



SUSTAINABILITY SERIES

PART 4 – AIR FREIGHT

Over the last few weeks, we have explored the way that road, rail and sea freight operators are gearing up to tackle climate change. We turn now to the air freight sector, which faces some unique challenges on the path to net zero.

Methods of carrying air freight have changed in the post-pandemic world. Before 2020, 50% of cargo was belly freight (on board passenger aircraft). However, by mid-2020, with passenger numbers through the floor and a boom in global e-commerce, this had dropped to around 20%, with the extra capacity provided by dedicated cargo aircraft. This trend is expected to continue¹.

¹ <https://www.iba.aero/insight/4-key-air-cargo-trends-to-watch-for-in-2022/>

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Aviation consultancy IBA reported that the active freighter fleet grew in 2020, with observed growth in 2021 and the market is on a trajectory of continued growth and increasing numbers of freighter flights. To meet the demand for capacity, freight operators are acquiring additional aircraft. These aircraft are unlikely to be new – most operators prefer to use ageing passenger planes and convert them into freighters, thereby securing a lower capital cost, which in turn enables them to remain competitive. This however comes with a disadvantage that such aircraft are by and large less environmentally friendly, in terms of both fuel consumption and noise.

With air freight remaining a cost-sensitive, low-margin industry, this dichotomy lies at its heart.

Legal, regulatory and market incentives

The International Civil Aviation Organisation (ICAO) has a stated aim of reducing the aviation industry's net CO₂ emissions to 50% of 2005 levels by 2050. In October 2016 it launched CORSIA, the first ever sector-wide carbon offsetting programme. It works by setting an emissions baseline (derived from 2019 data²) and requiring operators to compensate for CO₂ emissions from their international flights that are

above the baseline by buying credits which are generated by projects that reduce carbon emissions. ICAO have set out certain environmental criteria to guarantee that emissions units deliver the desired CO₂ reductions.

Participation in CORSIA is determined at state level, not by individual operators. 107 states currently participate. It applies equally to all international passenger and freight flights between participating states. Freight operators may also be required to participate in other similar regional schemes such as EU ETS, which applies to flights within the European Union. China, a source of a very large proportion of the world's air-freighted consumer goods, has recently launched a carbon market and intends to enrol the aviation sector in it by 2025.

On an industry level, the “BlueSky program” has been launched as a response for the call to create a dedicated tool to measure the progress towards the sustainability goals. This was designed by The International Air Cargo Association (TIACA) and is being promoted as the air cargo industry's sustainability assessment, validation, and verification programme.

CORSIA is part of a four-pillar supranational strategy which also includes improvements

in technology, operations and infrastructure. In all global markets, government support will be key with investment at the necessary levels into research and development.

Solutions and alternative options

Transport of goods by air has several unique advantages. It is the fastest and, arguably, the safest unimodal form of international transport. For perishable, fragile, or high value goods, it is sometimes the only option. In a commercial environment driven more and more by expectations of high-speed fulfilment, it is difficult to see the appetite for air freight diminishing.

Thus, the focus needs to be on making flights more efficient. This requires both a reduction in fuel burn and CO₂ emissions through more sustainable fuel and advances in aircraft design to allow each flight to carry more volumes of cargo.

Sustainable Aviation Fuel

Sustainable Aviation Fuel (SAF) is made by blending the fossil-fuel derived kerosene (Jet A1) conventionally used in aircraft with up to 50% renewable hydrocarbon, produced either from biomass (plant or animal material) or from alternative feedstocks, including used cooking oil, municipal waste and agricultural residues. Once blended, SAF meets



the same specifications as fossil jet fuel. Importantly, SAF can be 'dropped in' to existing aircraft with no modifications required, which makes it ideal for use in new as well as older aircraft and is therefore particularly well suited for the air-cargo fleets.

SAF is widely considered to be the most important way to reduce the carbon footprint of the aviation industry in the next few decades before alternatively powered aircraft (such as electric aircraft) can be developed and deployed for commercial use. Key players in the air freight industry have recently made announcements moving towards SAF:

- In February, DHL and Air France KLM teamed up on the purchase of 33m litres of SAF,³ whilst committing to cover at least 30% of their journeys by sustainable fuels by 2030.
- Delta Cargo signed an agreement with SAF maker Gevo, under which Delta expects to receive roughly 75m gallons of SAF annually for seven years from mid-2026.⁴
- Cathay Pacific also recently launched Asia's first corporate sustainable aviation fuel (SAF) programme whereby corporate

customers (both business travel and airfreight) can reduce their carbon footprint by contributing to the use of SAF made from cooking oil and animal fat waste.⁵

In July 2021, the European Union proposed to introduce SAF blending mandates, compelling fuel suppliers to include SAF in aviation fuel supplied at EU airports, commencing in 2025 at 2% SAF, 5% from 2030, and scaling up to 63% in 2050.

