

AIR TRAFFIC/AIRSPACE MANAGEMENT (ATM/ASM)

CONTRIBUTION TO NET ZERO & CLIMATE CHANGE ISSUES



April 2024
An RAeS ATM Specialist Group
Briefing Note No 1

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KEY ISSUES FOR CONSIDERATION:

- The UK government has clearly defined its objectives in terms of its Net Zero⁽¹⁾/Jet Zero⁽²⁾ policies and the 'Flightpath to the Future' strategic framework⁽³⁾ that all reference the significant impact of aviation on climate change. Hard targets have been set for 2040 and 2050.
- The MoD also has a commitment to decarbonise through the recent Defence Aviation Net Zero Strategy⁽⁴⁾.
- Current data ⁽⁵⁾ suggests that sustainable aviation fuels (SAF) or alternative sources to carbon-based fuels are highly unlikely to deliver the required volume of fuel to meet current demand and meet anticipated growth in the necessary timescale. Therefore, other contributory elements, such as flight performance and efficiency, become relatively more important.
- The UK CAA's Airspace Modernisation Strategy⁽⁶⁾ states that ATM/ASM has a significant contribution to play in terms of delivering improvements to the efficiency of the airspace for increased environmental sustainability.
- The ATM/ASM contributions could include:
 - Reduction in delay/holding or through optimised or direct routings.
 - Improved climb and descent profiles.
 - Better integration of 3D traffic flows from multiple airports utilising predictable RNAV profiles that reduce the need for tactical intervention by ATCOs.
 - Utilising cruising altitudes/flight levels that prevent contrail formation at night.
 - Optimising the sharing of airspace between users when there are trade-offs to be made between competing demands, such as legacy aviation systems and new entrants, or between sport and recreational users and commercial aviation.
- Current UK airspace arrangements have evolved piecemeal over the last 40 years. They were not designed with environmental considerations as a high priority. Consequently, current airspace arrangements and the processes need to change to achieve environmental benefits.
- Accommodating new-entrant airspace users must not adversely impact the potential for environmental benefits to be achieved by legacy airspace users.
- The UK needs the ability to meet its defence requirements and this also has airspace implications that may impact on the ability to deliver some improvements or efficiencies.
- There is a lack of clear prioritisation in the guidance provided by the DfT to the CAA on the conduct of its regulatory duties in relation to airspace, ATM and air navigation performance.

POTENTIAL IMPACTS OF NOT TAKING ACTION:

- Failure of the UK to achieve its 2040 /2050 targets for the reduction of aviation's contribution to climate change.
- Inability of the UK to meet its international obligations to the ICCO or to ICAO.
- Our leadership role in the international aviation community is diminished.

1. Net Zero Strategy – 'Build Back Greener', UK government policy paper (Published 19 October 2021, updated 5 April 2022). Available at: www.gov.uk

2. Jet Zero Strategy – 'Delivering Net Zero Aviation by 2050', UK government policy paper (Published 19 July 2022, last updated 2 August 2022). Available at: www.gov.uk

3. 'Flight to the future – a strategic framework for the Aviation Sector', DfT Policy Paper (Published 26 May 2022). Available at: www.gov.uk

4. Defence Aviation Zero Net Strategy – UK government policy paper (12 July 2023). Available at: www.gov.uk

5. <https://www.iata.org/en/iata-repository/publications/economic-reports/sustainable-aviation-fuel-output-increases-but-volumes-still-low/>

6. UK CAA Airspace Modernisation Strategy 2023-2040. 'Part 1 Strategic Objectives and enablers', CAP 1711 (Published January 2023). Available at: www.publicapps.caa.co.uk

OTHER SECTORS IMPACTED:

- All categories of airspace users, both civil and military, private and commercial.
- Airports and their supply chain.
- The general public, both as users of the airspace (directly as operators of systems that use airspace or indirectly as passengers or those who utilise air freight) and those on the ground impacted by the environmental effects of aviation activity.

ACTIONS REQUIRED/RECOMMENDED

- Government needs to set clear priorities for action that place environmental improvements in the ATM/ASM arena second only to safety.
- All ATM changes must demonstrate measurable improvements in terms of 3-D performance (climb / descent profiles) or track miles flown or, at least, no net increase in terms of CO₂ (or equivalent) emissions. Clearly defined and universally agreed metrics will be required to achieve this.
- Fundamental amendments may be required to the Airspace Change Process (CAP 1616) and the Judicial Review process that increase the likelihood of implementing a change successfully in a relatively short timescale (2-3 years maximum). Implementation of a Single Design Entity (SDE) would contribute to this.
- There needs to be an urgent policy discussion about the potential for limiting further growth at airports or in the ATM system unless tangible improvements are delivered in terms of CO₂, non- CO₂, particulates or noise as a consequence of any airspace change. The government must provide clear guidance on the relative ranking of these environmental impacts of aviation.
- Effective international collaboration will be required to deliver these changes at both the regional and global level. This may require effort and resource to be deployed at the ICAO regional/global level and in other international forums.
- The government should consider appropriate standards and recommended practices for contrail management and practical testing. More information can be found in the latest RAeS publication link here: <https://www.aerosociety.com/media/20657/contrails-and-contrail-management-briefing-paper.pdf>.

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CONTACT

The Royal Aeronautical Society (RAeS) welcomes and encourages further engagement on this topic. Please direct all correspondence to the RAeS via the contact details below:

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