



# ENVIRONMENT



**Our ambition is to be Net Zero carbon by 2050.**

We are paving the way for an industry transition through building a more sustainable fleet, utilising sustainable finance and supporting SAF development.





Average  
Fleet age  
today

5.1

years

50%

Proportion of  
new generation  
aircraft in fleet  
today

60%

Target proportion of new  
generation aircraft by  
end of 2025

57%

Share of lease and  
finance income  
from new generation  
aircraft



67 grams  
CO<sub>2</sub>/ASK

Emission intensity in 2023  
vs 75 grams CO<sub>2</sub>/ASK  
in 2019



20-25%

Lower emissions from  
new generation  
aircraft types

Introduced sustainable  
investing metrics in  
all investment  
underwriting  
decisions



12%

Reduction in CDB  
Aviation relative  
CO<sub>2</sub> emissions  
since 2018

# SUSTAINABLE FLEET

## Why it matters?

Our fleet is responsible for the majority of the carbon emissions associated with our business – some 99.96% of our total emissions in 2023. For this reason, transitioning to a sustainable fleet is the single most important thing CDB Aviation can do to reduce our impact on the environment. It requires us to invest in next-generation, fuel efficient aircraft, and embrace SAF and new propulsion technologies to achieve our goal of Net Zero emissions by 2050.

## Key targets:

- New generation aircraft to make up 60% of our fleet by 2025 and 80% by 2030
- Net Zero emissions from our fleet by 2050

## Key Actions for 2024:

- Continue to increase the proportion of new generation aircraft in our portfolio as part of the CDB Aviation Sustainable Fleet Initiative
- Share our Net Zero Roadmap externally through our sustainability report
- Set targets beyond 2025 for portfolio mix and relative emissions
- Explore CDB Aviation Green Weighting Factor to assess airline customer sustainability
- Continue passenger to freighter (P2F) programme to extend the life of mid-life aircraft
- Seek common sustainability reporting metrics across lessors to foster greater transparency and comparability

CDB Aviation has developed and implemented a Sustainable Fleet Initiative which commits us to investing in new generation aircraft in pursuit of a transformation of our fleet. Our target, by 2030, is to have 80% of our fleet comprised of the most fuel-efficient and lowest emission types of aircraft. Looking to the future, we have developed a Net Zero 2050 Roadmap and built a framework around Sustainable Finance to help fund our transformation.

## Fleet Management

During 2023, CDB Aviation delivered on its commitment to continue to invest in new generation aircraft, reaching the milestone of 50% of these aircraft in our fleet portfolio (based on aircraft count) and putting us on course to meet our interim target of 60% in 2025. In the broader industry, new generation aircraft constituted less than a third of the fleet of jet aircraft in service at the end of 2023.

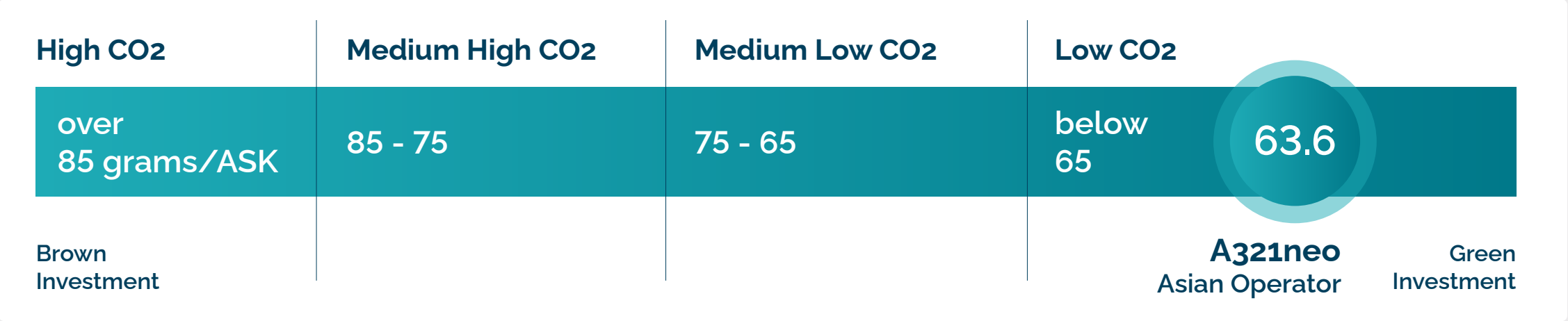
In 2023, we added 26 new generation aircraft to our fleet and exited nine older generation aircraft, to drive this relative improvement from 46% to 50% of more fuel efficient, new generation types.

Our fleet consists of 293 aircraft today – regional, narrowbody, widebody and freighter assets – with an average age of 5.1 years. Of these, 147 are the latest generation available in their segment (Airbus A320neo Family, A330neo, A350 and Boeing 737 MAX, 787). In 2023, a total of 57% of our lease income came from these latest generation aircraft, which are 20-25% more fuel efficient and less CO2 intensive per seat than the generation of aircraft they replace. In addition, we lease the lowest emission medium-widebody freighter through the A330 P2F, which has a 12% lower emissions per tonne of payload than the type it replaces.

New generation aircraft are also quieter and less polluting than older aircraft. For example, the 737 MAX 8 has a 50% less noise footprint than the previous generation 737-800. Similar reductions in noise can be seen in the A320neo, A330neo, A350 and 787s. Other benefits include reduced air pollution with A320neo NOx emissions up to 49% below CAEP/6 (Committee on Aviation Environmental Protection) standards.

## Sustainable Investing Metrics

CDB Aviation now includes sustainability metrics in all investment underwriting decisions. Investments are rated to ascertain whether they help us meet our sustainability goals or not on a scale from High CO2 (brown investments) to Low CO2 (green investments). Mitigation actions are recommended if the investment does not meet ascribed goals.





# OUR NET ZERO ROADMAP

In 2023, air traffic increased by 37% compared to 2022 as world travel continued to recover from the pandemic. Airbus and Boeing forecast traffic to increase at a rate of 3.6-3.7% annually over the next two decades. Without any intervention by 2050 (that is, assuming keeping the current fleet and current level of operational efficiency), the forecasted level of activity would generate approximately 2,800 million tonnes of CO2 and require over 620 Mt of fuel.\*\*

SAF is fundamental to decarbonising the aviation sector – IATA expects it to account for 65% of the improvements needed to reach Net Zero by 2050. Yet, SAF constituted just 0.2% of aviation fuel in 2023. Production of SAF doubled to 0.6 billion litres in 2023 with the expectation that 449 billion litres will be needed by 2050.

Against this backdrop, CDB Aviation in 2023 committed to developing its first Net Zero Roadmap with a focus on how our aircraft portfolio is forecast to perform over the subsequent 27 years. The purpose is to set challenging near-term targets and develop near-term actions that drive tangible results, while also clarifying CDB Aviation's long-term goal of achieving Net Zero by 2050.

With committed aircraft orders and anticipated acquisitions, CDB Aviation expects to continue to grow its aircraft portfolio size over the next decade. The impact of this growth is likely to see our level of absolute carbon emissions increase between now and 2030; even with our shift to purchasing more new technology aircraft, we simply do not expect there to be sufficient uptake of SAF in the industry before 2030 to allow a reduction in our absolute carbon emissions. Today, SAF is both in short supply and significantly more costly than conventional Jet A1 fuel, two drivers that we expect will improve as we reach 2030 and into the next decade.

Over the subsequent timeframe to 2050, we expect our emissions intensity level to rapidly improve as we invest based on sustainable criteria and see SAF usage increase in the industry. However, this improvement in performance is likely to first plateau as we get closer to 100% new generation aircraft, until such time that SAF usage grows to 10% and then further accelerates.

