CAA Environmental Sustainability Panel

Annual Report for the year ended 30 June 2025

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Chair's Foreword

It is a pleasure to share the Environmental Sustainability Panel's end of year report for 2024-2025, it seems but a moment ago we were publishing the 2023-2024 report. The role of the Panel remains steadfast in its aim of equipping the CAA with insights, latest research and deeper understanding of environmental matters in the context of aviation. Across the board, nationally and globally, the aviation sector's trajectory is one of growth laced with innovation in aircraft design and build, airspace modernisation and airport expansions. The CAA continues to better understand its levers of influence and/ or regulatory compliance to support both growth and environmental sustainability.

It has been a year of interest for the panel; now in our 4th year, this being our 3rd Annual Report, we have established a good cadence on discussion topics where there is most relevance, where the panel members can add insight and highlight emerging research. Topics such as Airspace Modernisation come in and out of the panel, whilst other topics are less regular visitors. This reflects the growing maturity of the panel and the environmental team in the CAA, knowing where inputs are going to be of most value. The panel has remained consistent in approach highlighting the science, referencing developments from across the UK, Europe and beyond, to bring knowledge, understanding and evidence to the CAA capabilities. It remains challenging to bring insights across such a broad spectrum that balance growth and environmental sustainability, but this duality of approach remains at the forefront of the Panel's thinking.

We have been joined by 2 new panel members this past year too. Honorary Professor Brian Pearce, Executive Director at Air Transportation Systems Laboratory, University College, London and Ralitsa Hiteva, Senior Research Fellow in Net Zero and Innovation at the University of Sussex. They have contributed from the outset to the work of the panel, and their expertise is being felt across multiple discussions. We look forward to we look forward to another year of discussion and knowledge exchange with CAA personnel.

This will be my final report as Chair of the Panel, I am now in my fourth year as the Chair of the Environmental Sustainability Panel and in May 2026 I will be stepping down. I have loved this role, both the CAA and the Panel are committed to aviation, ensuring its success for the decades to come, it has been a joy to part of their endeavours.

Dr Ruth Mallors-Ray 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.

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

Our work is limited to focuses on those activities that fall within the CAA's statutory remit or reasonable influence. These include:

- Providing expert technical advice to the CAA 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 will not be expected to review or comment on individual regulatory decisions);
- Challenging and supporting the CAA on its progress towards its strategic focus of improving environmental performance, both within the aerospace sector and within the CAA itself, including informing the delivery and future evolution of the CAA's Environmental Sustainability Strategy (the Strategy);[1] and
- Providing advice, critique and recommendations on the CAA's research and identify where further research may be needed to inform the CAA's sustainability agenda.

We undertake these activities by providing advice to CAA teams and to the CAA leadership both reactively and proactively:

- Reactively, by responding to CAA requests for input/expertise on incorporating environmental sustainability into its work; and
- Proactively, by using our expertise to identify where the CAA could strengthen its impact or be better informed of evolving environmental issues.

We have limited capacity, so we prioritise our work by asking six key questions before embarking on any given project:

- Does it fall within the Panel's remit?
- Is it an area where the CAA is best placed to effect change?
- Is it (or could it be) a priority for the CAA?

- Is it an area which is poorly understood or not represented which could benefit from additional focus?
- Is the requirement of the Panel explicitly clear in the activity?
- Does the impact of the work have the potential to inform future developments to enable aviation to mitigate its environmental sustainability impacts?

The Panel does not:

- Campaign publicly or deal with individual complaints from the public.
- Represent or correspond directly with air travellers, industry or community groups unless requested to do so by the CAA.
- Involve itself in or comment on operational issues or complaints raised by individuals, such as noise from flight paths.

Member biographies are included at the end of this document.

