December 2023

Emissions Intensity 2022

Nordic Aviation Capital

Environmental Alignment

1.1 Environmental commitment

NAC is firmly committed to reducing our environmental impact and working with the aviation industry towards net zero by 2050. We understand that the industry as a whole has a long way to go before achieving this target, and that game-changing technology will not be ready as early as envisioned, so aviation stakeholders must take action over the coming years to achieve this goal.

1.2 Towards net zero

Aviation is a major user of energy and hence a contributor to global warming. Whilst emitting less than many other industries, aviation is viewed as one of the top polluters by the general public. In a recent IATA study, respondents perceived that aviation contributed to 87% of total CO2 emissions, ranking top together with the automobile industry, whilst, in fact, the aviation industry currently only consumes approximately 7.8% of world's annual oil production and contributed to just 2.1% of the world's greenhouse gas emissions before the pandemic arrived.

While it is difficult to shift the public's negative perception, the aviation industry is working to reduce emissions. IATA, the industry body representing commercial airlines, announced in October 2021 the Fly Net Zero initiative aiming to achieve carbon-neutrality by 2050. Airlines are being encouraged to buy new more fuel-efficient aircraft and enhance the efficiency of their existing fleet through performance improvement packages. There is also a strong call for airlines to accelerate their transition to Sustainable Aviation Fuel (SAF), but significant feedstock supply and refinery constraints will limit its impact before 2050. Aircraft and engine manufacturers are investing heavily in research to improve the fuel burn of commercial aircraft via weight saving, reduced drag plus new propulsion architecture and systems. Likewise, on the ground, airports are striving to introduce energy efficient operations. Such initiatives include solar panels, more ground power instead of auxiliary power units, electric vehicles, and fuel-saving final approach procedures. The industry is also working with regulators on tackling and offsetting emissions, with examples such as ICAO's CORSIA, and the EU's taxonomy for sustainable activities coming into effect.

Aircraft lessors, albeit not directly involved in aircraft manufacturing and operations, are an important part of the aviation eco-system. At the end of 2022, 40% of the world's aircraft fleet, and 52% of all narrowbodies (by tail count) were owned by lessors. Leasing companies are situated between operators and financiers. As a result, the environmental performance of aircraft asset types in leasing companies' portfolios are scrutinized by the aviation sector from operational perspectives, and by the financial sector from an ESG investment angle. This means long-term sustainability planning is critical to the development of the aircraft leasing industry.

1.3 Working with industry bodies

NAC is one of the signatories of the Aircraft Leasing Ireland (ALI) Sustainability Charter, which sets out 10 key industry initiatives on climate change and ESG. The overall objective of this charter is to establish a framework for assessing, aligning and disclosing the ESG initiatives of aircraft lessors, along with providing actionable guidance on how to achieve reductions in environmental impact. NAC also participates in the ESG subgroup of the Airline Working Group (AWG), supporting such areas as the EU taxonomy for sustainable activities discussions.

Measuring & Tackling Emissions

2.1 Emissions categorization

Following the 2001 Greenhouse Gas Protocol, and as now globally accepted, NAC categorises its emissions into three scopes:

- **Scope 1** – Direct emissions from owned or managed assets
- **Scope 2** – Indirect emissions generated to enable NAC business operations
- **Scope 3** – All other indirect emissions from up and down NAC's value chain

Targeting each scope, NAC has developed a strategy and execution plan to reduce our energy consumption and global warming impact.

2.2 Scope 1 emissions

The main NAC Scope 1 contributor is the CO2 emissions of our aircraft ferry flights. To tackle that, we have entered into arrangements with our engine partners, GE Aerospace and Pratt & Whitney Canada, to buy CORSIA Compliant Carbon Credits from their approved suppliers. These arrangements neutralize all our ferry flight CO2 emissions. We are the first commercial aircraft lessor using these programs.

