

## **Virgin Atlantic Airways response to the Airports Commission Discussion Paper 03: Aviation and Climate Change**

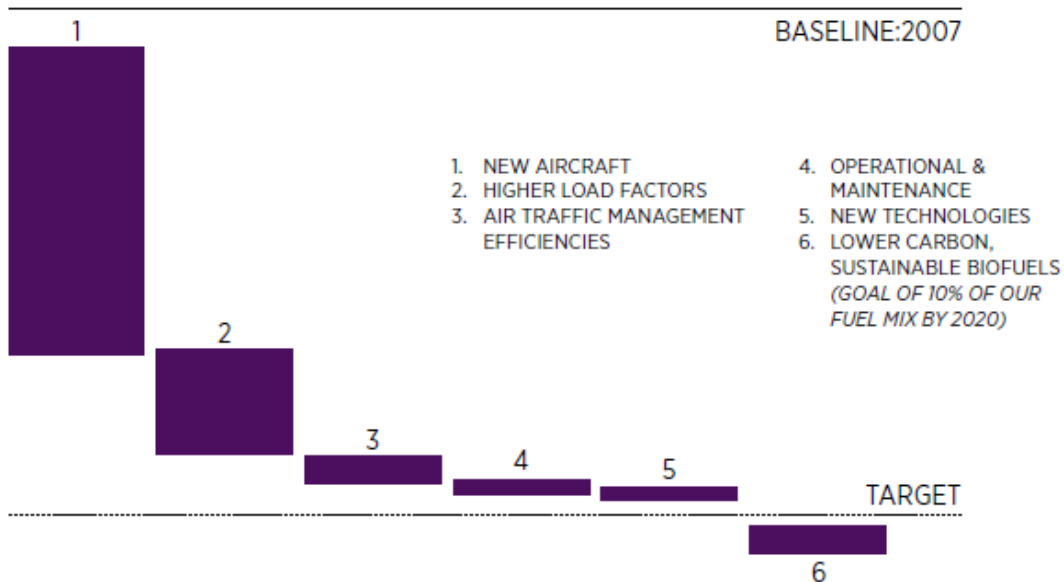
Virgin Atlantic is pleased to submit evidence to the Airports Commission. Over 28 years we have grown from a start-up airline to the UK's second largest global airline. We carried 5.28 million passengers and 210,000 tonnes of cargo in 2011.<sup>1</sup> We employ 9,000 people and operate 40 wide-bodied aircraft, serving 30 destinations across four continents from four UK airports. Our "Little Red" domestic operations connect Aberdeen, Edinburgh and Manchester with Heathrow, connecting passengers from the UK regions to the rest of the world.

We are an active member of Sustainable Aviation, an alliance of UK airports, airlines, manufacturers and air navigation service providers. This evidence is intended to complement Sustainable Aviation's own submission.

### **Introduction**

Virgin Atlantic is committed to becoming a more sustainable airline, and have set ourselves the challenging target of a 30% improvement in our fuel efficiency (i.e. a 30% reduction in CO<sub>2</sub> emission per revenue tonne kilometre, or "RTK", flown) between 2007 and 2020<sup>2</sup>. This will be delivered through investments in the latest fuel efficient technologies, focussing on fuel efficient operating procedures, and working with partners in the industry to develop new best practice.

### **What will contribute to the 30%? And how much?**



<sup>1</sup> [www.caa.co.uk/docs/80/airline\\_data/2010Annual/Table\\_0\\_1\\_6\\_All\\_Services\\_2010.pdf](http://www.caa.co.uk/docs/80/airline_data/2010Annual/Table_0_1_6_All_Services_2010.pdf)

<sup>2</sup> <http://www.virgin-atlantic.com/us/en/footer/about-us/sustainability/carbon.html>



Figure 2: Virgin Atlantic kg CO<sub>2</sub> per RTK, current and projected performance against target

We anticipate that our total CO<sub>2</sub> emissions will peak by the end of the decade as our efficiency gains outstrip the growth in our operations and the full benefit is realised from investments in new technologies such as the Airbus A330-300 aircraft (15% more efficient per passenger than the aircraft they will replace in our fleet) and the Boeing 787 Dreamliner (27% more efficient).

## CO<sub>2</sub> forecasts for UK aviation

Sustainable Aviation has published a CO<sub>2</sub> Road-Map<sup>3</sup>, which sets out the industry's view on CO<sub>2</sub> emissions from UK aviation between 2010 and 2020, and comparing its results with similar forecasts from the Committee on Climate Change and Department for Transport. Virgin Atlantic supports the Sustainable Aviation CO<sub>2</sub> Road-Map and the mitigation opportunities set out within it. The Road-Map shows that UK aviation deliver significant growth, with the accompanying socioeconomic benefits, without a substantial rise in CO<sub>2</sub> emissions.

