LOGISTICS UK

Energy and Infrastructure

Insight Report 2026

Enabling logistics decarbonisation



Executive Membership

Executive Summary

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LOGISTICS UK

Logistics UK is the champion of the logistics sector, the backbone of the UK economy and global trade, providing a unique and authoritative voice for our members

As one of the country's biggest business groups, we represent a sector that contributes £175 billion in GVA each year, employs 8% of the UK workforce and enables over £1 trillion of international trade.

We are the only trade association that represents all of logistics, with over 22,000 members operating in road, rail, waterways, sea and air freight, in ports, airports and warehousing, as well as the customers of freight services such as retailers and manufacturers.

We deliver industry representation, services and thought leadership, helping members and policymakers to seize new opportunities for the sector and the economy as a whole, right across the country.

Nothing moves without logistics. Our sector is critical to growth across the UK and is fundamental to our way of life, delivering for homes, businesses and public services every day.

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Contents

Foreword	3
Executive summary	6
Decarbonising the grid	12
Bridging the transport and energy gap	22
Embracing technology and innovation	32
Leading the charge	44
Building better connections	56
The role of hydrogen	72
The role of low carbon fuels	82
Case study: Powering electric freight at scale	92
Conclusion	96

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Foreword



Decarbonisation has been one of the most pressing issues facing the logistics industry for some years now. However, now the industry is already some way along on its decarbonisation journey, the challenge is becoming as much about energy as it is about vehicles and buildings. And it is the energy aspect of decarbonisation on which this Insight Report is focused.

Based on 14 in-depth interviews with key stakeholders from the energy and logistics sectors, this report examines the wider energy ecosystem, the need for better grid connections, the role that technology and innovation can play, and the charging infrastructure required to make it all happen.

The report does not focus solely on the need to electrify the UK's operations and assets. Also included are chapters on the complementary roles that can be played by both hydrogen and low carbon fuels. These are still important, because they can often be used beyond road freight to be utilised by aviation, maritime, ports and other hard-to-electrify applications, and are therefore likely to remain part of the decarbonisation toolkit for many years to come.

The scale of the energy for decarbonisation challenge is vast, and this next decade is set to prove critical. One of the salient points that comes through in this report is that logistics and energy can no longer be looked at separately from a policy perspective – they must be looked at together.

I hope the insights shared by our interviewees and Logistics UK's own policy experts within these pages will help give you some fresh perspectives into the challenges that many of the key players in the wider energy ecosystem are facing. Only by collaborating as both an industry and across sectors can we play our full part in the decarbonisation of the economy.



Phil Roe
President
Logistics UK

Sponsor's foreword



The logistics sector keeps the UK economy moving, connecting businesses with markets and communities with the goods they need. Its transition to a lower carbon future is an opportunity to build on that role and create a more resilient, competitive and sustainable industry.

Whether businesses have planned for it or not, logistics operators are becoming active participants in the wider energy ecosystem. As depots generate, store and manage electricity, some will effectively operate as mini power plants. Energy decisions will increasingly shape their costs, resilience and ability to grow.

Adapting to this role will be essential to long-term viability. Operators will need to build new capabilities and a new set of partnerships with energy providers, network operators and technology specialists. Bringing logistics and energy expertise together must become a core part of business strategy.

This Logistics UK Insight Report brings together 14 in-depth interviews with energy networks, trade bodies and operators. It explores grid decarbonisation, charging infrastructure, innovation, and the role of hydrogen and low carbon fuels. These perspectives provide a valuable basis for understanding the choices ahead and how different organisations can contribute.

Progress will require clear direction and sustained collaboration between government, industry and the energy sector. Businesses of every size must be able to participate, with smaller operators having a voice in the transition and access to the knowledge and support they need.

I hope this report encourages fresh thinking and stronger partnerships, helping the sector turn a changing relationship with energy into a foundation for lasting prosperity and lower emissions.

Mike Nakrani
CEO

VEV

Introduction



The logistics sector is fundamental to the UK economy, moving the goods that businesses and communities depend on every day. Nothing moves without logistics. As the sector decarbonises, however, the transition is increasingly becoming an energy challenge as much as a transport challenge. Whether operators are investing in electric vehicles or other technologies, alternative fuels, hydrogen and access to energy, in the right place, at the right time and at an affordable price will determine the pace at which change can happen.

