding is unlikely to be enough to deliver this on its own. Public support is likely to be particularly important to deliver additional on-street chargepoints, and to ensure that less prosperous areas of the country do not get left behind.
- Working through Ofgem to require energy retailers and network operators to adopt fair, transparent and smart pricing mechanisms that are clearly understood by the consumer, as well as continuing to support an increase in renewable energy able to meet the new level of demand. The increased electricity demand associated with a transition to EV vehicles, and the up-front costs of new grid connections, makes it even more important that both business and domestic customers get a good deal from their energy providers.
- Working closely with the transport industry to understand the role that different alternative fuel technologies can play in the transition to net zero. To further lower CO₂ emissions, a significant investment is needed in low carbon and synthetic fuels, such as biofuels, hydrogen and e-fuels. Advanced alternative fuels provide considerable CO₂ reduction in production and usage compared to petrol and diesel. Hydrogen produces no tailpipe CO₂ emissions, while synthetic fuels have the ability to offset CO₂ by 100%. However, more work needs to be done to understand which technologies are likely to provide the most cost-effective and workable solutions.



ECONOMIC PERFORMANCE

- **The harsh reality of the Covid-19 pandemic and resulting global lockdowns, closed markets and shuttered plants has hit the automotive sector particularly hard. Alongside this unexpected crisis, Brexit uncertainly also affected demand. In the second half of 2020 showrooms reopened and production lines restarted, but unsettled markets meant demand and social distancing continued to slow productivity. The ongoing semi-conductor shortage also started to cause disruption in the later part of the year. Unsurprisingly, and like elsewhere in the economy, the sector has been forced to reduce head count, resulting in job losses, and reskill its workforce. The sector is now looking to the future to ensure its workforce has the right skill set to effectively fast track the electrification drive and meet its decarbonisation commitments, while supporting, and even growing, its industrial base in the UK.**

Performance

- Sectoral jobs down -10%, signatories reported a -6.9% drop.
- Employee accidents down -5%; training days per employee down -50.2%

Reasons

- Production level drop due to pandemic and supply chain problems.

Future challenges/opportunities

- Attracting new talent and upskilling the existing workforce to be able to meet future mobility requirements and carbon reduction ambitions.

SMMT's recent Full Throttle (2021) report highlights the limited capacity of consumers to drive the rapid transition to electric vehicles themselves, suggesting several areas where additional government help is needed to ensure the wide availability of affordable vehicles and charging points by the end of the decade. At present, UK consumer incentives are significantly less generous than in other countries. In the short term, therefore, the report calls for a tax exemption for ultra low emission vehicles for the next five years – including VAT, Vehicle Excise Duty and Company Car Tax – and an extension to the Plug-in Grant scheme. Longer term, the report called for an independent review to holistically consider the long term future of fuel and vehicle excise duty in a decarbonised sector. As the sector moves away from fossil fuel, government will need to change to a different system of taxation which, without a clearly defined roadmap, could undermine consumer confidence about future costs of ZEV ownership.

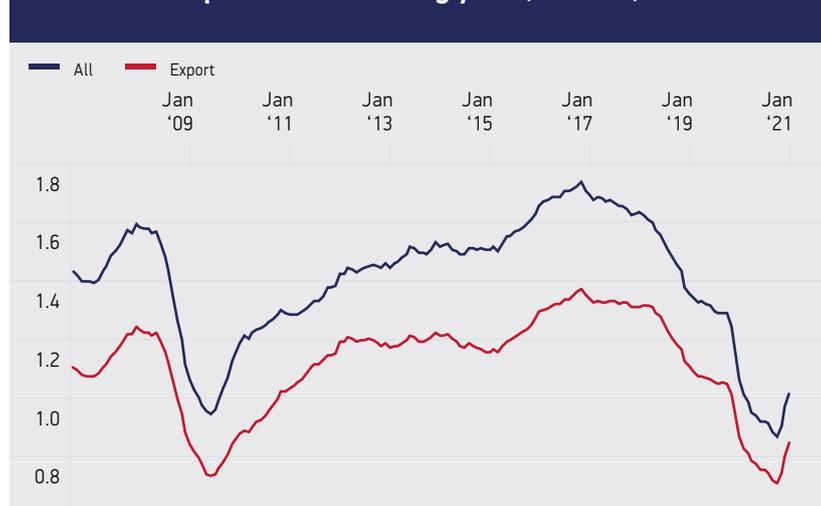
PRODUCTION

In 2020, UK car production fell by -29.3% (around 380,000 units) to 920,928 units, its lowest level since 1984. This loss was estimated to have a factory gate value of more than £10 billion.

