

carbon by 2050.

We believe aviation has a place in a low carbon future and we are committed to playing our part to support and accelerate the sector's decarbonisation.

CDB Aviation fully supports the aviation industry's goal of net-zero

Aviation's Moment of Truth

The time is always right to do what is right. - Martin Luther King

The earth's temperature is rising, and its population is increasingly urbanising. In many emerging countries, a growing middle class is working hard to have the same opportunities afforded to their families that they see people enjoying in more developed countries, which increasingly includes air travel.

As an enabler of air travel, CDB Aviation recognises that we need to do all we can to leave our world in a better place for the next generation.

But how can we accommodate such seemingly paradoxical needs – the desire for more travel and the necessity to protect our planet? Aviation's moment of truth has arrived.

There is no denying that ours is a hard-to-abate sector compared to others because of the unic technology and timeframe challenges involved in achieving net-zero aviation. Compared to the automotive sector, in aviation we see battery technology and alternative fuels (like hydroger still at the early stages of application. But the solutions are becoming increasingly well understood. Over the last year, consensus has grown within and outside the industry as to wh the path to net-zero carbon looks like. Papers published by the International Energy Agency (IEA), IATA, ATAG, and Aircraft Leasing Ireland (among others) point to a common set of enab drivers: much faster adoption of SAF, fleet transition to aircraft types that consume less fu and produce less CO2, introduction of next-lev technology development (such as hybrid-electric



e	and hydrogen power), infrastructure and airspace		
que d	efficiencies, offsets and carbon capture.		
е	Today, CDB Aviation has one of the youngest		
	fleets of any lessor, with an average age of		
n)	4.4 years. We are committed to having a fleet		
	comprised of 60% new generation aircraft by		
	2025 – aircraft that will consume around 20% less		
	fuel per passenger. In 2022, 46% of our fleet was		
nat	next generation aircraft, up from just 12% in 2018.		
	We are also committed to introducing green		
	leasing products that incentivise our customers		
	to transition to new technology types through		
oling	innovative lease terms.		
uel	Beyond this, we are determined to use our		
/el	influence to drive positive progress on SAF and		
tric	new technology. This requires us to step outside		

of our comfort zone and leverage our knowledge, our access to capital and our connections in new ways. We have already taken our first step by supporting Heart Aerospace, a Swedish OEM founded in 2018, with its development of a 30seat hybrid-electric powered regional aircraft, the ES-30. We hope to establish more of these types of collaborations in the future and we also see enormous potential to engage our shareholder, CDB Leasing, in exploring investment opportunities linked to the decarbonisation agenda.

For those of us working in aviation today, the actions we take and choices we make over the next few years will be critical. They will help determine our industry's and our society's longterm future. It's on all of us to step up and deliver.



Sustainable Fleet

Why it matters?

At CDB Aviation, we aim to profitably lease the most popular and most sustainable modern aircraft types to airlines around the world. Key to achieving this goal is ensuring that we continuously improve the fuel efficiency of our fleet and increase the proportion of new generation aircraft within our portfolio. Our fleet is responsible for the majority of the carbon emissions associated with our business so setting targets over the medium and long-term to transition to electric, hydrogen or other new propulsion technology is also an important part of delivering on our business mission.

Key targets:

- 60% of new generation aircraft in our fleet by 2025
- Net-zero emissions from fleet by 2050

Key Actions for 2023:

- Publicly commit to IATA Fly Net Zero 2050 target
- Develop a net-zero roadmap for our fleet with interim targets
- Continue to increase the proportion of new generation aircraft in our portfolio as part
 of the CDB Aviation Sustainable Fleet Initiative
- Introduce Sustainability Metrics for all CDB Aviation Assets and Investments
- Develop CDB Aviation Green Weighting Factor to assess Airline Customer Sustainability
- Continue passenger to freighter (P2F) programme to extend the life of older aircraft
- Cooperation with leading partners for aircraft recycling

A key focus for CDB Aviation under the 'Managing our Impact' pillar of our sustainability strategy is our aim to continuously reduce the environmental impact of our fleet by investing in the latest, most fuel-efficient aircraft, and retiring older aircraft.

