Accelerating Logistics Towards Net Zero

Prepared in association with the London Industry and Logistics Sounding Board

Turley

Contents

This is an independent piece of work undertaken by Turley in association with the London Industry and Logistics Sounding Board (ILSB). The ILSB was established by the Greater London Authority (GLA) in partnership with BusinessLDN in 2017. It is an independent, cross-sector sounding board to promote the sector and campaign on the key issues affecting it. The ILSB is led by a core group comprising representatives from BusinessLDN, the GLA, SEGRO and CBRE. Other board members include representatives from central Government, the London boroughs, Transport for London, developers, landlords, occupiers, professional advisers and trade bodies.

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Executive summary

Logistics is at the forefront of the net zero carbon transition. It is a rapidly growing sector with organisations committed to the decarbonised future. The sector has unique advantages; an unmatched amount of unshaded roofspace that can be used for solar, but also unique challenges, such as decarbonising HGVs, and there are structural challenges to overcome.

This report seeks to set out to Government what actions they can take to enable the industry to accelerate its transition. It has been produced by the Decarbonisation and Logistics workstream as part of the cross-sector London Industry & Logistics Sounding Board (ILSB). The ILSB was established by the Greater London Authority (GLA) in 2017 to provide advice to the Mayor on the preparation of the new London Plan. The remit has expanded to include wider practical and market considerations. The focus of the report is London, but many of the issues identified are relevant for the UK and beyond.

Several meetings were held, evidence was reviewed, and case studies gathered to inform the workstream's recommendations. The group identified four key areas where the Government could intervene to enable the logistics sector to decarbonise:

Fuel certainty and electric charging infrastructure

Facilitating solar power and Smart Energy Management

Enabling clustering

Last mile delivery solutions

Further detail on each of the key issues is provided in the following sections of this report. There are several key requests to Government to address these issues and accelerate logistics decarbonisation.

Key requests

- **Accelerate advice and support for immediate HGV decarbonisation**. The Government has a programme to report by 2030 on the way forward for zero carbon HGV fuels. This is important, but too late; our sector needs to move now. A clear plan on a favoured way forward, even if interim, would allow focus for policy support and guide sector investments today.
- **Support rooftop solar**. According to the UK Warehouse Association report, Walking on Sunshine[1], UK warehouses could host 15GWp of solar power, doubling the current UK total installed capacity. It could do this with no loss of land. Grid connection issues and regulation around sharing/selling generation are holding this back. Reform and investment are promised but must be accelerated.
- **Go the last mile**. The last mile is where we all experience logistics. Vans delivering our essential parcels increase CO_2 emissions and air pollution, and cause congestion. By bringing storage closer to the point of delivery, different vehicles can supplement electric vans, bikes, drones, autonomous robots and even walking. These reduce emissions and improve the productivity of cities. Again, the planning process is key here. Spatial allocation for last mile facilities is crucial. As important is flexibility; the last mile sector is fast evolving and so the designs and requirements may vary. A flexible approach to planning can enable us all to find the best solutions, which may vary due to location and use.

[1] *https://www.ukwa.org.uk/wp-content/uploads/2022/09/Investment-Case-for-Rootop-Solar-Power-in-Warehousing-August-2022.pdf*

Fuel certainty and charging infrastructure

The two main direct CO_2 emissions from logistics are from buildings and vehicles. Whilst the electrification of buildings and light vehicles seems assured, for HGVs there is still uncertainty. There are two main low carbon routes proposed for HGVs: electrification or hydrogen. There are indications that electrification is gaining ground, with organisations like Scania committed to an electric future, and electric HGVs already on the road, however there is also still strong support for hydrogen.

The uncertainty is greater for aviation, rail and shipping with electrification, ammonia, hydrogen, e-fuels and biofuels all suggested for long distances. For London specifically, inshore shipping is already able in some cases to switch to battery powered propulsion, and the charging infrastructure can be provided at docks and ports. There is a growing demand for shore to ship power when in port. Whichever of the modes of decarbonisation are used, a common theme is the requirement for greater electrical capacity and smarter use of electricity. Frontier Economics[2] suggested that a medium sized port may require 30MW.

