

CAA Environmental Sustainability Panel

Annual Report for the year ended 30 June 2026



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Chair's Foreword

It is a pleasure to present the Annual Report for 2025-2026 from the CAA Environmental Sustainability Panel (the Panel). The Panel continues to evolve alongside the Civil Aviation Authority's growing environmental sustainability agenda, supporting the organisation as it moves from strategy to delivery of long-term environmental outcomes. I started my role as Chair in June 2026 and wanted to thank my predecessor Ruth Mallors-Ray OBE for leading the Panel over the last four years. I look forward to continuing her work.

Environmental challenges facing aviation are growing in scale and complexity. The sector is focused on meeting ambitious decarbonisation goals, whilst delivering economic growth, innovation, and connectivity. Wider environmental issues, including climate adaptation, public health, noise, air quality and non-CO₂ impacts, are crucial topics for industry and its investors, for the public, government, and regulatory bodies. The Panel brings independent scientific, technical, and strategic expertise to these discussions. Our key role is to support the CAA, ensuring that environmental sustainability is embedded in its work and decision-making.

The Panel are especially proud of the support and impact they have had over this year in driving the CAA's development of its Aviation Environmental Review. This includes the constructive relationship they have built with the delivery team, that has supported the CAA to report effectively on a wider range of environmental topics.

A further important achievement in 2025-2026 has been advising the development and publication of the CAA's refreshed Environmental Sustainability Strategy. The move to an outcomes-focused strategy is an important step forward, balancing a clear long-term vision with flexibility to respond to a rapidly evolving policy, technological, and regulatory landscape. The Panel has provided challenge and ideas throughout the strategy refresh process and looks forward to supporting its implementation.

The Panel is widening the CAA programmes it provides advice to. This now includes the CAA's price control processes, climate adaptation planning, and the ongoing evolution of environmental metrics.

Climate adaptation has emerged as an important focus as the impacts of climate change become visible across aviation operations and infrastructure. The Panel has encouraged a systems-based approach to resilience that considers operational, environmental, consumer, and public safety impacts alongside the complex interdependencies that exist across the aviation sector.

The Panel has continued its commitment to knowledge sharing on environmental matters across the CAA. Through presentations, discussions, workshops, and lunch-and-learn events, Panel Members are helping to build understanding and capability across the CAA.

This remains one of the most rewarding aspects of the Panel's work and an important contribution to embedding sustainability considerations across the CAA.

Having started my role in June of 2026, I am keen that the Panel increases its engagement with the Board and Executive Committee, to bring environmental sustainability into the heart of CAA decision making. It will remain committed to providing independent advice, constructive challenge, and evidence-based thinking, as the CAA continues to navigate these important issues.

Dr Sally Howes OBE

CAA Environmental Sustainability Panel Chair

Chapter 1

About the CAA Environmental Sustainability Panel

The CAA Environmental Sustainability Panel (the Panel) is a non-statutory group of independent experts providing scientific, technical, and strategic advice on environmental sustainability topics relevant to the CAA.

It offers expertise on a range of topics, including noise, emissions, air quality, operational efficiency, environmental economics and innovation, to help the CAA understand developments that may affect aviation's environmental impact in the short, medium, and long term.

The Panel's work focuses on activities that fall within the CAA's statutory remit or reasonable influence. This includes:

- Providing expert technical advice to support the CAA's work programme relating to its environmental roles, or on specific tasks as requested by the CAA;
- Helping the CAA to understand and take account of environmental interests and impacts in its regulatory policy and framework. Although the Panel is not expected to review or comment on individual regulatory decisions;
- Challenging and supporting the CAA on progress towards its strategic aim of improving environmental performance within the aerospace sector, including informing the delivery and future evolution of the CAA's Environmental Sustainability Strategy (the Strategy); and
- Providing advice, critique and recommendations on the CAA's research, and identifying where further research is needed to inform the CAA's sustainability agenda.

The Panel undertakes these activities by providing advice to CAA leadership and teams, both reactively and proactively:

- Reactively, by responding to CAA requests for advice; and
- Proactively, by using the Panel's expertise to identify where the CAA could strengthen its impact or be better informed of evolving environmental issues.

Panel Member biographies are included at the end of this document.

Panel Members excuse themselves from discussions where there is an actual or perceived conflict of interest.

Chapter 2

Understanding Our Impact: 2025 – 2026

This report sets out our work from 1 July 2025 to 30 June 2026. Over the last year, the Panel has focused on five areas:

1. Providing strategic advice and independent scrutiny of relevant environmental sustainability issues including responding to requests from the CAA's Board and Executive Committee;
2. Working with CAA teams on specific Annual Strategic Objectives (ASOs) where environmental sustainability can be influenced;
3. Supporting the delivery of the CAA's Environmental Sustainability Strategy's objectives by challenging progress of projects that support the Strategy;
4. Supporting the development of the refreshed Environmental Sustainability Strategy; and
5. Increasing knowledge, understanding, and awareness of environmental sustainability across the organisation.

