

Roadmap: UK Aviation Environmental Review

CAP 3153

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Chapter 1

Introduction

- 1.1 This document outlines our reporting roadmap for the future development of the UK Aviation Environmental Review (AER). The document is set out as follows:
- Chapter 1: An introduction to the AER.
 - Chapter 2: Roadmap outlining the future development of the AER.
 - Appendix A: 2025 AER Roadmap infographic and screen reader version.

UK Aviation Environmental Review

- 1.2 The UK Civil Aviation Authority (CAA) has a legal duty¹ to report on the state of environmental protection relating to civil aviation in the UK. The duty also requires us to make recommendations which are intended to improve the level of environmental protection in the area of civil aviation in the future.
- 1.3 We are required to prepare this information, known as the UK Aviation Environmental Review (AER), with respect to the whole of the UK starting from the date the UK left the European Union (EU) on 31 December 2020. We published our first AER in December 2023.²
- 1.4 The AER 2023 outlined:
- the international and domestic policy frameworks that apply to aviation and the environment in the UK;
 - the sector's environmental performance to date with respect to noise, climate change and air quality, all reported as national totals;
 - measures which aim to improve the environmental impact of the sector in the future; and
 - recommendations for Government and industry to consider to improve the level of environmental protection relating to civil aviation in the UK.

¹ Part IV of Article 87 of Assimilated Regulation (EU) 2018/1139

² [UK Aviation Environmental Review 2023](#)

Chapter 2

Roadmap: UK Aviation Environmental Review

- 2.1 This chapter outlines our initial roadmap for the future development of the AER. In line with our legal duty,³ we have consulted⁴ with relevant stakeholders and organisations whose input has helped us in developing this initial roadmap.
- 2.2 Our ambition for the AER is to develop the reporting framework into a comprehensive and robust tool that will be a trusted source of accurate and accessible aviation environmental data that can be used by Government, industry and other interested stakeholders to inform and drive positive environmental change. In addition, we aim to develop the AER into a tool that will:
- i. highlight the sector's environmental performance;
 - ii. measure the sector's progress at both the macro and micro level against policy, targets and forecasts;
 - iii. assess and evaluate the effectiveness of Government policy, industry actions and CAA activities in meeting environmental targets and driving wider environmental outcomes, highlighting where policy needs to go further; and
 - iv. provide recommendations on how to improve the environmental performance of the sector in the future.
- 2.3 This roadmap reflects our current thinking to deliver against our intended ambition and aims for the AER. Outlined in this initial roadmap are the initial reporting areas we are proposing to include and expand upon within future updates of the AER. In addition, Appendix A provides further information regarding proposed reporting options and anticipated timescales for their inclusion within the AER.
- 2.4 It is important to note that the additional reporting areas outlined in this initial roadmap are not exhaustive nor should they be taken as the only options we are considering. The reporting areas in this initial roadmap are subject to change as we continue to review their suitability for the AER. As this work develops, where

³ Part IV of Article 87 of Assimilated Regulation (EU) 2018/1139

⁴ [AER 2024 Consultation Document](#). A summary of the responses received to this consultation is published in [CAP 3151](#)

appropriate, we may update the initial roadmap to reflect any amendments to the reporting areas.

- 2.5 We are committed to ensuring the AER remains a valuable and accurate source of aviation environmental information and we will therefore continue to engage and consult with stakeholders as the AER develops.

Roadmap: UK Aviation Environmental Review

- 2.6 Outlined below are the proposed areas we intend to focus on in future updates of the AER. We plan for these additions to be incorporated into the AER following our revised publication timeline which is as follows:
- i. Starting from 2025, update the environmental performance data and information on the relevant regulatory and policy frameworks every year to provide stakeholders with more timely environmental information; and
 - ii. Starting from 2026, update our recommendations on how to improve the environmental performance of the sector every three years to allow time for the impact of any recommendations adopted by stakeholders to take effect.