The Future of Freight[3] report from Government sets out actions that will have medium term benefits, but there is a need for more short term measures to enable industry to move faster and meet our decarbonisation goals.

What are the challenges?

Fuel uncertainty

Uncertainty around the future of fuels is impeding investment. Most transport services are provided by the private sector, which needs confidence and scale of change to guide investment. Issues around fuel uncertainty are acknowledged in numerous reports and papers, including the Government's Future of Freight report. The Government's zero-emission road freight demonstrator programme will provide some confidence around which technology and methodology is best, but the programme is not due to finish until 2030. If net zero is to be realised by 2050, many measures will have to be in place during the 2020s. Many businesses want to move faster. For example, John Lewis wants a fossil-fuel free fleet by 2030.

[2] *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/816017/potential_demands_on_UK_energy_system_from_port_shipping_notification.pdf*

[3] *https://www.gov.uk/government/publications/future-of-freight-plan*

Charging infrastructure and grid capacity

Most freight vehicles utilising alternative fuels will require a network of refuelling points around the country to be viable, yet the development of national charging infrastructure poses numerous challenges.

For hydrogen vehicles, there are fewer than 20 fuel stations in the whole of the UK. There are plans announced for several more, but it would be unwise to invest in a new fleet unless an organisation had its own refuelling facilities. That limits fuelling to depots, which is impractical for most HGV journeys.

For electric HGVs there are already thousands of chargers available, but most of these are relatively low power 22kW or 50kW chargers. Using these chargers, a fully electric HGV capable of long-distance journeys would require hours to charge; not realistic for a flexible HGV fleet. The logistics industry is keen to deploy or use ultra-rapid charging facilities, but current electrical network capacity issues and confidence of demand are holding it back. For depots with large van fleets the cost of upgrading the grid connection can be sizeable and subject to planning issues and delays. Given the power requirements of battery-electric HGVs these grid connection upgrade costs will be even greater. For context, an entire 200,000 sq ft logistics warehouse with office facilities may have a peak demand of <350kW, equivalent to the power requirements of just one ultra-rapid charger.

Barriers for smaller organisations

SMEs lack the scale to trial options. With small fleets, there is no room for an unsuccessful experiment.

What does the industry need?

Immediate enablers

- **Accelerated review of options.** An accelerated review of the options around decarbonisation of HGVs with clear, albeit interim conclusions would help to guide investment. Is it electric or hydrogen, for now? This could be managed by the proposed Freight Energy Forum[4].
- **Tax incentives.** Tax incentives to support zero emission HGVs, as with van and truck grants, would enable organisations to move now with the vehicles that are available.
- **Interim rewards for low emission fuels.** The DfT's Decarbonising Transport report[5] committed to exploring measures to remove existing market barriers for use of fuels with higher biocontent in certain compatible vehicles. Short term rewards for the use of fuels such as sustainable HVO could act as an interim step to reduce emissions in the short term.
- **Loans/grants for smaller companies.** Either financial, or access to trial vehicles will enable SMEs to trial and learn.

Electrical / hydrogen capacity

- **Funds / trials for pinch points.** Lack of electrical capacity is a major bottleneck for electric vehicle charging. The new OFGEM framework aims to address this, but releasing funds for immediate pinch-points is vital. Smart electrical energy management can make much greater use of current network capacity. Immediate trials could enable rapid progress to be made.
- **Targeted investment.** A review of high power EV/ hydrogen charging/fuelling for current heavy freight to identify gaps and create a spatial plan. These gaps could be targeted for network investment and private investment on sites.

[4] *https://www.gov.uk/government/publications/future-of-freight-plan*

[5] *https://www.gov.uk/government/publications/transport-decarbonisation-plan*

Case studies

Amazon on a roll

As part of a €1bn investment in carbon zero HGVs, to further electrify and decarbonise its transportation network across Europe, Amazon is spending £300m in the UK expanding its fleet of electric HGVs, electric van and eCargo bike fleets, and rolling out fast charging infrastructure.

