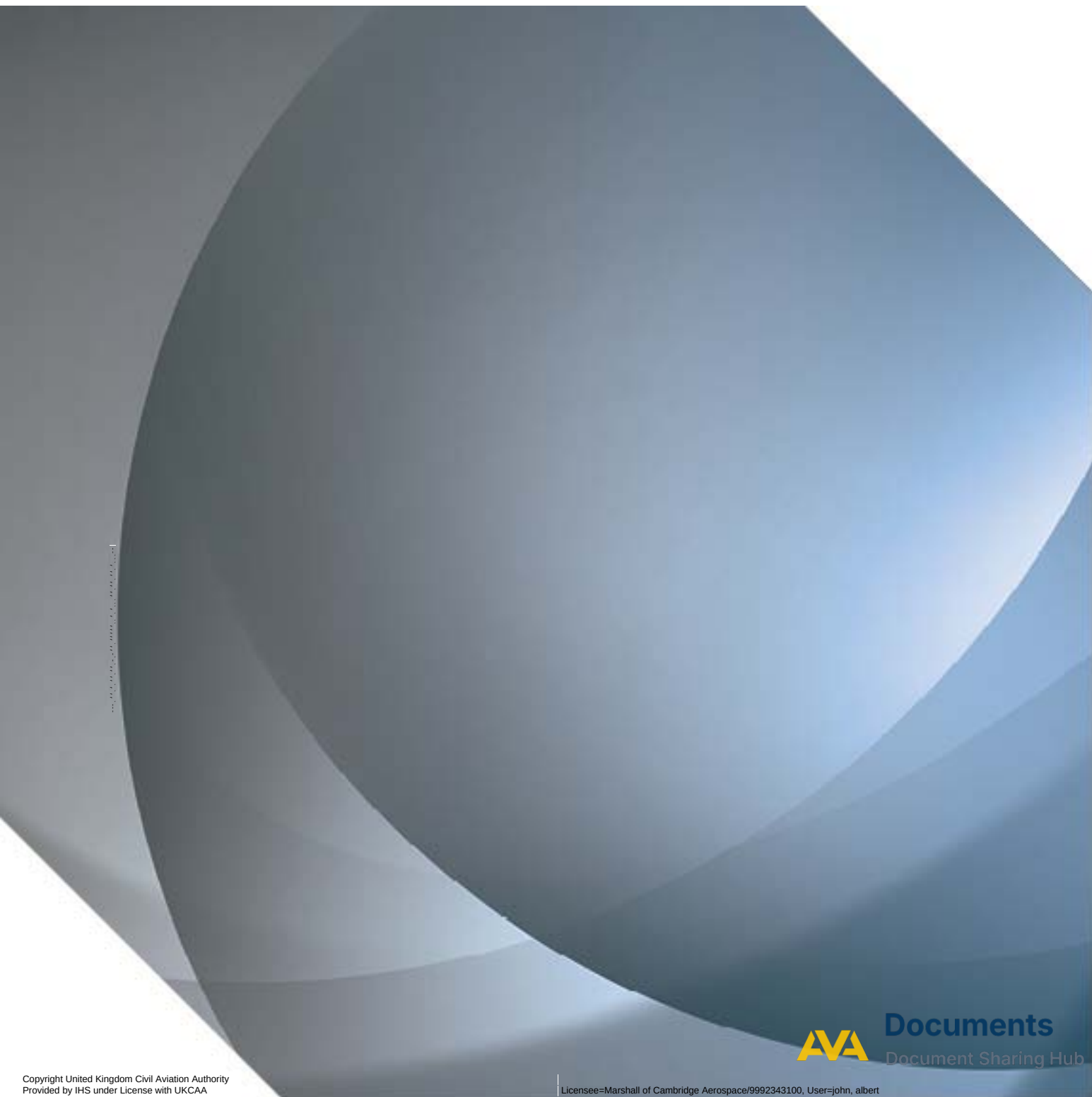


Climate Change Adaptation Report

CAP 1363



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Introduction: setting the scene

