

Virgin Atlantic's carbon summary – 12th Sep 2019

Climate context

1. Aviation is a carbon intensive industry. It also brings huge economic and social benefits.
2. We're clear of the climate science and that all sectors need to quickly and significantly reduce emissions.
3. Many international airlines have been taking climate action for >10 years, with global targets agreed in 2009:
 - i. 1.5% fuel efficiency from 2009;
 - ii. Carbon neutral growth from 2020;
 - iii. 50% net reductions by 2050 (from 2005).
4. >99% of our combined airline and holiday emissions come from aircraft fuel use¹, so reducing aircraft CO₂ has been our no. 1 environmental priority since establishing our Change is in the Air programme in 2007².
5. From 2007-2018 we reduced:
 - i. Total aircraft CO₂ by 21% (from 5.2 to 4.1 million tonnes);
 - ii. CO₂ per Revenue Tonne Kilometre (RTK) by 18% to 0.712kg. (RTK is an efficiency measure based on CO₂ emissions per weight passenger and cargo carried);
 - iii. CO₂ per Passenger Kilometre (PK) by 19% to 81g.
6. We've been a long-time supporter of the above industry goals. Recent climate data (IPCC Oct 2018) has added further urgency to the need to act big and fast.
7. With that in mind, we're keen to encourage UN body ICAO³ to undertake immediate, meaningful work towards internationally agreed targets in line with the needs to limit global warming to 1.5°C (i.e. net zero).
8. We believe net zero is challenging but can be achieved if all major stakeholders take big and bold steps, including governments, fuel suppliers, aircraft manufacturers, airports and airlines.
9. The main carbon reductions big wins for aviation are: **fleet, CORSIA, fuels...**

Fleet

10. Investing in the most efficient aircraft is the single biggest thing an airline can do right now to reduce carbon.
11. Since 2011, Virgin Atlantic has been implementing a **\$multi-billion fleet upgrade**, as well as using the right aircraft on the right routes to optimise passenger and cargo loads, and therefore fuel- and carbon-efficiency.
 - i. Our twin-engine A330s, 787s & A350s give approx. **30% savings per trip** compared to the 4-engine aircraft they replace.
 - ii. From 2021-24 new A330-neos will replace our original A330s, giving a **13% CO₂ saving** over the older twins they'll replace.
12. Future fleet developments such as **hybrid and electric aircraft** are exciting and important developments for the sector. These will benefit short haul travel initially, although probably not before the mid-2030s.

CORSIA

13. We've supported carbon pricing and a carbon market based measure for international aviation since 2007.
14. International aviation sits outside the Paris climate agreement for a number of important reasons (i.e. to avoid competitive distortion and carbon leakage, all airlines on the same routes must be treated equally).
15. The **Carbon Offsetting and Reduction Scheme for International Aviation** (CORSIA) was negotiated by ICAO² and nation states and agreed in Oct 2016, following long-term support from airlines. It was designed to help the global industry address its second target of **carbon neutral growth from 2020**.
16. Crucially, market based measures are more environmentally effective and efficient than taxation because they give value to carbon savings and money goes direct to carbon reduction projects (not governments).
17. CORSIA is a massive deal. Between 2021-35, airlines from 81 participating states (~77% of international aviation)⁴ will pay **\$billions into robust, new CORSIA-compliant carbon reduction projects** around the world (like renewable energy and forestry projects), mitigating **about 2.5 billion tonnes CO₂** in total.
18. The scheme becomes mandatory for all nations (apart from a few least-developed countries) from 2027.

Sustainable aviation fuels (SAF)

19. It's widely agreed (by industry, governments, scientists and NGOs) that unlike ground energy and transport, long-haul aviation will be dependent on liquid 'drop in' fuels for the foreseeable future.
20. >200K commercial SAF flights to date have clearly shown SAF's technical viability⁵. The next breakthrough point is the development of volumes of advanced, sustainably-robust, *affordable* sustainable aviation fuels (SAF), which will enable airlines to buy and fly them routinely, achieving huge CO₂ savings.
21. We're close to breakthrough with our long-term cleantech fuel partner LanzaTech, who make **RSB⁴ certified fuels with >70%⁶ lower life cycle carbon emissions** by recycling carbon-rich gases and other wastes.
 - i. LanzaTech already producing commercial volumes of ethanol. Now raising funds for first demo and 3 full-scale jet fuel plants.
 - ii. We want to see LanzaTech's first jet fuel plant in the UK, but this technology is currently locked out of the UK's existing 'biofuel' incentive scheme⁷, putting it and other exciting waste and air-capture CO₂ based approaches at a disadvantage.
22. We urge the UK government to include **Recycled Carbon Fuels** in the RTFO as soon as possible, so they can be brought to market **by the early 2020s**, bringing with them multiple benefits for the UK and beyond.
23. We urge all major stakeholders to do everything possible, as fast as possible, to drive supplies out of fossil sources, towards advanced, sustainable aviation fuels – helping us to achieve ambitious targets without delay.

¹ This % refers to Scope 1 and 2 emissions. The figure is 85% if we include all Scope 3 (supply chain emissions) from across our airline and holiday operations.

² For full reports and further information about our Change is in the Air sustainability programme, visit www.virginatlantic.com/changeisintheair.

³ ICAO is the UN body responsible for negotiating **international aviation** agreements <https://www.icao.int/environmental-protection/Pages/climate-change.aspx>.

⁴ As of Jul 2019: <https://www.icao.int/environmental-protection/CORSIA/Pages/state-pairs.aspx>.

⁵ As of Sep 2019: www.enviro.aero/SAF. Also see independent gold-standard NGO scheme, which many airlines like ours support: www.rsb.org.

⁶ Depends on regional and contextual issues, and LCA methods used.

⁷ Renewable Transport Fuels Obligation (RTFO): <https://www.gov.uk/government/publications/renewable-transport-fuel-obligation-rtfo-guidance-2019>.