

ExxonMobil potential UK hydrogen hub

ExxonMobil is exploring a potential hydrogen hub at the company's Fawley refinery.

ExxonMobil has signed a memorandum of understanding with SGN and Macquarie's Green Investment Group (GIG) to explore the use of hydrogen and carbon capture to help reduce emissions in the Southampton industrial cluster.

Joe Blommaert, President of ExxonMobil's Low Carbon Solutions business said;

"We are pleased to be part of this collaboration, that includes a technical study to assess the potential for the Fawley facility to play a key role in both hydrogen production and carbon capture & storage solutions."

"With well-designed policy and regulations, hydrogen can help reduce the emissions of the Southampton industrial area."



They cited a feasibility study, showing annual hydrogen demand from the Southampton industrial cluster could rise to as much as 37 terawatt hours by 2050; including forecast heating demand from 800,000 homes in the south of England.

The study also estimated that carbon capture facilities could initially capture roughly 2 million tonnes per annum of CO₂, including from initial hydrogen production of roughly 4.3TWh per annum. With the right government support, this could commence as early as 2030.

Edward Northam, Head of GIG Europe said;

"Hydrogen will play a vital role in decarbonising industrial clusters like Southampton, and so it is extremely positive that our recent exploratory study has concluded that this hydrogen project is both technologically and economically feasible."

"Getting the project to development will require close partnership with local industry. Which is why ExxonMobil, a potential cornerstone producer and user of hydrogen, joining our project is a significant step forward."

EV charging boost

New building regulations will create greater charging capacity

In the run-up to 2030, when the sale of new petrol and diesel cars will end in the UK, all new buildings, plus those undergoing major renovations, will be required to install electric vehicle charge points – possibly up to 145,000 extra charge points across England each year. This could prove to be a gamechanger in the shift to net zero transportation.

As well as new homes and non-residential buildings, any undergoing largescale renovations, leaving them with more than 10 parking spaces, will be required to install electric vehicle charge points.

Beresford, chief executive of the National Federation of Builders (NFB) said construction companies would have to foot the bill – while the electricity companies profited!

The NFB said that to achieve planning permission, constructors are required to fund substations so that electricity companies can provide enough load to both new and existing developments.

GRIDSERVE opens new Electric Forecourt® in Norwich

The first 'Compact' Electric Forecourt® opens as part of GRIDSERVE's £1 billion UK-wide investment into electric vehicle charging infrastructure.

The Norwich Electric Forecourt® is one of the most advanced electric vehicle charging facilities in the world.

This first of its kind EV experience facility, delivers the latest charging technology, supplied by 100% renewable energy, and helps to pave the way for mass EV adoption.

The new Electric Forecourt® is one of the most advanced EV charging facilities in the world, hosting 36 EV chargers, (including 22x high-power chargers with up to 350kW of power). These are the fastest chargers commercially available today, capable of adding up to 100 miles of range in only five minutes.

The Norwich site forms part of GRIDSERVE's £1 billion UK-wide investment being rolled out into its charging infrastructure network.

DOUBLING CAPACITY

This site more than doubles the number of high-powered chargers in the region, providing essential charging infrastructure that delivers drivers the confidence to go electric. Norwich and the wider East of England region currently have comparatively low EV charger coverage compared to other regions in the UK; hosting just 29 chargers per 100,000 people compared to the UK average of 42 per 100,000 people.

The immediate 10km radius area also has over 40,000 households with no access to off-street parking to accommodate home charging. The result is that currently EVs only account for 1% of cars on the road in the Norwich area. In addition to this, Norwich received government funding to assess the viability of a zero-emission zone in the city in a bid to cut air pollution from the city centre. If the plan goes ahead, all petrol and diesel vehicles could be banned from the city, making emission free electric vehicles essential.



IDEAL FOR BUSINESSES

The Norwich Electric Forecourt® also provides a great solution for drivers looking to switch to an EV who don't have the ability to charge at home, and for local businesses in the area looking to switch their fleets to electric.