The company plan to add to their existing five electric HGVs and their first 360 kW electric charging points at their Tilbury and Milton Keynes sites, with an additional 700 electric HGVs before 2030, and a network of fast chargers that will enable the vehicles to be charged in approximately two hours.

Electric River

The Port of London Authority (PLA) is involved in a project for the creation of a high-capacity, electric, shore power station for vessels using the tidal Thames in 2023.

A PLA loan will enable Net Zero Marine Services (NZMS) to install the first charging point at West India Pier, with another set to follow in central London. NZMS will be working with UK Power Networks to extend the capital's electricity supply infrastructure to the river.

Using renewable sources of electricity, the charging points will also be available to power other plant and equipment using the river.

For more information please visit:

https://netzeromarineservices.com/

https://www.pla.co.uk/First-electric-charging-for-commercial-operators-coming-to-the-Thames

Solar power

Electrification and decarbonisation is driving an increase in demand for electricity across most sectors in the UK. There is still only 14GW of total solar capacity in the UK. The Government's Energy Security Policy Paper[6] (2022) predicts a five-fold increase in deployment by 2035, and the National Grid's 2022 scenario planning states that the UK's solar capacity must at least double by 2030.

Installing solar panels on warehouse rooftops has many advantages. Where residential roll out requires lots of small-scale installations, warehousing can deploy at scale, with large flat and un-obstructed roof space. The systems do not compete for land uses and are often close to other electricity demands. Despite this, the UK Warehousing Association (UKWA) estimates less than 5% of UK warehouses have any solar panels at all[7]. And of the ones that do, the panels usually cover just 10-25% of the roof-space. Existing warehouse roof-space alone could accommodate a doubling of solar by 2030, in line with National Grid 2022 future energy scenarios.

What are the challenges?

Barriers to selling energy locally

As the cost of solar panels has come down and the cost of energy has risen, the commercial argument for solar has never been stronger. Because energy demand in warehousing is often low, successful deployment will often require selling their excess energy back to the grid. Electricity sold onto the grid normally receives a low price. Ideally, the warehouse would be able to share energy to others at rates closer to the retail price. As an industry, logistics is looking at micro-grids, which may partially address the issue, but there are still commercial and regulatory challenges.

Grid connection

Connection liabilities mean that users can be required to pay Distribution Network Operators (DNOs) for infrastructure upgrades if their energy demand increases or if they sell significant amounts of excess power back into the grid. The current system for access to the grid is inconsistent. One company may be allowed to connect at no direct cost. If subsequent applicants exceed the remaining network capacity, they are required to pay the DNO for grid reinforcement works. Regulatory changes, due in 2023, may make this easier, but there is still a challenge around timelines. Connection offers can be contingent on upgrades that will take four or five years to complete.

Long-term confidence

The industry roll-out for many major logistics organisations will mean hundreds or even thousands of systems, deployed over years. The confidence around regulatory support for solar and a network investment programme that will allow it is needed. This needs words and actions.

[6] *https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy*

[7] *https://www.ukwa.org.uk/market-intel/frustration-from-the-warehousing-sector-as-potential-for-doubling-uk-solar-capacity-overlooked/*

What does the industry need?

Grid connection reform

Ofgem must reform how commercial rooftop solar schemes connect to the grid.

We welcome Ofgem's recent decision to reduce the contribution generators must pay to reinforcement, action on increasing grid capacity rapidly for both new demands and the export of solar power must be taken.

Local Area Energy Planning

BEIS must accelerate the co-ordination of local energy planning. Co-ordinated Local Area Energy Plans, recognising the importance of commercial rooftop solar, would allow better planning of local grid upgrades, reducing overall costs and ensuring fair access. A national framework is needed, so local authorities can match local generation with growing demand.

Tax allowances

The Government's super deduction on capital investment, including solar will end in 2023. This should be extended to support continued investment. Warehouse companies need this tax-break as an incentive to invest in solar schemes which exceed their own demand for electricity, supporting Government's wider objectives.