For many logistics businesses, this transition is already underway. Operators are investing in new technologies and infrastructure and low carbon fuels. But the experience of our members shows that ambition alone is not enough. Long waits for grid connections, significant reinforcement costs, uncertainty over future energy prices and infrastructure availability can all affect the commercial case for investment. These challenges are particularly acute for smaller operators, which often have fewer resources and less expertise to navigate an increasingly complex energy system.

The scale of the challenge should not be underestimated. Logistics UK's previous research has demonstrated the significant additional electricity demand that could come from the electrification of road freight. But this is not simply a question of generating more electricity nationally. Energy infrastructure needs to be planned around where freight actually operates including depots, distribution centres, ports, airports, freight terminals, industrial estates and the strategic road network. Decisions being taken today about electricity networks and wider energy infrastructure will therefore have consequences for the logistics sector for decades.

This means that transport and energy policy can no longer be considered separately. Logistics needs to be properly represented in national, regional and local energy system planning, with stronger coordination between government, regulators, network operators, local authorities and industry. Greater visibility of future freight energy demand will allow investment to be anticipated rather than infrastructure being delivered only once constraints emerge.

At the same time, there will not be a single solution for every logistics operation. Electrification will play an increasingly important role across road freight and other transport modes, but low carbon fuels and potentially hydrogen will continue to have a role where direct electrification is not yet technically or commercially viable. These pathways should be viewed as complementary rather than competing technologies, with businesses able to deploy the solution best suited to their operational requirements while progressively reducing emissions.

This report brings together perspectives from across the energy and logistics sectors to examine what this transition means in practice. Through conversations with energy networks, infrastructure providers, logistics operators and organisations working on hydrogen and low carbon fuels, it considers everything from decarbonising the grid to the role of technology and innovation.

There is significant opportunity ahead. A well-planned transition can provide logistics businesses with greater energy security, more efficient operations and new opportunities to invest in clean technologies. But achieving this requires an energy system that recognises logistics as an essential economic sector and enables businesses to make commercially viable investments.

For Logistics UK, the priority is therefore not simply setting ambitions for decarbonisation, but creating the practical conditions that allow operators to deliver it. This report seeks to identify those conditions, highlight where barriers remain and set out what government, the energy sector and industry can do together to ensure that the UK's future energy system supports a competitive, resilient and increasingly low carbon logistics sector.

Lamech Solomon
Head of Decarbonisation Policy
Logistics UK

Executive summary

The Energy Decarbonisation Insight Report draws on the insights gained from 14 in-depth interviews with senior stakeholders in the logistics and energy sectors.

1 Decarbonising the grid

Interviewees: Rita Wadey, Head of Energy Policy, NESO; Ben Cattermole, Head of Transport Decarbonisation, NGED, National Grid

1.1 Grid decarbonisation is fundamental to zero-emission logistics

A zero-carbon electricity system is a prerequisite for decarbonising logistics, with major grid upgrades needed to connect low carbon generation and meet a projected 50% rise in electricity demand.

1.2 Electrification is mainly an infrastructure and planning challenge

Electric vehicles and operations require depot upgrades, local grid connections, port infrastructure and reliable public charging, all of which must align with logistics' operational patterns.

1.3 Clearer demand signals needed from logistics

Energy networks need clearer demand signals from logistics. Distribution Network Operators (DNOs) cannot plan effectively without better data from operators on how many connections they will need, as well as where, when and at what capacity.

1.4 Regional Energy Strategic Plans (RESPs) are opportunity to influence

RESPs could be a key route for logistics to influence energy planning. NESO's RESPs are presented as an important mechanism for capturing freight, depot, port and en-route charging demand, but the sector will need to engage through trade bodies and regional processes.

1.5 Local connections risk creating a bottleneck

Even where the shared electricity network has capacity, the final connection to depots and ports can be slow, expensive and complex, making early engagement and specialist expertise essential.

