

DECARBONISATION

A LOGISTICS MAGAZINE SUPPLEMENT



THE FUTURE OF TRANSPORT

★ *According to a theoretical physicist*

WHY MULTIMODAL MATTERS

★ *And how connectivity is key*

9 COMMON EV MYTHS BUSTED

★ *With Dr Russell Fowler*

LOGISTICS UK

Autumn **2023**

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David Wells OBE

Chief Executive, Logistics UK

Welcome

Decarbonisation is a top priority as the UK deadline of net zero by 2050 draws closer. Together, the logistics sector has been working proactively to share knowledge and participate in trials to introduce new technologies and explore opportunities for modal shift. However, significant barriers remain, including rising inflation, energy prices and a lack of a national public charging infrastructure.

To address these issues, Logistics UK is calling for government support through tax allowances for capital expenditure on green infrastructure, as well as a fair and equitable approach to funding depot electricity connections, including for the plug-in grant to be made available to fund connections and charging infrastructure.

Decarbonised road vehicles using various technologies will require an accessible public refuelling network, so Logistics UK is calling for an urgent EV charging and refuelling infrastructure roadmap designed in collaboration with operators, backed with clear guidance and incentives for local authorities.

For larger logistics vehicles, such as HGVs, ships and rail on non-electrified lines, there remains significant uncertainty regarding the most viable alternatives.

Government-backed HGV trials are taking place too slowly; Low Carbon Fuels (LCFs) are an excellent short-term solution for immediately reducing carbon emissions by up to 80%. However, they come at a high cost and lack the necessary infrastructure.

Logistics UK is calling on government to urgently produce a LCF strategy that provides certainty from government regarding future infrastructure investments to allow businesses greater clarity on which alternative fuels to adopt.

In aviation, questions remain over the costs of producing and using Sustainable Aviation Fuel (SAF). Logistics UK is calling for production of SAF to take place domestically to ensure that costs are reduced and availability is increased.

Overall, industry is exploring all options for transitioning to a greener economy. Logistics UK and its members are engaging in several encouraging conversations with government. However, the necessary steps must follow these.

As noted by the Intergovernmental Panel on Climate Change (IPCC), catastrophic environmental impacts are rapidly becoming inevitable and it is 'now or never' to take drastic action to avoid disaster.



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A Logistics Magazine supplement | Autumn 2023

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Thanks to Alex Roache and Flora Wike

ISSN 2632-7813 (Print)

ISSN 2632-7821 (Online)

Published by **LOGISTICS UK**

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Logistics UK is a trading name of Freight Transport Association

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Registered in England Number 391957

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Beverley Wise

Webfleet Regional
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The electric transport revolution is a forced pilot for fleet operators. It's a matter of when, not if, businesses must make the electric transition.

The end to the sale of new petrol and diesel cars and vans is now just seven years away, and the ZEV mandate will regulate the number of electric vehicles manufacturers must sell as the clock ticks down.

But electric vehicles still tend to cost more to purchase or lease than their ICE counterparts, and while improvements continue to be made to battery range, capabilities and charging infrastructure, limitations remain. Fleets must find a way to navigate these challenges and implement new operational models.

Digital innovations can act as the catalyst for change. Webfleet for example, our award-winning fleet management solution, is helping businesses transition to electric vehicles in the most cost-effective way possible with a range of tools that underpin charging strategies, support driver education, and optimise EV routing, workflow planning and energy usage.

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Decarbonising the right way

As the logistics industry continues to make further developments in exploring more time- and cost-efficient technologies, transporting goods in urban areas – both in terms of supplying retail, industry, or trade, as well as end customers – has progressed and undergone a radical shift in recent years.

The need to decarbonise across all sectors remains high on the agenda for logistics businesses, but it is important to note that a singular solution will not work for all modes and locations.

DIFFERENT APPROACHES

Towns and cities across the UK have committed to different approaches for decarbonising their operations such as freight consolidation, cargo bikes and autonomous/remote deliveries. And while government policy has struggled to keep pace with new innovations and find the most sustainable and effective option, industry has adapted.

Companies are beginning to, or have already, transitioned their vehicle fleets to the greener alternative of electric vehicles (EVs), and warehousing and distribution centres are implementing automated robots to optimise the use of packaging materials, improve shipping efficiency, and reduce costs.

Currently, many local authorities and agencies are actively exploring the use of alternatives to internal combustion engine vans and lorries within cities including cargo bikes and other light, zero-emission vehicles.

LONDON LEADING

As we see so often in urban policy, London is furthest down this path.

In response to industry trends, Transport for London (TfL) published its Cargo Bike Action Plan in March 2023 that set out how cargo bikes will become a viable option for last-mile deliveries.

The strategy focuses on three key areas that require attention to promote and enable the growth of cargo bikes; the infrastructure required for the bikes, safety and training and behaviour change.

Where appropriate, cargo bikes can reduce van delivery and service trips across London as they deliver considerable carbon emission and air pollution savings, contributing to healthier streets.

Although cargo bikes create great opportunities for reducing CO₂ emissions through tailpipe emissions and avoiding detrimental impacts on congestion and air quality, public bodies must recognise that they will only ever be part of the urban logistics fleet.

Cargo bikes can carry up to 80kg, whereas a large battery electric panel van has a payload capacity of around 1,600kg. This indicates that one van can carry the same load as approximately 20 cargo bikes.

MICRO CONSOLIDATION

A more practical solution to decarbonise in urban logistics is utilising the number of micro-consolidation centres available, as they allow for vehicles to travel fewer miles between deliveries.

This is beneficial for electric vehicles as they have a shorter mileage range, and so are often better suited for urban logistics rather than rural areas that cover longer distances.

Research published in Logistics UK's Logistics Report 2023 shows that London is the most congested city in the world, with the average driver losing 156 hours due to congestion in 2022. It is therefore crucial that small pockets of land in the centre of our cities are safeguarded for micro consolidation and EV charging to ensure this method remains sustainable and decarbonisation friendly.

INCENTIVISING INNOVATIONS

Logistics UK believes that national and local policies should incentivise innovations that meet the twin challenges of decarbonisation and efficiency within the sector, while at the same time not unfairly penalising or disadvantaging existing operators.

Any new potential policy landscape may need a conversation between customers and operators – if restrictions continue to tighten, the on-demand logistics we have all become familiar with will be more challenging, though may bring significant environmental and efficiency benefits.

However, we must also remember that our ever-growing and changing urban environment will always need a supply of materials which can only be provided by heavy vehicles. Policy must reflect this and not impose unfair costs on operators.

Logistics businesses are committed to meeting the 2050 net zero deadline; however, more support is vitally needed through tax allowances for capital expenditure on green infrastructure as well as longer-term certainty on grants for logistics businesses to develop future reliable investment plans. ■



Jonathan Walker

Head of Cities and Infrastructure Policy, Logistics UK

Logistics UK's EV Report: A summary



Denise Beedell

Senior Policy Manager,
Logistics UK

While uncertainties remain regarding HGVs, battery electric is widely viewed as the mass-market solution to transitioning lighter commercial vehicles towards a greener economy. As the business group representing the logistics industry, Logistics UK published an Electric Vehicle Report 2023 on 11 May 2023 considering operators' current experiences of transitioning to EV. In this article, Denise Beedell, Senior Policy Manager at Logistics UK, highlights some of the findings of the report, examining the challenges to uptake and feedback from those that have made the switch to electric vehicles.

At the end of Q3 2022, EVs represented 0.9% of the van parc, a small increase from 0.3% in 2019. And, while the majority – 62% – of respondents stated they plan to have decarbonised their van fleets by 2030, significant barriers remain that prevent the uptake needed ahead of government's 2050 net zero deadline.

One of the key concerns among operators is cost. In addition to a rise in acquisition costs, respondents reported estimated costs to upgrade their energy supply of between £100,000 and over £1 million. Volatile energy prices are also a concern, with one member quoted £5,000 for every additional megawatt of electricity.