1. The Climate Change Act 2008 introduced a new power for the Secretary of State to direct reporting authorities (ie companies with functions of a public nature) to prepare reports on how they assess and act on the risks and opportunities from a changing climate. The power represents the primary legislative lever available to the government to ensure climate change impacts are considered by key sectors.
2. The government coordinates its adaptation work through the National Adaptation Programme (NAP), which works with all sectors to enable society to adapt successfully to the changes in climate that we are facing.
3. The first round of reporting ended in 2012. In the second round the government is using a voluntary approach to reporting to ensure the process is flexible, responsive and proportionate to the needs of reporting authorities.
4. It is particularly important that organisations that are responsible for essential services and infrastructure produce an appropriate risk assessment of climate change impacts and make the necessary plans as part of their risk management process.
5. The Civil Aviation Authority (CAA) is the UK's specialist aviation regulator. Aviation plays an important role in the national economic and social fabric of the UK and the fixed infrastructure that allows aircraft to operate safely and efficiently is one of the more critical aspects that benefit from robust adaptation plans, considering aviation's susceptibility to climate change.
6. The CAA published its first Climate Change Risk Assessment in October 2011. That document outlined:
 - the functions of the CAA and how we operate;
 - risks to our organisation from climate change;
 - how we would address these risks moving forward;
 - the uncertainties, barriers and interdependencies associated with adaptation;
 - some observations of the impacts of climate change to the aviation industry.
7. The government has now asked for reporting organisations to voluntarily provide updated climate change adaptation reports. This report is, therefore, based on progress made, aims to illustrate what has changed within the CAA and the external environment, and focuses on what we have learned.

8. This report reviews the information provided in the 2011 document, as follows:

Chapter 1 provides an update on existing actions from the 2011 report, new commitments and progress going forward.

Chapter 2 analyses how the CAA identifies and assesses risk (including climate risks) with its new risk management framework and what climate risks impact the aviation industry.

Chapter 3 discusses adaptation across the regulated airports.

Chapter 4 concludes the report by considering uncertainties, barriers and opportunities.

Annex A includes a summary of existing and new actions with progress.

Chapter 1

Progress and actions

The adaptation picture in the 2011 report

- 1.1 In 2011 we reported that we were an organisation that:
- Managed the climate risks that could affect the satisfactory delivery of our strategic objectives through our corporate risk management and business continuity procedures.
 - Assumed that, in the short term, climate change impacts would have the potential to cause disruption to business through more exceptional weather events such as high temperatures, heavy rainfall leading to flooding and more storms caused by extensive deep depressions and convective weather.
 - Reflected on longer term projections (using the UK Climate Projections 2009) but took investment and infrastructure decisions based on the shorter term (up to 10 years).
 - Was unlikely to be seriously affected by climate change in the short term given that much of our work is office-based and less than half requires travel off site to stakeholder locations. The wider aviation industry is likely to be more affected when undertaking aviation operations.
 - Did not assess the specific climate change risks of those we regulate nor required them to put in place measures to adapt.
 - Recognised that the key barriers to implementing adaptive action were economic and business uncertainty, scientific uncertainty and political uncertainty. Funding was also likely to be a key barrier to taking up action.
 - Was developing initiatives such as Greening the CAA and implementing the Future Airspace Strategy (FAS) to complement adaptation measures, both within the CAA and more broadly across the aviation sector.
 - Was waiting to see the outcome of new powers granted to us through the Civil Aviation Act 2012.

What still stands

Risk management

- 1.2 Corporate risk management still plays a central role in driving the work of the organisation. We have been reviewing and updating our risk management

framework, with an improved 5x5 matrix, a new risk rating methodology and a clearer oversight structure.

- 1.3 The new framework will help us to use risk and opportunity management techniques to implement strategic and planning activities that underpin our purpose and will inform better decision-making. Our risk management framework is discussed in more detail in Chapter 2.

Future accommodation

- 1.4 We currently lease office space in Kingsway, London, where the consumer, policy and legal groups are situated, together with the aviation security department, a small portion of the safety and airspace regulation group and some of our corporate functions. We also own a building and freehold at Gatwick, which houses the safety and airspace regulation group and the remaining corporate functions.
- 1.5 The lease for the London building will come to an end in December 2019. The future of the Gatwick building is dependent on whether Gatwick airport will build an additional runway, in which case, Aviation House will have to be demolished to make way for the new structure. Either way, the need to investigate future accommodation options is now more urgent and we plan shortly to develop an accommodation strategy for the period beyond 2019.
- 1.6 When planning any future office moves, we take into account in any decision environmental specifications: for example by assessing whether any buildings shortlisted have a BREEAM¹ standard of 'good' or better and that the DEC² improves from the current 'below G' rating for CAA House and 'F' rating for Aviation House. These measures highlight the need for suitable engineering design, both in terms of minimising carbon dioxide emissions and energy consumption, as well as being able to withstand the changes in weather that might be expected as a result of climate change, for example, more extreme temperatures and higher rain fall rates.

Business continuity and crisis management

- 1.7 We have a comprehensive crisis management plan, which is designed to provide our colleagues with the information required to manage the effects of any crisis that needs a response from the Authority.

¹ Building Research Establishment Environmental Assessment Methodology. This sets the standard for best practice in sustainable building design, construction and operation, and has become one of the most comprehensive and widely recognised measures of a building's environmental performance.

² Display Energy Certificate, which shows the energy performance of a building based on actual energy consumption as recorded annually over periods up to the last three years. DEC's need to be updated each year.