CDB Aviation believes two major pillars will drive our fleet to decarbonisation. The first and most impactful in the medium term is the increased use of SAF, as significant additional refining capacity comes on stream towards the end of this decade.

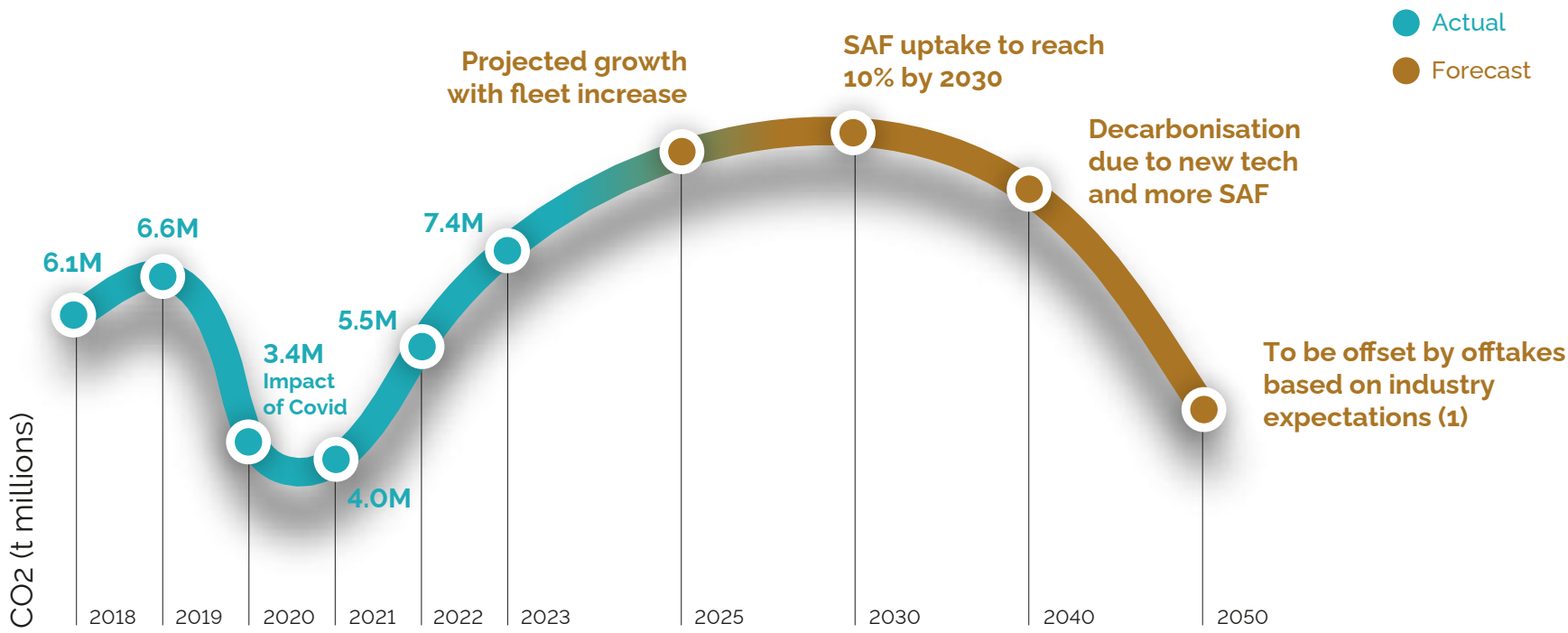
The second accelerator to reduce emissions will come from new technology – meaningful developments in propulsion technology as well as hybrid-electric and hydrogen aircraft, particularly for sub-100 seats aircraft. While CDB Aviation expects hybrid-electric aircraft like Heart Aerospace's ES-30 to enter into service before 2030, we do not expect the same level of new technology development to be implemented on narrowbody aircraft at scale before 2040 and widebody aircraft before 2050.

That said, we are optimistic about the positive impact of technologies such as GE / Safran's RISE open-rotor engine design, designed to reduce narrowbody aircraft fuel burn by a further 15% compared to current LEAP technology from the mid-2030s.

CDB Aviation commits to updating our stakeholders on our progress against targets each year as outlined in our Net Zero Roadmap which is set out on the next page.

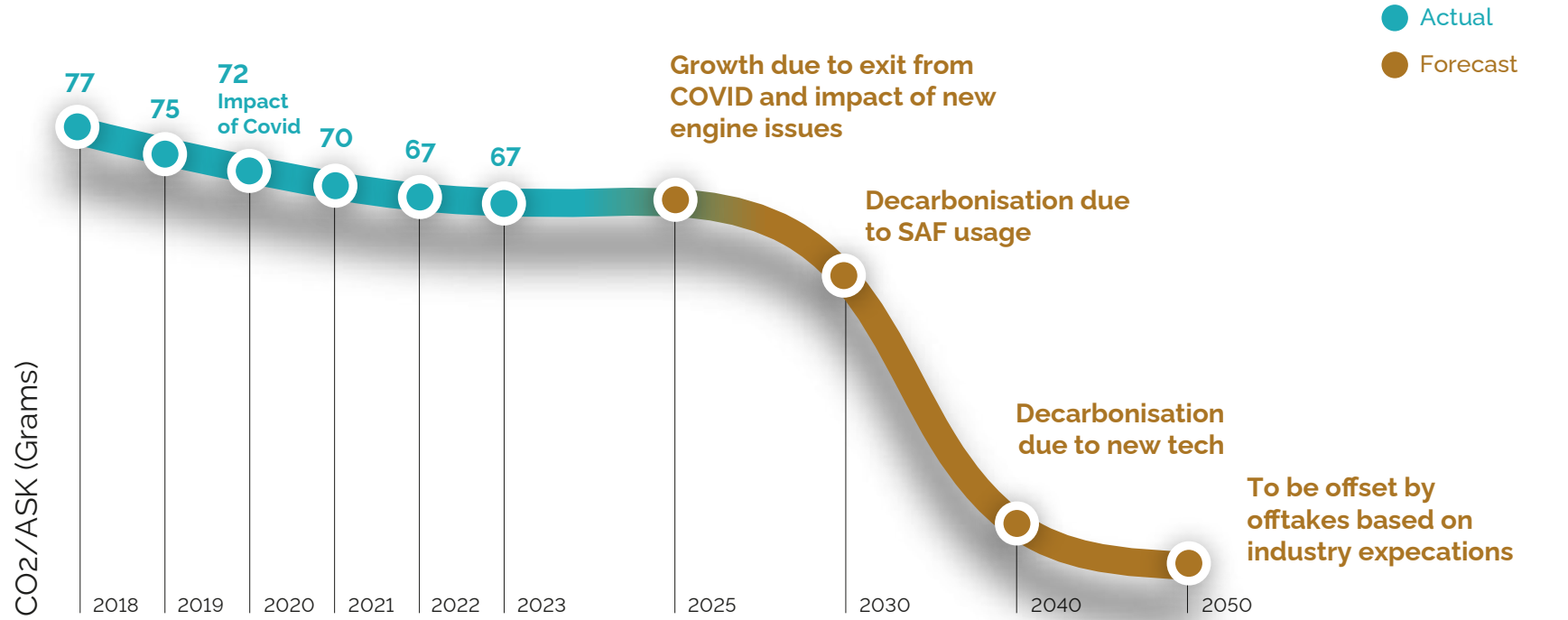
\*\* (Waypoint 2050 Report)