With rising inflation, an increase in total vehicle operating costs and a reduction in energy support, like all sectors of the UK economy, the logistics industry is facing increasing financial pressures. With almost all respondents (95%) reporting higher total costs of ownership (TCO) – and 64%

reporting costs being two to three times more expensive than an equivalent diesel vehicle – operators are facing difficult decisions regarding decarbonisation investments.

Recharging is vital, with all respondents citing energy supply as their top priority and a third of respondents highlighting power supply infrastructure as one of their biggest challenges for fleet electrification. To help support the transition to electric vehicles, Logistics UK is calling for further fiscal support from government, as well as a fair and equitable approach to funding depot electricity connections. We are also calling for more transparency on available grid capacity and a common service agreement amongst Distribution Network Operators (DNOs) for a more standardised process.

Within the report is a focus on public EV chargepoints, which are currently causing challenges for some operators. Over half of respondents reported difficulties in finding a free

FOR MORE INFORMATION

★ <https://logistics.org.uk/research-hub/reports/ev-report>

Electric Vehicle Report 2023



and usable EV chargepoint space, with many encountering broken or inoperable chargers. This is concerning given the low number of chargepoints across the UK – and particularly Northern Ireland – with figures from government, published in early May 2023, highlighting just how far behind NI is in relation to GB, with just 20 electric charging devices per 100,000 of the population, compared with London's 145.

Significant frustration was expressed by those who regularly use public chargepoints at the lack of reliable and up to date information about available working chargepoints, as well as issues surrounding their suitability for commercial vehicles.

To combat this, Logistics UK is calling for an EV charging and refuelling infrastructure roadmap designed in collaboration with business to work for logistics vehicles, backed with clear guidance and incentives for local authorities. A significantly accelerated rollout of public charging infrastructure that is fully accessible to commercial vehicles, with clear milestones for minimum levels of suitable chargepoint provision across the country, must be prioritised if decarbonisation targets are to be met.

Also noted in the report is the diverging attitudes to vehicle capabilities among operators who are looking to make the transition, and those who have made the switch. Respondents who are starting to consider electrification are frustrated that currently, available EV models do not always match their diesel fleets in terms of mileage range

and load carrying. However, those who have operated EVs for some time take a more pragmatic approach and have adapted their operations to work within the capability of the EVs available, recognising that like-for-like replacement of existing diesels is not always possible.

While logistics is an extremely complex industry, at its core is adaptability. This feedback from those that have made the transition is therefore positive, as is the news that 59% of respondents reported a good response from their drivers to operating EVs, with only 10% reporting negative or mixed reactions from their drivers.

Overall, there is a real recognition among operators of the need to decarbonise. Of the respondents who have introduced EVs into their fleets, 58% have done so in the last two years, which is an encouraging sign that, while further fiscal support is needed, industry could see an acceleration towards electric vehicles in the near future.

Logistics UK will continue to work with members, and government, to address the challenges highlighted by the report, and seek practical solutions that enable industry to move to a greener economy. ■

Nine common EV myths busted



Dr Russell Fowler

Senior Manager,
Decarbonisation of
Transport, National Grid

From 2030, new petrol and diesel cars will no longer be sold in the UK and far more of us – for work and for leisure – will begin using electric vehicles. However, a number of common misconceptions surrounding EVs remain that still raise concerns. Here, Dr Russell Fowler, Senior Project Manager from National Grid, helps us bust some of the most common EV myths...

MYTH 1

THE ELECTRICITY GRID WON'T BE ABLE TO HANDLE THE INCREASE IN ELECTRIC VEHICLES

There are two aspects to whether the electricity grid can manage lots of EVs being plugged in at once:

- 1 Whether enough electricity is available; and
- 2 Whether the wires that carry that electricity have enough capacity to do so.

When considering this, it's important to remember that the shift to EVs is happening gradually – not overnight. Renewable energy sources are constantly being developed to supply us with more clean and green electricity, and we're constantly evolving the electricity grid to be better equipped to handle it – including through our Great Grid Upgrade, the largest overhaul of the electricity transmission network in generations.

One of the main sources of concern people have is the scenario of all EV owners and operators charging their EVs at the same time. So is it possible to spread out the demand, while still making sure we all get our EVs charged when we need it?

The short answer is: yes. The UK Government has introduced Electric Vehicle Smart Charge Points Regulations, which ensure that EV charge points will have smart functionality; allowing the charging to happen when there is less demand on the

grid, or when more renewable (and therefore often cheaper) electricity is available.

This means that no matter what time you plug in your vehicle, it will charge when you need it but can automatically pause during those peaks when demand on the grid is highest and energy is most expensive.

The most demand for electricity in recent years in the UK was for 62GW in 2002. Since then, the nation's peak demand has fallen by roughly 16% due to improvements in energy efficiency.

Even if we all switched to EVs overnight, we believe demand would only increase by around 10%. So we'd still be using less power as a nation than we did in 2002 and this is well within the range of manageable load fluctuation.

A significant amount of electricity is used to refine oil for petrol and diesel. Fully Charged's video 'Volts for Oil'

DR RUSSELL FOWLER

Russell is the Senior Manager looking at National Grid's role in transport decarbonisation – from rapid EV charging to synthetic fuels for aviation. He led the analysis for RIIO-2, National Grid ESO's first price control, helping the ESO to be able to operate the system carbon free by 2025. Russell also holds a PhD in mathematics from the University of Birmingham.



(available on YouTube) estimates that refining 1 gallon of petrol would use around 4.5kWh of electricity – so, as we start to use less petrol or diesel vehicles, some of that electricity capacity could become available.

MYTH 2

ELECTRICITY THAT CHARGES EVs IS MADE BY BURNING FOSSIL FUELS, SO THERE ARE STILL EMISSIONS INVOLVED

More and more of our electricity now comes from renewable, green or clean energy sources and zero-carbon power in Britain's electricity mix has grown from less than 20% in 2010 to nearly 50% in 2022.

With the growth in onshore and offshore wind farms and the closure of a number of coal plants, transport is in fact now the most polluting thing the UK does as a nation.

Our energy system is also becoming more flexible to maximise on this cleaner energy whenever it's available.

Apps like the National's Grid's WhenToPlugIn app, as well as new legislation and smart energy tariffs, are all helping us manage our electricity use, for example, smart chargers that can start or pause our EV charging to ensure it's using the cleanest and cheapest power.

MYTH 3

EVs ARE SLOWER THAN PETROL AND DIESEL VEHICLES

Not true. Formula E racing is a great example of just how fast EVs can go. A typical Formula E car can accelerate from 0-62mph in just 2.8 seconds – faster than most Ferraris. They can also reach top speeds of 200mph (322km/h), which is the equivalent of travelling from London to Edinburgh in just over two hours. Definitely no issues with slowness there.

For normal EVs outside the racing world, top speeds aren't really any different to other vehicles, but they do accelerate quicker so can certainly 'feel' faster. This is because you get the maximum torque (leading to acceleration) from the minute you start rolling, whereas you need to 'rev up' an internal combustion engine car to get maximum power and torque.

MYTH 4

EVs ARE WAY MORE EXPENSIVE THAN PETROL OR DIESEL VEHICLES

It's true that products based on new technology do tend to be more expensive for early adopters. But, as they become more mainstream and volumes increase, prices typically come down – mobile phones are a good example of this trend.

EV battery prices are already falling, which helps with this. So we absolutely expect the upfront cost of new EVs to reduce over the next few years.

For those looking to buy used rather than new, the current uptick of supply in new EVs will hit the second-hand EVs market sooner than you think. Auto Express recently reported some second-hand EVs being cheaper than their petrol or diesel equivalents.

When considering an electric vehicle, it's important to look at 'whole life cost' not just at the initial outlay, which means considering its running costs and how well it retains its value.