Enhancing the Evidence Base

Climate Change Reporting

- 2.7 We aim to report on the sector's greenhouse gas emissions using a new reporting tool, the CAA Emissions Database, which is currently under development.⁵ The CAA Emissions Database will allow the AER to report emissions closer to real-time⁶ allowing for a better understanding of sector performance against published targets.
- 2.8 The CAA Emissions Database will be developed over the coming years to include capabilities that will allow the AER to report emissions data using a range of different metrics. Examples of metrics suggested by stakeholders in the 2024 consultation included reporting emissions by per passenger kilometre and cargo density.
- 2.9 We are also working on advancing our climate change reporting framework to potentially include additional areas, such as reporting on the impact of non-CO₂ emissions and contrails; however, there continues to be significant scientific uncertainties in this area. The Government is funding research⁷ to reduce these uncertainties and to identify and develop potential mitigation options.

⁵ Further information regarding the CAA Emissions Database will be provided in the AER 2025 once published.

⁶ Emissions inventories currently published by Government report with a two-year time delay.

⁷ [GOTW - Grants on the Web](#)

Air Quality Reporting

- 2.10 We aim to report air quality concentrations around selected UK airports in future updates of the AER to provide an understanding of how pollutant concentrations comply with national air quality objectives.
- 2.11 We are also considering including World Health Organization (WHO) air quality limits within future updates of the AER to enable a greater understanding of how air quality concentrations around UK airports compare.
- 2.12 In addition, further work is being undertaken to understand the feasibility of including air quality dispersion models within the AER to provide stakeholders with a visual representation of air quality concentrations around UK airports.

Noise Reporting

- 2.13 To provide a more comprehensive understanding of the impact of aviation noise, over the coming years we intend to expand on the number of airports included within the AER's noise analyses.⁸
- 2.14 Further work is also being undertaken to determine the feasibility of reporting aviation noise using a greater range of metrics,⁹ alongside determining suitable methods for reporting health impacts from noise exposure.
- 2.15 We are also considering including WHO noise limits within future updates of the AER to provide an indication of the number of people in the UK exposed to these noise levels.

Reporting the Future

Alternative Fuels & Technological Advancements

- 2.16 We plan to report on the development, uptake and environmental impact of alternative fuels, such as Sustainable Aviation Fuels (SAF) and Hydrogen. In addition, we plan to report on the research and development progress of new and emerging technology, such as battery-electric aircraft.
- 2.17 We intend to report on the environmental impact of both alternative fuels and new and emerging technology. In this respect, we will publish insights from ongoing research in the first instance. Reporting on these areas will allow the AER to track progress against published targets.

Environmental Forecasting

- 2.18 In the coming years we intend to include environmental forecasting within the AER. This will provide an understanding of the sector's anticipated

⁸ Eight airports were included in the AER 2023 noise analyses. These included London Heathrow, London Gatwick, London Luton, London Stansted, Manchester, Birmingham, Edinburgh and Glasgow.

⁹ [CAP2598: Noise Metrics Guidance | UK Civil Aviation Authority](#)

environmental impact taking into account expected traffic growth, allowing for progress against published targets to be tracked which could be used as an evidence base to inform future policy.

Disaggregating Data

- 2.19 The AER 2023 published environmental information as national totals and whilst this provides an understanding of national trends it does not allow for the environmental performance of specific areas within the sector to be identified.
- 2.20 To provide a better understanding of the environmental performance of the sector, future updates of the AER will begin to disaggregate environmental information. We are working on our reporting capabilities to enable this, and examples of how environmental information might be presented in the future are outlined below:
- Report greenhouse gas emissions from aircraft departing from, arriving into, and overflying the UK to provide an understanding of airspace efficiencies;
 - Report greenhouse gas emissions by distance flown to provide an understanding of emissions associated with long-haul and short-haul flights;
 - Report air quality data by airport to provide an understanding of how pollutant concentrations compare against objectives, targets and limits; and
 - Report noise exposure by airport to provide a better understanding of the number of people impacted by aviation noise.