GRIDSERVE Electric Forecourts® have also been demonstrated to increase electric vehicle uptake in surrounding areas. Since the company opened the world's first Electric Forecourt® in Braintree, Essex in 2020, the district has seen a significant uptake in EV registrations, growing by 82% – more than double the UK's average.

More than just great charging, Norwich Electric Forecourt® is an EV experience destination, where visitors without electric cars can find out more about them, and chat with impartial EV Gurus about charging or vehicle leasing options, whilst enjoying well-known brands including Costa Coffee, M&S Food, and WHSmith, along with super-fast WIFI and bookable meeting pods.

In the coming weeks, visitors will also be able to test drive the latest in electric cars from the biggest brands, all in one place thanks to GRIDSERVE Car Leasing. To celebrate the launch of Norwich Electric Forecourt®, GRIDSERVE is also now offering 1000 miles of free charging for every car they lease until the end of June (terms and conditions apply).6

Toddington Harper, CEO of GRIDSERVE said:

"This decade is crucial for climate action and it's vital that we deliver the solutions that will move the needle on climate change. The widespread transition to electric vehicles, powered by sustainable energy, is a key part of what's needed."

"Giving drivers the confidence to switch to an electric vehicle and enabling a widespread transition away from fossil fuel vehicles is a central aim of our Electric Forecourts®. That's why we have put the consumer at the heart of our design, with our Electric Forecourts® serving the needs of local communities in their transition to electric vehicles."

Tyseley ammonia to green hydrogen project

A consortium, led by Gemserv has secured around £6.7 million from the Department for Business, Energy and Industrial Strategy (BEIS) to deliver the Tyseley Ammonia to Green Hydrogen Project, through the Net Zero Innovation Portfolio Low Carbon Hydrogen Supply 2 Competition.

Tyseley Energy Park was the excellent venue for the PEIMF annual members' event in early March. We are delighted with their involvement with this project.

The project aims to design, build, commission, and operate the world's largest and most efficient ammonia to hydrogen conversion unit of its kind. The demonstration unit is based on innovative technology developed by H2SITE, and is located at Tyseley Energy Park, a strategic energy and resource hub in the West Midlands.

It forms part of the UK Government's commitment to enable 10GW of hydrogen production capacity by 2030, with projections indicating that hydrogen will form up to 35 per cent of UK final energy consumption by 2050. The ability to both effectively store large quantities of energy under a dispatchable form, and make use of cost-effective hydrogen generation located far from end users, will be key to delivering the security and flexibility required by the future energy system. However, at present, the economics and efficiency limitations of transporting hydrogen over long distances present barriers for widespread adoption.



The project aims to address these challenges by harnessing technology innovation and well-established ammonia supply chains, and in doing so position the UK at the forefront of an emerging global market. The demonstration unit will deliver 200kg/day of transport-grade hydrogen to an existing and co-located hydrogen refuelling station, equipped to service buses, goods vehicles and passenger cars.

The consortium estimates that over 97,000 jobs and £16bn GVA could be delivered in the UK through early investment in cracking technologies, enabling the use of ammonia as a hydrogen carrier. The consortium is actively pursuing opportunities for investment in order to roll out further sites in the UK.

Energy Minister, Greg Hands said:

"The UK is truly leading the world in hydrogen innovation thanks to the exciting efforts of companies such as those delivering the Tyseley Ammonia to Green Hydrogen Project. The government support which they have received today will help to boost the development of hydrogen as the clean, affordable, homegrown superfuel of the future."

Alex Goody, Chief Executive Officer at Gemserv, said:

"We strive to be at the heart of the energy transition, supporting our partners to deliver the technologies and solutions required for Net Zero. Hydrogen is a key solution for decarbonising the energy sector and we are excited to be a part of this project which will help to deliver low cost, low carbon hydrogen for the future energy system."

David Horsfall, Director at Tyseley Energy Park said:

"We are delighted that our low and zero carbon refuelling station will be the base of a first-of-a-kind green ammonia to hydrogen facility. At Tyseley Energy Park (TEP) we are committed to working with partners, to find solutions that will underpin the transition to low or zero carbon future and this project will put Birmingham and the West Midlands at the forefront of the next green industrial revolution."