Even though EVs currently have higher purchase prices, they're cheaper to run – costing much less than petrol or diesel – even at today's electricity prices.

EVs also have fewer moving parts too, meaning they should also have lower servicing costs. Although respondents to Logistics UK's recently published Electric Vehicle Report 2023 were experiencing higher parts and servicing costs,

possibly due to the current shortage of qualified EV service engineers.

Incentives may also be available to lower the price of an EV. While government grants were withdrawn for electric cars on 14 June 2022, grants from £2,500 (applied by the manufacturer) are still available for the purchase of new electric vans and trucks.

MYTH 5 **LOTS OF EV BATTERIES WILL GO TO LANDFILL**

The lithium-ion technology in our mobile phones is not dissimilar to those in an electric vehicle. The major difference is that EVs have effective power management systems that guard the long-term health of their batteries.

Most manufacturers are offering battery warranties of seven or eight years, or around 100,000 miles, but there's a reasonable expectation that they will actually last longer than that and indeed outlive the vehicle itself.

Even if a battery was no longer deemed fit for use in the vehicle, it won't end up in a landfill site as it can either be recycled or given a second life as an energy storage unit for homes or businesses.

MYTH 6 **EVs DON'T GO FAR ENOUGH ON A SINGLE CHARGE AND TAKE AGES TO CHARGE**

A lot of people say the sweet spot for the range of an EV is between 200 and 300 miles. This gives the optimal balance between cost and range. Most people don't require a range of more than this; after the time it takes to drive this distance most of us need a pit stop anyway.

Statistically in the UK, the first vehicle in a family does around 37 miles a day on average and any second car covers around 11 miles daily. Van operators using EVs will usually deploy them on routes with duty cycles that cannot accommodate the expected mileage range, which for urban routes will be under 50 miles per day.

Of course, people don't simply buy a vehicle to make their average journeys – they also buy for the longest ones they do. What we should consider here is that, in reality, when we do embark on longer excursions, most of us already do stop for 15-20 minutes at a service station, to grab a drink, use the toilet or fill up on petrol or diesel. That would be all the time it takes to power up your EV with the new range of ultra-rapid chargers that are already available.

As far as charging is concerned, powering up your EV can take as little as 30 minutes or up to 12 hours – it all depends on the size of the battery and the speed of the charging point.

A Nissan LEAF with a 40kW battery, for example, would take around five hours to charge from empty with a 7kW home charging point. A Polestar with a 78kW battery would take around 10 hours. A rapid charger at a motorway service station, however, could charge your vehicle to full in about 30 minutes.

The charging rate can also differ depending on the ambient temperature, the state of the battery (eg empty or half full) and the maximum charging rate of the vehicle. Similar to your mobile phone though, up to 80% of your charging will likely be overnight at home or fleet depot.

MYTH 7 **THE INFRASTRUCTURE ISN'T ABLE TO SUPPORT A LOT OF PEOPLE DRIVING EVs, ESPECIALLY IN RURAL AREAS**

Across the UK there were 37,055 public charging devices at the start of 2023, of which 6,887 were rapid or better chargers. Charging stations are constantly being added by public and private entities alike.

The government's EV infrastructure strategy published in 2022 plans to expand the UK's EV charging network by 300,000 public chargepoints by 2030 and roll-out at a minimum of 6,000 rapid chargers across England's motorways and A-roads by 2035.

In the UK, National Grid has proposed the optimum locations for adequate grid capacity to enable others to provide ultra-fast chargers, ensuring that nobody on the strategic road network (motorways and principal dual carriageways) is further than 50 driven miles from ultra-rapid charging. This will give drivers consistency, continuity and therefore confidence that their main – or only – vehicle can be electric.

At National Grid we're working with the Department for Transport (DfT) and Office of Zero Emission Vehicles (OZEV) in an effort, with the help of the Rapid Charging Fund, to enable them to get ahead of the curve and build the infrastructure the country needs.

MYTH 8 **EVs BREAK DOWN MORE THAN NORMAL VEHICLES**

EVs are actually shown to break down less than combustion vehicles, as they have fewer moving parts. They also require less maintenance, fewer fluids and their brake systems generally last longer due to regenerative braking.

Edmund King, president of the UK's biggest breakdown organisation, the AA, told The Clean Energy Revolution podcast: "There is a massive misconception; 99% of people in a survey of 15,000 exaggerated by quite a lot the number of EVs that would break down from running out of charge... it's less than 4%¹, and 50% of them aren't actually out of charge, they're low on charge and maybe a little bit worried."

He continued: "The biggest reason we're being called out for EVs [breaking down] is exactly the same as for conventional vehicles."

MYTH 9 **EVs ARE SO MUCH HEAVIER THAN NORMAL VEHICLES THAT CAR PARKS ARE AT STRUCTURAL RISK**

All makes and models of vehicles become safer and more luxurious with every new release. This has seen weight increases across the automotive board. There's no evidence to show that the weight of electric vehicles is an issue. ■

¹ Figure now reported at just 2.1%



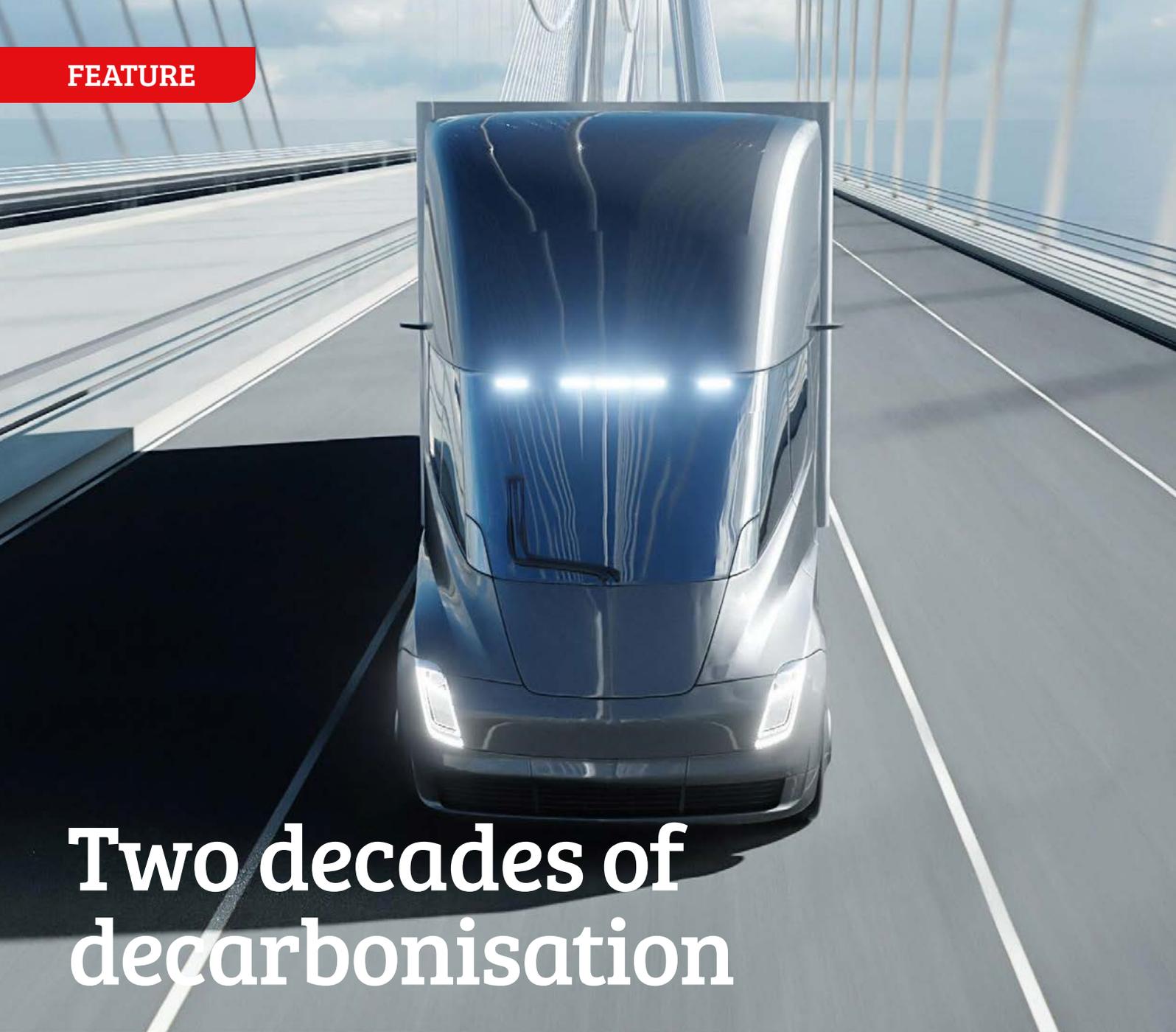
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Two decades of decarbonisation



Gloria Esposito

*Head of Sustainability,
Zemo Partnership*

Zemo Partnership celebrated its 20th anniversary in June, a great opportunity to reminisce about the important work the organisation has done – and continues to do – in influencing UK road transport decarbonisation.