Chapter 2

Understanding Our Impact: 2024 – 2025

This report sets out our work from 1 July 2024 to 30 June 2025. Over the last year, we consolidated our role as a trusted resource for the CAA and continued building our relationship with the CAA Board and working teams. We have achieved this through our continued focus on the following five pillars set out in our 2023-2025 and 2025-2027 work programmes, as set out below:

1. Supporting delivery of the CAA's Environmental Sustainability Strategy, including supporting its refresh.
2. Providing technical advisory support, especially around programmes of work that are part of the CAA's Annual Strategic Objectives or have an environmental sustainability focus.
3. Collaborating with the CAA Consumer Panel on areas of cross over between the two expert panels.
4. Providing strategic input from the Panel to the CAA Board and Senior Leadership Team, including independent scrutiny and advice on relevant environmental sustainability issues.
5. Supporting the CAA's knowledge, understanding and awareness of environmental sustainability.

Our work during the year of this report in these areas is set out below.

Supporting Delivery of the CAA Environmental Sustainability Strategy

We have continued to support and challenge the Environmental Sustainability Strategy's (the Strategy) delivery as the CAA shapes its policies across its regulatory and advisory roles. The Strategy defines the CAA's roles as leader, regulator, influencer, and observer, with a focus on clear and consistent communication.

The Strategy is in the process of being refreshed, with a planned publication in Spring 2026. The Panel has continued to support the team in delivery of the strategy by:

- Providing advice on the future development of the Environmental Sustainability Strategy, including supporting the CAA in how it could move to an outcome-focussed strategy and the use of systems thinking in policy development.

- We provided feedback on the outcomes the CAA is considering as part of its Strategy refresh. This helped the CAA by ensuring it had a robust level of knowledge around each environmental impact from a scientific point of view, that it had taken a thorough approach to deciding which outcomes it will include in its refreshed Strategy and how these could be phrased and (where possible) measured, and were supported to understand which part of the aviation system could best be placed to deliver against each outcome (including where the CAA could play a role).
- Members of the Panel contributed their expertise to systems thinking workshops led by the CAA. Systems thinking enables participants to understand the complexity of interconnected systems rather than isolated environmental themes. By attending these workshops, we have helped the CAA better model and conceptualise both the impact of aviation on the environment, and the levers of change available to influence future developments in the sector.

Providing Technical Advisory Support

We have continued to respond to requests from CAA teams for input and expertise on environmental sustainability issues arising from the CAA's work programme, including;

- We have been supporting the development and strategic planning of the UK's Aviation Environmental Review (AER). This has included strategic advice on the AER's target audience and possible data sources and advising the CAA's Sustainability Team in developing a five-year roadmap for the AER. We have also provided technical input on sustainability topics covered by the AER, including air quality, emissions and noise.
- We provided guidance on best practice peer-review processes, to support the Aviation Noise Attitude Survey (ANAS) being undertaken by the CAA. The Panel provided its views on how to clearly define the project's scope for review, how to assign reviewers to specific areas to ensure the most effective feedback, and how to ensure reasonable compensation.
- We provided views to the CAA's Airspace Modernisation team, including on how the Airspace Modernisation Strategy's (AMS) 4th objective on environmental sustainability could be interpreted and defined by airspace change sponsors.
- We have supported the CAA's Economic Regulation team in developing their approach to sustainability as part of the Heathrow H8 price control process, including by providing views on how the CAA could approach measurement of proposed sustainability benefits of various initiatives.
- We have been kept up-to-date and stand ready to assist and provide technical advice to other CAA sustainability workstreams, such as the Hydrogen Challenge.

Providing Strategic Input from the Panel

We bring diverse expertise from aviation and other sectors to benefit the CAA. By providing input to the CAA Board and ExCo, we can support the CAA's strategic decision-making by raising awareness with the CAA's senior leadership of different approaches to sustainability challenges, share lessons learned from other industries and identify opportunities for collaboration by the CAA to drive improve sustainability outcomes for the industry.

We have continued to develop board-level briefings for the CAA. These briefings aim to help the Board make informed decisions by highlighting current scientific consensus around certain sustainability challenges. This may include the sustainability implications of new technologies and their relevance to the CAA's role in enabling their development, such as Sustainable Aviation Fuel (SAF).