## CDB Aviation's Fleet Emission Roadmap

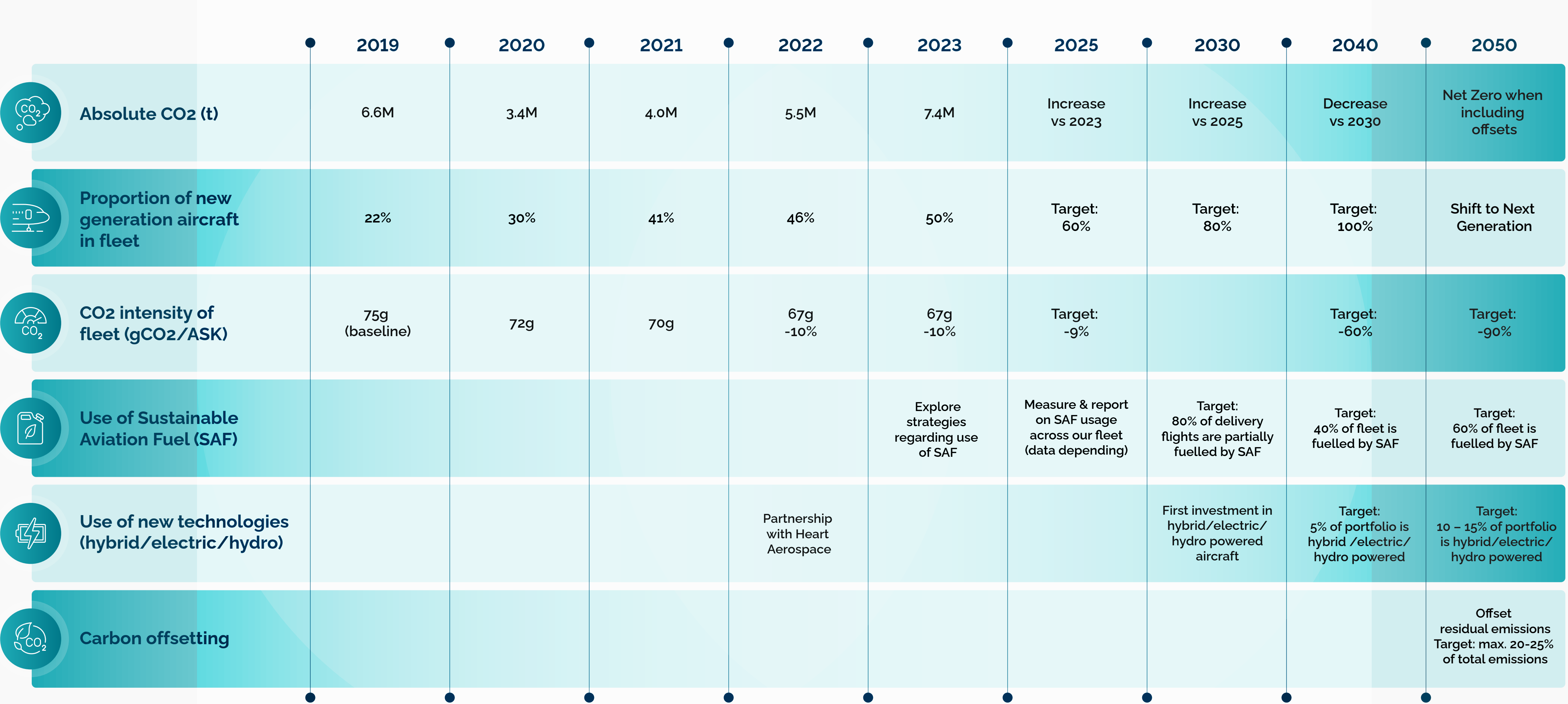


(1) Based on IATA NetZero 2050 with 19% of 2050 reductions coming from offsets and carbon capture

## CDB Aviation's Fleet Emission Intensity Roadmap



# OUR NET ZERO ROADMAP





# MEASURING THE CARBON FOOTPRINT OF OUR FLEET

In 2023, Scope 3 emissions from our fleet were 12% higher than our baseline year of 2019. CDB Aviation's fleet emitted 7.4m tonnes of CO2 in 2023, 1.9m tonnes more than the previous year as aircraft were significantly more active due to continued industry recovery from the pandemic, in addition to a 24% increase in the size of our fleet from 236 to 293 aircraft.

For reference, IATA reported 37% more Revenue Passenger Kilometres (RPKs) and 31% more Available Seat Kilometres (ASKs) in 2023 versus 2022. This was also reflected in the utilisation of our fleet as CDB Aviation aircraft flew 22% more ASKs (per aircraft) in 2023 versus 2022. Compared to our base year 2019, our fleet produced 1% fewer ASKs (per aircraft).

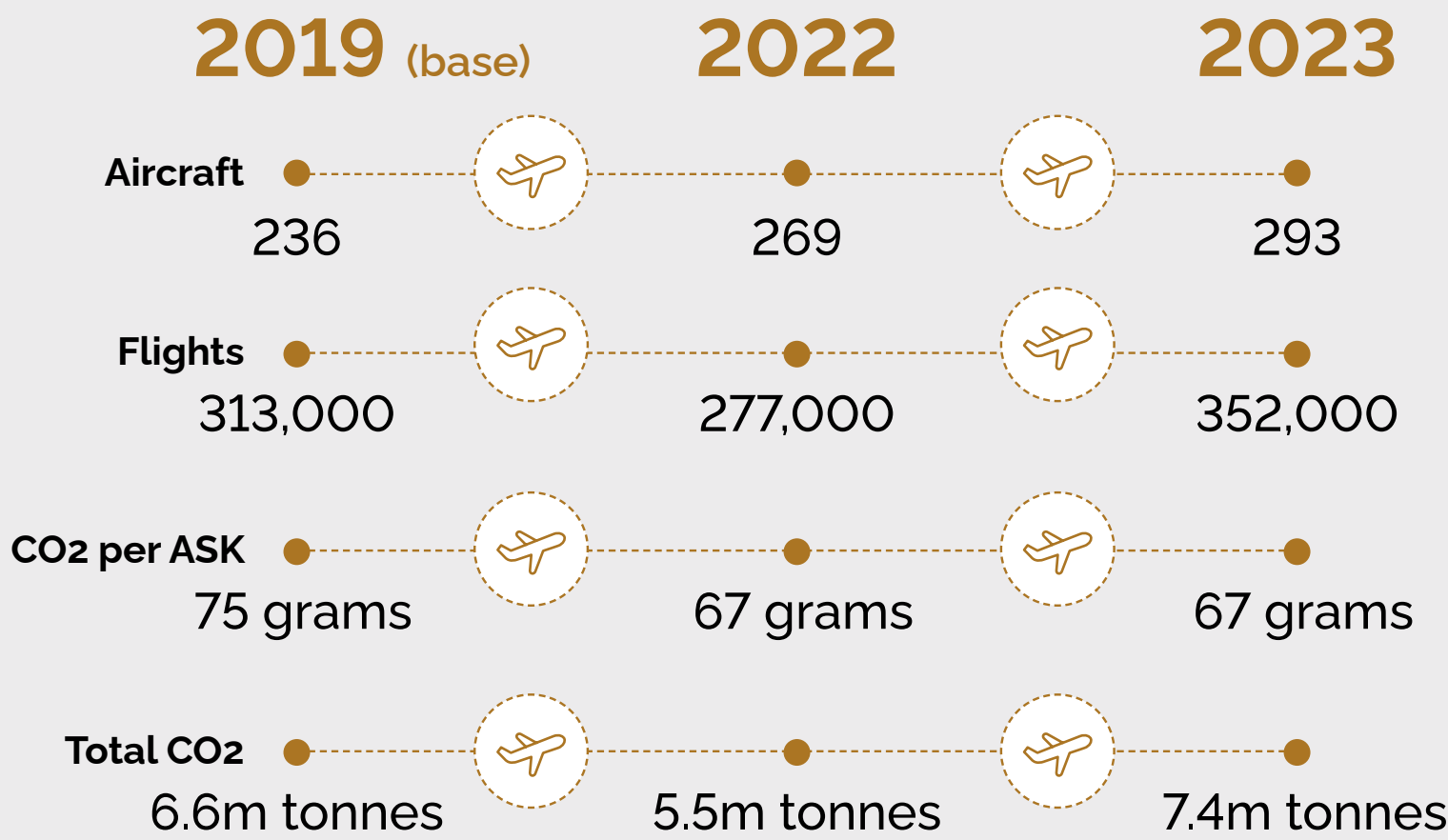
Overall, CDB Aviation's relative emission intensity in 2023 steadied at 67 grams (2022: 67 grams) even though the portion of our fleet that is new generation increased from 46% to 50% year-on-year.