Originally named LowCVP, the multi-stakeholder organisation was established by UK government to act as the interface between industry and government, with a goal to accelerate the shift to low carbon fuels and vehicles. Following the government's pledge to meet net GHG emissions zero by 2050, Zemo redefined its raison d'être to 'accelerating the transition to net zero mobility'.

Zemo is quite unique in its membership, bringing together a broad range of stakeholders, all focused on addressing road transport decarbonisation. These include major automotive manufacturers, renewable fuel and energy suppliers, public transport and freight operators, technology and infrastructure companies, academia, financial institutions, NGOs, and national and regional public sector bodies.

From its inception, Zemo has worked collaboratively with its members to provide an independent and impartial voice to influence UK government low-carbon transport policy. Concurrently, Zemo has created various initiatives to aid the market adoption of sustainable low-carbon fuels and zero-emission vehicles. Over the last decade, Zemo has played a central role in delivering thought leadership, executing science-based research to provide new insights that will help inform road transport decarbonisation.

A CRITICAL INFLUENCE

Focusing specifically on commercial vehicles, Zemo influenced the creation of the plug-in van and truck grants, working closely with DfT and members of our commercial



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vehicle work group. Developing a robust and representative test procedure to measure the performance of different plug-in truck technologies was a central aspect of Zemo's work. This has subsequently enabled automotive manufacturers to demonstrate their products can achieve the plug-in truck grant's electric range and tailpipe CO₂ emission standards.

Understanding the real-world performance of zero-emission and low-carbon trucks is critical for influencing consumer adoption of new technologies, and guiding policy direction. Zemo delivered the monitoring aspect of the government's Low Emission Freight and Logistics Trial (LEFT).

This in-depth analytical work revealed the Well-to-Wheel (WTW) GHG emissions, fuel and energy efficiency and total cost of ownership of rigid and artic HGV fleets running on natural gas and biomethane, dual fuel hydrogen, hybrid range extender and battery electric technologies.

One of the highlights of the study was demonstrating the strong business and environmental case for artic gas trucks powered by biomethane.

VALUABLE EVIDENCE

More recently, Zemo has supported the DfT's Zero Emission Road Freight Demonstration programme (ZERFT). First promoted in the DfT's Transport Decarbonisation Plan, this research and development project will demonstrate the performance of battery electric and hydrogen fuel cell trucks in UK long haul HGV fleets.

ZERFT will provide valuable evidence to inform zero-emission truck policy development and equip fleet operators with important information to inform future purchasing decisions.

With regards to new areas of work in the HGV space, Zemo is looking to publish a Plug-In Truck Guide for HGV operators to identify the ZE products available today and provide HGV fleet operators' case studies.

Another new workstream will shift the dial to charging infrastructure for battery electric HGVs, exploring deployment barriers and solutions for different fleet business models.

MARKET OPPORTUNITIES

Looking at near term HGV decarbonisation, Zemo has been very active in the low-carbon fuels space. Back in 2021, Zemo published a study demonstrating the market opportunities to decarbonise HGVs using renewable fuels. The study outlined the barriers precluding the wider adoption of biofuels, such as biomethane and renewable diesel (HVO), and presented a range of interventions to overcome these.

The study demonstrated that significant GHG emission savings could be achieved through the adoption of renewable fuels in regional and long-haul HGVs during the transition to zero-emission technologies. The study has contributed to the development of the DfT's forthcoming Low Carbon Fuel Strategy.

One of the interventions proposed in Zemo's study was the creation of an independent assurance scheme, to provide greater transparency and traceability for bulk renewable

fuels supplied to commercial fleet operators.

Zemo developed and launched the Renewable Fuels Assurance Scheme (RFAS) in 2021 with an initial three companies approved. As of today, 20 companies are approved, demonstrating the growing success of the scheme.

These companies supply biomethane, renewable diesel, biodiesel blends and renewable liquid hydrogen. The RFAS works alongside the government's Renewable Transport Fuel Obligation, providing fleet operators with assurance of purchasing sustainable low-carbon fuel.

Most importantly, the scheme verifies renewable fuel suppliers' claims regarding their products' lifecycle GHG emissions savings and feedstock provenance.

Over the next nine months Zemo will be supporting the DfT to implement the Low Carbon Fuels Strategy and undertaking promotional activities to raise awareness about the role of sustainable low carbon fuels in decarbonising HGV fleets.

Activities include publishing a revamped Renewable Fuels Guide and hosting a webinar series showcasing the different low carbon fuel options available today.

THOUGHT LEADERSHIP

Finally, Zemo's thought leadership work is worthy of mention. One of the most recent influential pieces of work involved demonstrating the WTW GHG emissions, and energy efficiency, of different hydrogen supply chains and their use in hydrogen vehicles.

The study revealed that the energy source used to produce hydrogen highly influences the WTW GHG emissions of hydrogen HGVs. Fossil hydrogen used in a hydrogen fuel cell truck showed higher WTW GHG emissions than an equivalent diesel truck, emphasising the need for 'low carbon hydrogen'.

The research work was insightful for highlighting the high energy demand associated with producing, storing and transporting hydrogen. Whilst a hydrogen fuel cell HGV, running on low carbon hydrogen, can have superior WTW GHG emissions performance to a diesel HGV, the WTW energy efficiency is roughly three times lower.

Our next workstream will go beyond WTW GHG emissions and demonstrate the vehicle life cycle GHG emissions of different sustainable low fuels and zero emission technologies, with focus on rigid and artic HGVs.

As you can see Zemo has been very busy over the last 20 years and will no doubt continue to make a valuable contribution to both the government's and the fleet operator's journey to net zero. ■

Delivering decarbonisation

As fleets set their sights on net zero transport, some of the pressing questions they face are answered.



Beverley Wise

*Webfleet Regional
Director for Bridgestone
Mobility Solutions*

IS TRANSPORT DECARBONISATION BEING THWARTED BY RISING COSTS?

Decarbonisation remains an important objective for fleet businesses, with an impending ban on the sale of new petrol and diesel vans, and clean air and low emission zones being rolled out across UK cities.

Cost pressures, however, are biting and recent research by Bridgestone Mobility Solutions revealed that 85% of fleet departments are facing increased pressure from board level execs to make spending cuts. For more than three-quarters (76%), this means postponing decarbonisation plans.

But fleets would be wise to remember that financial and sustainability business objectives invariably go hand-in-hand. Initiatives to reduce fuel spend for example – typically the largest fleet cost – such as improving driving performance or vehicle maintenance, will also cut carbon emissions.

Deferring decarbonisation plans today can not only damage the environment, but also tomorrow's profitability.

HOW CAN FLEETS ELECTRIFY COST EFFECTIVELY?