We recognise, however, that simply improving the efficiency of our fleet over time, while a positive and critical step, will not be enough to achieve netzero by 2050. Meeting this target will require CDB Aviation to work in partnership with other players in the aviation ecosystem. This is why in parallel with ongoing fleet efficiency improvements, we seek to accelerate innovation in SAF and new technology, under the 'Maximising our Influence' pillar of our strategy. It's a two-pronged approach to delivering our goal of a sustainable fleet.

Our approach to fleet management

CDB Aviation's strong financial capability allows us to focus on financing the most advanced and efficient aircraft available on the market. We actively manage our portfolio by selling older aircraft and redeploying capital to continuously promote and finance the latest generation of aircraft. The share of new generation aircraft within the CDB Aviation fleet has increased rapidly from 12% in 2018 to 46% in 2022.





Proportion of **new** generation aircraft



lower emissions from new generation aircraft types



reduction in CDB Aviation Relative CO2 Emissions since 2018







Target proportion of new generation aircraft by end of 2025 60%







Orders and commitments for new gen aircraft will nearly double today's fleet of 125 new generation aircraft

www.cdbaviation.aero







Fuelburn Improvement of Newgen Types¹

Note: In the interest of trai

Our fleet consists of 273 aircraft today – regional, narrowbody, widebody and freighter assets - with an average age of 4.4 years. 125 are the latest generation available in their segment (Airbus A320neo Family, A330neo, A350, Boeing 737 MAX and 787). They are 20-25% more fuel efficient and less CO2 intensive per seat than the generation of aircraft they replace. In addition, we offer the lowest emission widebody freighter through the A330 P2F, which offers 12% lower emissions per tonne of payload than the type it replaces.

* A330 P2F is measured per tonne and not per seat.

The benefits of new generation aircraft go beyond The goal of the CDB Aviation Sustainable Fleet Initiative is to achieve 60% new generation aircraft CO2 emissions, with newer aircraft also quieter and less polluting than older aircraft. For example, the by the end of 2025 by aircraft count. This significant portfolio transition from 12% new generation in 737 MAX 8 has a 50% smaller noise footprint than 2018 to 46% today and 60% by 2025 is happening the previous generation 737-800. Similar noise through active portfolio management - exiting older reduction can be seen in the A320neo, A330neo, A350 and 787s. In terms of reducing air pollution, generation aircraft and adding new generation types from our orderbook and through acquisitions. A320neo NOx emissions are up to 49% below CAEP/6 (Committee on Aviation Environmental By increasing the relative share of new generation aircraft in the portfolio, we expect to improve the Protection) standards. overall efficiency of our fleet by a further 30% over the next three years from 2022's level.



Relative CO2 Emissions (Grams per Available Seat / Kilometre)



As can be seen above, the relative efficiency of the fleet has improved by 12% since 2018, from 77 grams of CO2 per Available Seat Kilometre (ASK) to 67 grams. Considering relative fleet efficiency through the CO2 per ASK metric provides greater clarity on emissions evolution at different levels of fleet productivity – for instance, when utilisation was lower during the recent pandemic. It also captures the efficiency benefits of increasing average aircraft capacity.





In the interest of transparency, newgen share is by aircraft count and not asset CMV.

Measuring the carbon footprint of our fleet

Developing a baseline for our fleet emissions is a key step in enabling us to develop a decarbonisation roadmap and set concrete interim targets on the path to net-zero by 2050. To gather data on our fleet we partner with IBA – a leading appraiser and data and information provider for aircraft values, flights, and emissions. We use IBA's NetZero Carbon Emissions Calculator for aviation emissions analysis, ESG reporting, strategic planning and insights into the risks and opportunities associated with decarbonising commercial aviation.

2022 reflected an ongoing reduction in the absolute CO2 emissions produced by CDB Aviation's fleet. 5.5m tonnes of CO2 were produced by the portfolio throughout the year, compared to 6.6m tonnes in the base year of 2019, a reduction of 16%.² The level of flying between 2020 and 2022 was heavily impacted by COVID-19.

