Electrifying Last Mile delivery: Changing Fleet Composition and Sustainability Investments

By Ti Research

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Changing fleet composition and sustainability investments

As part of a global initiative to reduce carbon emissions, most global companies are implementing strategies to reduce energy consumption. At the beginning of 2022, the world was a long way from achieving its shared energy and climate goals, even prior to Russia's invasion of Ukraine. Global CO2 emissions reached an all-time high in 2021. Alongside this attempt to reduce emission are efforts to build and introduce clean energy technologies. These too are below levels necessary to bring emissions down.

Parcel carriers operate large fleets and are large consumers of fuel, in both vehicle fleets and aircraft, and other forms of energy in warehousing and other infrastructure. Many carriers are introducing environmental plans to help tackle climate change as part of wider ESG (Environment, Social, Governance) policies, with specific targets set out to achieve Net-Zero. A significant element of carriers' ESG actions are focused on the introduction of 'alternative' vehicles (mainly electric, but also hydrogen, LPG, and hybrid vehicles).

Some carriers are ahead of others in terms of achieving their targets. Of the carriers listed below, La Poste has the largest proportion of its fleet made up of alternative vehicles (although this does include electric trolleys and e-bikes, which are not typically employed by others). Other carriers such as Royal Mail and FedEx are playing catch-up in terms of alternative fleet options.

This piece is not an exhaustive examination of carrier's sustainability strategies, but rather a snapshot of a select amount of provider's climate goals and fleet compositions. This piece also looks to profile a select amount of electric vehicle manufacturers.

Fleet Composition of Leading Parcel Carriers, 2021/22, Traditional vs. Alternative

Company	Alternative	Traditional	Total	%
Royal Mail	1,619	47,615	49,234	3.3%
UPS	13,000	108,000	121,000	10.7%
La Poste	34,855	54,671	89,526	38.9%
FedEx	4,156	195,844	200,000	2.0%
DPDHL	26,094	86,366	112,460	23.2%

Source: Latest company data available. La Poste includes 'other' vehicles such as trolleys and e-bikes

Carrier Sustainability Profiles

This section provides a summary of the targets and actions taken by a select number of major parcel carriers. It also highlights their intended goals to achieve Net Zero through fuel use and property management. Furthermore, given that these carriers are operators of major fleets (owned and outsourced), we highlight the proportion of road fleets that are 'alternative' fuelled vehicles.

UPS

As part of UPS' global ESG Strategy, the company plans to use 25% renewable electricity in facilities and 40% alternative fuel in ground operations by 2025. By 2035, it plans a 50% reduction in CO2 per package delivered, 100% renewable electricity in facilities and 30% sustainable aviation fuel. By 2050 it aims to achieve full carbon neutrality.

In 2020, the total amount of UPS electricity generated from renewable sources reach 7.8%, sourced from both solar panels on UPS facilities, and procurement of 88% renewable energy across European operations. In 2020, UPS used 142m gallons of alternative fuels for its ground fleet, representing 22% of total ground usage (mainly hydrogen).

In total UPS operates a global ground fleet of more than 121,000 package cars, vans, tractor units and motorcycles. Of this total, approximately 13,000 are alternative fuelled and advanced technology vehicles. This represents 10.7% of its total ground fleet. Of the 13,000, approximately 1,000 are electric and plugin hybrid electric vehicles. In addition, UPS operates 288 owned and finance-leased aircraft, and 307 aircraft on leases via third-parties.

In 2020, UPS invested in UK electric vehicle manufacturer, Arrival. Alongside this investment, UPS committed to purchased 10,000 of Arrival's electric vans, purpose-built for UPS. Arrival produces its own major core vehicle components – chassis, powertrain, body, and electronic controls. Arrival vehicles also use a modular design with standardized parts, a method that reduces maintenance and other costs of ownership.

Royal Mail

Royal Mail, whose ESG reporting covers both parcels and mail, has committed to achieving Net-Zero by 2040. In addition to its stated aims of reducing GHG emissions, the company aims to use 100% renewable electricity by the end of 2022.

The company operates over 45,000 vehicles in its fleet. Royal Mail alternative fuelled vehicles, including electric, hydrogen or bio-CNG have grown from 13 vehicles in 2018 to 1,619 vehicles in 2022. However, this is still only 3.3% of its overall fleet. More than 80% of Royal Mail's fleet are Euro 5 and 6 category vehicles.