Fleets first need to determine the optimal time for making the electric transition, and then lay the groundwork for success. This includes having a cost-effective plan for fleet charging, educating drivers and investing in digital solutions to support electrification.

Electric vehicle (EV) software solutions can help in these areas.

Webfleet, for example, will support cost-effective charging practices and optimise EV routing, taking account of vehicle battery levels, capacity, energy consumption and charge point locations. Managers have visibility over remaining charging times and vehicle charging statuses, helping them understand why their vehicles are at their current level of charge, offering insights into the charging process, including time, location and duration.

EV efficiency can be compromised by a lack of driver education, but performance data can help underpin training programmes, as it does for traditional ICE fleets.

The latest EV management tools allow fleets to compare the energy performance of drivers, analyse kinetic energy recovered through regenerative braking and provide targeted coaching where it's most needed. Miles per kWh can also be optimised by monitoring and mitigating incidents of speeding, harsh acceleration and braking.

WHAT OTHER WAYS CAN TECHNOLOGY HELP FLEETS TO CUT EMISSIONS?

Every litre of fuel saved equates to more than 2kg of CO₂ so by cutting miles from operational journeys, or improving the mpg of vehicles, carbon footprint can be reduced.

Ensuring efficient job allocation, journey planning and smart routing, for example, can all have a significant impact, as can efforts to cut incidents of idling, speeding, harsh cornering, braking, and shifting gear at the wrong time.

Fleet management solutions will deliver actionable insights in all these areas to help bring about meaningful change.

FOR MORE INFORMATION...

★ Visit www.webfleet.com



The future of transport



Stuart Messham

Editor, Logistics UK

When Jim Al-Khalili talks, people listen. As well as a multiple award-winning science communicator, writer, broadcaster and leading academic making fundamental contributions to theoretical physics, he is a regular presenter of TV science documentaries, such as the Bafta nominated *Chemistry: A Volatile History*, and hosts the long-running weekly BBC Radio 4 programme, *The Life Scientific*. He recently spoke at Logistics UK's ITT Hub event in Farnborough, impressing the audience with his delivery, insight and approachability. We caught up with him after the event to talk more about the future of transport and autonomous vehicles...

Realistically, how far away is the widespread adoption of self-driving cars and autonomous vehicles? And is the revolution guaranteed?

The revolution is guaranteed, yes, in the sense that it is inevitable that this technology will arrive, but fully autonomous vehicles I would say are still 10-20 years away.

How will manufacturers get past people's anxieties around accidents and prove that they are in fact safer? How long will it take to convince them that computers are better drivers than humans?!

It will happen gradually with dialogue and transparency. But the same happens with all new technologies. We don't worry any more when we're told our plane is flying in autopilot.

There are many examples throughout history where we have put our faith (and our lives) in the hands of technologies that replace humans. If AI-driven vehicles are safer than human-driven ones, then people will be persuaded. We are a remarkable species at adapting to new tech.

(according to a
theoretical physicist)

How will the design of vehicles change now that they will only cater for passengers?

I guess we can look at how science fiction writers and Hollywood have depicted them, which is probably not so far from what will happen.

We won't need a steering wheel, that's for sure. And the windows could double as screens showing us information as well as transparent views of the outside world. Passengers will not necessarily need to see where they are going, in the same way that I tend not to constantly look out of a train or plane window.

What will come first, driverless trucks or driverless cars? Why?

If the technology is available for one and there is a commercial incentive, then it will happen quickly for all road vehicles I would say. This is not like other transport tech where the type of vehicle plays a role, like hydrogen fuel cells in trucks and buses before cars, due to their current cumbersome size at the moment.

How will driverless trucks benefit the freight industry and how big an effect will autonomous vehicles have on freight and the movement of goods?

Well, one possibility is that the necessary tight regulations about how many hours that long-distance truck drivers are allowed to do per day, or in one stint, to avoid concentration lapses and tiredness is no longer an issue if the trucks are autonomous (with a driver still on hand, but who is less involved in having to concentrate on the driving itself).

Can autonomous vehicles reduce pollution? How?

It's not obvious to me that there is a direct or strong correlation between autonomous vehicles and the green agenda. That is far more connected to the type of vehicle, the nature of the fuel and the wider infrastructure.

A car driven by a computer rather than a human will still need the same engine and structure. Taking away the steering wheel, for example, has no effect on how environmentally friendly it is.

Who are the biggest champions of autonomous vehicles?

Well, I don't think it's the transport industry yet. It is still focussing – rightly – on electrification. So, it is the robotics industry, the AI researchers and the other developers of the technology who are most engaged, as well as the larger visionary organisations such as Google etc.

In your opinion, how will driverless vehicles reshape the way the world works?

Like any revolutionary new technology, I suspect it will be in unexpected ways. No doubt there are people who are thinking about this, but I am not best placed to comment. I would just say that such new technologies don't appear in isolation.

The world will change in much bigger ways due to the development of AI, robotics and automation, than just because of driverless cars. For instance, there may be

fewer people travelling in cars overall if remote working continues to develop, with virtual reality and augmented reality advances, as well as AI taking over those jobs we are currently all commuting to work to do!

What will an autonomous future look like and what are the main concerns to be overcome going forward?

The main challenges are of course the same as those with the development of AI in general, but even if these are overcome there will still remain the challenge of public acceptability and trust.

Like most people, I guess my vision of an autonomous future is the same as that envisioned by futurists, science fiction writers and, well dare I say again, Hollywood. These may be completely wrong of course, but I don't personally have any better way of predicting the future than anyone else. ■



JIM AL-KHALILI

Jim is a theoretical physicist at the University of Surrey where he holds a Distinguished Chair in physics as well as a university chair in the public engagement in science. He received his PhD in nuclear reaction theory in 1989 and has published widely in the field. His current interest is in open quantum systems and the application of quantum mechanics in biology.

He is a prominent author and broadcaster. He has written 14 books on popular science and the history of science, between them translated into 26 languages. His latest book, *The World According to Physics*, was shortlisted for the Royal Society Book Prize. He is a regular presenter of TV science documentaries, such as the Bafta-nominated *Chemistry: a volatile history*, and he hosts the long-running weekly BBC Radio 4 programme, *The Life Scientific*.

Jim is a past president of the British Science Association and a recipient of the Royal Society Michael Faraday medal and the Wilkins-Bernal-Medawar Medal, the Institute of Physics Kelvin Medal and the Stephen Hawking Medal for Science Communication. He received an OBE in 2007 and a CBE in 2021 for 'services to science'.



Sustainability takes flight



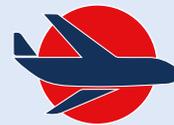
Ellis Shelton
Policy Advisor,
Logistics UK

Air cargo is a vital part of the logistics sector, providing fast and efficient transportation of goods around the world to meet increasing online consumer demand, but is arguably one of the most difficult modes to decarbonise. As the economy faces rising fuel costs, it is crucial that both government and the industry recognise the vital role that Sustainable Aviation Fuel (SAF) can play in decarbonising aviation, and the action needed by both parties to scale production and distribute globally.

The world's first net zero transatlantic flight using solely SAF, flying from London Heathrow to New York's John F Kennedy Airport (see graphic), can pave the way for sustainable air travel. When fully replacing Kerosene, SAF can reduce lifecycle carbon emissions by 70% compared to conventional fossil jet fuel. The use of 100% SAF on an air freight flight, combined with carbon removal through biochar credits – a material which traps and stores carbon taken from the atmosphere – will achieve a net zero flight and provide industry with sustainable air freight logistics.

E-FUEL ACCELERATION

Alongside advancements in SAF, the logistics sector expects to see an acceleration of e-fuel development. Made from renewable energy sources, e-fuels represent another major opportunity to decarbonise aviation. Although a suitable alternative and replacement to kerosene, there are concerns over the readiness of the biofuels used to produce SAF. E-fuels are not restricted by such measures; the main issue surrounding them is that their production would require a huge amount of



AIR

power. Most projects focus on electricity as the power source to manufacture e-fuels, with the sustainability of the fuel reliant on the power source used to produce it being from a renewable energy.

