

Sustainable Aviation: Progress Update





Topics to discuss

- Update on SA membership and approach
- New SA documents since 2013
- Latest performance
 - Carbon
 - Noise
 - Air Quality
- Emerging issues
- Collaborative opportunities
- Q&A



Current SA Members and Signatories







NEW DOCUMENTS SINCE 2013



SA Sustainable Fuel Road-Map (2014)





Use of sustainable aviation fuels



Source: Airlines UK - Responding to the Carbon Challenge paper (Jan 2017)



SA CO₂ Road-Map (2016)





SA Socio-Economic Report (2016)

£60.6 billion turnover generated by UK aviation

961,000 jobs

341,000 direct jobs
350,000 indirect jobs
269,000 induced jobs

£52 billion contribution to UK GDP

£22.3 billion direct contribution
£16.7 billion indirect contribution
£12.9 billion induced contribution

Around 3,500 apprenticeships supported by UK aviation

£1.7 billion invested in R&D

• Generates spin off benefits in terms of skills development and technology flow out to other sectors and industries Over £15 million a year is invested in charity, community and good causes by UK aviation



SA Aviation & Air Quality Paper - 2017





Progress Reports (Dec 2017)





Progress to date - Carbon

GOAL 2 // CLIMATE CHANGE



To identify, create and develop opportunities to reduce UK aviation climate change emissions and enable sustainable growth.

We continue to make good progress to reduce UK aviation climate change emissions. We have disconnected the rate of passenger growth from growth in CO_2 emissions. In 2016 we published our updated CO_2 Road-Map which provided further confidence in delivering our 2012 vision of reducing net CO_2 emissions. We also successfully lobbied for the inclusion of aviation in the Renewable Transport Fuel Obligation to support the development of sustainable aviation fuels.

http://www.sustainableaviation.co.uk/wp-content/uploads/2017/12/SA-Progress-report-2015-17.pdf



SA Airline CO₂ Performance

SA Airline CO₂ emissions compared to passengers and freight flown



Thomson Airways, Virgin Atlantic



SA Airline Fuel Consumption

SA Airline Fuel Consumption (Litres of fuel burnt per Revenue Tonne Kilometre flown)



SA Airlines included are:

British Airways (incl historic BMI data), easyJet, Monarch, Thomas Cook, Thomson Airways, Virgin Atlantic Efficiency litres/RTK



New, more fuel efficient aircraft





25% more fuel efficient than current aircraft it is designed to replace



B737 MAX 14% more fuel efficient than current B737 aircraft



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Purchasing new aircraft

- Over 360 new aircraft on order by UK airlines
- Represents an investment of £39.7 billion



Summary of UK airline new aircraft

Source: Airlines UK - Responding to the Carbon Challenge paper (Jan 2017)



Progress on Sustainable Fuels

- Informing the debate
- Resolving policy gaps
 - UK Renewable Transport Fuel Obligation
- Supporting innovation







Sustainable Aviation Fuel

Special Interest Group

The Sustainable Aviation Fuel Special Interest Group will accelerate the domestic production of sustainable jet fuel by stimulating industry and academic collaboration.

- The emerging sustainable aviation fuels market has the potential to reduce emissions, create jobs, and bolster investment in science and technology.
- By 2030, sustainable aviation fuels will contribute £265m per annum to the UK economy and create 4,400 jobs.
- By 2050 sustainable aviation fuels will offer 15 24% reduction in CO₂ emissions based on a 25-40% market penetration.
- The Sustainable Aviation Fuel Special Interest Group will help deliver these benefits by building the supply chain and stimulating innovation.







www.SAFSIG.co.uk | @KTNUK | enquiries@ktn-uk.org



Progress to date: Noise

GOAL 3 // NOISE



Limit and, where possible, reduce the impact of aircraft noise.

We have made good progress against our commitments in our 2013 Road-Map, however these improvements have not always been reflected in community perceptions. During 2017, to further understand concerns of communities we commissioned independent research and will publish a discussion paper in 2018 on the findings to identify the most effective solutions to manage the impact of aircraft noise.



Noise performance

Noise Contour Area vs Population for SA Airports (LGW, LHR, LTN, MAN, STN)





GOAL 3 // NOISE

DEVELOPMEN.