Highlighting Best Practice

- 2.21 We recognise that for the environmental performance of the sector to improve, a collaborative approach is required across all stakeholder groups.
- 2.22 In this respect, to support innovation and drive positive environmental change, we intend to position the AER as a tool that will enable a shared learning environment. To achieve this, future updates of the AER will highlight best practice case-studies to allow stakeholders to gather insights and ideas from one another.

Increasing Accessibility

- 2.23 We are committed to developing the AER into a tool that is accessible to all interested stakeholders. To meet stakeholder needs, examples of how we intend to increase accessibility include:
- Publishing future updates of the AER onto a dedicated area on the CAA website, providing a more interactive and seamless experience for stakeholders;

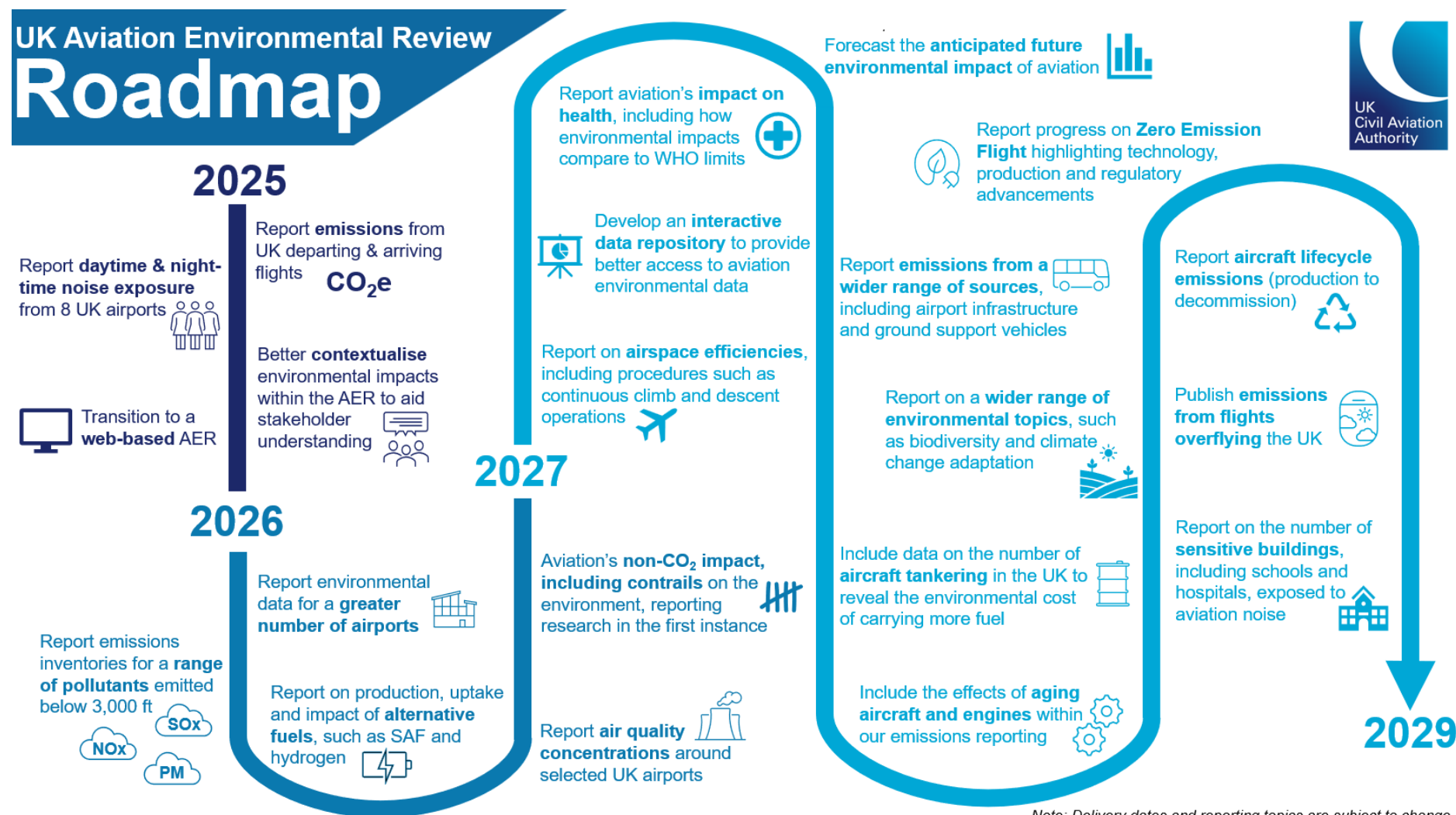
- Contextualising environmental information better within the AER to aid stakeholder understanding; and
- Incorporating an accessible and interactive data repository to the AER for stakeholders to access aviation environmental data more easily.