Encouragingly, electric regional aviation is making great progress due to ongoing advancements in battery technology. Projects spearheaded by NASA will take centre stage as they continue to research and develop solid-state batteries, as opposed to lithium-ion batteries, in the bid to produce workable electric aircraft batteries.

EXCEEDINGLY CHALLENGING

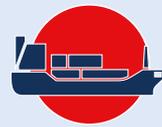
With the exception that carbon offsetting and carbon capture and storage would be necessary to fulfil the 2050 target, aviation decarbonisation remains exceedingly challenging. However, by promising to cut carbon emissions by 70%, government should take all reasonable steps to enhance the usage and accessibility of SAF, through both manufacturing and financial incentives. Not only will SAF be key in decarbonising aviation through lowering aircraft emissions – Logistics UK supports the SAF mandate of 10% by 2030 – but it has the potential to create a UK industry with an annual turnover of £2.4 billion by 2040, and which supports up to 5,200 UK jobs by 2035.

Outside factors needing to be taken into consideration for decarbonising air cargo alongside fuel and emissions include the procedures before and after a cargo aircraft takes flight, constructing more environmentally friendly warehouses, placing solar panels on every roof, utilising electric forklifts and vehicles, and using recycled pallets to transport goods.

As part of the UK's Jet Zero policy, which was introduced by government in July 2022 and sets out a strategy for how the nation's aviation sector will attain net zero emissions by 2050, there is an ambitious goal for all airport operations in England to be zero emission by 2040. Government has launched a consultation asking industry how best to achieve these zero emission airports whilst still reaping the benefits of the aviation sector. Championing policies that aim to create a sustainable air freight sector, Logistics UK supports the Department for Transport's Call for Evidence, focusing on the decarbonisation of airport operations. A zero emissions target for 2040 represents a sector supporting the UK's Jet Zero goals, and a sector committed to achieving net zero operations in 2050.

Logistics UK encourages operators within the sector to provide their viewpoint in the call for evidence on how the UK government may accomplish its 2040 deadline. This integration of the aviation sector into the decarbonisation process is crucial, as its long-term and sustainable future will be shaped by the whole industry. ■





Connectivity is key to decarbonisation



Ellis Shelton

Policy Advisor,
Logistics UK

The maritime supply chain is critical for our global competitiveness; the UK is an island nation and 90% of everything we buy arrives at our shores by sea. To ensure maximum efficiency and to increase the potential for freight, world-class road and rail connections to our maritime ports are needed, along with more effective government support – to encourage modal shift to maritime – and greater use of our inland waterway network for freight.

Currently, coastal shipping and inland waterways account for 15% of UK domestic freight, however, there is further capacity available on these routes. With more effective government support to promote modal shift, and policy frameworks that protect and expand our inland waterway freight infrastructure, these modes could grow even further and reduce pressure on our congested roads.

Inland waterways can also provide a more efficient means of transportation for certain types of freight, particularly bulk commodities like grain, coal and petroleum products: a barge fully loaded with aggregates can replace the job of 17 HGVs.

These waterways are generally less expensive than shipping via road or air – particularly for heavier items – and at a time when industry costs are soaring, could result in crucial cost savings for both businesses and consumers. This method of shipping is also, as a rule, a more environmentally friendly alternative to road or rail transport. By promoting modal shift to maritime transport, we can help to reduce the carbon footprint of the freight industry.

Logistics UK is calling for appropriate grants and infrastructure investment to support these sectors, as well as at major ports to improve connectivity.

CONNECTIVITY IS CRITICAL

Connectivity between ports and the UK's rail and road networks is critical to our success as a trading nation. While there are clear benefits to maximising our shipping network, goods must then be transported inland to their intended destination. Currently, connectivity issues affect the majority of UK ports, and a national, joined up approach to better enable freight corridors anchored on ports is needed.

There is a significant case for expanding rail freight capacity at ports. Currently, one in four sea containers arriving at UK ports is carried inland by rail. With each freight train able to remove approximately 60 HGVs from the road, it is important that opportunities to increase the amount moved by rail are explored. Additionally, freight trains achieve over 95% reliability in on-time performance, which would allow for the heightened

efficiency of freight transport, ultimately enabling better growth and productivity figures.

INSUFFICIENT LINKS

The Port of Felixstowe is an example of a port hampered through insufficient rail connections. Acting as a major gateway for trade between the UK and the rest of the world – with direct connections to over 700 ports in 160 countries – the Port of Felixstowe is the largest container port in the UK, and one of the busiest in Europe, handling over four million twenty-foot equivalent units (TEUs) of cargo per year.

Despite the port's importance to the UK economy, the current single-track Felixstowe branch railway line is not capable of handling large volumes of freight traffic efficiently, resulting in capacity constraints and limited intermodal connectivity.

It's therefore vital to upgrade the Felixstowe branch line to a double-track system with modern signalling technology. This would improve the flow of goods in and out of the port. Another option is to build a dedicated freight line that would bypass congested areas and allow for faster and more frequent freight services.

This could involve building new track, bridges and tunnels. Alongside this, there is the option to improve rail connections to the national rail network. Connecting the Felixstowe branch line to the national rail network at Ipswich could improve the port's accessibility to more parts of the country.

MULTIMODAL COMPLEXITIES

Overall, logistics is a highly complex industry with modes often interlinked. It is vital that, to maximise trading opportunities and the success of the economy, sufficient infrastructure is in place. Additionally, improving rail and road connections to maritime ports can help to stimulate economic development in surrounding areas, by providing better access to markets and creating jobs in transportation and related industries.

Logistics UK will continue to work with both government and members to establish areas of concern and identify solutions that are both efficient and achievable. ■

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A greener future with rail freight



Ellis Shelton
Policy Advisor,
Logistics UK

Achieving sustainable, greener transport is a high priority for the logistics sector as the deadline to reach net zero by 2050 advances, says Ellis Shelton, Policy Advisor at Logistics UK. Progressively moving towards a modal shift for rail freight is an essential step in decarbonising the UK's supply chains and in the opinion of our members, a partnership with government and rail is vital in order to achieve this.

Rail is leading the way as an energy efficient mode of freight transportation, with each tonne of freight transported by rail producing 76% fewer carbon emissions compared to road. By carrying the equivalent of 110 lorry loads in large quantities of containerised and bulk goods such as aggregates, cement and electronics, rail freight is already reducing the need for seven million lorry journeys each year, resulting in saving around 1.4 million tonnes of CO₂ emissions per annum.

In addition, rail provides significant economic, environmental and social benefits across the country which include time, cost savings and reliability. The consumer also benefits through lower prices for manufacturing thanks to rail providing cost efficient transport for commercial freight loads.

ZERO-CARBON SERVICE

Varamis Rail collaborated with Network Rail to launch an innovative 'zero-carbon' – electric – freight service in January 2023, between Scotland and the Midlands.

This came as a response to a high increase in online shopping and home deliveries across the UK, which in turn increased demand for a more environmentally friendly alternative to road haulage.

This service will transport consumer goods using fully electric four-car trains converted for freight purposes and is targeted at express parcels and third-party delivery companies.

Its service currently offers: 104 cages per train (or approx. 20,800 parcels); strategic access to urban rail stations in



city centres; reduced distribution times; faster sustainable deliveries; and a reduction in haulage costs.

HYDROGEN ADVANCES

There have also been promising breakthroughs in the use of hydrogen for rail, which is increasingly seen as a key to decarbonisation, as it pushes forward as an alternative for powering locomotives.

It is supported by projects such as HydroFLEX which has been funded by the Department for Transport (DfT) and is the UK's first hydrogen-ready passenger train, powered by hydrogen made using renewable energy sources.