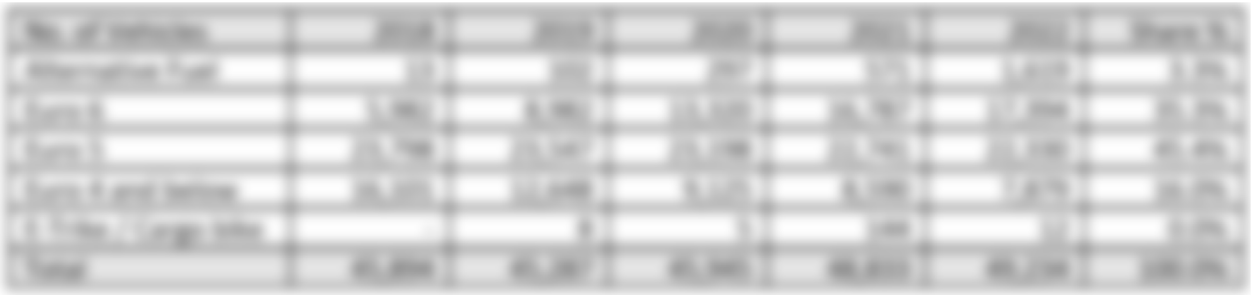
In July 2020 Royal Mail partnered with London Electric Vehicle Company to trial its new VN5 prototype electric van, based on a London cab design.

In November 2020, Royal Mail announced that it was trialling a dual fuel van to determine whether hydrogen is a viable fuel to use in its fleet. A specially converted Ford Transit is being used in Aberdeen and is slightly larger than a normal Royal Mail van. The van can travel up to 120 miles in dual fuel mode.

With regards to electric vans, Royal Mail announced in 2021 a ten-fold increase in the number of electric vans in its fleet, with plans to introduced approximately 3,000 additional electric vans. Most of the new electric fleet is being sourced from Peugeot and Mercedes, with the Peugeot e-Expert, Mercedes e-Vito and e-Sprinter liveried in the traditional Royal Mail red. Load capacities will range from around 3.7m3 to 6.3m3 and the vehicles will be used on existing delivery routes.

Also in 2021, the company started a six-month trial using Paxster Cargo and the Ligier Pulse 4 micro-electric vehicles.

Royal Mail Fleet Composition by Type, 2018-2022



Source: Royal Mail

For company specific fleet data please take a look at GSCi: ti-insight.com/product/gsci

La Poste / GeoPost

Le Groupe La Poste makes the claim that it is the first postal operator in the world to be carbon neutral. The company has a goal of achieving Net Zero GHGs (greenhouse gas) emissions by 2030.

Le Groupe La Poste has a total fleet size (including bicycles, trolleys, quadricycles, and other vehicles) of almost 90,000. Of this number, 34,855 are electric. It has 54,000 light commercial vehicles, of which 16,895 are electric LCVs. Therefore 38% of its total fleet is electric, and 31% of its light commercial vehicles fleet is electric. As part of its fleet, it operates more than 17,700 e-bikes, 7,900 electric three-wheel vehicles (Staby) and 1,200 electric quadricycles.

In 2017, La Poste Group introduced natural gas vehicles for delivery. At the end of 2020, 131 light commercial vehicles were equipped with a NGV engine.

In October 2020, GeoPost / DPDgroup announced its intention to commit to having low emission delivery methods for 225 of the largest European cities by 2025. The company has progressed quickly with this ambition and has extended the number of cities in its target to 350 by 2025.

Le Groupe La Poste Fleet Composition by Type, 2019-2022

Source: Le Groupe La Poste

For company specific fleet data please take a look at GSCi: ti-insight.com/product/gsci

FedEx

FedEx recently announced a new target to achieve carbon neutrality in its global operations by 2040. To hit its target, FedEx is focusing on three areas: vehicle electrification, sustainable energy and natural carbon sequestration. FedEx's specific goals are:

• 50% improvement in fuel efficiency of FedEx Express vehicles by 2025

• 50% of global FedEx Express pickup and delivery vehicle purchases are zero emission electric vehicles by 2025

• 30% of jet fuel from alternative fuels by 2025

• 100% of global FedEx Express pickup and delivery vehicle purchases are zero emission electric vehicles

In its aircraft fleet, FedEx has reduced its aircraft emissions intensity by 27% since 2005. The company's aircraft modernisation and Fuel Sense programs saved over 255m gallons of fuel and avoided 2m metric tons of carbon dioxide in 2020 alone.

FedEx manages a worldwide ground fleet of approximately 200,000 vehicles. FedEx states that through to 2020, it has improved fuel efficiency by 44.5% from its 2005 'baseline'. FedEx Express is in installing updated GPS tracking systems that provide drivers with 'turn-by-turn' routes. The system gives drivers the most efficient route, helping to optimise driving distance and reduce emissions.

In November 2018, FedEx announced it is expanding its fleet to add 1,000 Chanje V8100 electric delivery vehicles. FedEx purchased 100 of the vehicles from Chanje Energy Inc and leased 900 from Ryder System, Inc. The purpose-built electric vehicles will be operated by FedEx Express for commercial and residential pick-up and delivery services in the United States.

According to FedEx, procurement of electric vehicles slowed due to Covid. Nevertheless, it continues its acquisition of zero emissions vehicles. In December 2021 it received the first five vehicles of an order of 500 electric Light Commercial Vehicles (eLCVs) from BrightDrop. Powered by the Ultium battery platform, the EV600 eLCV is designed for deliveries, with an estimated range of up to 250 miles on a full charge. Purpose-built for the delivery of goods and services, the vehicle offers more than 600 cubic feet of cargo area. In June 2022, BrightDrop delivered a further 150 eLCVs to FedEx.