Martin Freer, Director of the University of Birmingham's Energy Institute said:

"Over the past five years we have been working with TEP to drive the decarbonisation of heat, transport, recycling and energy systems across the region and will ensure this project is linked into the many opportunities available at TEP."

Andrés Galnares, CEO of H2SITE:

"Ammonia is one of the most promising, fast growing, hydrogen carriers. H2SITE's integrated membrane reactor technology can convert it into H2 locally with highest efficiency in the market, reaching fuel cell purity without moving parts."

Graham, Divisional Managing Director for EQUANS UK & Ireland, said:

"This is a monumental step in the development of low cost green hydrogen transportation and the path towards a Green Industrial Revolution."

Coalition for the decarbonisation of road transport

Launched by Green Finance Institute

The Coalition for the Decarbonisation of Road Transport has been launched by the Green Finance Institute. This will bring together global experts and leading figures from the finance, automotive, energy and infrastructure sectors to accelerate the transition to zero emission vehicles.

The Coalition's role is to unlock the level of private finance necessary for transport decarbonisation to happen at pace and at scale, whilst creating financing solutions required to support the transition to zero emission vehicles.

Analysis undertaken by the Green Finance Institute estimates that more than £150 billion of gross capital investment may be required to decarbonise the UK road transport sector between 2021 and 2030; a significant acceleration in the rate of investment into zero-carbon transport solutions.

FINANCE SOLUTIONS WILL INITIALLY COVER THREE AREAS:

Consumer finance and leasing

Financial innovation is needed to help consumers decide to choose electric vehicles. Key will be mechanisms to mitigate the upfront costs of EVs and accelerate the maturity of the used market.

EV charging infrastructure

The Institute estimates that over six million chargers are required, costing over £20 billion. Public and private sector collaboration will be needed to unlock the finance for a national charging infrastructure roll-out.



Commercialisation of battery technology

The UK urgently needs to scale up current levels of investment into battery manufacturing, to build a globally competitive battery sector. A capacity of up to 60 GWh P.a. may be needed by 2030, requiring at least three UK gigafactories and more than £5 billion in investment. Other issues include safe and sustainable battery disposal, and the creation of a sustainable supply chain.

Dr Rhian-Mari Thomas OBE, Chief Executive of the Green Finance Institute, said;

"The Green Finance Institute has already demonstrated the impact of bringing together experts, to co-design innovative financial solutions and promote the enabling conditions needed to channel capital towards net zero goals."

"Identifying the most effective interventions and public investments in order to catalyse private sector finance requires thorough, detailed analysis as well as creativity and ingenuity. We're excited to be working with KPMG and our founding coalition members to tackle the challenge of financing the decarbonisation of road transport."

The CDRT brings together the public and private sectors, academia and non-profit organisations. Decarbonising transport

is an essential part of the UK's plan to achieve net zero greenhouse gas emissions by 2050. The UK has committed to phase out the sale of new petrol and diesel cars and vans by 2030. Transport is the largest contributor to UK greenhouse gas emissions, responsible for 24% of total emissions in 2019.

UK Transport Minister, Rachel Maclean, said;

"As we accelerate towards a net zero future, I'm delighted that government and industry are coming together to encourage more people to make the switch to zero-emission vehicles."

"From government-backed grants to electric vehicle charging infrastructure, we're offering £1.8 billion in support to help make EVs more affordable and to increase charging availability for those thinking about making an EV their next car. This will propel us further towards a green transport revolution as we build back better."

The UK Government is set to publish its Transport Decarbonisation Plan this Spring in the run up to the COP26 Climate Summit in Glasgow, and last year established the Zero Emission Vehicle Transition Council, bringing together ministers and governments representing some of the world's biggest car markets.

Smartflex and SuperSmartflex obtain EPD Environmental Certification

The commitment made by NUPI continues in determining the environmental performance of its products through the study of their life cycle (LCA).

