



## UK Sustainable Aviation Strategy

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## Agenda

- Introductions
  - BATA
  - Sustainable Aviation (SA)
- SA strategy and progress
- The case for a sustainable increase in airport capacity
- Beyond 2020





## Introductions

- BATA
  - UK registered airlines, all business models, >85% UK output
  - See [www.bata.uk.com](http://www.bata.uk.com)
- *Sustainable Aviation*
  - First national aviation sustainability strategy - launched in 2005
    - See [www.sustainableaviation.co.uk](http://www.sustainableaviation.co.uk)
  - All sectors; airlines, airports, aerospace and air traffic control
  - 8 goals and 34 commitments



## Sustainable Aviation UK Airline Signatories

bmi	Monarch
British Airways	Thomas Cook
easyJet	Thomsonfly
First Choice	Virgin Atlantic
flybe	



## UK and Air Transport

- Vital part of UK public transport
  - “Aviation brings real benefits to the lives of ordinary people and to business. It connects people and places in ways that many people value highly and is also critical for a successful economy”.
  - White Paper Progress Report December 2006
- 90% of journeys and 92% of emissions are on **international** flights
- Supports over 500,000 jobs; direct GDP > £11Bn pa
- Trade, tourism, visiting friends & relatives, holidays etc



## Air transport more than pays its way

- Air travel pays for all its infrastructure
  - At the airport
  - In the air
- UK's unique air travel “environmental” tax
  - £2 billion p.a. and rising; over 2 x cost of carbon
- Aviation is UK success story
  - Something we do well !



## SA Climate Change

- Aviation a small contributor (globally c2%) but growing
- **Goal** “...global policy framework that stabilises GHG concentrations ...”
- **Commitments**
  - Technology and Operations
  - Market mechanisms
    - Emissions Trading - EU ETS a first step to a global scheme
  - Support scientific research
  - Inform passengers and offer offsets



## Non-CO<sub>2</sub> effects of Aviation

- All CO<sub>2</sub> is equal
- Other climate impacts that are separate/different to CO<sub>2</sub> effect
- NOx emissions
  - create ozone (warming)
  - destroy methane (cooling)
- Contrails/Cirrus clouds
  - Function of very cold, very moist atmosphere (rare < 24,000ft)
- Scientific uncertainty
- Measurement of warming from these sources is NOT robust
  - Much shorter lifetimes (than CO<sub>2</sub>)
- Radiative Forcing (RF) and Multiplier specifically NOT appropriate
- Appropriate solutions based on robust science





## SA Climate Change Technology and Operations

- Emissions efficiency track record
  - 50% better than 30 years ago
- European ACARE targets
  - a further 50% reduction in emissions per seat kilometre including up to 10% from ATM system efficiencies
  - Reduce NOx emissions by 80%
  - By 2020 based on new aircraft relative to equivalent in 2000



## SA Local Impacts

- Noise
  - Joint activity with UK airports and NATS
  - Good track record
  - - 50% external noise for new aircraft by 2020 (ACARE)
  - Low noise flight procedures eg CDA
- Air Quality
  - New issue - new EU limits
  - Sources before solutions
  - + 80% NOx efficiency by 2020 (ACARE)
  - Heathrow case study

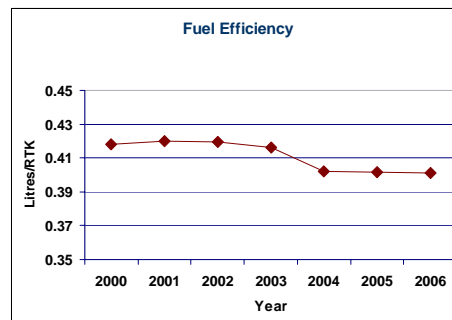
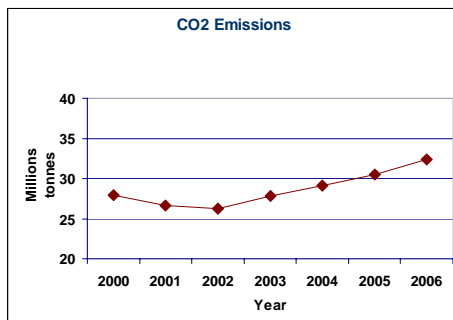