Business rates relief

Devolved administrations must extend business rates relief. In England solar panels are exempt from business rate rises. This exemption must be maintained, and rate relief should be extended across the UK to Scotland, Wales and Northern Ireland.

Case study

East Midlands: It's a no from the DNO

A 700-acre development in the East Midlands consisting of road and rail infrastructure and 11 warehouses and distribution centres. The site operator and owner is keen to increase PV coverage to 100% of available area, yet has been given a six year wait from the DNO for just the first two buildings (providing over 5MW to the grid).

Stock image

Clustering

Clustering is the principle of bringing together a variety of uses and scale in one place. For larger logistics parks co-ordination and sharing resources can result in efficiencies.

For example, a higher proportion of full HGV loads reduces transport costs and CO_2 emissions. The sharing of infrastructure allows for the efficient use of existing infrastructure and a reduced requirement for new infrastructure to be delivered in different locations. Delivery of development at scale can also generate the critical mass needed to deliver investment in transport and energy infrastructure improvements to assist with connectivity and reduce congestion and delays. This can include non-road connections to the last mile distribution (see below).

What are the challenges?

Lack of space

There is a lack of suitable sites to enable clustering to take place, particularly around London. A piecemeal approach to logistics development results in individual developments each without the critical mass to generate the level of investment required to deliver significant infrastructure improvements.

Location

Because of the understandable focus on residential transport, sites are often located in areas with poor public transport links. This means that workers are reliant on private vehicles, particularly during antisocial hours.

Planning

Many of the biggest logistics sites are delivered via a Development Consent Order (DCO), however demonstrating the project is 'Nationally Significant Infrastructure' isn't always easy. Especially in London, as sites tend to be smaller.

What does the industry need?

Planning system reform/ protection and proactive allocation of land.

The Future of Freight[8] report acknowledges the benefits of clustering in the planning system. Outside cities, allocation of sufficiently sized land parcels in the right locations for the development of industrial and logistics clusters is crucial. Within cities, clustering may require greater cross border collaboration between boroughs and the GLA. This will be challenging to achieve at the local borough level and could require greater national level planning and recognition of logistics as Nationally Significant Infrastructure to enable more developments to benefit from the use of DCOs. Greater planning policy support and Government cross departmental co-ordination is required to enable the industry to operate efficiently, and goods to be delivered in the most sustainable way possible.

[8] *https://www.gov.uk/government/publications/future-of-freight-plan*

Case studies

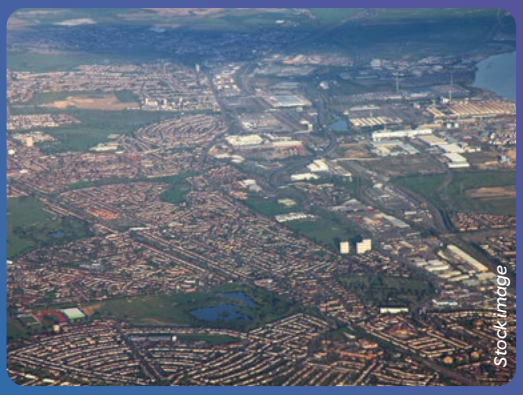
Smithfields, New Spitalfields, and Billingsgate Markets. Co-location, Co-location, Co-location.

The new Dagenham Dock Wholesale Market will accommodate the co-location of Smithfield Market, New Spitalfields Market, and Billingsgate Market at Dagenham Dock, on the site of the former Barking Reach Power Station.

The site benefits from a direct link to the A13, good rail and bus connections, as well as access to the River Thames.

Co-location of the markets will create a single location for customers to purchase goods, reducing the need to travel. The riverside location of the market also has the potential to reduce pressure on the road network by making use of the river to transport goods.

The site was acquired by the City of London Corporation in December 2018, and protection of the land for industrial uses was key to enabling the site to come forwards. The wider allocation of 331ha of land as Strategic Industrial Land (SIL) within the emerging Barking and Dagenham Local Plan will also accommodate spin off requirements from traders, helping to reduce the number and distance of trips associated with the goods sold there.