FedEx Alternative Fleet Composition by Type, 2018-2021

Source: FedEx

For company specific fleet data please take a look at GSCi: ti-insight.com/product/gsci

DPDHL

As part of Deutsche Post DHL's Roadmap 2030, there are environmental actions to reduce logistics-related greenhouse gas emissions, use of sustainable technologies and fuels, road fleet electrification, climate-neutral design of new buildings and a green product portfolio. The company operates more than 320 aircraft and 112,460 vehicles (of which 21,340 are electric vehicles), 29,200 bicycles (of which 12,400 are e-trikes).

The company has up to €7bn of additional expenditure earmarked for sustainable technologies and fuels. By 2030 it plans to have more than 30% of its total fuel volume in sustainable fuels, and more than 60% of its pickup and delivery fleet comprised of electric vehicles.

DPDHL's road fleet consisted of 26,094 alternative fuel vehicles in 2021. According to DPDHL, conventional vehicles are continually upgraded.

DPDHL Road Fleet Composition by Type, 2019-2021

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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Source: DPDHL

For company specific fleet data please take a look at GSCi: ti-insight.com/product/gsci

Electric Vehicle Manufacturers

It is only recently that electric vehicle technology has developed to a point where the economics of electric fleets have become viable. Range is still a major concern for fleet procurement teams (and outsourced operator managers), and most electric vehicle purchases are destined for major urban areas, where delivery density is high. For those rural delivery routes, conventionally fuelled vehicles still dominate and are likely to remain in operations until battery technology permit longer range driving. Existing commercial vehicle manufacturers have started developing electric vans and several new start-ups have begun to service this market.

Arrival

Arrival was founded to design, assemble, and distribute commercial electric vehicles, including vans, buses and cars. As at May 2022, Arrival had 143,000 vehicles on order, including 10,000 vehicles from UPS. Production of vehicles begins in Q3 of 2022, with deliveries of right-hand drive versions planned for later in the year. The company will be able to conduct remote diagnostics, with the expectation that most faults can be fixed remotely. On-board sensors will monitor components, permitting Arrival to provide pre-emptive maintenance to minimise the time the vehicles are off the road. It operates a low-cost manufacturing process, incorporating, rapidly scalable micro factories that can be placed anywhere in the world to serve the regions they are located in.

Rivian

Rivian designs, develops, and produces electric vehicles and accessories. The company manufactured 1,015 vehicles and delivered 920 by the end of 2021. Rivian has consumer and commercial vehicle divisions. The Rivian Commercial Vehicles platform was designed and engineered by Rivian, in partnership with Amazon, which has ordered an initial 100,000 vehicles worldwide. The vans, once produced, will be ready to put directly into service, without any additional third-party configuration. Ford and Amazon own approximately 27% of Rivian shares.

Ford

Ford launched the E-Transit in 2020. E-Transit, which began arriving with European customers in early 2022, is part of Ford's more than US$11.5bn global investment in electrification through 2022. Ford also offers a range of charging solutions for both fleet and driver needs. Ford E-Transit customers include DHL, DPD and Royal Mail.

Volta

Volta Trucks, a Swedish company, was founded in 2019. It manufactures and provides services for zero emission electric trucks. The company's offices are in Stockholm, Sweden and the UK, with significant operations in both countries as well as France and Austria. Volta Trucks has an order book of $260m and its biggest public order to date is for 1,000 trucks from French refrigerated logistics company Petit Forestier. The company plans to produce 5,000 vehicles in 2023, increasing to 14,000 in 2024, and 27,000 in 2025. In February 2023, the company announced that it had successfully completed Series C funding with a €230m funding led by US based Luxor Capital.

GM BrightDrop

BrightDrop is a business producing electric vehicles, smart containers and software designed to decarbonize last-mile deliveries and reduce congestion for a smarter, more sustainable future. BrightDrop is a wholly owned subsidiary of General Motors. In January 2022 BrightDrop announced that Walmart signed an agreement to reserve 5,000 of BrightDrop's EV600 and smaller EV410 electric delivery vans to

support the retailer's growing last mile delivery network and goal of operating a zero-emissions logistics fleet by 2040.

Mercedes

Building upon its successful Sprinter range, Mercedes now has a range of electric vans, including the eSprinter and the eVito. In 2021, Hermes UK placed an order for 168 fully electric Mercedes-Benz eSprinters, operational by the end of 2021. In 2020, Amazon ordered 1,800 electric vans from Mercedes-Benz for their European delivery fleets, as part of their goal to be carbon-neutral by 2040. Of the 1,800 vans destined for Amazon, 1,200 are e-Sprinters and the remaining 600 are eVitos. DPD has also expanded its fleet with Mercedes electric vans. The first electric vehicles from Mercedes were deployed by DPD in Germany in 2020. In March 2022, DPD Germany ordered an additional 150 eSprinters for its fleet.

ABOUT TI

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