This was due to airlines returning into service their older and less fuel-efficient aircraft as demand recovered, in addition to ongoing issues with certain new generation aircraft/engines that resulted in groundings.

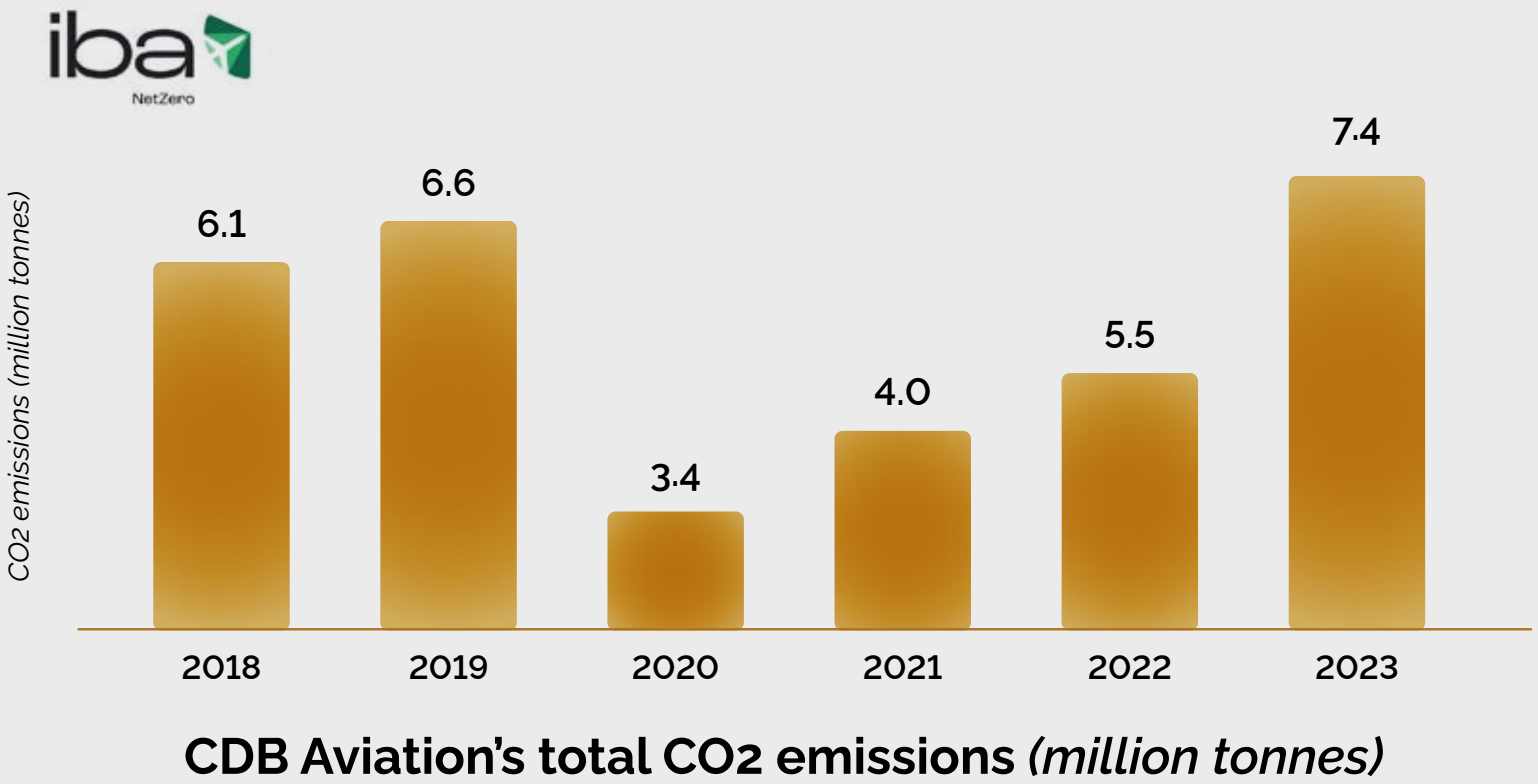
The fuel uploaded for delivery or ferry flights of aircraft is classified as Scope 1 for lessors and is usually the only aviation fuel that they purchase during the year (with airlines responsible for their own fuel requirements once aircraft are on lease). In 2023, CDB Aviation had 22 new aircraft delivery flights to new lessees (both direct order and SLBs) and 21 ferry flights to follow-on lessees or to/from storage locations. These 22 new aircraft delivery flights created 1301.2t CO2e, 0.02% of our total emissions.

For full details on our total carbon emissions across scopes 1, 2 and 3, see Sustainable Operations page 26 and Appendix page 66.

Comparison of CDB Aviation fleet emissions data in 2019, 2022 and 2023



Absolute fleet CO2 emissions from 2018 to 2023  
Fleet productivity from 2020 to 2022 was heavily influenced by Covid-19 pandemic



## Extending Aircraft Life

In 2023, CDB Aviation delivered two more A330 aircraft in its ongoing support of the passenger to freighter (P2F) initiative and now has four such aircraft in our fleet, with 2 more undergoing conversion. The A330 P2F is the most advanced and efficient medium widebody freighter aircraft in its class, offering a double-digit improvement in emissions versus the legacy generation aircraft it replaces.

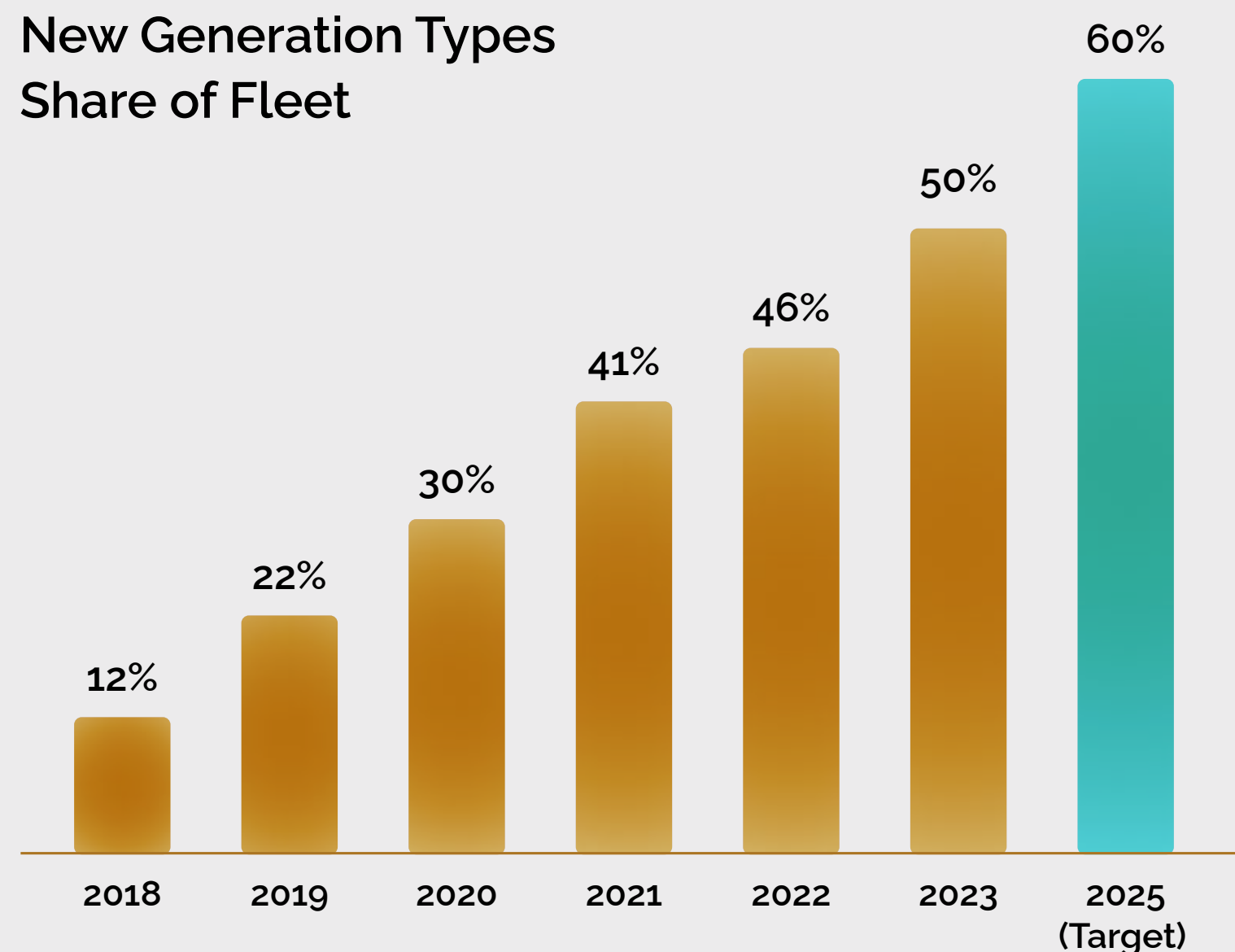
In May 2023, CDB Aviation delivered China's first-ever converted A330 P2F to Sichuan Airlines, making the aircraft the first A330-300 P2F to operate in China. The A330 was converted by STARCO at its Shanghai Pudong facility.