GLP Magna Park

At GLP's Magna Park, Milton Keynes development, John Lewis has established a cluster for their national distribution operations. John Lewis occupies three logistics buildings and a further neighbouring building is occupied by Waitrose. The combined floorspace is 2.8m sq ft.

Two of the logistics buildings are connected by a tunnel which enables the efficient transfer of goods and employees between buildings. This in turn increases productivity, efficiencies and reduces vehicle movements between buildings. The development of a campus of this nature would not be possible unless sufficient land was available to accommodate buildings of the required size and scale near each other.

Last mile

Last mile warehouses are those located close to or within urban centres. These buildings receive inbound deliveries from the supply chain and provide onward distribution to the final delivery point within the urban centre.

They can help to decarbonise logistics through:

- Consolidating goods from different inbound delivery locations onto a single outbound vehicle. This minimises the number of outbound vehicles operating within the urban centre.
- Reducing overall vehicle milage by reducing "stem" distances (the mileage between the last mile warehouse and the final delivery point).
- Enabling the transition to low carbon vehicles. Reducing stem distances enables a faster transition to low carbon vehicles which, currently, have a reduced range vs traditional vehicles.

There is acknowledgement in much of Government policy of last-mile logistics, but there are still regulatory and other challenges, such as vehicle categories.

What are the challenges?

Supply

There is limited opportunity for new development within the M25 and most developments are focused on the improvement of existing industrial sites.

Whilst existing industrial and logistics uses are protected through the SIL and LSIS designations there is no differentiation between specific operational uses. Last mile space is being redeveloped as part of residential led schemes and replaced with "maker space" that is viewed to have less of a detrimental impact on the residential units. The new space that is being delivered is not suitable for a last mile operation.

Local impact

There is often local opposition due to the perceived increase in vehicle movements, noise, and unsociable hours of operation. This is partly because last mile development is not familiar.

Design standards

As an emerging sub-sector the market has not established an institutionally accepted design standard for these buildings. This makes it difficult for developers to construct these buildings speculatively.

What does the industry need?

Protection

Recognition of the different operations conducted in industrial and logistics buildings.

Planning

Understanding of the requirement to deliver last mile facilities including positive engagement on minimising impact of vehicle movements, varied operating hours, number and types of jobs, and making urban areas ready for alternative means of transport such as e-cargo bikes and robots. There is a need for proactive allocation, (of what may be very small parcels), of land for these uses in the right places.

Proof-of-concept

Support to help drive pioneering developments to accelerate the delivery of non-traditional warehouses. There is a need to not be too prescriptive here and enable companies to operate last mile facilities optimally and allow for evolution. Last mile warehouses don't need to be about regulating the supply chain but creating more efficient operations.

Case studies

Industria, Barking

This is a multi-storey logistics development providing small units for SMEs with van access to all levels. London Borough of Barking and Dagenham own the site and GLA have taken a lease on 50% of the lettable space to provide secure income and support the value of the developed scheme.

Amazon

Amazon has now launched its four micro mobility hubs in London and Manchester for sustainable deliveries. These are supplementing their electric vehicle fleet with e-cargo bikes and walking, enabling them to make over five million deliveries in London in 2022.

TfL/ GLA

TfL and the GLA are engaging with commercial fleets to explore last mile/consolidation hubs opportunities. TfL is also currently researching ways of using vacant land or re-purposing land resulting from the pandemic to identify opportunities for LGVs and the wider logistics sector as part of the green recovery. The land use for freight programme looks to identify, promote and enable land use for freight. It covers last mile hubs, repurposing land for freight and integrating rail and water into last mile logistics. This enables rail and water as part of the last mile of deliveries in London, reducing air pollution and congestion.

Consolidation is already a requirement for construction of new buildings in London. For example, Wilson James operate a London Construction Consolidation Centre (LCCC) in Silvertown, East London. Recent planning consents for office developments in the City of London are now also requiring "consolidation-in-use"; the consolidation of deliveries to the building once it is operational. The first example of a completed building with this requirement is 22 Bishopsgate and several recent planning consents also require this as part of their future development.

About Turley

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