- 1.8 Our pre-agreed strategy for responding to and recovering from an unplanned disruption affecting our operations in London or Gatwick is to “*use existing CAA locations as business continuity sites for others*”.
- 1.9 Therefore, in the event of an incident affecting Aviation House, a number of London-based staff from CAA House will be displaced from their normal offices and their desks will be made available for key business critical staff from Gatwick. Similarly, if an incident affects CAA House, non-critical colleagues based at Aviation House will be sent home to make way for key business critical staff displaced from London. Regional offices will provide back-up cover for each other and, where appropriate, will provide supplementary accommodation for colleagues normally based at Aviation House or CAA House.
- 1.10 An example of good practice during a crisis event, when contingency planning at the CAA was tested in a live situation, is given in Chapter 4.
- 1.11 The crisis management plan works in conjunction with other measures, such as flexible working arrangements, working from home and the ability of stakeholders to access information and carry out transactions online. All of these contribute to making our business more resilient and better able to cope in the event of a crisis, weather-related or not.

What has changed

- 1.12 There have been some major developments both within the CAA and to our external regulatory environment since we first reported, which are summarised below.

Structure of the organisation

- 1.13 Since 2011, as part of our Transformation Programme, we have undergone a number of changes to our structure. The merger of the Safety Regulation Group (SRG) with the Directorate of Airspace Policy (DAP) to establish the Safety and Airspace Regulation Group (SARG) is one of the most notable changes. Another was the creation of the Shared Service Centre, responsible for customer-facing activities, such as licensing, aeromedical support, passenger complaints handling and examinations.
- 1.14 The latter is particularly significant because it has changed the way we interact with our stakeholders through the development of a range of online services, such as e-exams and licence renewals. The availability of web-based forms has been instrumental in making the CAA both more accessible and more resilient.

Our Transformation Programme

- 1.15 Our Transformation Programme is now over half of the way through and has changed the way that we regulate the aviation sector. Consisting of nine projects, the programme has been designed to make us a more effective and efficient organisation. It has also contributed to rendering us more resilient and able to adapt more quickly to external factors.
- 1.16 A flagship project within the programme is performance-based regulation (PBR), a risk-based approach which prioritises regulatory effort where it has the greatest impact on safety and helps industry understand and effectively manage its own safety risks. PBR will put us in a better position to highlight and take action against any movements within the risk picture which climate change could bring and which could affect the public.

Flexible working arrangements

- 1.17 It is now our policy to offer flexible working arrangements, whilst maintaining the needs of the business. The changes may be to working hours, working pattern or may involve working from home on a set number of days per week or month. The advantages associated with flexible working are well documented – improved life/work balance and increased productivity for example. However, flexible working arrangements that facilitate an individual to work from home, for instance by providing a networked laptop, are also beneficial in case of weather events that are so severe as to disrupt transport links and prevent commuting to the office.

Greening the CAA

- 1.18 In early 2012 the CAA launched 'Greening the CAA' - our internal sustainability programme. It covered the period up to the end of March 2015 and set targets for a number of key areas:

Environmental targets (by Mar 2015)
Decrease energy usage by 15 percent (7 percent reduction to date)
Reduce office waste by 10 percent (no accurate data, being addressed)
Achieve a minimum office recycling rate of 70 percent (83 percent to date)
Reduce water consumption to less than 6.5m ³ per full time employee (Aviation House 5.75m ³ per FTE, CAA House and One Kemble Street 7.69m ³ per FTE, an average therefore of 6.72m ³ per FTE)
Reduce CO ₂ generation from business travel by 10 percent (14 percent CO ₂ reduction from car travel, but an additional 150t of CO ₂ in air travel mainly due to CAA International business development programme)
Attain Level 1 of the Sustainable Procurement in Government, now

superseded by Government Buying Standards (in progress)

Base year: 2011/12

- 1.19 The programme is generally targeted at reducing our environmental impact rather than adapting to climate change, but it is important to reduce environmental impacts that cause climate change as well as adapting to its consequences. Phase 1 focused on improving the sustainability of the organisation by investing in its buildings and equipment, as well as engaging with colleagues to encourage a more positive environmental behaviour, for example by switching off IT devices, using video and tele-conferencing to reduce travel etc.
- 1.20 Prominent achievements include:
- installation of energy efficient air conditioning plant;
 - better waste management procedures contributing to rises in recycling rates;
 - investment in energy monitoring systems;
 - installation of segregated waste bins;
 - reduction of unnecessary jet washings of buildings;
 - provision of video conferencing facilities;
 - procurement of power efficient IT equipment;
 - investment in multi-functional devices to reduce waste from unnecessary printing;
 - development of a 'green offset' tool for colleagues;
 - change to the landscaping contract of Aviation House to encourage more species, such as invertebrates and birds.
- 1.21 Phase 2 of Greening the CAA has now started: the new programme aims to work more collaboratively with the Estate Services department to address the targets in the key areas. It will continue to engage with colleagues and will attempt to influence our transformation by trying to factor in environmental considerations into new processes and systems.