CDB Aviation also partners with TARMAC Aerosave, the leading provider worldwide of aircraft and engine green recycling. TARMAC has a recovery rate of 90% of total weight as recognised by ISO 14001 certification. No aircraft were parted out by CDB Aviation in 2023.



## CDB Aviation Newgen Types - up from 12% in 2018 to 50% by 2023

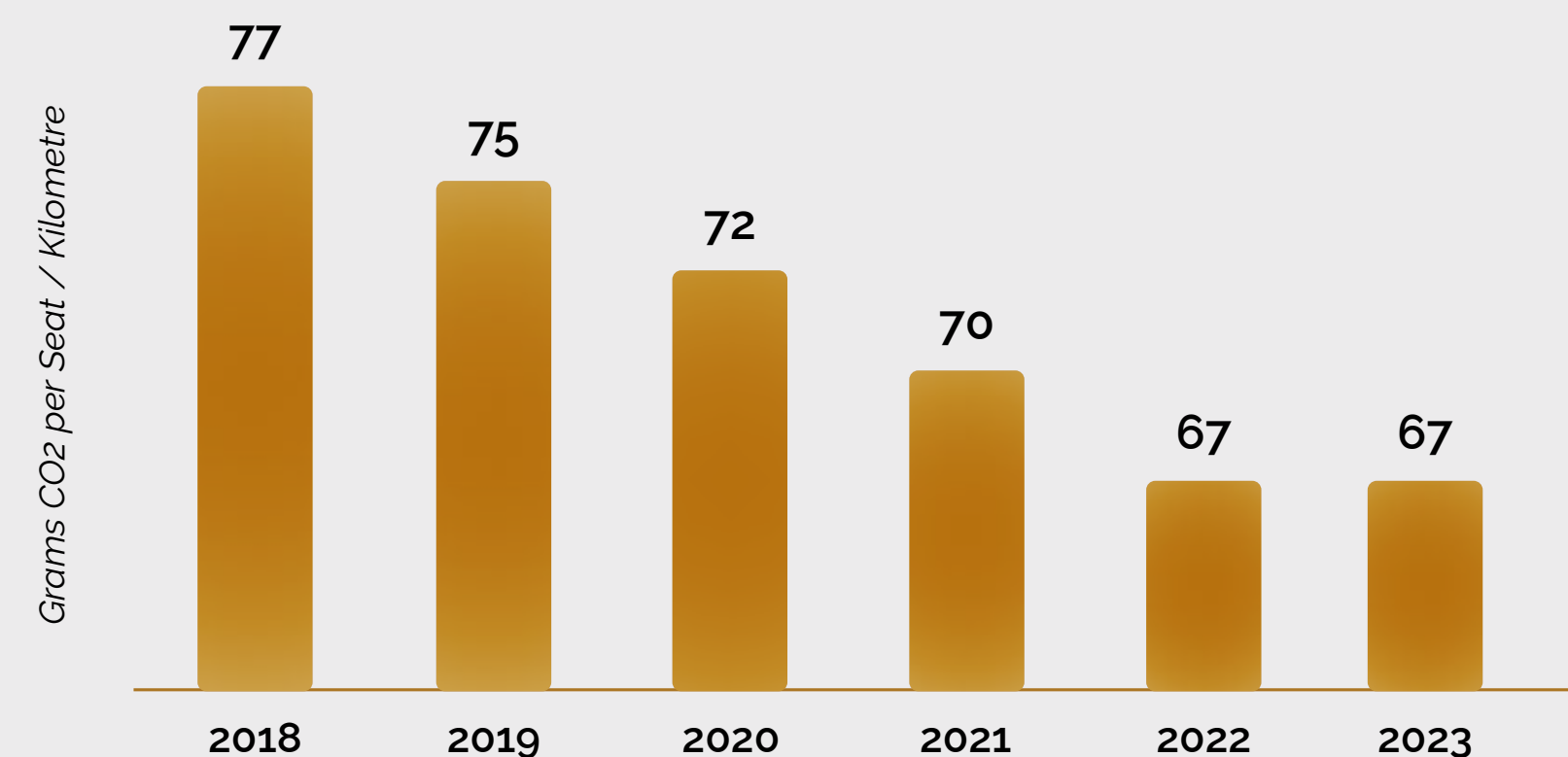
New Generation Types  
Share of Fleet



**Note:**  
In the interest of transparency, Newgen share is by aircraft count and not asset CMV

## CDB Aviation CO2 Emissions Improvement 2018 to 2023 -12%

Relative CO2 Emissions  
(Grams per Available Seat / Kilometre)



**Source:** IBA NetZero Emissions data for the CDB Aviation fleet



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**12% improvement in the CO2 emissions intensity of CDB Aviation's fleet since 2018**





# 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.

Looking to the future, together with ALI peer lessors, CDB Aviation has joined a group of other lessors in funding research into the development and commercialisation of sustainable aviation fuel in Ireland at two universities, Trinity College Dublin and University of Limerick, over a four-year period commencing in 2024.

ALI represents over 40 aircraft leasing companies which are headquartered or have operations in Ireland, which is the leading centre for aircraft leasing globally and is a high growth sector of international financial services representing approximately US\$100 billion of assets.

Ireland's aviation leasing industry contributes US\$975 million to Ireland's economy, supporting nearly 8,600 jobs.

The projects will promote research, development and innovation that is critical to enabling the production of SAF in Ireland, and globally. It will train SAF literate PhD and Master level graduates and improve the state of science and engineering knowledge that underpin SAF production technologies. The overall goal is to understand the business for SAF production in Ireland.



## CDB Aviation supporting new technologies

Building a truly sustainable future for the aviation industry will require a transformation in aircraft propulsion technologies – the physics that enables aircraft to fly over distance. These next-generation technologies are focused on delivering electric battery and hydrogen solutions.