Unlike diesel trains, hydrogen-powered trains do not emit harmful gases, and instead use hydrogen and oxygen to produce electricity, water and heat. The ground-breaking technology will enable the industry to retrofit current in-service trains to hydrogen, helping to decarbonise the rail network and make rail journeys greener and more efficient.

ELECTRIFYING ENHANCEMENTS

Electrification is another promising solution to decarbonisation that not only reduces carbon emissions, but also enhances performance, reduces journey times and improves air quality.

In contrast to other forms of transportation where decarbonisation necessitates the creation of radically new power sources and systems, electrified rail transport is a fully developed, tested green technology that has been in operation for more than 60 years.

Electrifying small sections of the rail network would enable rail freight to move away from diesel traction. Electric trains may run nearly carbon-free over greater distances without range restrictions when powered by renewable or nuclear energy delivered by overhead wires (or a third rail).

According to the Chartered Institute of Logistics and Transport (CILT) electrification strategy research, it is estimated that only about 800 miles of electrification is needed to allow c.95% of rail freight to be electronically hauled.

As it stands, however, only about 10% of freight trains in the UK are hauled by electric locomotives.

One reason for this is because the infrastructure needed for wide-scale electrification to be implemented is not yet in place. The industry needs commitment from government so that it can support rail freight growth and allow both freight and passenger trains to run more efficiently.

Logistics UK is urging government to commit to a long-term programme of electrification to enable the railway to decarbonise.

Such a commitment would help to create greater capacity across the rail freight sector and support investment in new rolling stock and research into new technologies.

ESSENTIAL COMPONENT

Rail freight is an indispensable part of the British economy, and an essential component in supporting economic recovery following the pandemic and long-term sustainable growth. It contributes to the national – and local – economy with £2.45bn being contributed to the UK economy each year as reported by Network Rail.

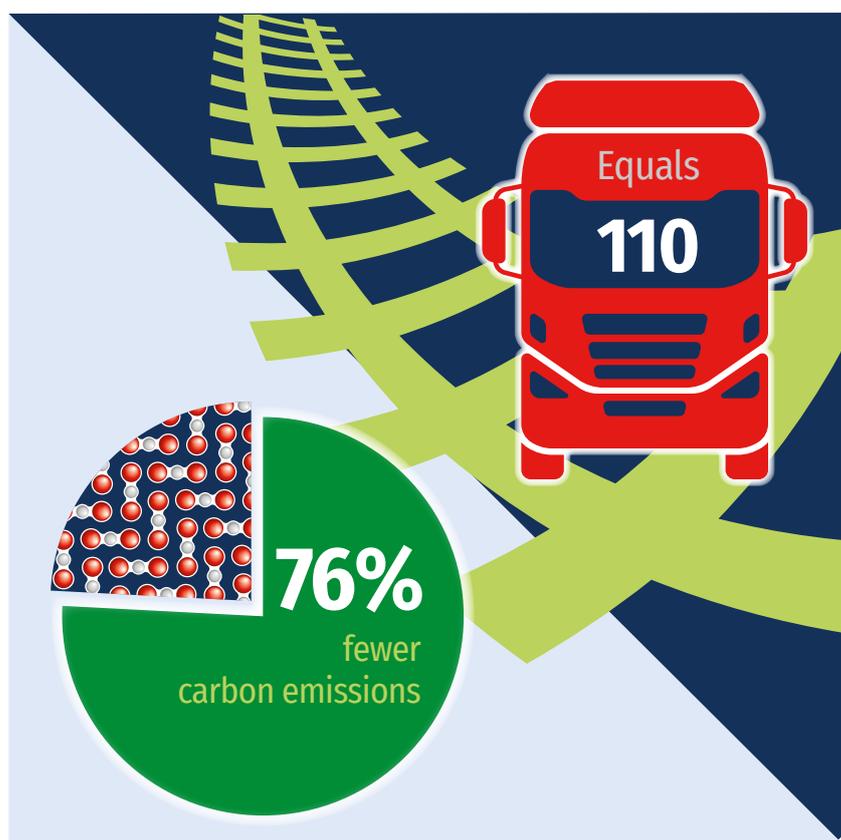
Furthermore, rail provides efficient routes to markets and better connectivity to ports, allowing businesses access around the world while also importing goods and materials reliably and securely.

SIGNIFICANT VALUE

However, as customers look to make the modal shift to rail there must be capacity on the rail network to accommodate this growth and costs need to be kept low to remain competitive.

Rail freight brings significant value for areas in the north of England, Scotland and Wales – where the railway has some of its busiest sections and is home to the headquarters of many freight operators.

All future regulatory and contractual framework must enable continued private sector investment but also support programmes such as the Mode Shift Revenue Support (MSRS) scheme which supports freight customers in moving their goods by rail. ■





Infrastructure challenges



Michelle Gardner

Deputy Director of Policy,
Logistics UK

With the 2050 net zero deadline impending - and warnings from the Intergovernmental Panel on Climate Change (IPCC) that it is 'now or never' to take drastic action to avoid environmental disaster - decarbonisation is a priority across the entire logistics industry.

While much progress has been made, there are still many questions and challenges on how to achieve net zero efficiently, and Logistics UK is trying its best to become part of the solution.

"Infrastructure is one of the biggest enablers, and currently barriers, for achieving decarbonisation," says Michelle Gardner, Deputy Director of Policy at Logistics UK.

"Industry is keen to play its role in transitioning to a green economy. However, to invest in alternatively fuelled vehicles, it must first be confident that sufficient infrastructure is in place to support those vehicles."

FIGURING IT OUT

Figures from the Department for Transport (DfT) highlight that up to October 2022, there were 34,637 public electric vehicle (EV) chargepoints across the UK.

As well as falling woefully short of the 300,000 target set by DfT for 2030, these figures do not account for how many of these existing chargers – and those yet to be installed – are suitable for commercial vehicles.

"Logistics UK has consistently highlighted the need for public EV chargepoints to have larger parking bays with increased headroom, longer reach cables and rapid charging facilities to accommodate commercial vehicles," continues Gardner. "And we'll continue to press DfT and local authorities for this.

"Additionally, Logistics UK has called for a fair and equitable approach to depot charging funding; members have reported costs of over £1 million to upgrade depot power supplies to support electric vehicle charging and it was therefore disappointing to note this was not included within the spring Budget."

Total vehicle operating costs rose 12.6% from October 2021 to October 2022, and along with a rise in inflation and reduction in energy support, industry cannot bear the full costs of decarbonisation alone.

GETTING HEAVY

There is an even more distinct shortage of infrastructure surrounding Heavy Goods Vehicles (HGVs). While battery electric is being adopted among Light Commercial Vehicles (LCVs), there is a lack of certainty regarding commercially viable alternatives for HGVs.

"As highlighted by Logistics UK at a Parliamentary round-table," says Gardner, "Low Carbon Fuels (LCFs) have the

potential to reduce carbon emissions by up to 80%, without the need for substantial vehicle modifications.

"However, while the benefits are clear, the high costs of these alternative fuels and the lack of infrastructure are currently significant barriers to uptake."

ACHIEVABLE ROADMAP

While industry is best placed to identify the most efficient alternative fuel solutions, it needs confidence that infrastructure – such as LNG or hydrogen refuelling stations – will be developed and available before it can justify investing in those alternatives.

"Currently, options are very limited," reports Gardner, "and in the case of hydrogen, SMMT has highlighted there is not a single HGV-dedicated hydrogen filling point in Britain.

A significant infrastructure network is needed to support the vast logistics system that supplies all sectors of the UK's economy with the goods it needs."

As a result, Logistics UK has been pressing government for an achievable roadmap with clear timescales that reflect targets such as the phase out of sales of new, non-zero emission HGVs (less than or equal to 26 tonnes) from 2035 and the 2040 deadline when all new HGVs sold in the UK must be zero emission.

COMBINED EFFORT

Industry is fully engaged with the challenge to decarbonise and is working together to ensure it does everything possible to meet government targets.

