
CAA Environmental Sustainability Panel
Interim Work Programme:
October 2022 – March 2023



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1. About the CAA Environmental Sustainability Panel

Who we are

The CAA Environmental Sustainability Panel (the Panel) is a group of eight independent experts who bring together expertise and experience, along with strategic thinking, on a wide range of environmental sustainability topics. Our members' biographies can be found at the end of this document.

What we do

The Panel is a specialist, non-statutory body, which acts as a critical friend, giving expert advice to the CAA as policy is being developed, and ensuring environmental sustainability is considered in the thinking and work of the CAA. Our objective is to bring expertise, insight and challenge into the CAA's work programme where it is related to environmental sustainability.

The key activities of the Panel are to:

- provide 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, including input to the CAA's response to any relevant external consultations;
- help 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);
- challenge and support the CAA on its progress towards its strategic focus of improving environmental performance, both within the aviation and aerospace sectors and within the CAA itself, including informing the delivery and future evolution of the CAA's Environmental Sustainability Strategy; and
- provide advice and critique on the CAA's research and help identify where further research may be needed to inform the CAA's sustainability agenda.

What we do not do

The Panel will 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;
- be involved in or comment on operational issues or complaints raised by individuals, such as noise from flight paths.

Our remit

Our work shall be limited to those activities that fall within the CAA's statutory remit or reasonable influence.

Chair's Foreword

Aviation is a force for good for both societies and economies, nationally and across the globe, connecting people and businesses as aircraft criss-cross across our skies. But it leaves a harmful mark on the environment, in terms of global warming, local air quality and noise annoyance, that must be arrested and reduced/removed as far as possible. The transformation required by the whole sector to halt the damage to the environment, on both a global and a local level, is considerable and every component of the aviation system must play its part – this includes the Civil Aviation Authority, CAA.

The urgency of moving aviation to become a sustainable industry has been highlighted in recent times by the Government's sixth climate budget in 2021, which included aviation and maritime emissions for the first time. COP26, held in 2021, also resulted in a declaration of shared objectives towards reductions of aviation emissions. The historic agreement at the 2022 ICAO General Assembly of a goal of net zero international aviation emissions by 2050 has put all countries on a path to decarbonising aviation.

Recognising the collaborative effort required to create an environmentally sustainable sector, the [Jet Zero Council](#) published the Jet Zero Strategy in July 2022. The Strategy comprehensively lays out the pathways to be taken so that the UK meets its own target of net zero emissions for domestic flights by 2040. These actions will then be felt across the international market as solutions are deployed. Solutions incorporate transformations across the board of both technology and operations. The role of the CAA is pivotal to support these transformations as the regulator to the sector, but much of this transformation is uncharted.

In addition to this, in 2021, the Government wound up the Independent Commission on Civil Aviation Noise (ICCAN) and asked the CAA to take on some of ICCAN's technical, research and policy advisory functions. Through discussion with the Government, The CAA agreed to take on noise research and the function of developing and maintaining best practice guidance on issues related to operating restrictions, noise management including metrics, engagement and enforcement. This work complements the CAA's existing regulatory, commercial and advisory functions in relation to noise.

In response to these two events and wider global developments, the CAA published its first [Environmental Sustainability Strategy](#) in May 2022, with the aim of bringing greater clarity to its diverse role in environmental transformation. The Strategy is presented as an overarching approach that the CAA is taking both as the aviation industry's regulator but also as an environmentally-responsible organisation. As the sector knows, aviation's role in environmental matters is complex, complicated and influenced by a vast array of moving parts. The CAA, recognising the need to have access to knowledge, research and a holistic view of environmental and technical levers to support the delivery and evolution of

its Strategy, established the Environmental Sustainability Panel (the Panel) in June 2022 to act as a 'critical friend'.

The Panel is made up of independent experts, spanning noise, air pollution, all climate emissions, airspace and aircraft design. It is a rounded expert function established to support the CAA in its execution of its environmental strategy and much wider policy aspects where environmental aspects must also be considered in policy outcomes. Panel members are presented on page 17 of this document; it is my great pleasure to be working with them as we support, advise and challenge the CAA.

This is the Panel's first work programme since we were established in June 2022. It is an intentionally short-term programme to enable us to settle into our role of advisor and critical friend to the CAA. Our next work programme will span an 18- to 24-month time frame to bring some longevity to the Panel's efforts. Our primary focus over the next few months is to ensure our role is well formulated, that we as a Panel mature our role as environmental advisor to the CAA and that we are able to work collaboratively with the Consumer Panel as it drives forward its own work programme.