In terms of CO2 emissions per seat / kilometre (which is a useful measure of fleet efficiency), a 10% reduction in 2022 was observed compared to a 2019 baseline, from 75 grams to 67 grams.² Over the last five years, there has been an ongoing decline in CO2 emissions per seat / kilometre, from 7.7 grams in 2018 to 6.7 in 2022 (a 12% reduction). This improvement highlights the ongoing efficiency gains of our fleet.

2 We have selected 2019 as the baseline year for our carbon footprint measurement, a year for which we are measuring both our fleet emissions and the emissions from our own operations.

Comparison of CDB Aviation fleet emissions data in 2019 and 2022





CDB Aviation's Total CO2 emissions (million tonnes)





Sustainable Aviation Fuel

Currently, our fleet of Airbus, Boeing and Embraer aircraft are certified to operate on a blend of up to 50% SAF. We are closely monitoring the progress that OEMs are making towards achieving 100% SAF capable aircraft in the near future.

Sustainable Aviation Fuels, technically certified to international specifications and standards, must have the same qualities and characteristics as Conventional Aviation Fuel (CAF) - otherwise known as Jet A1 - in order to substitute it. Currently regulators have approved that conventional Jet A1 can be fully replaced or combined with 'drop-in' SAF inside any commercial aircraft fuel tanks. This means that SAF can be used as a standard fuel without modifications to an aircraft's structure or systems.

This 'drop-in' SAF is a blend of kerosene and technically modified feedstock (for example, used cooking oil, sawdust, or municipal solid waste). SAF can be made from any of 60 different feedstocks — among them plant oils, algae, greases, fats, waste streams, alcohols, sugars, captured CO2 and other alternative feedstock sources and processes. Practically, a SAF is produced in a bio-refinery and then blended up to the maximum certified blending limit (between 10% and 50% depending on the technical pathway).

CDB Aviation actively encourage initiatives by our customers to increase their use of SAF in daily operations. Aircraft lessors are constrained as to their ability to control or influence what type of fuel airlines use in aircraft they lease from us. Airlines are entitled to 'quiet enjoyment' of the assets without direction from the leasing entity. That said, CDB Aviation has an opportunity to influence and/or incentivise the lessee, which is why we are exploring the introduction of a green weighting factor for leases, and stepping up our engagement with customers on their SAF and broader decarbonisation plans.



United uses CDB Aviation aircraft to operate world's first revenue flight using 100% SAF

On December 1st, 2021, United Airlines made aviation history when it flew from Chicago O'Hare to Washington's Reagan National Airport with 115 people on board – operating the first commercial flight with passengers on board to use 100% drop-in sustainable aviation fuel (SAF). The flight was operated with a CDB Aviation-owned 737 MAX 8 aircraft.

Currently, ATSM standards permit airlines to use a maximum of 50% SAF in commercial flights. This United flight operated one of the plane's engines on 100% conventional jet fuel and the other on 100% SAF — about 500 gallons in each engine. The SAF used by the jet was 'drop-in' ready, meaning it is interchangeable with conventional Jet A1 fuel and requires no modifications to engines or airframes. This also makes it compatible with the existing commercial fleet and the existing fuel distribution and storage infrastructure.

CDB Aviation's technical team worked with United, Boeing, GE and Honeywell to actively support this endeavour – researching the technical implications of using 100% SAF, proving the concept through a series of prior demonstration flights, and providing operator warranty indemnification.



Extending Aircraft Life, Lowering Emissions

CDB Aviation was a catalyst lessor for the A330 P2F conversion programme.

The A330 P2F is the most advanced and efficient freighter aircraft in its class, offering a double-digit improvement in emissions versus the types it replaces. The benefit of passenger to freighter (P2F) conversions is that they enable key cargo routes to be flown by the most efficient technology, and at the same time, allow older, less efficient freighters to be removed from service, retired, and have key components recycled to be used as spare parts. CDB Aviation placed its first orders for A330 P2Fs in 2020; it has ordered 14 to date, with 2 aircraft now in-service.

The A330 P2F has 12% lower emissions per tonne than aircraft types it replaces



CDB Aviation supports Heart Aerospace

It is clear that to achieve our industry's commitment to Net Zero by 2050, we will need next generation technology that delivers gamechanging improvements in emissions – through either battery or hydrogen applications.