However, although the price of WTI crude oil and kerosene-type jet fuel peaked in March 2022 to levels last seen in 2012 (reaching highs of USD \$119 per barrel (91% YoY) and USD \$3.7 per gallon (120% YoY) respectively⁶), the production cost of SAF is currently at least twice as high as that of conventional jet fuel and higher than that of sustainable alternative fuels used in other transport modes. There are also fundamental issues with the scalability of SAF production. To put this in perspective, Flight Global recently reported that, "*More than one airline chief executive has pointed out in recent months that even if their carrier took all of the world's available SAF this year, it would only power their fleet for a few days.*"⁷

A long-term, stable policy framework with sufficient incentives is needed to inspire confidence and encourage major investment in SAF production.

Aircraft Development

Air France-KLM announced the purchase of four Airbus A350F full freighter aircraft in April 2022. This type of freight aircraft offers 11% more volume while enabling a 15% reduction in fuel burn and CO2 emissions. This is predominantly due to the reduced weight of the aircraft and its efficient engines.⁸

Larger, lighter aircraft are necessary to ensure sustainable airfreight transport. However, realistic progress is wholly dependent on the feasibility and affordability of new, more efficient technology and the pace of scientific developments. 'Green Finance' structures which incentivise the purchase of more modern aircraft by linking the cost of borrowing to sustainability metrics may help the industry to build more modern fleets.

New airframe manufacturer Natilus aims to disrupt the market with a completely new type of aircraft, use of cloud-based autopilot instead of physical pilots and efficient blended wing body configuration that

3 <https://www.dhl.com/global-en/home/press/press-archive/2022/another-step-towards-sustainable-air-freight-dhl-purchases-33-million-liters-of-sustainable-aviation-fuel-from-air-france-klm-martinair-cargo.html?msclid=a807be73c5411ec88ee68446a89b420>

4 <https://news.delta.com/deltas-deal-gevo-pushes-saf-goal-forward>

5 <https://news.cathaypacific.com/cathay-pacific-launches-asia-s-first-major-corporate-sustainable-aviation-fuel-saf-programme-wbwm8g?msclid=40ef8401c54511ecba02651eb836a745>

6 <https://www.iba.aero/insight/4-key-air-cargo-trends-to-watch-for-in-2022/>

7 <https://comms.flightglobal.com/linkapp/cmaview.aspx?LinkID=pageid100619904zqxz~f~9ztjxz~9nzqrq~z~x~f~n>

8 <https://www.aviation24.be/airlines/air-france-klm-group/air-france/air-france-klm-orders-4-airbus-a350f-full-freighter-aircraft-with-purchase-rights-for-an-additional-4/>

allows for 60% more volume.⁹ Other manufacturers of electric aircraft, such as Eviation, are offering a freighter version of their planes which could be used by freight operator to cover shorter, primarily domestic routes and enable them to reduce their overall carbon footprint. These platforms remain in development for now and will take a few years to enter service and make real impact.

Conclusion

Air freight is fundamental to the post-pandemic global economy and is here to stay, with the number of flights and volume of cargo set to increase.

Although a great deal of work is needed to ensure a sustainable future for the air freight industry, there is already a big push from air freight carriers, airports, and supply chains, both voluntary as a result of an increasing awareness of corporate responsibility, and in response to tighter regulation.

Momentum is gathering in relation to the production and trading of SAF and associated regulatory obligations and incentives. SAF, while not a complete answer yet, is the shorter-term focus while the development of new airframe technology remains a more distant solution. The air freight industry cannot evolve in a vacuum. Close co-operation and co-ordination with supply chains, as well as strong focus on the connection with road and rail will be necessary to achieve a truly sustainable air freight industry.

⁹ <https://natilus.co/?msclkid=7cee0293c5541eca044f9739806405b>

How HFW can help

We advise clients within the air cargo sector on all aspects of their business including:

- Aircraft and engine purchase, leasing and financing
- Aircraft conversion contracts
- Aircraft maintenance and storage agreements
- Ferry flight agreements
- Airline liability to cargo owners
- Aviation insurance issues and claims pertaining to carriage of cargo
- Chartering and wet leasing arrangements
- Regulatory advice pertaining to environmental compliance and emission trading.

If you would like to discuss how HFW can support you with your sustainability goals in the transport sector, please speak to:



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SUSTAINABILITY IN OUR SECTORS

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Click here to visit our dedicated sustainability hub.

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