In addition to the already existing EPDSs Environmental Product Declarations, available for the polypropylene and polyethylene ranges, today the company boasts the same certification for Smartflex/Supersmartflex, multilayer plastic piping system with electrofusion plastic fittings and mechanical fittings. The published EPDs have been drawn up in accordance with Standard UNI EN ISO 14025, following the rules of UNI EN 15804 + A1 for construction products, the regulation and PCR of the Italian Program operator, EPDIItaly.

The contents of these EPDs are mainly aimed at industrial and commercial users of the product and allow to improve environmental communication between producers on the one hand (business to business), and distributors and consumers on the other (business to consumers). Having an EPD allows professionals to choose products that meet specific sustainability criteria, necessary for the design of buildings from a Smart and Green Building perspective.

EPD certified products are required by the main building certification systems such as LEED (American but also international), BREEAM (British but also international), HQE (French), DGNB (German) and ITACA (Italian) as well as in Italian legislative schemes (e.g. in sustainable public procurement, GPP).

These are voluntary product certifications, which further enhance NUPI pipe and fitting systems because they are produced according to the best standards of sustainability and responsibility.

SMARTFLEX/SUPERSMARTFLEX EPD

Smartflex/SuperSmartflex EPD is product-specific and discloses the environmental impacts of all process phases, from the extraction of raw materials to the end of life of the product itself, also analysing use, maintenance

and installation, and including possible end-of-life reuse, recovery and recycling scenarios. It is in fact an EPD of the type "From the cradle to the grave".

RESULTS OBTAINED AND THEIR INTERPRETATION

The environmental impacts have been calculated on the basis of a specific functional unit that takes into account the actual application of the system.

The choice was a type of service station consisting of two product tanks and two fuel distribution islands. Smartflex and Supersmartflex double wall pipes were included for the creation of product distribution lines and single wall pipes for ventilation, vapour recovery and tank filling lines. A total of about 140 meters of underground pipes (diameters 50, 63 and 90 mm with a typical wall thickness according to class SDR 13.6) and Smartflex fittings (elbows, tees, bends, couplers, flanged and threaded joints) for underground and pressure distribution. The service life attributed to Smartflex/Supersmartflex pipes was 30 years in accordance with EN14125 and UL 971 standards, i.e. equal to the average of a service station. Since the impact categories are multiple and wanting to focus on the most "known" in common jargon, or on Global Warming, GWP or carbon footprint, we can say that Smartflex/Supersmartflex piping system produces much less kg of CO₂ than a similar system of metal pipes.

GENERAL CONSIDERATIONS ON THE ENVIRONMENTAL PROFILE OF NUPI PIPES

NUPI piping systems are energy efficient, as the extrusion and molding processes are less energy-intensive than those of metal materials. They allow to reduce the environmental impacts due to transport, thanks to the lightness of the plastic material. They eliminate the impacts



relating to the use and maintenance phases; in fact, plastic pipes were considered to have zero impact due to their durability characteristics (equal to 50 years for the pipes for the distribution of hot and cold water inside the buildings, 100 years for the underground polyethylene pipes for the distribution of water, gas and industrial fluids and 30 years for underground plastic multilayer pipes for service stations). Strong, durable, lightweight and flexible, these piping systems require significantly less energy to manufacture, transport and install than metal alternatives (copper, steel) and, with superior corrosion and abrasion resistance, also ensure excellent hygiene of the transported drinking water or excellent quality of transported fluid.

NUPI EPDs are available both on NUPI website and on EPDIItaly website that has published them within its environmental product certification program.

www.nupiindustriaitalinea.com



Aberdeen City Council and bp to develop hydrogen hub

Bp are to design, build and operate a hub incorporating solar power, green hydrogen production and a refuelling facility for transport.

An initial three million pound investment will fund design work, to target production from 2024. This joint venture will also support supply chain development, hydrogen skills and training.

The Aberdeen Hydrogen Hub is to be developed in three phases, in response to growing demands for hydrogen.