However, despite participating in trials, undertaking the additional financial burdens of investing in greener technologies, sharing knowledge and experiences across businesses and sectors, and reviewing opportunities for modal shift, solutions will not happen overnight, nor can they be supported by industry alone.

"It's crucial that in addition to setting targets, government continues to work proactively with industry to ensure they are achievable," says Gardner.

"They must be prepared to match the sector's willingness to invest in the vehicles, with their own willingness to provide the public infrastructure needed to ensure the supply chains remain moving." ■

FOR MORE INFORMATION

★ www.logistics.org.uk/campaigns/better-infrastructure

Successful sustainability is a negotiation of options



Stuart Messham
Editor, Logistics UK

Does a smooth journey to net zero exist? How can you properly track progress? And what does it look like for a massive logistics operation? We spoke to Dr Nicholas Head, Head of Sustainability for UK and Ireland at XPO Logistics, who had some answers...

XPO has one of the largest road fleets in Europe. Where does a company of that magnitude start when it comes to a net zero policy?

Baselining is the key process. I was brought in in mid-2021 and XPO had completed a spin-off, so the company had to re-baseline the process to understand exactly where we were and what that means.

At the time, XPO Logistics' emissions from burning fuel were by far the greatest proportion of our overall carbon footprint. So, XPO set some challenging targets for decarbonisation.

We want to reduce our emissions by 30% by 2030. Currently, 10% of the fleet is running on alternative fuels, and this will be 15% by the end of the year. However, you can't afford to invest too extensively in a low-carbon fuel path if it has no long-term future.

To support this interim approach, we aim to introduce EV rigid to the last mile fleet – as the demo vehicles we've seen are quite capable of managing our use cases at 16 or 18 tonnes and we are beginning to see 26-tonne electric vehicles entering the market and have been testing these with a number of our urban delivery clients.

How ambitious is your net zero carbon target for 2050 and how important is it for your company and your customers to make sure it happens?

It's extremely ambitious to get to carbon neutral by 2040. But from our customers' point of view, it's non-negotiable: they need to know what we're doing and how we're helping them on their journeys.

XPO's customers sit across many sectors – retail, construction, food and beverage to name a few – and they all have regulatory pressures in their various industries, so we have to give them a realistic assessment of what that means.

Of course, there's still an aspirational element that sits in there, but we also have to be realistic with every client: in your operation, these are the things we can do specifically there, you may have to wait a specific amount of time for a new demo to come to market there, but in the interim, this is the kind of solution we can offer, etc.

Those kinds of conversations are happening all the time as customers are getting pushed hard on their scope 3.

What plans are in place for you to help reach your objectives going forward?

We have a long-term roadmap from when we began the project in 2021. Objectives to achieve by 2025 and 2030. And five-yearly milestones up to net zero in 2050.

As the world and technology change, your targets must change with it.

Exactly.

If XPO aligned with Science Based Targets initiatives (SBTi) for example, that may alter the timings and be more focussed on the one-and-a-half degree target. So that could alter what we've already got in place.

It's important to allow some flexibility to be agile when moving forward and make changes that could speed up the process.

Who holds you to account for your progress?

Our clients.

We go to them saying we're going to make X amount of progress by point A, so we need to follow up with pretty strong indicators that we're making the progress we said we would and then report that back.

If things haven't gone as planned, we need to have a discussion with them about that and explain why. If things are progressing quicker, they can get more recognition from their customers.

It's a two-way dialogue that is happening constantly.

Introducing new technology at the right price and at the right time must be pivotal to achieving targets and keeping the board happy: that sweet spot between accelerating sustainability and maintaining growth and profitability.

It's a fundamental part of the conversation.

XPO approaches client relationships with innovation at the forefront, meaning we can have a fairly straightforward conversation with them and say: "Look, this is where we see the innovation space, this is what you're asking us to do, and here's the connection between the two; and there's a green premium, or whatever it may be, that sits against those choices."

You must have an eye on innovation because the market is turning very quickly. When you're talking about the EV space and new technology, it can represent a hefty change to a business model.

You have to keep this in mind when proposing any changes. Which can be an 'interesting' conversation shall we say!

How important is it for big companies like XPO to set an example when it comes to environmental policy?

If you speak to our MD, that's exactly our position as to where we want to be: a leader in the space. And we're trying to push that all the time.

There are pragmatic considerations about what you can and cannot do, but we're always trying to push the envelope because we work with a lot of leaders in a lot of other sectors who also want to set an example.

XPO has championed some impressive innovations globally, such as the fully electric rig in San Francisco and the electric trucks in France and Spain. What's been the UK and Ireland's most impressive change to date do you think?

Our biggest achievement at this stage, in terms of actual understanding of the impact on emissions, has been employing alternative fuels.

The one with the most potential for impact is the move across to EVs in specific use case areas.

For example, looking at the last mile and urban delivery space, EV solutions can potentially have the biggest impact. It's almost like we're queueing up to get to that point.

However, there is a big disconnect between where that technology is now and when we can start deploying at scale. So, we're doing a lot of work in the business to understand that.

Once we can prove use cases then we can very quickly press the investment button to scale. The technology's not quite there yet though, so that interim space has to expand a bit further.

In the meantime, alternative fuels have become much more important. But because you've got a range of fuels now available on the marketplace, you have to look at testing them all.

There's currently an issue with biomethane regarding it under the Green House Gas quota code. So a lot of companies that invested heavily may be left somewhat exposed.

This is why you have to be very careful when you're planning. What you don't want is changes to what you think is a certain path... and then that rug, from an investment point of view, being pulled out from underneath you.

So, sometimes being an early adopter can be great from a PR perspective but can have negative ramifications later when the market settles and more tests and reviews have been carried out?

Absolutely.

If you think about LNG: in 2018 it was regarded as a sustainable solution that you could deploy at scale. Then issues around LNG being a by-product of natural gas usage which were impacted by winter supply shocks as well as the invasion of Ukraine negatively impacted pricing, undermining the business case for deploying LNG at scale.

All technologies, including EVs, have challenging stories.

You have the efficacy and ethical status of HVO: is it coming from crops or is it coming from waste? And can you prove it?

With EV you have to weigh up the life cycle of the batteries and where you get the materials from.

There currently is no straightforward sustainable solution. It's a negotiation of options and you need to use your best judgment at every juncture.

What do your customers think of your efforts so far?

We've had really good feedback from customers in specific areas.

Our CO₂ Calculator which recently won a National Technology Award – and which is currently being externally verified – was built to address a gap in understanding emissions for our clients.

It was like a light bulb moment: emissions happen in so many parts of our business, it was very important to track them as sometimes it's not obvious where they are.

If you're moving goods in a shared-user network then it's got different impacts on an item getting from point A to point B, because it might have to go via C, D, and E.

So, there's those kinds of interactions that we've been having and then there's the technology that sits behind it: how easy is it for customers to use, and how easy is it to communicate that back to their clients.

It also helps our transparency. If we say we saved 5,000 tonnes of CO₂, we can explain exactly how we do it – this is the visibility, this is the methodology – and our clients love that. You can take them on the journey with you. ■



DR. NICHOLAS HEAD, HEAD OF SUSTAINABILITY, UK, AND IRELAND, XPO LOGISTICS

He has specialised in the environmental sector over the last 12 years, including achieving an MSc and PhD from the University of Northampton, focusing on circular economy and assessing the viability of business models structured around sustainability.

During his PhD studies, Dr. Head lectured on his specialisms of circular economy and systems thinking approaches to environmental issues at the University of Northampton and the Open University, before moving back into the private sector as a consultant and then for various FMCG companies in Head of Sustainability positions over the last four years.

A member of the CIWM, Dr Head has sat on and contributed to various steering groups over the last five years and has also been an active member of the Schumacher Institute (looking at societal issues from systems thinking perspective); IEMA and the Sustainability Committee for the British Coffee Association.

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