At CDB Aviation, we are interested in developments that will affect genuine change by removing older aircraft from our skies; 'green washing' is of no interest. Therefore, we were impressed by the ambition of Heart Aerospace and its goal to introduce the largest hybrid electric regional aircraft (available with current battery technology) within this decade.

Heart Aerospace targets entry into service of the 30-seat ES-30 by 2028. It will be powered by four electric motors, with an all-electric range of 200 km, a reserve hybrid range of 400 km with 30 passengers and ability to fly up to 800 km with 25 passengers. The ES-30 will also have a costeffective and scalable upgrade path as future battery technology matures. The battery upgrade roadmap allows for increased usable energy at the same weight, allowing it to fly longer routes. Heart Aerospace has orders for 230 ES-30s.

CDB Aviation is a member of the Industry Advisory Group advising Heart Aerospace, providing the perspectives of a leading aircraft manager and financier.





The world was built by people not much smarter than you. At one point, you have to look at yourself and realize that 'Hey, I have a toolkit and skillset to be able to do something about that.' You're never going to feel like you're going to build the next thing, but you have to start. It's a long marathon and you'll learn along the way.

Anders Forslund, Founder & CEO, Heart Aerospace



Aircraft Recycling and End of Life

When assessing the sustainability of aircraft, it is critical to consider the entire life cycle of the asset. For any of our aircraft that reach the end of their useful life, we are proud to partner with TARMAC Aerosave, a global leader in aircraft and engine recycling.

Two CDB Aviation aircraft have been recycled in the past two years. Through TARMAC's processes, 90% of the total weight of the aircraft is recovered, which can be broken further into the following categories:

- **30%** of products (by weight) used in direct reuse
- **60%** of material (by weight) upcycled and used again
- **8%** (by weight) used for energy recovery
- **2%** of the aircraft is final waste



Aircraft Recycling by TARMAC Aerosave

Looking to the sustainable future of aircraft records – with digital twins

Digitisation of Aircraft Documents

CDB Aviation, like other lessors, is active in transitioning aircraft maintenance record management from paper to digital format. Digitisation of records is more sustainable through the eventual elimination of paper waste, reduced document transportation and less travel to Maintenance, Repair and Overhaul (MRO) organisations for oversight. In addition, digital records have the advantage of reduced cost, enhanced reliability, and faster aircraft transition.

However, there are still challenges to overcome – there is no globally accepted standard, many airlines and MROs still rely on paper records and wet signatures, and there are concerns around data ownership. That said, the COVID-19 environment, when travel to MROs was restricted, helped ignite an acceleration of digitisation efforts and the transition of many aircraft using digital documentation and electronic sign-off.

CDB Aviation supports moves to adopt the Spec 2500 standard for records and efforts by regulators to agree common standards. In the future, we look forward to the onset of a digital twin for each aircraft in the portfolio, updated automatically by airline systems.

Moving from paper to digital format



Sustainable Operations

Why it matters?

For CDB Aviation, taking steps to 'green' our offices and our work practices is about 'walking the talk'. We have a responsibility to minimise the environmental impact of our operations and promote sustainable behaviours in the workplace. While our operational emissions may be small relative to the emissions of our fleet, we have greater control and influence over them, and we are committed to reducing them as much as we can.

Key targets:

- Use of 100% renewable electricity at all CDB Aviation offices by 2023
- Zero waste to landfill across our offices by 2025

Key Actions for 2023:

- Switch to 100% green energy tariffs for all CDB Aviation offices
- Conduct waste audits at all CDB Aviation offices
- Calculate baseline carbon emissions from our operations (Scope 1, 2 and 3)
- Explore setting science-based targets for emissions reductions

We are committed to help build a more sustainable future for the aviation industry. We believe this transformation must begin at home – in our places of work and in our operations. To deliver on this promise, we are examining our carbon and environmental footprint across our business with a focus on moving to 100% renewable electricity, achieving zero waste to landfill, and taking other concrete actions to reduce our impact.