Phase one involves delivery of a green hydrogen production and transport refuelling facility powered by a solar farm, is targeting production from 2024. This should deliver over 800 kilograms of green hydrogen per day; enough to fuel 25 buses and a similar number of other fleet vehicles.

The joint venture, named bp Aberdeen Hydrogen Energy Ltd, has committed three million pounds for initial design work; with a final investment decision for the phase one facility build expected in early 2023.

Future phases could see production scaled up through further investment, to supply larger volumes of green hydrogen for rail, freight and marine, as well as for heat and potential export. This expansion would be enabled by the expected increased availability of local renewable energy sources, including developments that emerge from the ScotWind offshore wind leasing round.

The Hub programme will support Aberdeen City Council's ambitions to build inclusive growth; through supporting hydrogen supply chain development, skills and training, and wider community benefits.

A study commissioned by Aberdeen City Council, on the growth in demand for hydrogen power, estimates that if the hydrogen hub enables the export of renewable hydrogen, then up to 700 skilled jobs could be created in the hydrogen industry by 2030.

Partnering with cities and corporations, as they shape their paths to net zero, is a core part of bp's strategy. They expect to partner with 10-15 cities globally by



2030, and aim to capture 10% of the low carbon hydrogen market in key geographies by 2030.

Louise Kingham CBE, bp's UK head of country and senior vice president for Europe, said:

"bp is investing across all the energy transition growth areas in the UK. In fact, we have committed to spend £2 in the UK for every £1 generated here out to the middle of this decade. This announcement is evidence of that commitment in action and is supported by other ambitious plans to produce clean energy from UK offshore wind, develop carbon capture in Teesside and grow the country's electric vehicle charging network."

"With these new business opportunities underpinned by our long-standing position in North Sea oil and gas, we are showing what an integrated energy company can do. All of this couldn't be possible without the skills and experience of a talented workforce and supply chain, eager to help make the UK's net zero ambitions a reality."

Aberdeen City Council's Convenor for City Growth and Resources Councillor Ryan Houghton added:

"Aberdeen City Council has spent £7million to date to deliver a hydrogen programme that in turn has seen us lever

in £35m additional investment from external partners. That sends a positive signal to investors that we are delivering our ambition, and a feature of our success is how industry has responded to the opportunity we have created."

"This joint venture with bp provides the city with the expertise to grow a supply chain, develop new skills and jobs and I believe this model will be an exemplar for how councils implement plans to reach net zero."

Dr Oliver Taylor, incoming chief exec for bp Aberdeen Hydrogen Energy Ltd, said:

"We've long held the view that the energy and mobility assets that cities control can drive change, so we're delighted to be announcing this public-private joint venture. But we also believe that working with and within cities is key to achieving decarbonisation at scale."

Aberdeen City Council embarked on its hydrogen journey more than 10 years ago. It has already demonstrated how demand can be created within cities, using the zero-emission fuel to power a fleet of 25 buses, 60 public sector vehicles and waste trucks. More than two million passengers have travelled on the city's hydrogen buses, and CO2 savings to date are in excess of 100 tonnes over the past six years."

Commercial vehicles reach record share of vehicles on road

Vans, trucks, buses and coaches have reached their highest-ever proportion of vehicles on the road, with commercial vehicles accounting for more than one in eight vehicles in service.

This sector see increased vehicle numbers during 2021 as buses grow for first time since 2011.

Electric vehicle use reaches record high, but accounts for just one in 180 vans and one in 2,000.

The number of commercial vehicles on Britain's roads has reached the highest level in history, according to the latest annual Motorparc data, published by the Society of Motor Manufacturers and Traders (SMMT). Some 5,483,319 vans, trucks, buses and coaches were recorded in operation at the end of 2021, a 4.1% increase on the previous year.

Working vehicles now comprise 13.5% of the national fleet of over 40.5 million vehicles, following a bumper year for van registrations and a return to growth for trucks and buses.