Despite the turbulence caused by the Covid-19 pandemic and Brexit uncertainty, the UK automotive sector strengthened its focus on producing battery electric (BEV), plug-in hybrid (PHEV) and full hybrid vehicles (HEV). Combined production of these vehicles rose to an 18.8% share of all cars produced in Britain, up from 14.8% in 2019, with BEVs increasing to a 4.5% share (from 3.4%). Overall, the UK turned out 172,857 alternatively fuelled vehicles in 2020, with 79.6% of these exported – in line with overall export shares of 81.3%.

Production in the first half of 2021 rose by 30.8% to almost half a million units, albeit down -25% on 2019's car volumes. Looking ahead, the latest independent production outlook (March 2021) expects UK car production to recover in 2021 to 1.05 million units, and 1.1 million by 2022. These figures are still below the 2019 (pre-pandemic) level of 1.3 million units, although this does reflect the closure of the Honda plant in Swindon this year. However, the ongoing semiconductor chip supply issue could take up to 100,000 units out of UK production this year, although the impacts are difficult to predict. Similarly, staff being 'pinged' and having to self-isolate has disrupted some production lines.

For similar reasons, UK commercial vehicle (CV) manufacturing declined by -15.5% in 2020, with just 66,116 vans, trucks, taxis, buses and coaches produced. Similarly, UK engine manufacturing fell by -27.0% in 2020 to just over 1.8 million units, down from its usual 2.5 million plus level.

CHART 03 Car production - rolling year (millions)

REGISTRATIONS

The UK new car market fell by almost a third (-29.4%) in 2020, with annual registrations dropping to 1,631,064 units, the lowest total since 1992. In contrast, registrations of electrified vehicles bucked the wider trends and reported record volumes and market shares, largely due to a surge in new product offerings.

In 2020, battery electric vehicle (BEV) registrations rose by 185.9% to 108,205, to take a 6.6% share of the market (from 1.6% in 2019). This increase was reflected in a 44% increase in the number of BEV models available on the market. In the same period, plug-in hybrid electric vehicle (PHEV) registrations increased by 91.2%, after the number of models offered rose by more than 90% to 66,877 units and a 4.1% market share. Hybrid electric vehicles (HEVs) have seen a 12.1% rise in registrations in 2020 to push their market share from 4.3% to 6.8%. Mild hybrid electric vehicle (MHEV) registrations took an 11.0% share of the market in 2020.

Overall registrations in the first eight months of 2021 now stand at 1,101,302 units, some -7.6% down on the average recorded over the past decade.

UK new light commercial vehicle (LCV) registrations ended 2020 down -20.0% to 292,657 units compared with 2019. Despite the sector stepping up to meet the demand brought about by the rise of online shopping and corresponding deliveries, the effect of the Covid-19 pandemic and uncertainty over the future trading relationship with the EU affected demand toward the end of the year. With some 235,701 vans registered in the first eight months of 2021, uptake levels have returned to levels last seen in 2019.

New heavy goods vehicle (HGV) registrations declined by -32.2% in 2020. The fall was attributed to both the pandemic impacting business confidence to invest in new assets, and a bumper 2019 when new smart tachograph legislation led to a 12.6% increase in registrations.

The UK new bus and coach market fell by -32.0% in 2020, with registrations falling to 3,996 vehicles, the worst total since records began in 1996.