The Panel will work proactively and responsibly with the CAA, responding with clarity and deftness to requests and offering insight as they execute their own business plans and actions.

Dr Ruth Mallors-Ray OBE FRAeS

Panel Chair

2. The Panel's vision

What we seek to provide to the CAA

The Panel will support and challenge the CAA on the delivery of its [Environmental Sustainability Strategy](#) (the Strategy) as it develops its policy and position across its regulatory and advisory functions. The Strategy seeks to reflect the role of the CAA in terms of leader, regulator, influencer and observer of developments, with an overarching imperative to communicate widely, iteratively and consistently. In supporting and challenging the CAA to carry out these roles, the Panel will have a role offering independent advice and commentary on the CAA's Strategy.

As a Panel, we want to ensure that the CAA is equipped with insight and evidence to inform the delivery of its Strategy and, as a result, the work it delivers to support the aviation community. We will also provide insight and expertise across a wide range of topics relating to environmental sustainability, and seek to inform the CAA on potential short-, medium- and long-term developments in aviation environmental sustainability.

Our approach to supporting the CAA will evolve as the Strategy beds in, as the wider CAA understanding of the environmental agenda develops, and as the Panel matures in its own operations. The Panel will work flexibly to take account of the wider context and circumstances around environmental sustainability, and adapt its work programme accordingly. We will work in accordance with our agreed [Terms of Reference](#).

How we prioritise our work

The Panel is a small, specialist policy resource for the CAA and will deliver high-quality, evidence-based advice in a way which is designed to maximise our impact. Given our limited capacity, we will prioritise our work carefully, 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 should 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 environmental sustainability?

We will manage our work programme to ensure that we balance both responsive short-term and longer-term work requests from the CAA, as well as our own strategic work pieces.

Development of this interim work programme

This work programme is intentionally a shorter-term work programme, intending to deliver the commitments set out below between October 2022 and March 2023. As the Panel was established in June 2022, and the CAA Strategy, resources and capabilities are early in their formation, we consider that an interim, six-month work programme will enable the Panel to properly establish ourselves as a cohesive advisor to the CAA, while developing a greater level of understanding of the CAA and its work that has an impact on environmental sustainability.

Longer-term work programme development

Over the period of this interim work programme, we will produce a longer-term work programme, for 12 to 18 months from April 2023 onwards, based on the activities outlined below and as we develop a wider understanding of the CAA. Our longer-term work programme will also develop our role offering independent advice on the CAA's Strategy.

3. Understanding Our Context

The Panel has developed this interim work programme based on the following sources of information:

- The CAA's Environmental Sustainability Strategy
- The CAA's Environmental Sustainability Team Work Programme
- Wider understanding of the CAA's programme of work where there are environmentally related agendas
- Environmental Sustainability Panel Strategic Issues
- Engagement with the Consumer Panel.

The CAA's Environmental Sustainability Strategy

The Strategy sets out how the CAA will work with the whole aviation system, both domestically and globally, to address environmental performance in aviation. While the CAA continues to ensure safety, security and consumer protection in the aviation sector, this new Strategy is ambitious in the way that it focuses the CAA's leadership and expertise, and prioritises sustainability across the following areas:

- enabling development of low and zero emission novel technology;
- co-leading the modernisation of airspace;
- reporting on the sustainability performance of industry, including noise, and providing information to consumers on the environmental impact of aviation;
- advising and supporting the UK government on domestic and international policy;
- reducing the impact of our corporate activities and operations;
- assessing local environmental impacts in relevant regulatory activity and monitoring how industry is adapting to climate change; and
- taking into account the environment in regulation and oversight.

The Strategy provides CAA colleagues, stakeholders, and those regulated by the CAA with clarity on the CAA's roles, remit and ambition. It explains what the CAA plans to deliver in the short and medium term, setting its vision within the long-term nature of climate change and the Government's and industry's evolving approaches.

At the time of publishing this Work Programme the Strategy was in its early days of implementation. The CAA intends the Strategy to evolve, and the development of the Panel's work programmes will be framed around this progression.