To limit and where possible reduce the impact of aircraft noise

Airport growth compared to noise contour area and population exposure (LGW, LHR, LTN, MAN and STN Airports)





Reducing noise at source

Long term targets are to reduce perceived noise from new aircraft by 65% in 2050 compared to 2000



A320neo

A320neo (68.3t) A320-214 (68t) LHR 27R ICAO NADP1 Departure 85dBA contour 1000 NM mission ISA, no wind, sea level The UK ATI has funded 44 projects with a grant value of £237 million for research in these areas to the end of 2016.

This includes investigations of new engine cycles and key components, noise generation of propellers and undercarriages

On average it costs the aerospace industry £1 billion to reduce aircraft noise by one decibel





Operational improvements

- Over 63,000 extra CDAs in the last 2 years
- Airport performance based navigation trials
- Steeper and Low noise arrivals trials
- Departure climb out trials
- Respite trials





SA Independent Community Forums 2017

- 3 focus groups were independently facilitated at Gatwick, Birmingham and Manchester in July 2017
- They were asked about what sort of noise causes annoyance, how this varies depending on their circumstances and their suggestions for how things could be improved

Noise factors causing most annoyance to participants in the study





SA Independent Community Forums Results

- The feedback from the discussions highlighted that:
 - the experience of aviation noise is less affected by people's postcode and whether they live on a flight path or not, but more by individual noise tolerance levels and views on the advantages of having an airport on their doorstep
 - it is often a change in personal circumstances that causes aviation noise to be experienced as more or less disruptive
 - Participants who were newly overflown all reported that they experienced aviation noise as very disruptive
 - Current noise metrics merit improvement
 - Improved relationship between industry and communities in exploring solutions to noise concerns would be helpful
 - There may be new opportunities and ways to consider noise compensation



Progress to date: Air Quality

GOAL 4 // LOCAL AIR QUALITY



Industry to play its full part in improving air quality around airports.

Air quality is a growing concern for communities and policy makers. In response, SA published a report on UK aviation and air quality. It concluded that aircraft emissions contribute 1% of the UK nitrogen oxide (NO_x) emissions and 0.1% of UK particulate (PM_{10}) emissions with a range of opportunities being explored to reduce this further.



Air Quality activity

- Engaged ground handlers in work
- Opened discussions with HM Treasury re incentives to support specialist low emission vehicles
- Exploring best ways to reduce emissions during aircraft turnarounds
- Continued to act as forum to share best practice and knowledge on new technologies
- Airports continue to deliver surface access strategies



EMERGING ISSUES



|Emerging Issues for UK Aviation

- Carbon
 - Future technology challenge
 - Scaling up sustainable fuel production
 - Modernising airspace
 - Aviation's role in UK and global CO2 targets
- Noise
 - Future technology challenge
 - Modernising airspace
 - Land use / housing needs
 - Evolving community expectations on noise
 - Uncertain policy climate

- Air Quality
 - Move to low emission vehicles
 - Improving surface access
- Communications
 - Balancing progress with stakeholder perceptions / expectations



Emerging aircraft technology concepts

- Electrification
- Urban air mobility
- New propulsion systems





Global Airline CO₂ Targets

2010

1.5% p/a fuel efficiency

Working towards Carbon Neutral Growth (CNG) 2020

CNG from 2020

Emissions stop growing and start to reduce

Delivered through

CORSIA

2050

Emissions reduce by 50% by 2050

Delivery mechanism to be finalised

CORSIA = Carbon Offsetting and Reduction Scheme for International Aviation



2019

How does CORSIA work?



OVER 80% OF THE GROWTH IN AIR TRAFFIC CO2 AFTER 2020 WILL BE OFFSET

See: https://www.icao.int/environmental-protection/Pages/market-based-measures.aspx



Suggested collaborative opportunities

- Opportunities
 - Smarter land use planning policies around airports
 - Airspace modernisation realising the potential of current and future navigation / flight management system technology
 - Smarter mechanisms to evaluate decisions on aircraft noise
 - Sharing and understanding performance and investment by industry
 - Developing better cost / benefit analysis models that suit local circumstances
 - Supporting surface access improvements to UK airports
 - Seeking to maximise joint effort on issues such as promoting low emission vehicles
 - Maintaining an open dialogue with the industry
 - Maintaining pressure on HMG to provide policy certainty for UK aviation activity





QUESTIONS?





For more information visit <u>www.sustainableaviation.co.uk</u> Or email <u>info@sustainableaviation.co.uk</u>

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Quieter: SA Noise Road-Maps (2013)