Vans remain the most popular class of commercial vehicle in operation, comprising 4,804,833 units, up 4.3% from 2020. The segment has enjoyed continuous growth since 2010 but renewal has slowed. The average van on UK roads is now a record 8.7 years old, although there are significant regional variations.

The youngest vans can be found in the North East, averaging just over 7 years old, while Wales is home to the oldest, with the average van dating back to 2011. While these vehicles are essential for keeping Britain's economy on the move, renewing them with the latest low and zero emission models will be crucial if we are to deliver the country's green goals.

HGV numbers returned to growth after last year's fall, increasing 2.5% to 604,035. This was driven by significant growth in new registrations (up by 12.9%), but also retention of units already in service. However, the parc is still -0.7% off its 2019 peak.

Bus numbers had been in decline since 2012, including a sharp fall in 2020, which saw around one in 10 taken off the road as ridership was impacted by the pandemic. While there was marginal growth (1.1%) for the first time in a decade in 2021, the bus parc remains 9.7% below its pre-pandemic level.

Zero emission vehicle uptake is also increasing, although overall use remains at low levels. Some 26,990 plug-in vans are now in operation, equivalent to around one in 180, compared with around one in 50 in the car sector. With both vehicle

classes facing the same end of sale date for non-zero emission models in 2035, there is an urgent need for a 'van plan' of infrastructure and incentives to match the commitments already made by the automotive industry. Commitments that have led to a plug-in option being available for a third of new models.

Buses are further ahead on their electrification journey, with battery electric units comprising 1.3% of all those in use. However, increasing this number and ensuring more equitable distribution across the country requires immediate investment in charging and refuelling infrastructure, and the quicker release of funding from policies in the Bus Back Better Strategy.

Truck electrification is also emerging, with 313 units in operation – less than 0.1% of the total fleet – with the recently announced government demonstration programme of zero-emission truck use having the potential to give operators greater confidence to invest in the latest technology. At present, some 98.8% of trucks are registered as running on diesel, although a proportion of these vehicles may be using alternative lower-emission drop-in fuels.

www.smmt.co.uk



Courtesy of SMMT

Oldest cars on the road – ever!

Vehicle numbers on UK roads fell to 40,350,714 in 2020, according to Motorparc data from the Society of Motor Manufacturers and Traders (SMMT), the first time the total number has fallen since the global financial crisis of 2009.

As the pandemic stifled new vehicle uptake, the average age of cars on UK roads is now the highest on record at 8.4 years. Van uptake, however, has grown to the highest level in history, accounting for 11.4% of all vehicles on the road.

The latest parc data illustrates that, for the second consecutive year, there were more than 35 million cars registered on UK roads (35,082,800), although that figure represents a small 0.2% dip as Covid impacted new volumes entering the market.

Light commercial vehicles (LCVs), the only vehicle type to see an increase, saw 1.7% growth over the past year, up to a new record high of 4,604,861 vehicles. Many of these have been instrumental in supporting the nation during the pandemic, providing support to the NHS, and delivering food and goods across Britain.

FEWER NEW CARS

With showrooms closed for large periods of 2020 due to lockdowns, fewer new cars were registered, resulting in the oldest average car fleet since records began. The average car on UK roads was built in 2011, while almost

10 million cars have been in service since 2008 or earlier. While this is testament to the durability and quality of modern vehicles, an ageing fleet risks stalling the UK's attempts to reduce emissions.

A new car from 2020 emits, on average, 112.8g/km of CO₂, which is 18.3% better than a model registered in 2011. Fleet renewal is essential if the UK is to reach its net zero target, with both conventional and alternatively fuelled vehicles having a significant role to play in the transition.

As part of the journey towards zero emission motoring, the number of battery electric vehicles (BEVs) on UK roads increased by 114.3% to a record high of 199,085, while plug-in hybrid vehicles (PHEVs) also saw their numbers increase by 35.2% to 239,510. However, combined, they represented just 1.3% of all cars on our roads – emphasising the importance of replacing older vehicles with newer, cleaner ones.