CHALLENGES

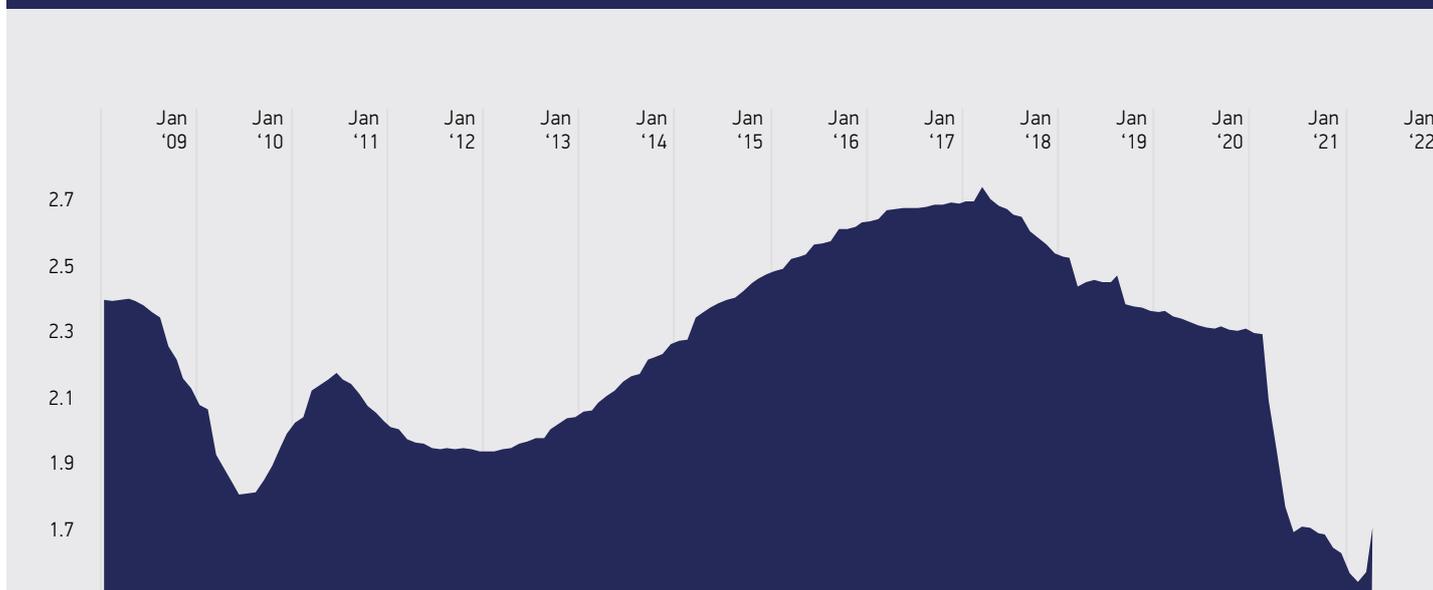
The economic turbulence caused by Covid-19 has compounded the uncertainty faced by the automotive sector, given the already weak backdrop pre-pandemic. The UK economy recorded its worst economic performance for more than 300 years in 2020 as it reeled from the initial shock of the coronavirus crisis, before staging a better-than-expected recovery later in the year, despite lockdowns continuing to restrict performance.

The economic outlook for 2021 looks much more positive and growth of 7-8% is now widely expected, thanks in part to the successful vaccine rollout. This should also mean fewer job losses than previously feared, once the government support schemes are removed. Inflationary pressures have heightened, and supply shortages – notably around semiconductor chips – are now impacting the industry, including in UK automotive plants and filtering through to supply to the market.

UK car production is dependent on the shift towards electrification. Securing investment for this transformation will depend on the global competitiveness of our industry. Costs to trade with Europe have increased at the same time that firms must invest in new technologies, new processes and upskilling the workforce. SMMT's Full Throttle (2021) report puts forward a comprehensive plan to help improve competitiveness and future-proof the industry.¹⁸

¹⁸ SMMT Full Throttle report
https://www.smmt.co.uk/wp-content/uploads/sites/2/SMMT_FULL_THROTTLE_008-Compressed.pdf

CHART 04 New car registrations - rolling year (millions)



UK'S EXIT FROM THE EU

1 January 2021 saw the single biggest overnight change in trading conditions the UK automotive industry has experienced in recent memory. Companies are still seeking to understand what the UK's exit from the EU means for them. The trading landscape fundamentally changed in ways businesses could not reasonably be prepared for, despite their best efforts.

With the introduction of new systems and processes the administrative burden has significantly increased, also resulting in some inefficiencies. There are now many more actors involved in moving goods between Great Britain and the EU. This has increased uncertainty and costs for just-in-time, just-in-sequence UK production, particularly in the haulage/broker/transport space. Some automotive companies are having to resort to expensive airfreight on a regular basis to ensure components reach the manufacturing site on time to sustain UK production.

In addition, there has been a lack of understanding by government and the business community of the demand from industries for intermediary services (brokers, hauliers, freight forwarders) and what supply by the intermediary sector looks like after January 2021. A number of automotive companies have experienced a critical lack of capacity within the intermediary sector to meet their demand, delaying the movements of goods in many cases. This has risked both production line stoppages, which can cost £100,000s per hour and non-compliance, where customs obligations have not been met on time.