Additional Reporting Topics

- 2.24 We intend to include additional environmental reporting topics in future updates of the AER to provide a more holistic understanding of the sector's environmental performance. Some of the additional topics we are considering reporting on in the future include:
- Biodiversity to provide a greater understanding of the aviation sector's impact upon flora and fauna; and
 - Climate change adaptation to provide an overview of the risks posed by climate change on the aviation sector and the adaptation measures required to mitigate these risks.
- 2.25 We acknowledge that additional reporting topics were suggested by stakeholders in the 2024 consultation, such as reporting on the aviation sector's impact upon water quality, tranquillity, contaminated land and waste management. These additional reporting topics, amongst others, will continue to be considered for future updates of the AER.

Appendix A

2025 AER Roadmap Infographic



2025 AER Roadmap – Screen Reader Version

Please note the delivery dates and reporting topics outlined below are subject to change.

| Delivery Year | Reporting Addition |
|---------------|--|
| 2025 | Report emissions from UK departing and arriving flights. Emissions reported as CO ₂ e. |
| 2025 | Report daytime & night-time noise exposure from 8 UK airports. |
| 2025 | Better contextualise environmental impacts within the AER to aid stakeholder understanding. |
| 2025 | Transition to a web-based AER. |
| 2026 | Report environmental data for a greater number of airports. |
| 2026 | Report emissions inventories for a range of pollutants, including NO _x , SO _x and PM emitted below 3,000 ft. |
| 2026 | Report on production, uptake and impact of alternative fuels, such as SAF and hydrogen. |
| 2026 | Report air quality concentrations around selected UK airports. |
| 2026 | Report aviation's non-CO ₂ impact, including contrails on the environment, reporting research in the first instance. |
| 2027 to 2029 | Report on airspace efficiencies, including procedures such as continuous climb and descent operations. |
| 2027 to 2029 | Develop an interactive data repository to provide better access to aviation environmental data. |
| 2027 to 2029 | Report aviation's impact on health, including how environmental impacts compare to WHO limits. |
| 2027 to 2029 | Forecast the anticipated future environmental impact of aviation. |
| 2027 to 2029 | Report emissions from a wider range of sources, including airport infrastructure and ground support vehicles. |
| 2027 to 2029 | Report on a wider range of environmental topics, such as biodiversity and climate change adaptation. |
| 2027 to 2029 | Include data on the number of aircraft tankering in the UK to reveal the environmental cost of carrying more fuel. |
| 2027 to 2029 | Include the effects of aging aircraft and engines within our emissions reporting. |

| Delivery Year | Reporting Addition |
|---------------|--|
| 2027 to 2029 | Report progress on Zero Emission Flight highlighting technology, production and regulatory advancements. |
| 2027 to 2029 | Report aircraft lifecycle emissions (production to decommission). |
| 2027 to 2029 | Publish emissions from flights overflying the UK. |
| 2027 to 2029 | Report on the number of sensitive buildings, including schools and hospitals, exposed to aviation noise. |