As part of our 2025-2027 work programme, we are supporting delivery of the CAA's Annual Strategic Objectives (which are themselves a part of the CAA's Strategy) where they relate to environmental sustainability. This will help embed sustainability into high-level planning and decision-making processes, rather than treating sustainability as a standalone issue.

We have continued to highlight and discuss emerging scientific, economic and regulatory issues that will impact the aviation sector and may warrant the CAA's attention. Discussions have taken place around climate adaptation, the work of the Climate Change Committee and the 7th Carbon Budget, and Heathrow's proposed third runway. We have also highlighted current scientific thinking, uncertainties, and current gaps in research and methodologies surrounding the global-warming impact of contrails, the impact of aviation noise on public health, and developments surrounding alternative fuel sources such as hydrogen and SAF.

We also provided strategic guidance on a sustainability reporting dashboard outlining work the CAA is performing as part of its sustainability portfolio. This dashboard was later presented at the Sustainability Portfolio Board, which included members of the Senior Leadership Team (SLT) at the CAA.

Supporting the CAA's Knowledge, Understanding and Awareness of Environmental Sustainability

A core role of our Panel is to build the CAA's understanding of environmental sustainability. We aim to provide not only technical knowledge of different environmental impacts and effects but also help the CAA to understand where there are uncertainties in scientific knowledge.

We have worked to identify the most effective communication channels in the CAA for us to share our scientific expertise and embed knowledge across the organisation.

Collaboration with the consumer panel

The Panel collaborated with the Consumer Panel in the development of their work programme dashboard. The chairs of our Panel and the Consumer Panel met during the year to ensure lines of communication between the two panels remained open.

There is a growing intersection between consumer and sustainability interests in aviation. As part of its focus on the CAA's Annual Strategic Objectives as part of its 2025-2027 work programme, the Panel will be exploring this intersection in greater detail.

Panel Mini-Conference for CAA Senior Leadership Team

To better communicate with senior members of the CAA, we have established the Panel Mini-Conference as an annual tool to deliver targeted engagement with the CAA. We ran the inaugural mini conference between the Panel and the CAA, directed at the 70 or so members of the CAA Senior Leadership Team (SLT), on 28th November 2024.

The mini conference provided an opportunity to deepen SLT's understanding of environmental sustainability issues, both in terms of emerging evidence and developments beyond aviation. We worked with the CAA SLT to identify priority sustainability issues and prepare input where the CAA SLT had a specific strategic interest in developing their understanding, including the impact of different forms of noise (e.g. drones vs road noise) and potential engineering routes for SAF.

The Mini-Conference provided SLT with an opportunity to engage in open, direct dialogue with the Panel. It strengthened the CAA SLT's understanding and broadened their perspective on key sustainability issues, helping incorporate robust environmental thinking in senior level decision making.

Webinars for all CAA staff

We have continued to host regular webinars for all CAA staff to raise awareness of sustainability issues across the wider CAA. This includes topics such as how airspace efficiency can contribute towards Net Zero and the impact of aviation on local air pollution. These sessions aim to improve understanding and build sustainability literacy amongst CAA staff on the environmental impacts of aviation and the role the organisation can play in addressing them. The webinars have been attended by a wide range of CAA colleagues from across the organisation and have helped embed sustainability in the CAA's internal working culture, by increasing awareness of relevant sustainability topics and issues.

Sharing of information

The Panel regularly shares relevant new research and news articles with the CAA to ensure there is broad awareness of the current sustainability paradigm in the aviation sector. Topics shared with the CAA have included ultrafine particles, the climate impact of contrails, space launch impacts, noise and air pollution health impacts/inequalities, uncertainties around the sustainability credentials of SAF/hydrogen and flight efficiency

metrics. This ongoing exchange supports the CAA in building its sustainability literacy and staying ahead of emerging environmental issues and ensuring decisions reflect the latest scientific understanding and public health considerations.

Members

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.