All of the above has happened, and continues to happen, alongside the global shortage of container freight, the global semiconductor shortage and the Suez Canal blockage, all of which have impacted the automotive industry.

Looking ahead, government should work with the automotive industry to develop an ambitious, forward looking trade strategy, which targets the industry's most important markets, including the EU. The UK should use its new trade freedoms to expand market access for the sector, with particular opportunities for high end vehicles that sell globally, and a supporting regulatory framework that ensures continued market access for existing and next generation vehicles. Government should also review the impact of changing Rules of Origin requirements on the UK's automotive supply train, specifically in 2023 and 2026, to inform action to ensure tariff free continuity trade for electrified vehicles. Where necessary, this review should make policy and funding recommendations to broaden existing UK production and supply chain competitiveness and incentivise localisation of both powertrain technology and wider electric supply chain.

ROADMAP FOR CONSUMER, MARKET AND TRADE

2021-2022	2023-2024	2025-2030
Announce further short-term incentives for EV consumer and fleets		Reacg 2.3m public chargers by 2030
Commission independent review into fuel, vehicle and road taxation	Government responds to taxation review	Long-term taxation changes phased in
Better scope scharging network need and publish EV infrastructure Plan with firm commitments for expansion	Expansion of charging infrastructure networks to ensure adequacy of provision and social equity	Consumer education campaign on coming phase-out
Introduce regulation on consumer experience of carging		Expand UK's global market share
Conclude rrenegotiations of continuity deals with major trading partners	Sign trade deals with major markets (US, CPTPP etc)	Review impact of end of phase-2 of TCA transitional rules in 2026
Support sector's adjustments to new customs requirements in trade with the EU	Review impact of end of phase-1 of TCA transitional rules on electrified vehicles, batteries in 2023	Support delivery of 2025 border strategy
Develop trade strategy for major export markets		

UK AUTOMOTIVE SUSTAINABILITY RECOMMENDATIONS FOR GOVERNMENT

Empower consumers to make zero emission their first choice

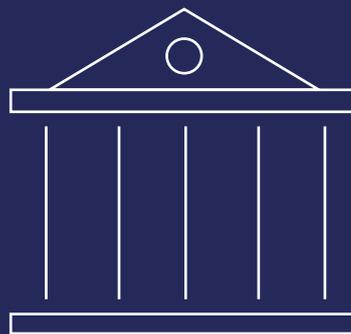
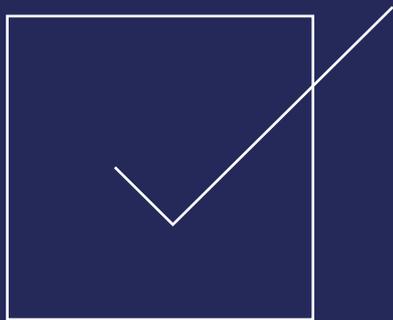


Introducing a suite of measures to reduce purchase costs and boost consumer confidence. At present, UK consumer incentives are significantly less generous than in other countries. Government should consider a combination of extending the Plug-in Car Grant beyond March 2023 and introducing VAT and Company Car Tax exemptions for BEVs until 2026, in addition to retaining the current favourable VED regime.



Commissioning an independent review to holistically consider the long term future of fuel and vehicle excise duty in a decarbonised sector. In the long run, as the automotive sector moves away from fossil fuel, the government will need to change to a different system of taxation that provides consumers and investors with long term confidence.

SUMMARY: UK AUTOMOTIVE SUSTAINABILITY RECOMMENDATIONS FOR GOVERNMENT



SOCIAL PERFORMANCE

Underpin UK skills and training empowers the transition to green jobs by:

- Publishing a comprehensive and holistic long-term skills and retraining strategy to support the reskilling and upskilling of the automotive manufacturing workforce.
- Providing multi-year, funded support for the HVMC's Emerging Skills Project and the long-term continuation of the Faraday Battery Challenge.