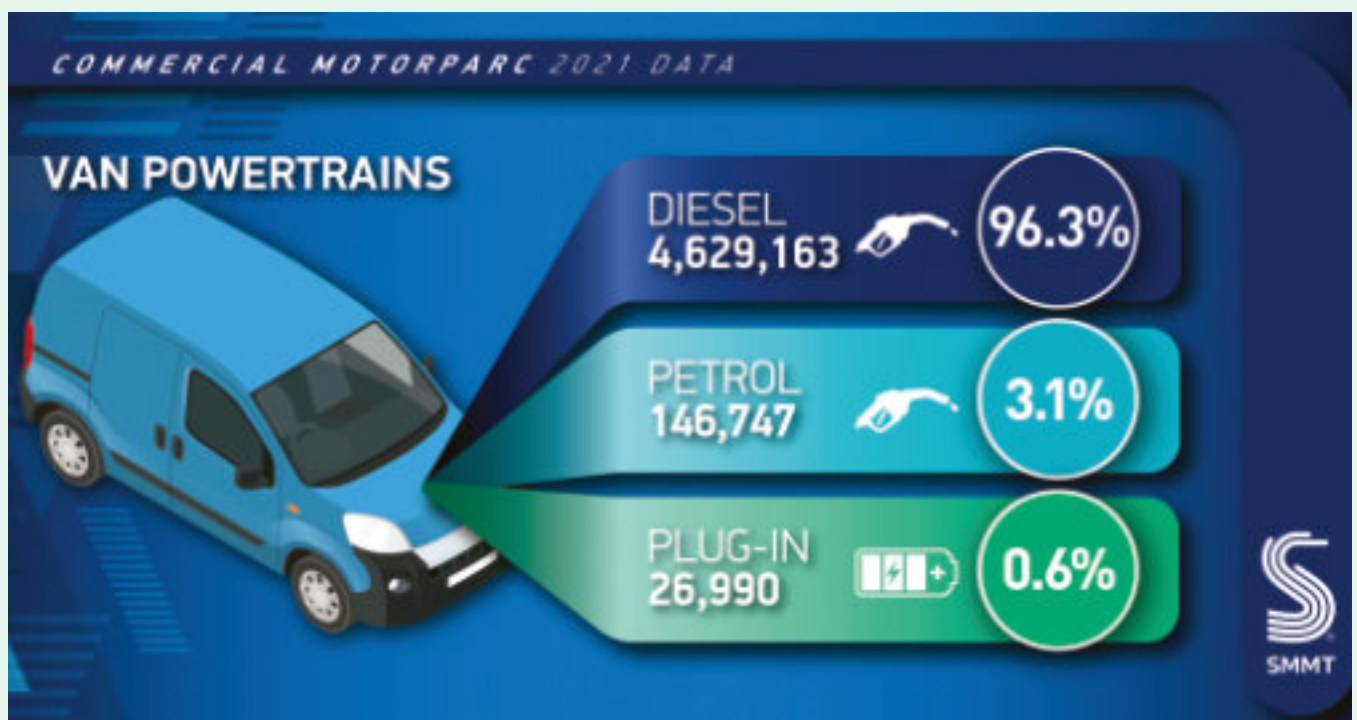
Hybrid electric vehicles (HEVs) saw their numbers grow by a fifth to 621,622 cars. Petrol car volumes remained stable, down 0.2%, with diesel falling 2.3%.



Combined, internal combustion engine (ICE) models accounted for 97.1% of the total parc – or 34,018,599 units.

Mike Hawes, SMMT Chief Executive, said: *“With the pandemic putting the brakes on new vehicle uptake in 2020, the average car on our roads is now the oldest since records began some 20 years ago, as drivers held on to their existing vehicles for longer. The technology is changing, however, albeit slowly.*

Despite massive growth last year, just one in 80 vehicles is a plug-in electric car; while nearly 10 million petrol and diesel cars dating back to before 2008 remain on our roads. Encouraging drivers to upgrade to the newest, cleanest lowest emission cars, regardless of fuel source, is essential for the UK to meet its ambitious climate change targets.”



Courtesy of SMMT