2.3 Scope 2 emissions

To mitigate Scope 2 emissions, NAC has focussed on making sure that our offices are certified to the highest sustainability standards. As such, all of NAC's main offices are now situated in environmentally conscious buildings. Our headquarters in Ireland is situated in a LEED Gold-certified building, as designated by the U.S. Green Building Council. NAC's new Singapore office is located in Mapletree Anson. This is one of the first buildings in Singapore to be awarded a Green Mark Platinum certification by the Building and Construction Authority of Singapore, the highest accolade for environmentally sustainable developments. The NAC Danish office was non-compliant until July 2023, but has recently relocated from an aircraft hangar in Billund to an office building in Vejle. In addition to the drive for environmentally friendly offices, NAC has launched several smaller ticket water/electricity saving and recycling initiatives. Examples from NAC's headquarters in Ireland include installing dual flush toilets (20% water reduction), bathroom taps operated by sensors (50% less water) and eco-friendly dishwashers that save on water and electricity. There is also a building management system that can detect water leaks.

2.4 Scope 3 emissions

As well as offsetting our Scope 1 emissions from ferry flights, NAC pays GE Aerospace and Pratt & Whitney Canada to offset the Scope 3 CO2 emissions from employee business flights which are over 6,000nm.

We also understand that the behaviours of our upstream supply chain can have a significant impact on our efforts to improve sustainability. Therefore, we have a stringent set of screening policies to ensure our suppliers uphold high levels of social responsibility, in terms of environmental and ethical performance. Currently 25 out of NAC's top 29 suppliers have a clearly defined ESG statement and action plan.

The most prominent of NAC's Scope 3 emissions comes from the flights operated by the aircraft we lease to airline customers. While NAC does not have control over these flights, our fleet planning and investments affect the global warming impact of this in-service fleet. Therefore, we have established a holistic approach based on five pillars to continually assess and reduce the emissions of our fleet.

Pillar	Designation	Aim
1	Regional fleet emissions baseline	Understand our total global warming impact and adjust our regional fleet strategy accordingly to improve over time
2	Regional fleet rollover	Adjust our regional fleet composition to reduce emissions based on current and future aircraft type availability
3	New tech/used narrowbody mix	Meet or exceed industry composition of new technology/used aircraft
4	Technology curve/regulatory developments	Monitor future developments (and their timescale) that will lead to new aircraft types/portfolio impacts
5	SAF delivery flights	Reduce emissions when airlines take delivery of new NAC aircraft from the Original Equipment Manufacturers (OEMs)

2.4.1 Pillar 1 - Regional fleet emission baseline

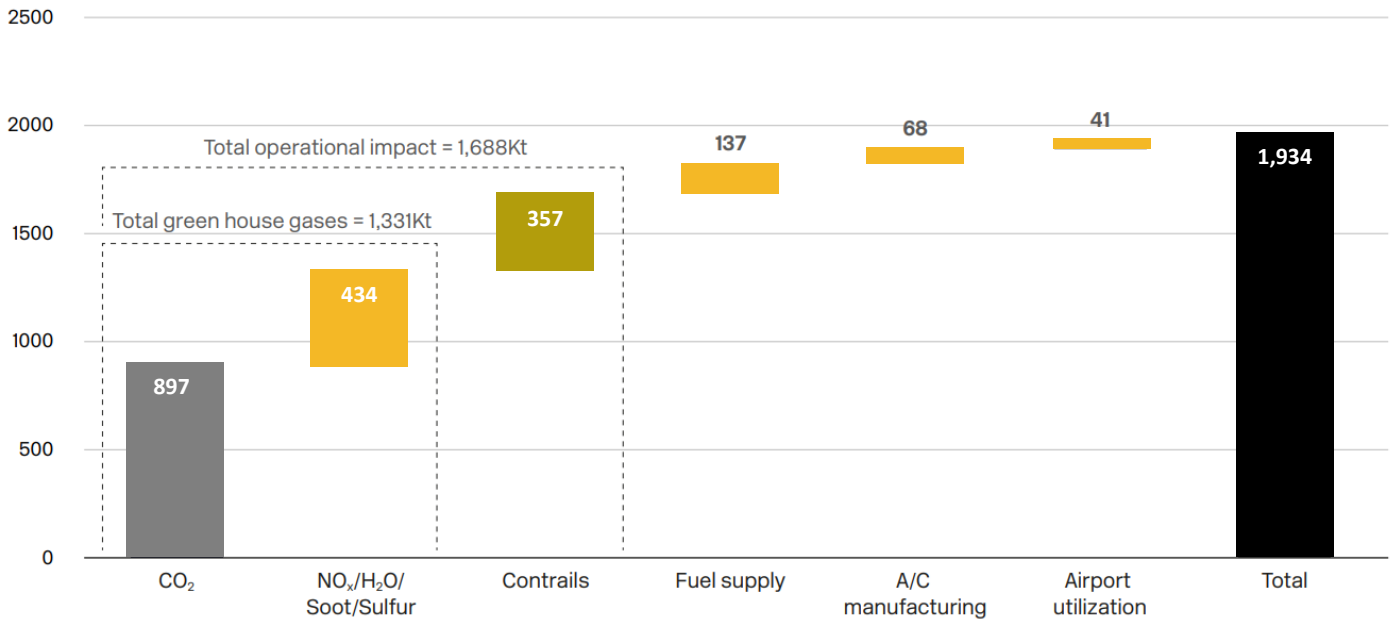
To determine the total global warming impact of NAC's current regional fleet, we have engaged with Estuaire, an emissions advisory group. The ultimate goal of this, is to allow NAC to gain a high fidelity understanding of the real environmental impact of its fleet in operation on a yearly basis. In turn, this will help us continually shape our fleet strategy to reduce emissions year on year. The Estuaire model determines the exact climate impact of NAC's aircraft by taking into account their total greenhouse gas emissions (not just the CO2 emissions related to direct fuel burn) plus other "CO2 equivalents".