In pursuit of this ambition, CDB Aviation is a member of Heart Aerospace's Industry Advisory Board, providing practical advisory support to the Swedish company as it seeks to develop the world's largest hybrid electric regional aircraft by 2030.

Heart Aerospace is seeking to enter into commercial service with its 30-seat ES-30 aircraft by 2028. The ES-30 is a regional hybrid-electric airplane and will have a fully electric zero emissions range of 200 km, an extended hybrid range of 400 km with 30 passengers, and flexibility to fly up to 800 km with 25 passengers. The company has firm orders from the industry for 250 ES-30s.

In November 2023, CDB Aviation participated in a gathering of the Industry Advisory Board in Gothenburg focused on discussing key design elements, supplier selections, charging infrastructure and the path to certification. The members of the Industry Advisory Board assist in defining the requirements for the ES-30 and their inputs progress the development and accelerate time to entry into service.



Separately, CDB Aviation closely monitors industry developments including the promising Revolutionary Innovation for Sustainable Engines (RISE) programme, a joint venture between General Electric and Safran. RISE is developing new propulsion technologies aimed at providing the next generation of narrowbody aircraft by the mid-2030s. The new technologies could reduce fuel consumption and CO2 emissions by more than 20% compared to today's most efficient engines. CDB Aviation will continue to track the development of the RISE architecture as we plan for our fleet requirements post 2030.



# CDB AVIATION SUSTAINABLE FLEET REPORTING GUIDELINES

CDB Aviation is building its sustainability reporting capabilities in preparation for CSRD and other disclosure requirements in the coming years. With Maximising Our Influence on the aviation industry a key pillar of our sustainability strategy, we have been in regular dialogue with our peers as to how lessors should report on environmental sustainability matters to do with the impact of their fleet.

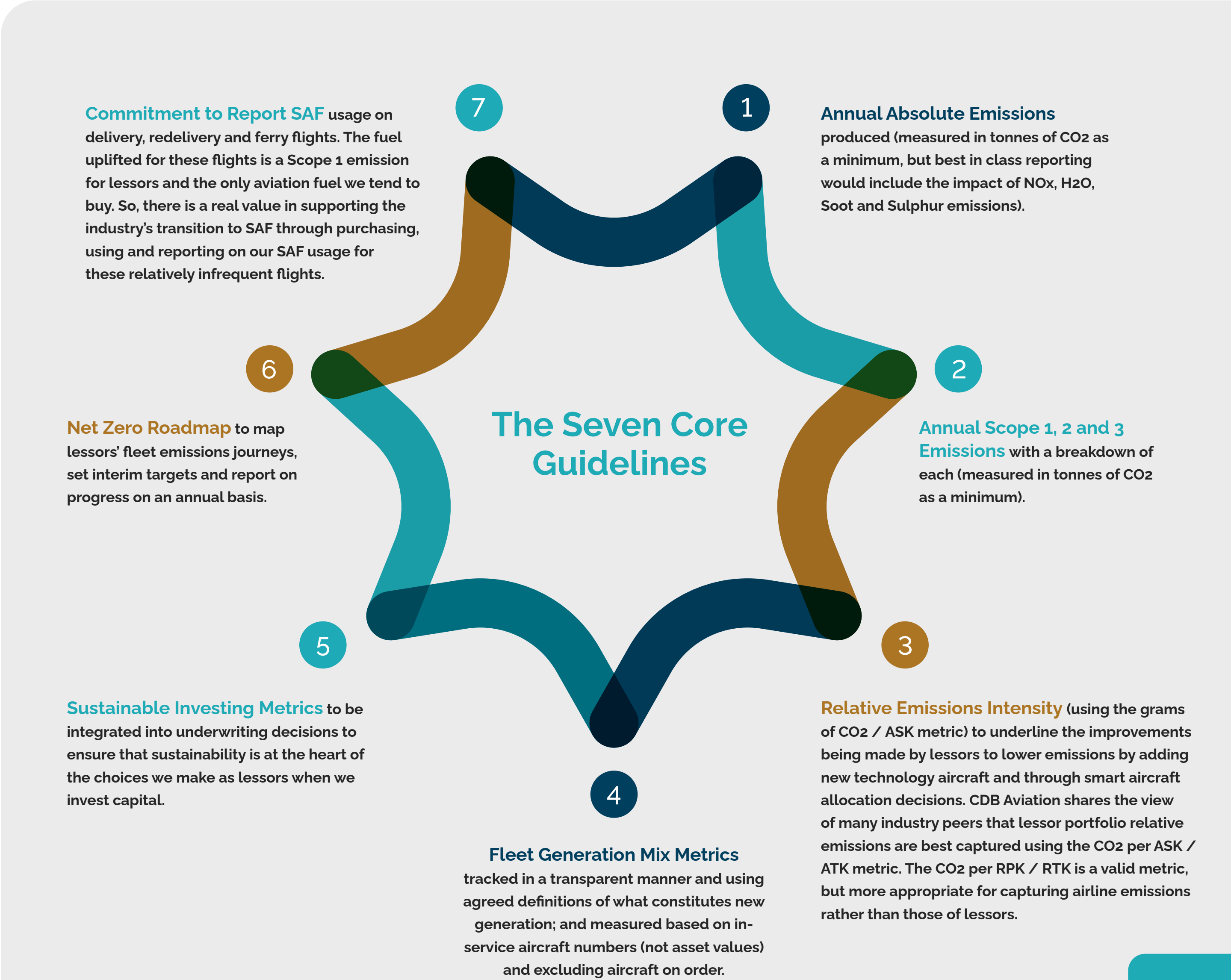
Our purpose is to seek a consensus in the leasing sector to agree on common standards for reporting and disclosures related to a lessors' portfolio and their transition to a sustainable fleet.

The environmental issues associated with climate change are a common problem which require a common solution. We believe a widespread adoption of common standards would promote transparency and comparability, providing a basis for the industry to be assessed and to help avoid allegations of greenwashing.

We recognise that each leasing company is free to choose its own pathway on reporting, but in the spirit of engagement and advocacy we have developed a draft set of core standards that we are sharing in this report and which could, in all or in part, provide a basis for an agreed set of standards.

The seven core guidelines are:

1. **Annual Absolute Emissions** (tonnes of CO<sub>2</sub>)
2. **Annual Scope 1, 2 and 3 Emissions** Breakdown (tonnes of CO<sub>2</sub>)
3. **Relative Emissions Intensity** (grams of CO<sub>2</sub>/ASK)
4. **Fleet Generation Mix Metrics** with agreed definitions
5. **Sustainable Investing Metrics** Integrated into Underwriting Decisions
6. **Net Zero Roadmap** with Interim Targets
7. **Commitment to Use and Report SAF** on Delivery / Redelivery / Ferry Flights





# SUSTAINABLE OPERATIONS

## Why it matters?

CDB Aviation seeks to reduce its environmental impact across our business including developing a sustainable workplace. The impact associated with our operations amount to a relatively small proportion of our overall emissions, but nevertheless requires our focus as part of our commitment to building a sustainable culture and organisation.

## Key targets:

- Continue to improve energy and water efficiency and reduce waste in our offices, year-on-year
- Continue to reduce the carbon footprint of our operations, year-on-year

## Key Actions for 2024:

- Implement measures to reduce energy use, water use and waste in our offices
- Measure and report our total carbon footprint across Scopes 1, 2 and 3 and evolve our emissions reporting to go beyond direct CO2 emissions and include other GHGs

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**Our head office at 1GQ Dublin is certified LEED platinum (core and shell)**

We are committed to help build a more sustainable future for the aviation industry. We believe this transformation must begin in our places of work and in our operations. New technologies in buildings and operations are enabling significant improvements in environmental outcomes so there is an onus on companies operating in financial services to deliver sustainable workplaces.