Greening our offices

We are proud to have our head office at 1 GQ Dublin, a state-of-the-art, sustainable building. Completed in 2018, the building has a LEED Platinum (core and shell) sustainability rating. Some of the key features include:

- Energy efficient LED lighting with motion sensors
- Full rainwater harvesting system on-site which helps to reduce water usage
- Extensive recycling and food composting facilities across the building
- All cleaning products used are LEED certified

Our Hong Kong Office is located at Three Pacific Place, in a state-of-the-art, sustainable building. The building has been awarded with a Platinum rating in the Beam Plus 2.0 sustainability scheme. Some of the key features include:

- Energy efficient LED lighting
- Extensive recycling and food composting facilities across the building
- Smart water meters being installed for all tenants to record their water usage

Like many businesses coming out of the COVID-19 pandemic, in 2021 we initiated a hybrid working model where staff members are able to work from home on Thursdays and Fridays, meaning the office is quieter on those days. This helps to reduce staff member commuting and energy consumption.



Energy

At the start of 2023, we switched to a 100% renewable energy tariff for our Dublin office. Thanks to the presence of motion sensor lights and the switch to hybrid working, our energy consumption at the Dublin office has decreased over the last few years, with electricity use for 2022 totalling 134,600 kWh against a 2019 baseline of 169,000 kWh.

The office is heated by a gas-fired central heating system, but this is rarely used thanks to the highly energy efficient design of the building and the quality of insulation. As a result, our Scope 1 emissions from heating are low (see page 34).



Waste

Across our offices we are proactive in trying to reduce waste. At our Dublin HQ, we have moved from decentralised individual waste bins to a centralised waste management system, which has increased the amount of waste recycled and composted. With the support of our building facilities manager, we have also implemented a take-back policy for any deliveries, whereby we insist vendors take packaging back offsite.

As a result of these efforts, we're proud to say that we are a zero waste to landfill office.



Waste recycled from 1GQ in 2022

Business travel

We are conscious that our business travel makes up a significant portion of CDB Aviation's carbon footprint. We work with our travel partners to ensure we travel efficiently and to keep track of the emissions our travel produces. Flights taken, and therefore emissions produced, were well down in 2020, 2021 and 2022 as the pandemic limited travel, but these levels are expected to rise in 2023.

Commuting

CDB Aviation's Dublin office location is at 1GQ, on the banks of the River Liffey. Given this central location, we encourage staff members commuting to our office to make use of the many modes of public transport (tram, train or bus) and active modes of travel (walking, running or cycling). At our Dublin offices, we have top-class facilities for bike riders (including shower facilities and bike storage) and we offer a cycle-to-work incentive scheme. We also have EV chargers onsite to enable the charging of vehicles.

Our Hong Kong office, at Three Pacific Place in Wan Chai, is also located at a convenient location with easy access to the local bus and train network. The train station that is directly connected to our office building is the interchange for 4 rail lines. Our hybrid working arrangements now in place also serve to significantly reduce the volume of office commuting by two days per week.



Biodiversity: the CDBees

At our Dublin offices, there are four beehives on the roof of the office building. These are home to some 120,000 bees that we like to call the CDBees. The hives are managed by the Federation of Irish Beekeeping Association. Twice a year, they gather the honey that the bees create and share it out among CDB Aviation staff members. In addition to the hives, wildflowers have been planted at the front of the office building to support the bees and other local biodiversity.

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Measuring our carbon footprint

CDB Aviation recently undertook a carbon footprinting exercise to measure the carbon emissions from our business. Working with expert consultants, data from across our value chain – Scope 1, 2 and 3 emissions – was gathered and analysed.

We took 2019 as our baseline year. CDB Aviation's carbon emissions across Scopes 1, 2 and 3 in that year were 6.6 million tonnes of CO2e. In 2022, our total emissions were 5.5 million tonnes of CO2e, which is a 16.6% reduction. This reduction can mainly be attributed to a reduction in ferry flights, business travel and energy use, alongside our fleet becoming more efficient. A full breakdown of our 2019 and 2022 emissions can be found in the Appendix on page 77.

The graphic on the right depicts the scale of the
various sources of carbon emissions across CI
Aviation's value chain in 2022. It illustrates the v
difference between our operational emissions
and the emissions related to our fleet of aircra
It highlights – very starkly - why increasing the
proportion of new generation aircraft in our fle
and using our influence to help advance progr
on SAF and new propulsion technologies acro
our industry is of paramount importance, as we
working to continually reduce emissions from
own operations.