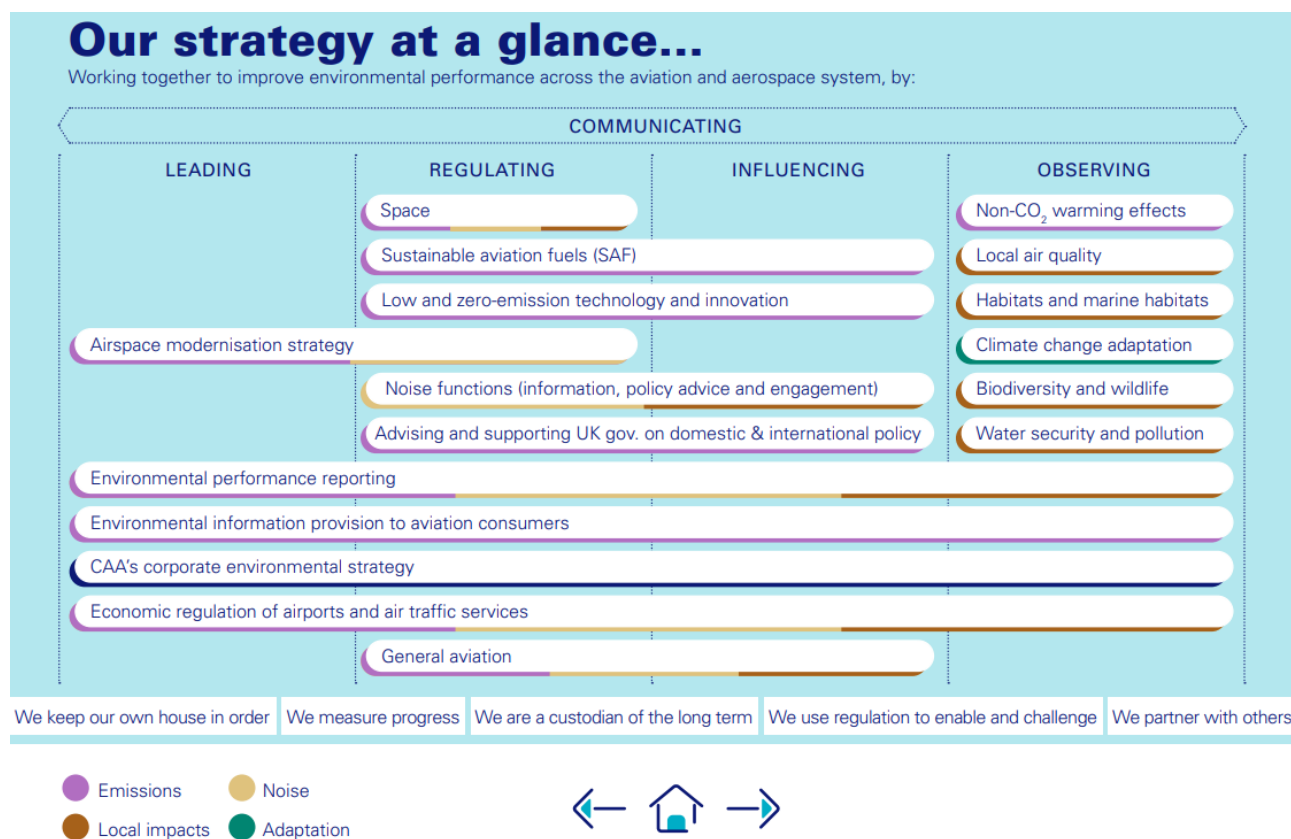


Figure 1: CAA Environmental Sustainability Strategy, May 2022, page 4

CAA's Environmental Sustainability Team Work Programme

The CAA has established a new Environmental Sustainability Team to drive the CAA's work to improve aviation's environmental performance.

The CAA's Environmental Sustainability Team leads on delivering the Strategy, with a work programme that also includes tasks specified by the Department for Transport. The establishment and running of the Panel is also one of the activities under the Team's remit.

The activities specified by DfT include:

- Research requirements and the reporting of insights. Considerations for research requirements will be made along a range of themes, including:
 - Environmental trade-offs - the consideration of the range of environmental emissions in terms of their interdependencies to consider and how different interventions affect the different environmental impacts.

- Carrying out specified functions taken on by the CAA following the winding down of ICCAN, including furthering ICCAN's initial Noise Metrics Comparison Study by expanding the noise metrics shortlisted and running comparisons for additional airports, and the Aviation Noise Attitudes Survey (ANAS) to continue work initiated by ICCAN to establish a new multi-year noise attitudes survey. The Team will also produce an Annual Report on Aviation Noise in the UK, including objective information on operational measures to mitigate noise and aviation-related noise trends across a sample of UK airports.
- Alongside DfT and other stakeholders, developing a proposed approach for reporting of aviation's carbon impact and produce initial reporting outputs.
- Strategy and an approach to engagement to develop, deliver and drive the Strategy forwards. This includes:
 - Consumer environmental information provision, to develop trust and consistency across consumer-ready information.
 - Ongoing external stakeholder engagement on sustainability issues.
 - Commission and manage external contract for review of engagement practices.