Overall 2022 NAC fleet climate change impact Kt CO_2 equivalent)

ESTUAIRE

CO_2 from direct fuel burn emissions accounts for 53% of the operational impact and just 46% of overall impact

Consistent contrails account for 18% of the overall impact, and are equivalent to 40% of the direct fuel burn CO_2 emissions



The Estuaire model retrieves flight profiles for each aircraft in the NAC fleet over the previous year. Those flight tracks are then post-processed and enriched with historical weather data. A flight physics and thermodynamic model is then applied to calculate green house gas emissions plus consistent contrail formation and their associated radiative forcing. Finally, Estuaire's lifecycle assessment approach then considers non-operational impacts related to the fuel supply chain, aircraft manufacturing and airport utilization. The model is far broader than basic CO2 calculators which derive emissions based on fuel burn alone.

2.4.2 Pillar 2 - Regional fleet rollover

NAC plans to realize efficiency gains across its regional aircraft by transitioning out of our older, less efficient types and replacing them with best-in-class models as follows:

- **Turboprops** - Phase-out ageing Q400 aircraft. These will be replaced by newer and more energy-efficient ATR72-600 which have 15-20% lower fuel burn per trip. We have 17 ATR72-600s on order, all of which have the new PW127 XT engine, bringing an additional 3% fuel burn saving versus today's already highly efficient in-service ATR72-600s.
- **Regional jets** - Reduce the number of older Embraer E-Jets in our fleet and replace them with Airbus A220s. Compared to the E190/E195, the A220 has 20-30% lower fuel burn per seat. Some E190s could be converted into freighters to replace less fuel-efficient ageing cargo aircraft such as the BAe146 freighter.