Providing strategic advice and independent scrutiny of relevant environmental sustainability issues

The Panel developed and delivered two board-level briefings for the CAA – one on production routes and public expectations of Sustainable Aviation Fuel (SAF), and a science briefing on contrails and contrail cirrus. These briefings highlighted current scientific consensus and potential roles for the CAA in these areas.

On SAF, the Panel's key messages to the CAA have been:

- The term 'sustainable aviation fuel' is very used widely and has gained media and public recognition, with an implicit assumption that if used it mitigates the negative climate impacts of air travel. For the avoidance of doubt, SAF does not cancel out the negative climate impacts of air travel.
- The actual carbon savings generated by using a fuel that meets current SAF definitions is highly variable depending on the provenance of the feedstock and the production route.
- There is a risk of a gap between the technical qualification of a fuel as SAF, and public expectations of its improved environmental performance. Consumer scrutiny may become particularly intense where a price premium is attached to airlines that use SAF, ultimately reflected in higher ticket prices.

- The Panel has encouraged the CAA to build its awareness and understanding of the co-benefits of SAF beyond climate impacts, including potential benefits to local air quality.

On contrails and contrail cirrus, the Panel has advised the CAA that:

- Only contrail cirrus (contrails that spread into cirrus-like clouds) is important with regards to climate impacts. Not all contrails become contrail cirrus.
- Models can predict contrail formation very easily, but they cannot predict contrail persistence or the formation of contrail cirrus easily or well.
- The best estimate of the size of the effect of contrail cirrus on climate is still subject to substantial change. The science community is not in agreement that contrail cirrus has a larger present-day impact than aviation CO₂ on climate change.
- The scientific uncertainties associated with contrail cirrus remain large, and the effect can only be quantified with low confidence.
- Actions on aviation climate mitigation and adaptation should remain focused on where science is clear, mature, and certain in its conclusions. Reducing and removing CO₂ emissions from aviation-related activities remains the highest priority and the most significant impact on climate in the atmosphere today.

Delivery of the strategic advice was supplemented by the Panel's Annual Conference in January 2026, which was open to all CAA colleagues. Details of this are set out below.

Working with the CAA on specific ASOs

Enhanced environmental information

The Aviation Environmental Review (AER) has been a key area of Panel engagement and support to the CAA throughout 2025-2026. The Panel considers the CAA's development and evolution of the AER over this period one of its key achievements, which demonstrates how it successfully fulfils its role in advising and challenging the CAA to deliver a key environmental sustainability duty. The Panel considers that the AER can be a key lever and tool for the CAA to drive aviation sustainability. It will continue to support the CAA to shape the AER into a more comprehensive, accessible and authoritative source of environmental information for the sector and all stakeholders.

The Panel supported development of the [AER Roadmap](#), published in September 2025. It provided advice on how the AER could move beyond traditional reporting of carbon emissions, noise and air quality to provide a more complete picture of aviation's environmental impacts, mitigation activities and progress towards environmental objectives. Advice on a range of technical and methodological areas was provided. This included airspace efficiency metrics, SAF reporting, passenger emissions indicators, noise

and air quality metrics, and the use of airline and airport data to improve analytical capability. Members have stressed the importance of using credible and consistent methodologies, and ensuring environmental data remains understandable to non-specialist audiences while retaining sufficient technical rigor to support policy development and regulatory decision-making.

For the next iteration of the AER, the Panel is giving particular attention to the CAA's ambition to improve the availability, transparency, and accessibility of environmental information for public audiences. The Panel is supportive of the inclusion of new datasets and flagged the opportunities of including enhanced air quality reporting to include Ultra Fine Particles (UFP), information on SAF uptake and climate adaptation indicators. Strong support was expressed given for greater emphasis on public health impacts, particularly in relation to noise and air quality, with calls for more research and stronger recommendations linked to health outcomes. Occupational exposure of aviation ground workers to fine and ultrafine particulates has also been considered. The Panel also encouraged the CAA to ensure that the AER 2026's recommendations are focused, actionable and strategically aligned with a clear long-term vision for improving environmental performance across the aviation sector.

Economic regulation of Heathrow

The Panel supported the CAA's Economic Regulation team by exploring the opportunities and levers available through the price control process to influence Heathrow's environmental performance. The Panel has provided advice on how the CAA could approach its review of Heathrow's H8 business case submissions from an environmental sustainability perspective, including on the importance of using whole lifecycle and systems thinking, and providing guidance and challenge on the level of evidence that may be requested to justify environmental investments. Members emphasised the importance of robust options appraisal, clear environmental metrics and transparent assessment of proposed sustainability benefits within HAL's (Heathrow Airport Limited's) business cases. The Panel reiterated the importance of HAL's long-term planning for sustainability initiatives, rather than only within the five-year price control cycle, and the need to future proof investments through consideration of climate adaptation and resilience objectives.