The Environment Programme

- 1.22 In 2012 we launched CAA and the Environment - our environmental strategy that sets out the activities that contribute to making the aviation sector more sustainable. The strategy outlined how we would do this by:
- utilising regulatory levers;
 - influencing and persuading;

- providing information and guidance;
- facilitating change.

- 1.23 We refreshed this strategy in 2014 and have further refined where we are best placed to operate, as part of the work that is taking place to produce the CAA's new strategic plan for 2016-2021. Again, there are no direct adaptation projects (beyond reporting to the Adaptation Power, Defra), as the focus is on mitigating environmental impacts. We have few formal powers in the environment area, with the policy direction set by government. Our ability to make a difference is limited by the international nature of the problem (eg greenhouse gases) or the potential solution (eg low emission engine design which is now largely driven by international standards).
- 1.24 Where we have expertise and regulatory power, and where we believe we can assist in the management of risk, is in the provision of information that is objective, accurate and timely. Relevant information about environmental impacts will help consumers compare services if they want to choose less carbon-intensive flight options and help the public understand how we, government and the aviation industry seek to manage noise and how residents can have a say in decisions that affect noise. It will also assist us in deciding whether intervention is necessary to help reduce environmental impacts or whether the industry is meeting targets of its own accord.

The Civil Aviation Act 2012

- 1.25 The Civil Aviation Act 2012 gave us a range of new powers, including the option of being able to take a more flexible approach to the economic regulation of airports and to request and publish environmental information.

Resilience at regulated airports

- 1.26 One new approach made available to us was to be able to include licence conditions in the two airports that we economically regulate (Heathrow and Gatwick). Noting the importance of service quality to passengers when disruption occurs, we requested that each airport submits to the CAA for scrutiny an operational resilience plan, starting from October 2014. The plans demonstrate how consumer welfare is protected and have a strong focus on how the airport collaborates with other partners, such as airlines, in achieving this.
- 1.27 The licence condition is relevant to disturbance from any event, from extreme weather to technical failures. There have been a number of instances of disruption at airports in recent years, caused by severe weather³ and therefore

³ Aviation activity can be seriously affected by weather events. For example, more turbulence when flying, impacts to the safe departure and arrival of aircraft from fog, snow and ice; or to the airfield operations from flooding.

by aiding airports in becoming more operationally resilient we are helping to assure they are able to adapt to the effects of climate change.

- 1.28 The limiting factor that we have with our economic regulatory power is that it only applies to two airports. In recognition of this we have worked with the Airport Operators Association (AOA) to produce good practice guidance⁴ to help all airports deal with disruption. The guidance was published in November 2014 and, although voluntary, it will benefit airports that apply it because it should help them to better manage disruption if it occurs. More details on the guidance are available in Chapter 2.
- 1.29 We are also considering applying a resilience condition in the future licence of NATS⁵ (the en-route provider of air traffic services in UK airspace). Again, this would be relevant to any cause of disruption.

Provision of information duties

- 1.30 Under Section 84 of the Civil Aviation Act, we have a duty to publish information or advice relating to the environmental effects of civil aviation, how human health and safety is or may be affected by such effects, and measures taken, or proposed to be taken, with a view to reducing, controlling or mitigating adverse environmental effects. This information duty could be applied in relation to information on climate change adaptation, should the CAA consider it necessary.

Future Airspace Strategy

- 1.31 In 2011 we published the Future Airspace Strategy (FAS), a cross sector commitment to undertaking work to modernise the airspace.
- 1.32 Airspace is a scarce resource and with increasing demand for aviation it has become even more congested. This means that if there are more extreme weather events that reduce the flow of aircraft (for safety reasons) the system struggles to cope to the detriment of consumers. By modernising the airspace there will be benefits from adapting to weather events when they occur. The London Airspace Management Programme (LAMP) is an example of this in action.
- 1.33 Part of the strategy is focused upon the introduction and integration of performance-based navigation (PBN). PBN uses modern positioning technology - and will replace more outdated use of ground navigational aids - so will help to improve how efficiently airspace is used and reduce the scarcity of the resource. This would enable the aviation sector to be more resilient when events caused by climate change occur.

⁴ <http://www.caa.co.uk/application.aspx?catid=33&pagetype=65&appid=11&mode=detail&id=6512>

⁵ As recommended in the Independent Enquiry of NATS System Failure:
<http://www.caa.co.uk/docs/2942/Independent%20Enquiry%20Final%20Report%202.0.pdf>