<sup>3</sup> <http://www.sustainableaviation.co.uk/wp-content/uploads/SA-CO2-Road-Map-full-report-280212.pdf>

## **Interdependencies between CO<sub>2</sub>, NO<sub>x</sub> and Noise**

Virgin Atlantic would refer the Commission to Sustainable Aviation's paper from 2010<sup>4</sup> which sets out some of the interdependencies between CO<sub>2</sub>, NO<sub>x</sub> and noise, and the choices that must be made in the design and operation of airframes and aero-engines. The Commission should also consider the recently published Sustainable Aviation Noise Road-Map<sup>5</sup>, which considers the future noise output of UK aviation.

It is clear that interdependencies between the local (noise and NO<sub>x</sub>) and the global (CO<sub>2</sub> and climate change) are complex and need careful consideration in the formulation of aviation policy and future airport capacity solutions. Virgin Atlantic would recommend regular consultation between regulators, policymakers, industry and other stakeholders in order to ensure that these interdependencies are effectively taken into account.

## **Non-CO<sub>2</sub> Impacts**

Virgin Atlantic is concerned by some of the references to non-CO<sub>2</sub> impacts contained within the Commission's discussion paper. There is still significant uncertainty around the current impact of aviation's part non-CO<sub>2</sub> emissions and research in this area is ongoing. Sustainable Aviation published a technical paper<sup>6</sup> on this issue in 2008, which it intends to update based on the latest scientific evidence and understanding of aviation's non-CO<sub>2</sub> impact and potential mechanisms for expressing that impact.

## **Sustainable Alternative Fuels**

In February 2008, Virgin Atlantic in partnership with Boeing, engine manufacturer GE and fuel technology company Imperium Renewables, operated the first flight by a commercial jet aircraft using a biofuel blend. Until that time the challenges associated with meeting the stringent performance criteria of jet fuel – high energy density, low freeze point, etc – had been considered as too difficult to be replicated using fuels derived from biomass.

In the five years since then, significant progress has been made in making sustainable fuels "business as usual" for aviation. In October 2011 we announced a partnership with Lanzatech, to commercialise a world-first low carbon sustainable aviation fuel. Richard Branson described Lanzatech's process of converting steel waste gases to produce a fuel with roughly half the total lifecycle carbon content of kerosene, as "one of the most exciting developments of our lifetime and a major breakthrough in the war on carbon". The new fuel will be sustainable environmentally (it

---

<sup>4</sup> <http://www.sustainableaviation.co.uk/wp-content/uploads/sa-inter-dependencies-sep-2010.pdf>

<sup>5</sup> <http://www.sustainableaviation.co.uk/wp-content/uploads/SA-Noise-Roadmap-Publication-version1.pdf>

<sup>6</sup> <http://www.sustainableaviation.co.uk/wp-content/uploads/nonco2papernov08.pdf>

has lower lifecycle carbon emissions and won't cause deforestation), socially (it won't compete with staple food crops) and economically (crucially it will be available in viable quantities and at a comparable price to conventional jet fuel).

Virgin Atlantic is currently working with Lanzatech to see this technology through to commercial use in our aircraft. We hope to have a demo flight using the new fuel, working with partners on the technical fuel approval (ASTM) process, as well as collaborating with the Roundtable on Sustainable Biofuels (RSB) on sustainability certification. We plan to uplift fuel in commercial quantities within the next two years.

There has been considerable focus from the aviation industry on avoiding the unintended consequences encountered by earlier generations of biofuels. Virgin Atlantic is a founding member of the Sustainable Aviation Fuel Users Group<sup>7</sup> (member airlines from around the world now represent 32% of commercial airline fuel demand). Through SAFUG we also support the Roundtable on Sustainable Biofuels (RSB) – an initiative that brings together companies, farmers, non-governmental organisations, experts, governments and inter-governmental agencies concerned with ensuring the sustainability of biofuels production and processing. RSB is the leading biofuels sustainability standard to which all potential sustainable fuel suppliers to Virgin Atlantic are asked to sign up.

As other transport sectors, especially road, increasingly have access to other energy technologies we would anticipate that a greater proportion of the world's liquid hydrocarbon energy supplies will be needed by aviation. Virgin Atlantic asks that there is a level playing-field so that all users have equal access to new, sustainable fuels.

### **Carbon emissions targets and trading**

Virgin Atlantic, through the Aviation Global Deal Group and other cross-industry initiatives, has been a long-time champion of an environmentally robust and economically efficient global climate change framework as the best way of tackling CO<sub>2</sub> emissions from an international industry like aviation. The EU's Emissions Trading Scheme represents a useful, short-term step towards this.

We would urge the UK Government to continue to engage with other ICAO Member States in order to maintain progress towards a comprehensive global framework. We would be concerned about unilateral targets for the UK, as this would have no effect on global CO<sub>2</sub> emissions and, instead, cause carbon and traffic leakage to other aviation economies with less restrictive regimes.

---

<sup>7</sup> [www.safug.org](http://www.safug.org) and [www.rsb.epfl.ch](http://www.rsb.epfl.ch)