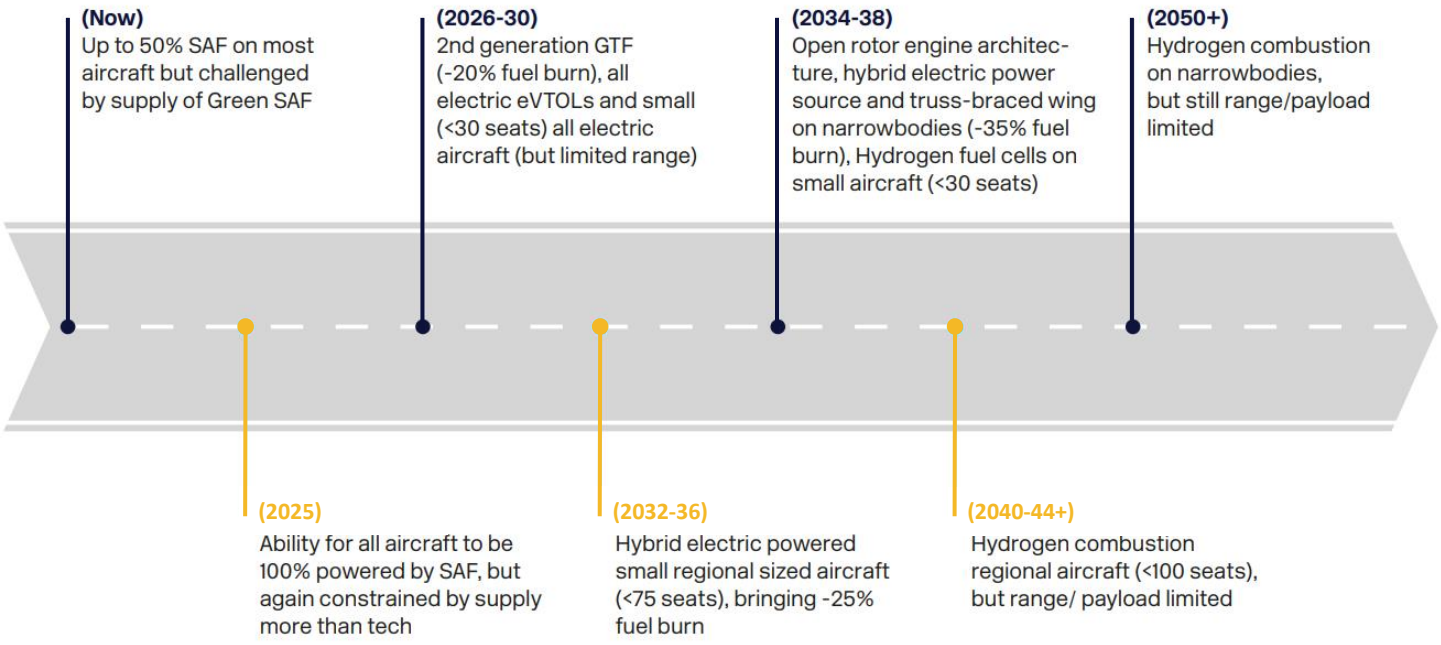
2.4.3 Pillar 3 - New tech/used narrowbody mix

Over the long-term, for larger narrowbody aircraft, NAC is targeting to have a fleet mix of 60-70% new tech and 30-40% used aircraft as follows:

- **Narrowbody aircraft** - Since NAC is starting as a relative new entrant in this market segment, we will aim to purchase new tech A320neo and 737MAX family aircraft for our fleet as they are the most fuel efficient narrowbodies available on the market today. For used aircraft, NAC intends to prioritize the 737-800 and A321ceo, since these types have cargo conversion potential, playing into our cargo aircraft strategy mentioned below.
- **Cargo aircraft** - With 600+ ageing 737 Classic, MD80 and 757 freighters in service today, NAC's strategy will be to buy used narrowbodies like the A321ceo and 737-800 which can be converted to cargo aircraft and provide a 15-35% improvement in fuel efficiency per tonne over the incumbent freighters being operated today, as well as bringing higher levels of reliability and lower maintenance costs to the operators. As such NAC placed an order for a single 737-800BCF (Boeing Converted Freighter) slot at the 2023 Paris Air Show.

2.4.4. Pillar 4 - Technology curve/regulatory developments

To enable NAC to understand what is coming next in terms of aircraft development and new product launches, we are working with external experts, plus engaging aircraft and engine manufacturers to create a technology roadmap. This is being used to help NAC anticipate when large step changes in fuel efficiency or the fuel being used will arrive on the market, and in what form. In turn, this will enable NAC to better plan what aircraft it will buy and sell, so as to continually optimize our fleet efficiency.



Through undertaking this technology and fuel roadmap project, NAC's main conclusion to date, is that new game-changing technology and fuels will arrive later than initially envisioned. Aircraft being produced today are at the cutting edge of efficiency, and to step beyond that will take disruptive technology. Owing to the industry's rigorous regulatory approval processes, the certification of any all-new technology or fuel type will take decades to approve and put into commercial service. SAF feedstock availability, refinery capacity and comparative economic costs are highly limiting factors as well.