## Sustainable office buildings

We are proud to have our head office at 1GQ Dublin, a state-of-the-art sustainable building. Completed in 2018, the building has a LEED Platinum (core and shell) sustainability rating. Our Hong Kong Office, located at Three Pacific Place, is also 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.

In 2023, 1GQ's management undertook multiple projects to improve the building's sustainability, including the addition of four EV chargers, in addition to providing facilities for electric bike and scooter charging. It also commissioned an energy audit from experts IES to help identify further areas to improve the building's efficiency and reduce its use of natural resources.





Greening our operations

In 2023, we took various steps to improve the environmental sustainability performance across our operations. Key highlights include:



**Environmental policy:**  
We formalised and documented our company's Environmental Policy to give staff, suppliers and customers an overview of our commitment to environmental sustainability.



**Energy:**  
Energy consumption in our Dublin office in 2023 was 148,573 kWh. This was a slight increase on our 2022 usage (134,600 kWh) and reflected a continued return to the office post-Covid-19, but it is still below our 2019 baseline of 169,000 kWh.



**Waste:**  
We are proud to say that our Dublin office is a zero waste-to-landfill office. The breakdown of the waste from our Dublin office can be seen in the figure on the right.



**Water:**  
CDB Aviation is aware and recognises the importance of minimising water use at our sites and minimising our impacts on this vital global resource. In our Dublin office, we have water efficient fixtures in place. In 2023, CDB Aviation used 881 m³ of water in our Dublin and Hong Kong offices.



**Hong Kong office:**  
In our Hong Kong offices, we've installed a water meter allowing this data to be incorporated to this year's report. In 2024, we hope to install energy efficient lighting and gather more granular data on the waste we produce.



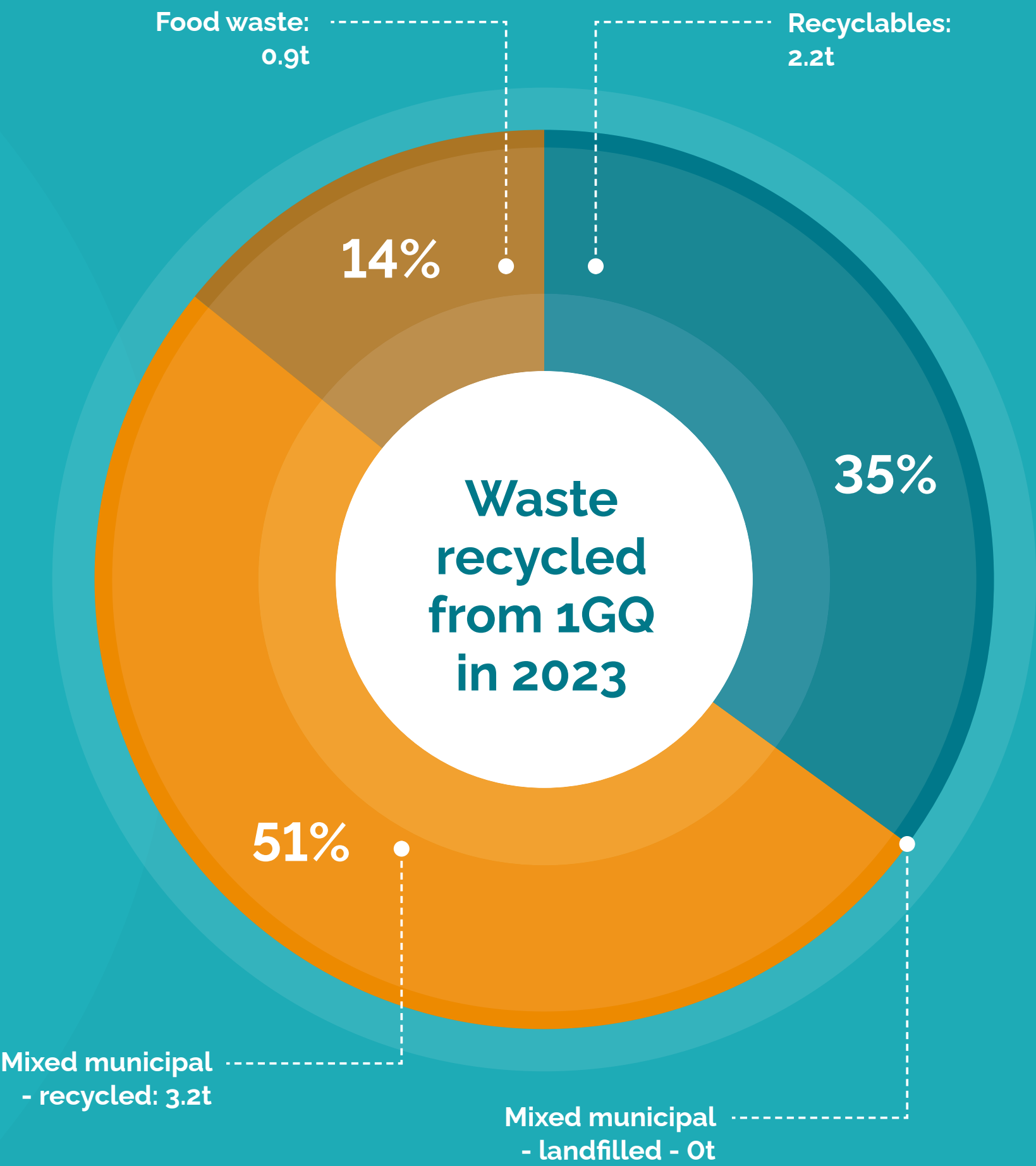
**Biodiversity:**  
The CDBees consist of four beehives on the roof of our Dublin office building. These are home to some 120,000 bees that are managed by the Federation of Irish Beekeeping Association. Each year they provide CDB Aviation staff members with delicious honey!



**Business travel:**  
We work with our travel partners to ensure we travel efficiently and to keep track of the emissions our travel produces.



**Commuting:**  
Our centrally located offices in both Dublin and Hong Kong encourage staff members to commute via the many modes of public transport (tram, train or bus) and active modes of travel (walking, running or cycling) available to them. In Dublin, we have top-class facilities for cyclists (including shower facilities and bike storage) and we offer a cycle-to-work incentive scheme.





# MEASURING OUR CARBON FOOTPRINT

CDB Aviation measures the carbon emissions from our business annually, with our Scope 3 emissions from our portfolio tracked on an ongoing basis. We selected 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 CO<sub>2</sub>e.