2 Bridging the transport and energy gap

Interviewees: Naiya Hirji, Innovation Graduate Engineer, UK Power Networks; Louise Evans, Policy Manager, Energy UK

2.1 Logistics decarbonisation depends on the energy system

Freight decarbonisation now depends on energy-system readiness, with the electricity network, ports, depots, public HGV charging and shared hubs all needing to be planned together rather than in isolation.

2.2 The Future Fleet project

UK Power Networks' Future Fleet project is trying to close the evidence gap by modelling HGV charging archetypes, fleet duty cycles, depot needs, smart charging, on-site assets, flexible connections and shared charging models.

2.3 Logistics demand data is critical for grid planning

Better, more structured freight demand data is critical for grid planning, including where depots will be, when electric HGV uptake will happen, what battery sizes and duty cycles look like, and how route patterns will affect charging demand.

2.4 Commercial barriers remain

The commercial barriers to electrification remain significant, particularly for SMEs, with high non-domestic electricity costs, uncertain connection timelines and unclear prioritisation frameworks making electrification harder to justify.

2.5 Government policy signals need to be clearer

Government needs to provide clearer and more joined-up freight decarbonisation signals, including a dedicated strategy, better alignment between transport and energy teams, sustained funding, and clearer metrics for infrastructure prioritisation.

3 Embracing technology and innovation

Interviewees: Dan Clarke, Head of Innovation and Low-Carbon Technologies, Energy Networks Association; Jamie Sands, Head of Solutions, Welch Group

3.1 Treat digital readiness as a prerequisite, not an add-on

Operators need reliable, accessible data that they control, together with systems that communicate effectively, before they can model duty cycles, assess electrification, specify charging infrastructure or deploy emerging technologies with confidence.

3.2 Set a clear long-term direction, then electrify in phases

The chapter presents battery-electric vehicles as the principal long-term route for zero-emission fleets. A staged transition enables operators to secure capacity progressively, test real-world cases, incorporate new technology and avoid paying prematurely for infrastructure they cannot yet use.

3.3 Plan around grid and site constraints as early as possible

Connection lead times, planning requirements, property rights and differing local circumstances can delay depot electrification even when suitable vehicles are available. Early engagement with network operators, phased capacity requests and more consistent connection processes can reduce – but not eliminate – these risks.

3.4 Use collaboration to solve barriers that no operator can address alone

Closer working among fleet operators, electricity networks, government and technology providers can improve guidance, standardise processes, share operational learning and coordinate demand. Where individual depot connections are impractical, clustered or shared charging hubs may offer a viable alternative.

3.5 Manage electric fleets and depots as part of the energy system

Predictable duty cycles create opportunities to charge off-peak, use smarter tariffs and, where technically and commercially feasible, provide vehicle-to-grid services. Better data sharing between operators and networks is central to lowering costs, reducing peak demand and unlocking the value of the wider system

4 Leading the charge

Interviewees: Tommi Salminen, Policy Manager, ChargeUK; Megan Turner, Environment and Sustainability Manager, Port of Dover

4.1 Grid capacity, connection times and costs are constraints on electrification

Depot charging, HGV hubs and shore power can require substantial grid upgrades. The scale is significant: ChargeUK claims a site with one megawatt-scale HGV charging can draw peak demand equivalent to 1,000 homes.

4.2 UK electricity pricing weakens the case for public charging and shore power

Capacity-based standing charges, policy levies and the cost of securing headroom before demand grows increase operators' costs. At the Port of Dover, these costs make shore power uncompetitive with marine fuels and could encourage future electric ferries to charge in continental ports instead.

4.3 Commercial vehicle electrification lacks policy certainty

There are unresolved questions over vehicle uptake, the balance between depot and public charging, support for first movers, grid connection priorities and delivery timescales. That uncertainty makes investment harder to justify.

4.4 A 'chicken and egg' investment cycle is slowing HGV adoption

Few electric HGVs in the UK commercial vehicle parc mean weak charging demand; weak demand deters infrastructure investment; and limited infrastructure inhibits fleet uptake. Operators must absorb not only vehicle and charger costs, but also grid upgrades, training, planning tools and operational change.