The Team expects its work programme to evolve and change as it continues to embed its role in the CAA and as environmental sustainability work continues to move at a fast pace and will keep the Panel updated on this.

Wider CAA Programme of Work

As the UK's aviation regulator, the CAA has remit to oversee and regulate all aspects of civil aviation in the UK. The understanding of environmental sustainability, and its applicability to the CAA's broad spectrum of work, is constantly evolving. At the time of writing the CAA understood its key priorities around environmental sustainability to be (in no particular order):

- airspace modernisation, with a particular focus on Environmental Sustainability (rather than the whole AMS). This includes questions of the trade-offs between carbon and noise;
- innovation, as aviation will need to adopt considerable levels of innovation as a result of technology convergence and its ambition towards a more environmentally sustainable future. Considerable levels of technology and economic regulation are required to enable adoption;
- provision of information to consumers about their carbon footprint; and

- non-CO₂ issues, including advice on what research is being done, potential future issues, what the CAA should be looking at now.

Environmental Sustainability Panel Strategic Issues

As part of meeting the Panel's role of supporting the CAA on progressing towards a strategic focus on improving environmental performance, the Panel members provided their 'top five' areas of interest in aviation environmental sustainability issues, in order to identify longer-term challenges that the Panel could advise to the CAA as being of interest. These were arranged into a number of themes, which are discussed below under the Panel work programme.

Engagement with the CAA Consumer Panel

The [CAA Consumer Panel](#) acts as a non-statutory critical friend, providing expert advice to the CAA as policy is being developed, and making sure the consumer interest is central. The Panel's objective is to champion the interest of consumers.

The Consumer and Environmental Sustainability Panels will engage regularly to explore topics and areas of work where both Panels can bring their respective areas of expertise, including the provision of environmental information for consumers, to ensure the CAA is able to make the best use of the expertise on both Panels.

4. Interim Work programme October 2022 to March 2023

The Panel's interim work programme, including planned outputs, from October 2022 to March 2023 is set out below.

Support Delivery of the Environmental Sustainability Strategy

The CAA Environmental Sustainability Team will report on Strategy development and implementation at each Environmental Sustainability Panel meeting. We will provide advice and insight from our areas of expertise to support Strategy delivery. This activity will be high level and may or may not result in specific actions to be taken by the Panel to collate insight, consider specific responses or validate the research / evidence that is being considered by the CAA in policy development.

Environmental Sustainability Team - Work Programme Inputs

The Environmental Sustainability Team work programme has specific areas where the Panel is able to input. In these instances, work will be allocated to specific Panel members to respond, develop inputs and/or create materials that the Environmental Sustainability Team is able to utilise to better inform their work.

In this initial 6-month Work Programme, we will support the CAA Environmental Sustainability Team by supporting work on the following projects, among other possible tasks:

- ANAS; and
- environmental consumer information provision.

Supporting wider CAA work developments

We recognise the many significant changes and challenges taking place in the aviation sector and wider economy at this time. To support the CAA in their wider work programme, we will:

- advise and challenge the development of consultation frameworks ensuring that the widest possible consideration of environmental sustainability is considered;

- ensure that the evidence being provided is of value, direct the CAA to additional research and directly provide Panel expertise into the shaping of relevant documents;
- provide advice and challenge to draft documents ahead of distribution to the CAA Board, Department for Transport and wider stakeholders.
 - This will include the Airspace Modernisation Strategy refresh work being undertaken by the CAA, including support around environmental trade-offs.
- support the CAA as it considers regulatory transformation in support of environmental sustainability, including on how the CAA engages with and the questions it asks in relation to innovative technologies (without ‘picking winners’).