Enable hydrogen-powered flight

The Panel supported the CAA's Zero Emission Flight team in developing the hydrogen regulatory roadmap, by providing examples of how these roadmaps are developed in other industries and good practice. The Panel also regularly discussed the broader context of hydrogen and its implications for the aviation industry. The Panel flagged issues of availability, safety, and environmental costs and benefits including views around where there are uncertainties in hydrogen as a viable future technology. Potential environmental impacts of hydrogen in its production, storage, and transport use have been identified.

Supporting the delivery of the CAA's Environmental Sustainability Strategy through other projects

As well as supporting delivery of the CAA's ASOs, the Panel has provided input on other CAA projects and programmes of work where there is an opportunity to influence sustainability.

Noise projects

The Panel has engaged several CAA projects related to aviation noise, including:

- The [Aviation Noise Attitude Survey \(ANAS\)](#), which was published in April 2026. As the CAA planned the next stage of ANAS work, the Panel provided suggestions for consideration including the impact of respondent characteristics and impact of the post-pandemic rebound in noise on health and quality of life.
- The noise impacts of new technologies, including the different types of noise created by future flight technologies such as drones and EVTOLs. The Panel highlighted the value of noise attitude surveys and the importance of the CAA influencing these to be carried out to gather evidence, including the value of collaborating with other industries to ensure consistency. The Panel also made suggestions of how the CAA could build noise data gathering into its regulatory sandbox processes to ensure an understanding of drone noise is built in from an early testing stage, and alongside safety testing. The Panel repeatedly encouraged the CAA to consider whether public health should be considered as part of the consideration of safety.
- The Panel consistently emphasised the need to consider the public health impacts of aviation noise and encouraged the CAA to use its influence to drive greater industry action and accountability to minimise noise.

Industry growth

The Panel supported the CAA's consideration of 'good growth' in the context of a generic airport expansion from an environmental perspective, with a focus on examining the economic research around the benefits of airport expansion.

The Panel critically reviewed the assumptions used to underpin commonly cited economic assessments of the impacts of expansion. This included cost benefit analyses and the calculation of GDP, and how these may (or may not) accurately capture and account for the environmental impacts of growth. The Panel challenged the CAA to consider how environmental effects should be considered as part of measuring growth and productivity, including the impacts on public health. The Panel advised that uncertainties related to public health do not necessarily need to be considered differently to other uncertain elements of a cost benefit analysis.

The Panel encouraged the CAA to consider the whole aviation system where it has decision making powers and influence as part of its consideration of what 'good growth' may look like.

Climate adaptation

Climate adaptation has received increased focus from the Panel during 2025-2026, as the CAA continues to define its role in supporting a resilient aviation sector in the face of a changing climate. The Panel provided advice and challenge on the development of the CAA's Climate Adaptation Strategy. It emphasised the need for a systems-based approach to consider not only direct climate hazards, but also the interdependencies and potential systemic failures that can arise across the wider aviation network.

The Panel highlighted the importance of understanding how climate-related risks may affect aviation infrastructure, operations, safety, and consumer outcomes over the coming decades. These risks include those arising from flooding, coastal change, extreme temperatures, severe weather events and increased turbulence.

The Panel encouraged the CAA to take a stronger leadership role in setting clear regulatory expectations for climate adaptation across the aviation sector. Panel members suggest the CAA moves beyond a "watching brief" approach to climate risks, to ensure that adaptation planning translates into tangible actions to improve long-term resilience. The Panel also highlighted the need to improve how climate adaptation is linked to consumer impacts, public health and industry accountability. Whilst at the same time, improving communication of climate risks through clearer language, stress-testing scenarios, and stronger use of data and evidence.

Supporting the delivery of the refreshed Environmental Sustainability Strategy

The Panel has had an active role in supporting the development of the CAA's refreshed [Environmental Sustainability Strategy](#), which was published in May 2026. It has provided advice on strategic direction, to ensure the Strategy remains evidence-based, outcome-focused and aligned with both the CAA's wider strategic objectives and the evolving environmental challenges facing the aviation sector.

A significant area of advice has been the development of a new outcomes-focused framework, in contrast to the previous activity-based approach. The Panel strongly supported the adoption of a systems-thinking approach and helped shape the three long-term environmental outcomes that now underpin the Strategy: Climate Impacts; Public Health and Local Impacts; and Resilience and Adaptation to Climate Change. Members advised on how outcomes could be articulated, measured and linked to practical regulatory, research, reporting and influencing activities.

Increasing knowledge, understanding, and awareness of environmental sustainability across the organisation.