	2019	2022
Scope 1	504.4	187
Scope 2	54.8	47
Scope 3	6,602,344	5,504,954
Total	6,602,904	5,505,188



Sustainable Finance

Why it matters?

Decisions made within the financial sector affect the pace at which we replace aging, carbon-intensive infrastructure and assets with reduced emissions alternatives and eventually, net-zero solutions. As part of the global financial sector, aviation lessors have a crucial role to play in driving aviation's decarbonisation and sustainable finance is an important lever we can deploy. For CDB Aviation, sustainable finance instruments such as sustainability-linked bonds, loans and leases are a key tool that we can leverage to positively influence the industry and help us to deliver on our sustainability strategy.

Key targets:

• Develop sustainability-linked leases and other innovative sustainable finance products by 2025

Key Actions for 2023:

- Actively engage with finance providers to introduce our first sustainable finance instrument in 2023
- Actively engage with airline customers to introduce our first sustainability-linked leases in 2023 as well as innovative finance products that incentivise lower emissions

⁴<u>https://www.wbcsd.org/Overview/News-Insights/WBCSD-insights/Sustainable-finance-taking-stock-and-maintaining-momentum</u>

Sustainable finance can be described as follows:

- A process of integrating ESG factors into financial decision-making
- A source of finance to support sustainable economic growth
- Encompasses transparency around ESG risks that may impact the financial system³

The objective of sustainable finance, whether achieved through voluntary adoption or through public policy, is to lead to more long-term investments in sustainable and climate-aligned economic activities and projects (aligned to the goals of the Paris Agreement on climate change).

Sustainable finance and aircraft leasing

From an aviation lessor perspective, the sustainable finance agenda impacts both sides of our balance sheet. On the lender / finance provider side, financial institutions are under pressure to consider climate-related financial risk and to deploy more capital to support net-zero and sustainable transitions in the real economy. Institutional investors are setting out clear expectations on ESG performance. All major banking players in sustainable finance have announced firm-level commitments⁴, whilst sustainable debt issuance worldwide raised \$863 billion in 2022.⁵

The largest asset owners, asset managers and banks are joining together and committing to net-zero emissions across their portfolios by 2050 through the development of various alliances and coalitions.⁶

To ensure we continue to positively position CDB Aviation to the capital markets, we need to be aligned with the ESG objectives of our shareholder, our bondholders, and our banking partners. As part of our stakeholder engagement and materiality assessment, we commenced a dialogue with several of our banking partners, along with our shareholder, to understand their objectives and where the risks and opportunities lie for us to use sustainable finance instruments as a tool for maintaining access to capital and attractive pricing.

In 2023, we are committed to arranging our first sustainable finance instrument to maintain good access to capital, which will be linked to CDB Aviation's sustainable fleet target (the percentage of new generation aircraft) and other appropriate metrics.

In parallel, and at the other end of our balance sheet, we will engage with our airline customers and key suppliers seeking their co-operation for improvements in their ESG performance. Sustainability-linked leases, where pricing is linked either to the carbon emissions performance of the underlying aircraft or of the airline as a lessee, are being explored for introduction in 2023.



³ <u>https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance_en</u>

⁵ Bloomberg article, 5 January 2023.

⁶ Including the Net Zero Asset Managers Initiative, the Net Zero Asset Owner Alliance, Net Zero Banking Alliance, Glasgow Financial Alliance for Net Zero, Paris Aligned Investment Initiative.

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There was a time when lessors tended to expect other participants in the aviation value chain to take more responsibility for emissions – we were not the aircraft operators after all. It is fair to say that time has passed. Lessors now own more than half of the global fleet, and we are increasingly cognisant of the pivotal role we play in enabling global connectivity, facilitating the future growth of air travel and our responsibility towards reducing emissions and supporting decarbonisation in the decades to come. At CDB Aviation, we take that leadership obligation very seriously.



Cronan Enright, Head of Strategy, CDB Aviation Member of the Sustainability Working Group CDB Aviation Sustainability F



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