## Progress

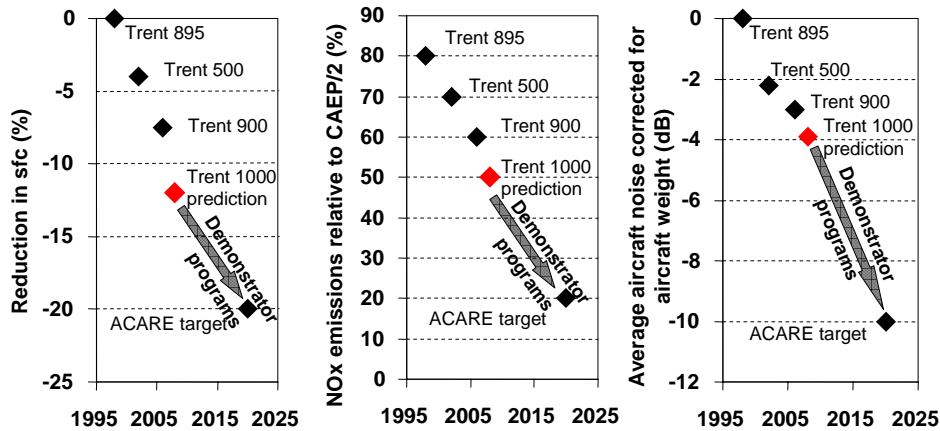
- EU ETS proposals
  - Agreed in principle (details being debated)
  - Likely 2012 start date with 2004-6 baseline
  - **Any growth in emissions from circa 2005 “captured”**
  - All arrivals and departures - other states not happy .....
- However, fair chance of a global scheme
- Fuel efficiency performance
- Towards ACARE
- Voluntary offset schemes available to 60%+ passengers of UK airlines



## SA Airlines Emissions and Fuel Efficiency 2000 to 2006



## Progress towards ACARE targets



- EFE (Environmentally Friendly Engine) will validate combustion and turbine technologies to close ~50% of the CO<sub>2</sub> & NOx challenge between the Trent 1000 & the ACARE goal
- Further EU and UK programmes will be required to fully meet ACARE
- With thanks to Rolls-Royce plc

SUSTAINABLE AVIATION



## The case for sustainable growth in airport capacity

- To maintain economic and social mobility and UK's international role we need to provide some additional airport capacity
  - Main airports in the South East are FULL
- Air travel should pay its external costs and play its part in any global strategy to address climate change
- Development should focus on existing sites and meet local environmental limits
- Long timescales require a strategic approach





## Heathrow

- The UK and London's primary international gateway is full
  - 227 destinations down to 180; links to UK regions down from 21 to 8
- Competing international hubs are growing and have spare capacity
  - Paris 4, Amsterdam 5, Frankfurt 3/4, Heathrow 2 runways
  - Premier League economy with League Division 1 infrastructure?
- With these competitors and EU ETS, climate change is not a factor
- New short runway must meet local environmental limits
  - Noise < 2002 levels
  - Air Quality < new EU limits on NO<sub>2</sub>
- New aircraft (eg A380/B787) demonstrate limits can be met
- New rail-links (Airtrack) will help



## Beyond 2020

- Further developments in Aircraft/Engine technology
  - Hybrid laminar flow; Lighter materials; Electric systems
  - Open rotors engines? Blended wing bodies?
  - Other
- Alternative fuels
  - Research into sustainable future-generation biofuels
- Integrated transport
  - Complementary values of air and rail
  - Opportunities to link the air and rail networks







## Summary

- UK aviation accepts responsibility and wants to play its part in sustainable long-term development
- The very high economic and social value of air travel and a competitive, international industry demand intelligent global solutions
- Governments have a shared responsibility
- Important role for science and technology
- Do we want to maintain our competitive position?