The Panel has continued to build the CAA's knowledge and awareness on relevant environmental sustainability issues.

In January 2026, the Panel delivered its annual conference to the CAA, covering a wide range of environmental sustainability topics. This included sessions on consumer expectations of SAF, the science of contrails, ultrafine particles, and market based measures. This was well received and increased the Panel's profile as a valuable resource and source of insights for the whole organisation.

The Panel has shared research and reports through the CAA's Sustainability Learning Hub, an internal resource for CAA colleagues to build their knowledge and understanding of environmental sustainability topics. The Panel has also delivered several webinars to a broad CAA audience, including on aviation's impact on air quality and how airspace can support moving to net zero.

Panel Members

Dr Ruth Mallors-Ray OBE (Panel Chair until May 2026)

Ruth Mallors-Ray holds a BSC and PhD in Chemistry, is a Fellow of the Royal Aeronautical Society and was awarded an OBE in 2015 for services in science and innovation. Ruth has held positions including Chief Operating Officer of the Aerospace Technology Institute and Director of the Aerospace, Aviation and Defence Knowledge Transfer Network. Ruth is also a Non-Executive Advisor at the National Composites Centre.

Dr Sally Howes OBE (Panel Chair from June 2026)

With an early career in international satellite programmes, Sally has worked in the aerospace, defence, digital, cyber, government, and higher education sectors. Currently the Chair of the University of East Anglia, she also supports those leading major programmes in the public sector, helping them to address complex digital transformation, commercial and governance challenges. Her executive career has included member of leadership team in the National Audit Office, Commercial Director in MOD, CEO of the national trade association for aerospace and founder/managing director of a start-up technology and consulting company in the space sector. She was awarded an OBE for services to the UK space industry in 2004.

Professor Charlotte Clark

Charlotte is a Professor in Environmental Epidemiology at City St George's, University of London. She is an expert in applying social science to the issue of noise effects on health and communities, and has broad experience working with airports, regulators, governments and communities. Charlotte will bring objective and evidence-based advice on the impacts of noise on the community to the Panel.

Dr Martin Hawley

Martin is an expert in Air Traffic Management (ATM), with nearly thirty years' experience working at the interface of business, technology and operations - in airport, terminal and enroute contexts. He has a long-standing interest in sustainable aviation and has analysed the impact of numerous new technologies and innovative operations on improving flight efficiency. He is a strategic thinker with international experience and a background in academic research.

Dr Ralitsa Hiteva

Ralitsa is a senior environmental research and policy expert with experience shaping and evaluating sustainability, environmental policy, and innovation, across transport, aviation and energy sectors. She has a background in leading high-impact evidence-based research and providing strategic advice to regulators and senior decision-makers. Her work focuses on the role of innovation in systemic change and consumer vulnerability, particularly in the context of digitalization and decarbonisation.

Professor David Lee

David is a Professor of Atmospheric Science and Director of the Centre for Aviation, Transport, and the Environment (CATE) at Manchester Metropolitan University. With 25 years of experience as a specialist in climate science, having participated in many assessments of the Intergovernmental Panel on Climate Change, he is skilled in developing the links between science and policy. He has particular interest in the policy aspects of mitigating the impacts of aviation on climate.

Professor Alastair Lewis

A Professor of atmospheric chemistry at the University of York, Alastair has over 25 years of experience in scientific research on the environmental impacts of transport, fuels and combustion on public health, climate change and the response of ecosystems. He is also the Science Director for the National Centre for Atmospheric Science, and is passionate about communicating science, technology and risk to the public.

Professor Anil Namdeo

Anil is a Professor of Air Quality and Net Zero at Northumbria University. His research focuses on environmental and sustainability assessment of land use, transportation and other developmental policies. Passionate about translating scientific information in easy-to-understand language, his overall focus is on developing win-win policies by providing scientific expertise to support analysis and trade-offs between carbon, noise and air quality.

Professor Brian Pearce

Brian is an Honorary Professor at University College London, and Executive Director of UCL's Air Transportation Systems Laboratory. He is also President of the European Aviation Conference Institute, a Visiting Professor at Cranfield University and a Fellow of the Royal Aeronautical Society. Brian was previously Chief Economist at the International Air Transport Association, during which he was a member of Air New Zealand's Sustainability Panel and an expert adviser to the Airports Commission. Previous appointments include: Director of Sustainable Investment at Forum for the Future, Technical Director at ERM, and head of global economics at SBC Warburg Dillon Read.

Professor Mark Westwood

Mark is a Professor and Head of Centre for Aeronautics at Cranfield University. A technology leader and specialist in aerospace and autonomous systems, including R&D in drone and advanced air mobility sectors, he is passionate about exploring the opportunities presented by new technologies and developing them into sustainable, practical real-world applications.