Emphasis will be put on monitoring the engine OEM's progress, regulatory developments and doing our part to support new technologies. On this front, NAC signed an MOU with EVE Air Mobility (a subsidiary of Embraer) for 15 eVTOL aircraft at the 2023 Paris Airshow. These four-seat, zero-emissions aircraft will act as a stepping stone towards battery and hybrid-electric propulsion systems being integrated onto larger regional aircraft and finally narrowbody aircraft too.

3.4.5 Pillar 5 - SAF delivery flights

NAC has 17 ATRs and 20 Airbus A220s on order. NAC has worked with the OEMs to ensure that when these aircraft are delivered to our lessees, there will be a minimum of 6% SAF in the tank of the ATRs and 5% SAF in the tank of the A220s. This will save over 800kg of CO2 per ATR delivery and over 2,700kg of CO2 for each A220 delivery.

Emissions Intensity

3.1 Emissions intensity details

Financial year	2018	2019	2020	2021	2022
Revenues ($M)	735.4	890.3	861.2	670.9	619.2
Average number of employees	207	222	208	205	151
Fleet size	437	480	490	487	315
ATRs	*184*	*190*	*199*	*199*	*131*
CRJs	*23*	*23*	*18*	*17*	*0*
Qs	*90*	*90*	*90*	*90*	*68*
EJets	*133*	*170*	*176*	*174*	*116*
A220s	*7*	*7*	*7*	*7*	*0*
Ferry flights	148	104	90	92	154
Total Scope 1,2,3 equivalent CO2 emissions (t)	4,895,389	5,590,407	5,274,294	4,669,089	1,937,083
Scope 1 equivalent CO2 emissions (t)*	2,384	1,696	1,264	1,165	2,134
Scope 2 equivalent CO2 emissions (t)	131.7	113.1	134.4	101.6	79.0
Scope 3 equivalent CO2 emissions (t)	4,892,873	5,588,597	5,272,896	4,667,822	1,934,870
Scope 3 - CO2 from fuel burn (t)	3,145,446	3,585,962	3,368,577	2,961,037	897,000
Scope 3 - NOX/H20/Soot/Sulphur (t)	442,309	504,250	473,674	416,362	434,000
Scope 3 – Total green house gases (t)	**3,587,755**	**4,090,213**	**3,842,251**	**3,377,398**	**1,331,000**
Scope 3 – Contrails (t)	456,571	532,157	516,945	496,659	357,000
Scope 3 - Fuel supply (t)	677,078	771,910	725,124	637,415	137,000
Scope 3 - Aircraft manufacturing (t)	83,044	94,637	95,777	76,416	68,000
Scope 3 - Airport utilization (t)	87,232	98,402	91,721	79,343	41,000
Scope 3 - Staff travel (t)	1193	1279	1079	591	870
Scope 1,2,3 carbon intensity (t CO2 / $1M revenue)	6,657	6,279	6,124	6,959	3,128
Scope 1,2,3 carbon intensity change	-	-6%	-2%	14%	-55%
Scope 1,2,3 carbon intensity vs. 3 preceding years	-	-	-	10%	-52%
Scope 1,2 carbon intensity (t CO2 / $1M revenue)	3.4	2.0	1.6	1.9	3.6
Scope 1,2 carbon intensity change	-	-41%	-20%	16%	89%
Scope 1,2 carbon intensity vs. 3 preceding years	-	-	-	-20%	93%
Total water consumption (m3)	1,831	1,919	1,723	1,219	1,228
Water intensity (m3 / $1M revenue)	2.49	2.16	2.00	1.82	1.98
Water intensity change	-	-13%	-7%	-9%	9%
Water intensity vs. 3 preceding years	-	-	-	-18%	0%

Source / points of note

Revenues, average number of employees and fleet size from NAC's annual reports
Scope 1 emissions based on NAC ferry flights and Estuaire methodology
Scope 2 emissions assembled from utility bills and additional modelling
Scope 3 emissions from Estuaire, except "staff travel" which is modelled on NAC travel agency CO2 data
Water consumption assembled from utility bills and additional modelling
*NAC has arrangements to offset all ferry flight CO2, which is the largest component of our Scope 1 emissions

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