ENVIRONMENTAL PERFORMANCE

Maximise the opportunity to deliver net zero transport:

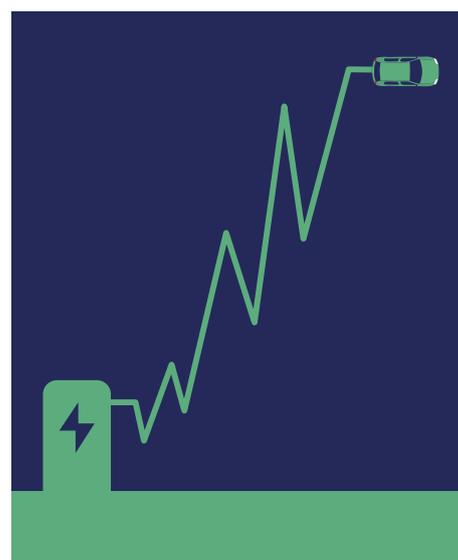
- Collaborating and engaging with the automotive sector on both the targets and delivery mechanisms for a zero carbon road transport sector.
- Providing the automotive sector with flexibility in meeting its future zero emission requirements in a way that recognises the needs of both business and policy delivery.
- Ensuring the UK regulation of zero emission targets for road transport fully embraces the principles of better regulation and minimises complexity.
- Making the UK the most attractive place to invest in low carbon transport manufacturing, matching the automotive support packages advanced by other nations – such as France, Germany and Spain.
- Ensuring an abundant supply of low-carbon electricity at a cost that is comparable to competing automotive manufacturers in other countries.

Support sustainable automotive supply-chains and sub-sectors by:

- Setting an explicit government target to provide 60GWh of battery production within the UK by 2030, and developing a 2GWh capacity fuel cell gigafactory.
- Further supporting technologies that are essential to delivering decarbonisation, like lightweighting and advanced materials, to increase UK capabilities, IP and content in finished vehicles.
- Recognising the value of, and opportunities for, remanufacturing in delivering net zero and a sustainable, circular economy, ensuring a supportive policy framework.
- Supporting businesses throughout the supply chain – particularly smaller businesses – to navigate the road to net zero.

Ensure growth in charging and refuelling infrastructure matches the ambition of the automotive sector by:

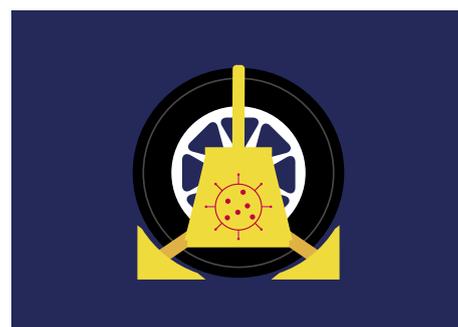
- Publishing a target-based infrastructure strategy to ensure that at least 2.3 million public charging points are in place by 2030.
- Working through Ofgem to require energy retailers and network operators to adopt fair, transparent and smart pricing mechanisms that are clearly understood by the consumer, as well as continuing to support an increase in renewable energy able to meet the new level of demand.
- Working closely with the transport industry to understand the role that different alternative fuel technologies can play in the transition to net zero.



ECONOMICAL PERFORMANCE

Empower consumers to make zero emission their first choice:

- Introducing a suite of measures to reduce purchase costs and boost consumer confidence, including an extension to the Plug-in Car Grant beyond March 2023 and tax exemptions for BEVs until 2026.
- Commissioning an independent review to holistically consider the long term future of fuel and vehicle excise duty in a decarbonised sector.



SIGNATORIES

SIGNATORIES TO THIS REPORT

BRANDS

Aston Martin Lagonda Ltd Bentley Motors Ltd	Aston Martin, Lagonda Bentley
BMW Group UK including Rolls-Royce Motor Cars Ltd	BMW, MINI, Rolls-Royce
Bosch	Bosch
Carwood	Carwood
Caterpillar	Caterpillar, Perkins
Ford Motor Company Ltd	Ford
Honda (UK) and Honda of the UK Manufacturing (HUM) Ltd	Honda
Jaguar Land Rover Ltd	Jaguar Cars, Land Rover
LEVC	LEVC
Leyland Trucks	DAF Trucks
Lotus	Lotus
McLaren	McLaren
Michelin Tyre plc	Michelin
Switch Mobility	Switch Mobility
PSA Group	Citroën, DS Automobiles, Opel, Peugeot, Vauxhall
Toyota (GB) plc	Toyota Motor Manufacturing (UK) Ltd, Lexus, Toyota
Unipart	Unipart Logistics
Volkswagen Group (UK) Ltd	Audi, Cupra, SEAT, ŠKODA, Volkswagen Passenger Cars, Volkswagen Commercial Vehicles
Volvo Car UK Ltd	Volvo

References and online content

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

The webpage also contains links to signatories' sustainability websites.

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