Developing a long-term view: Panel Strategic Issues

The Panel members are experts in their areas of discipline bringing considerable understanding of the issues, challenges and opportunities facing aviation as it seeks to address its environmental footprint. Through a series of iterative discussions, we identified the following areas as longer-term environmental sustainability issues of potential wider interest to the CAA that we have capabilities to advise and challenge on:

- **Adaptation and resilience** – macro impacts that affect the ability of aviation to be sustainable. Includes consideration of human-made interventions (such as new aircraft), adaptations to reduce our environmental footprint, and adaptations to changes to the natural world (such as flying around increasingly frequent and disruptive weather events).
- **Data quality and availability** – decisions in aviation are influenced by data, information and research that inform decisions which are in play for considerable lengths of time; consideration of evidence to inform policy, industrial and regulatory change needs to balance both inherent certainties and uncertainties, as well as short-, medium- and longer-term developments. Consideration of the role of the CAA in terms of championing quality data.
- **Science of impacts of alternative aviation fuels** – implications on environmental performance. Consideration of the evidence around the environmental impacts of using alternative fuels, such as SAF, e-fuels and hydrogen and highlighting gaps of knowledge across the landscape. Providing comment on processes that have developed a fuel strategy, for example evidence support of a fuel strategy, but not commenting on the fuel strategy itself. Highlighting fundamental atmospheric science research gaps that the CAA may either seek out or directly support to provide a cross-discipline approach, and test the unintended consequences.

- **Electrification** – implications on environmental performance. Energy transition (including lifecycle energy efficiency) and wider acoustic and visual impacts of electric aircraft, in particular eVTOL.
- **Local health effects of aviation (pollution and noise)** – aviation’s wider environmental impacts on waste, health and ecosystems. Recognition of the global and local health impacts of aviation.
- **Finding best solutions** – considering where the CAA may want to consider its regulatory role (where it has discretion in its decisions), in order to find solutions that maximise benefits and minimise adverse impacts. The Panel should complement this with its scientific expertise to challenge the evidence used to support any decisions/policies where there are trade-offs required, including any fragility of that evidence. Not just about carbon vs noise, but about the interdependencies between different types of impacts of aviation. Bringing clarity to the complexity of trade-offs, including explaining what is realistically achievable, while highlighting uncertainties, and recognising that there is often a judgment call required that goes beyond monetary value.
- **Whole life cycles** – considering a circular economy and the environmental impacts over the entire lifespan of an aircraft. Implications of design and manufacture and whether CAA could have an influence on this and if so, where.
- **System effects/impacts** – a high-level overview of potential considerations around system effects and the impacts of aviation.

To support the CAA in developing longer-term understanding, a series of short papers will be produced. Each paper will follow a comparable format to bring consistency to the approach being taken:

- Each topic will be described in a succinct way highlighting the particular themes of environmental sustainability it is concerned with.
- Consideration of the issue and the questions that are arising will be made to expand on the explanation and to delve into the “problem statement”.
- The requirements of the CAA in this topic will be considered in particular terms of the CAA’s leading, regulating, influencing or observing roles across aviation.
- Some insights will be provided on what could be done to better understand the issue, paying particular attention to the possibility of evidence gathering or research requirements.
- Finally, the paper will highlight the timeliness of the issue in terms of it being likely to arise in the short, medium or long term to aid a wider understanding of possible future priorities of CAA consideration.

These papers will support the development of a longer-term Panel work programme, and inform the CAA's own strategy developments by supporting knowledge and capability development in the organisation.

Recognising that environmental sustainability issues may advance quickly, the Panel will also keep a watching brief on other developments, including around non-CO2 emissions, and offer the CAA views on whether these developments should be brought forward as an area of interest or urgency.

Who we are

Chair

Dr Ruth Mallors-Ray OBE FRAeS, Chair

Ruth has a broad and extensive understanding of both the aviation industry and the complex relationships between government, industry, academia and the public. An Associate Director of Connected Places Catapult and Chair of the Strategic Advisory Board of the Digital Supply Chain Innovation Hub, and the former Chief Operating Officer of the Aerospace Technology Institute, Ruth has significant experience of strategy development and execution with a focus on challenge led innovation with impact. She is an experienced chair of technical and advisory panels, focusing on engagement and consensus building on complex topics, with a strategic approach to act in the best interests of the whole and achieve the outcomes for a range of stakeholders.

Members

Professor Charlotte Clark

Charlotte is a Professor in Epidemiology at 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 and airports, especially around the interfaces of business, technology and operations. His experience and skills include climate technology, environmental economics, sustainability innovation and performance indicators. He brings wide international experience and a strong grounding in research methodology.

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 general public.

Dr Chikage Miyoshi

Chika is a Reader in Environmental Systems for Aerospace at Cranfield University Academic. She is involved in developing multidisciplinary research projects with a focus on the environmental and economic elements of aviation, and brings expertise in the impact of economic instruments on aviation, including the EU Emissions Trading Scheme and carbon and fuel taxes.

Professor Anil Namdeo

Anil is a Professor of Air Quality Management 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 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.