4.5 Dover's progress is substantial, but many emissions sit beyond its footprint

The Port of Dover reports a 98.3% reduction in Scope 1 and 2 emissions from its 2007 baseline, with the remaining 239 tonnes offset to achieve net zero for those scopes. Its wider ecosystem emits around 1.1 million tonnes, so larger reductions depend on vessel decarbonisation and commercially viable shore power.

5 Building better connections

Interviewees: James Stephens, VP Corporate Affairs, DHL; Nicholas Mazzei, VP Sustainability, DP World

5.1 Grid access – not vehicle or charger technology – is the main barrier

Logistics operators face costly upgrades, limited capacity and lengthy opaque DNO processes, especially at power-constrained freight hubs such as Heathrow.

5.2 Decarbonisation requires an industry-wide transition

DHL and DP World are electrifying their own operations, but success also depends on helping smaller hauliers and third-party providers adopt zero-emission vehicles and supporting modal shift to rail.

5.3 Managing peak demand will be crucial

Smart charging, batteries, on-site solar and revised operating schedules can reduce the need for oversized grid connections, although charging must still fit around demanding logistics timetables.

5.4 Infrastructure planning needs greater coordination

If operators shared forecasts with DNOs and NESO investment could be directed to future demand hotspots, shared charging hubs could use capacity more efficiently than each business having separate large connections.

5.5 Policy and commercial conditions must align with decarbonisation targets

Faster connections and planning decisions, updated vehicle weight and dimension rules, shore power regulation and cheaper electricity are necessary to make electric freight operationally and financially viable.

6 The role of hydrogen

Interviewees: Dr Emma Guthrie, Chief Executive Officer, Hydrogen Energy Association (HEA); Dr Andrew Hagan, Chief Development Officer, Element 2

6.1 Hydrogen's complementary role alongside batteries and sustainable fuels

Hydrogen is not a universal replacement for other low carbon technologies but could complement batteries and sustainable fuels where freight operations require long range, heavy payloads, rapid refuelling and intensive vehicle use.

6.2 Hydrogen's applications are multimodal

Hydrogen's role extends beyond road freight. Hydrogen and hydrogen-derived fuels can support aviation, maritime, rail, ports, airports, construction equipment and other hard-to-electrify applications.

6.3 Progressing from demonstrations to deployment

The sector must move from demonstrations to commercial deployment, using real-world projects such as hydrogen HGV refuelling trials to build evidence, operator confidence and a pathway to scale.

6.4 Costs and infrastructure barriers

High costs and limited infrastructure remain major barriers; reducing them will depend on larger demand volumes, public refuelling networks, coordinated industrial clusters and eventual depot investment.

6.5 The need for clear government policy

Clear, timely and technology-neutral government policy is essential to unlock investment, resolve the infrastructure-and-vehicle 'chicken and egg' problem, and give operators flexibility to choose solutions suited to their needs.

7 The role of low carbon fuels

Interviewees: Anna Rickard, Environmental Consultant, Howard Tenens; Gaynor Hartnell, Senior Adviser, Renewable Transport Fuel Association (RTFA)

7.1 Low carbon fuels can cut emissions immediately

HVO, biomethane and higher biodiesel blends can often be used in existing vehicles and infrastructure, making them practical options while zero-emission technologies continue to develop.

7.2 Pursuing a mixed-technology approach

Howard Tenens is combining renewable fuels with electric HGVs, onsite renewable generation and battery storage, choosing solutions according to duty cycles, cost and infrastructure availability.

7.3 Policy should take lifecycle as well as tailpipe emissions into account

Interviewees argued that assessments must include vehicle manufacture, battery production, electricity generation and hydrogen production. On this basis, renewable fuels can perform comparably with battery-electric vehicles.

7.4 Cost, warranties and infrastructure constrain progress

Volatile HVO prices, uncertainty over manufacturer warranties for higher biodiesel blends, and expensive or delayed grid upgrades all limit operators' ability to decarbonise.

7.5 Government needs a joined-up, technology-neutral strategy

Clearer and more consistent policy is needed to recognise the role of renewable fuels, support domestic production and give businesses confidence to invest across road, aviation and maritime transport.

8 Sponsor's case study: powering electric freight at scale

9 Conclusion: delivering the energy transition for logistics



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