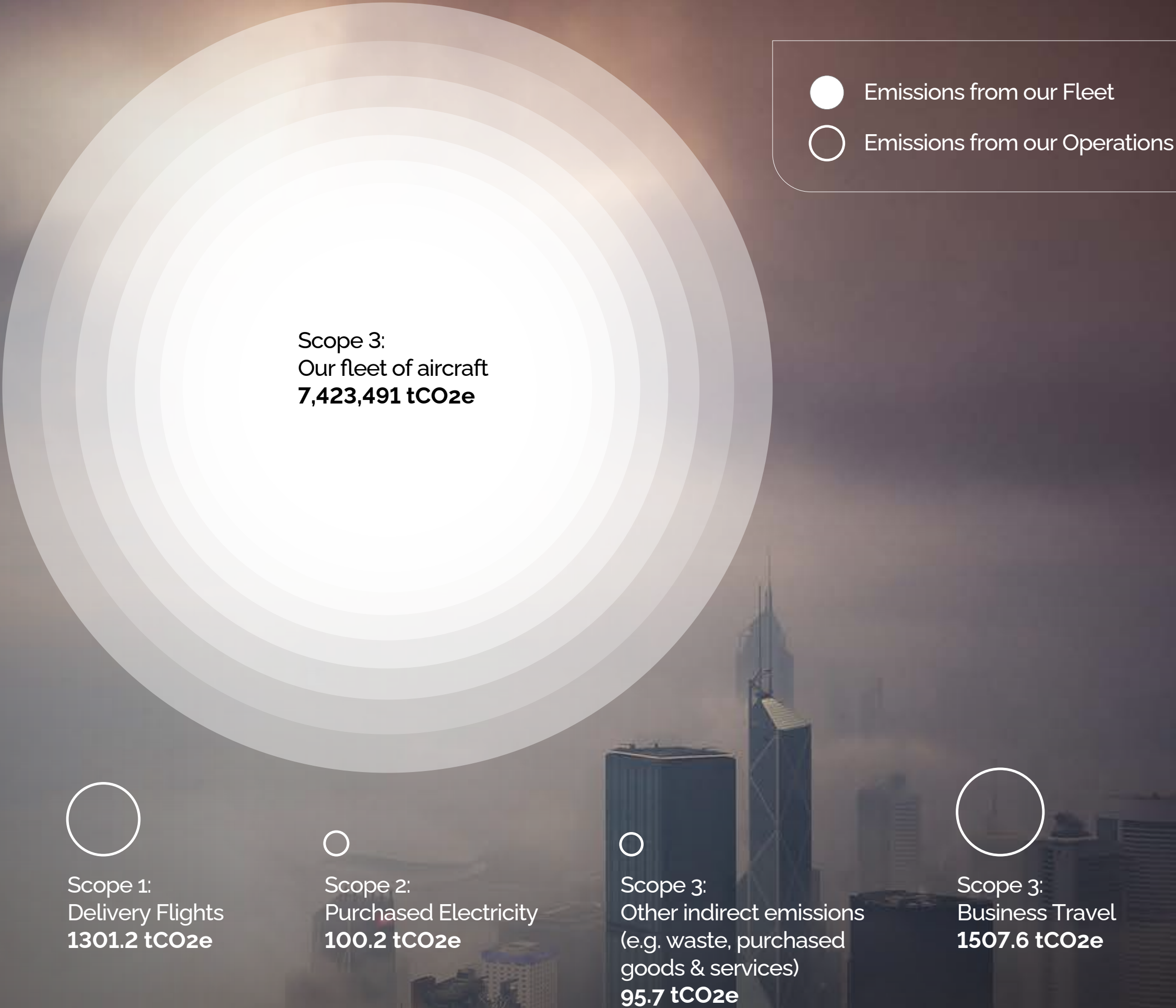
In 2023, our total emissions were 7.4 million tonnes of CO<sub>2</sub>e, which is a 12.5% increase versus our 2019 baseline. The emissions from our fleet grew in 2023 due to an increase in the number of aircraft in our portfolio (See full details in Measuring the carbon footprint of our Fleet). A full breakdown of our emissions can be found in the Appendix on page 66.

The graphic on the right depicts the scale of the various sources of carbon emissions across CDB Aviation's value chain in 2023. It illustrates the vast difference between our operational emissions and the emissions related to our fleet.

It highlights very starkly why increasing the proportion of new generation aircraft in our fleet and using our influence to help advance progress on SAF and new propulsion technologies is of paramount importance, as well as working to continually reduce emissions from our own operations.

	2019	2022	2023
Scope 1 tCO <sub>2</sub> e	499	183	1,301
Scope 2 tCO <sub>2</sub> e	50	95	100
Scope 3 tCO <sub>2</sub> e	6,602,595	5,505,040	7,425,094
Total	6,603,145	5,505,318	7,426,496

Note: some of the 2019 and 2022 figures shown here have been re-stated from our 2022 sustainability report. This is due to a combination of more accurate data being available, enhancements in the measurement methodology, and a re-allocation of some emissions to alternative activities categories.





# SUSTAINABLE FINANCE

## Why it matters?

In aviation, sustainable finance has a crucial role to play. Sustainability-linked loans, sustainability-linked leases and other innovative financing mechanisms will help to drive change in replacing legacy, carbon-intensive aircraft with more fuel efficient, lower carbon emitting ones.

## Key targets:

- Develop sustainability-linked leases and other innovative sustainable finance products

## Key Actions for 2024:

- Actively engage with finance providers to introduce additional sustainable finance instruments to continue the success of our first SLL
- Actively engage with airline customers to introduce our first sustainability-linked leases as well as innovative finance products that incentivise lower emissions



**CDB Aviation announced a landmark transaction as the world's first syndicated SLL in the aviation leasing industry**

In December 2023, CDB Aviation announced the completion of a Sustainability Linked Loan (SLL) involving a \$625 million syndicated three-year term loan facility – a landmark transaction as the world's first syndicated SLL in the aviation leasing industry.

SLLs are increasingly being used as a financing means for industry players to improve their overall commitment to ESG and anchor their business decisions towards more sustainably-minded goals and outcomes.

The terms of this financing arrangement are linked to CDB Aviation achieving certain predefined Sustainability Performance Targets (SPTs) based on three key performance indicators:

- Reducing the carbon emission intensity of our fleet (Scope 3 emissions, CO2/ASK)
- Increasing the share of new generation aircraft (pursuing the 2025 target of 60% of new generation aircraft)
- Increasing the level of ESG and DEI-related training for our workforce

In setting an emission intensity SPT, we are linking the loan terms to how our customers operate the aircraft we lease to them. This imposes a discipline on CDB Aviation to focus on not only leasing next-generation aircraft but also finding lessees who operate the aircraft most efficiently and who use the highest proportion of SAF.

Delivery of the \$625 million facility was completed by financing from a group of banks including Crédit Agricole CIB, BNP Paribas, HSBC, Natixis Corporate & Investment Banking, China Minsheng Banking Corp, China Guangfa Bank, and China Construction Bank Corp.

Crédit Agricole CIB acted as a sole Sustainability Agent, as well as lead Sustainability Structuring Advisor jointly with BNP Paris and HSBC.

Ratings agency Moody's Investors provided a Second Party Opinion, confirming the facility conformed to SLL Principles with a sustainability rate of SQS2, considered best in class for aircraft lessors. Moody's rating of the loan SQS2 highlights the strong positive influence the loan will have on CDB Aviation going beyond business as usual to achieve the SPTs and the ambitiousness of the targets. This financing has been multiple-award winning.



Airline Economics 'Sustainable Finance Deal of the Year' award



Ishka 'Most Innovative Deal of the Year' award







## Our Sustainable Finance Strategy

A key consideration for CDB Aviation in the planning of the SLL and in its outcomes was our desire to also create a framework for a sustainability loan that could be replicated and reused in the coming years. The success in achieving the world's first syndicated SLL in aviation leasing will enable us to consider further SLLs in the future as we work towards IATA's Net Zero target.

Moody's rating of the loan at SQS2 (Sustainability Quality Score - very good) highlights the strong positive influence the loan will have on CDB Aviation going beyond business as usual to achieve the SPTs and wider targets.

An important outcome of Sustainable Finance is rewarding sustainable activities with more competitive pricing, and as such, incentivising positive behavioural change in favour of more sustainable outcomes.

In addition to the environmental SPTs, it was important for CDB Aviation to include a strong social target with ESG and DEI training hours as the company is committed to building industry leadership positions in DEI. The benefits of this enhanced training programme will be seen in future years and aligns with the Maximising our Influence pillar of our sustainability strategy by educating and empowering everyone at CDB Aviation on key ESG topics.

As the SLL was signed in December 2023, the main positive outcomes and impacts of the loan on emission intensity and overall emissions will accrue in future years as the penetration of new generation aircraft increases.

In parallel with the SLL, 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. With this in mind, among our key actions in 2024 is to explore the introduction of sustainability-linked leases, where pricing is linked either to the carbon emissions performance of the underlying aircraft or of the airline.



**Our key action in  
2024 is to continue  
on the momentum of  
our first sustainability-  
linked loan**





**CDB**  
AVIATION

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