



Bristol Airport

12 mppa Planning Appeal

Appeal Ref: APP/D0121/W/20/3259234

Proof of Evidence:

Carbon and Climate Change,

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Report for

Bristol Airport Limited

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Issued by

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Contents

Glossary of abbreviations	5
1. Introduction	6
1.1 Qualifications and Experience	6
1.2 Scope of Evidence	6
2. Reasons for Refusal	8
2.1 Decision Notice	8
2.2 Response	9
3. Legislative and Policy Context	12
3.1 Summary	12
3.2 National Policy on Climate Change and Aviation	13
3.3 Climate Change Act and Carbon Budgets	24
3.4 Emissions Trading	27
EU Emissions Trading Scheme (EU ETS)	27
UK Emissions Trading Scheme (UK ETS)	29
3.5 Planning Policy on Climate Change	33
3.6 Climate Emergency	36
3.7 Non-CO ₂ impacts	38
4. Assessment of Significance	41
4.1 Overview	41
4.2 Environmental Assessment	41
4.3 Carbon emissions as a percentage of the planning assumption	46
4.4 Achieving net zero GHG emissions by 2050	49
Aviation emissions	50
Emissions from buildings and ground operations	52
Emissions from surface access	52
4.5 Assessment of Significance - Conclusions	54
5. Carbon and Climate Change Action	56
5.1 Summary	56
5.2 Progress to Date	56
5.3 Carbon and Climate Change Action Plan	58

6.	Response to Issues Raised by Third Parties	64
6.1	Third Parties	64
6.2	Witness Response	65
7.	Conclusions	74

Table 0.1	Glossary of abbreviations	5
Table 4.1	Comparing CCC Aviation Growth Scenarios and ES Emissions Scenarios in 2050	42
Table 4.2	IEMA Guidance: Assessing Greenhouse Gases	44
Table 4.3	Assessment of significance and carbon: aviation emissions	47
Table 5.1	BAL Progress to date in the Airport Carbon Accreditation Scheme	58
Table 5.2	Focus areas covered in the draft CCCAP and their timescales for action	59
Table 6.1	Headline Topics of Objections by Rule 6 and Third Party Comments	64
Table A.1	Headline Topics and Rule 6 Party Comments	76

Figure 3.1	UK ETS and CORSIA timelines	33
Figure 3.2	North Somerset Council Climate Emergency Strategy	37
Figure 3.3	Aviation radiative forcing components in 2005	38
Figure 4.1	International aviation emissions from the Appeal Proposal	46
Figure 4.2	Total aviation emissions from the Appeal Proposal	48
Figure 5.1	Graph Showing Reduction in Total Scope 1 and 2 Emissions at Bristol Airport	57
Figure 6.1	Examples of Climate Related Risks, Opportunities and Financial Impacts	68

Glossary of abbreviations

Table 0.1 Glossary of abbreviations

Abbreviation	Explanation
BAL	Bristol Airport Limited
CB6	Sixth Carbon Budget
CCCAP	Carbon and Climate Change Action Plan
CCC	Climate Change Committee
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)
EA	European Economic Area
ES	Environmental Statement
ESA	Environmental Statement Addendum
EU ETS	European Emissions Trading Scheme
IAS	International Aviation and Shipping
ICAO	International Civil Aviation Organisation
IEMA	Institute of Environmental Management and Assessment
mppa	million passengers per annum
OR	Officer's Report
ppmv	parts per million by volume
UK ETS	UK Emissions Trading Scheme
UNFCCC	United Nations Framework Convention on Climate Change

1. Introduction

1.1 Qualifications and Experience

- 1.1.1 My name is Matthew Peter Paul Ösund-Ireland and I hold a BSc(Hons) in Combined Science from the Polytechnic of Wales and a PhD in local air quality management and climate change tools for joined up policy from the University of Greenwich. I am a Chartered Environmentalist, a Member of the Institute of Air Quality Management (IAQM) and a Member of the Institute of Environmental Sciences. I am a Technical Director of Wood Group UK Ltd responsible for directing air quality and carbon management assessments undertaken by the company.
- 1.1.2 I have worked as a professional environmental scientist for 30 years as a consultant. I have been responsible for conducting air quality and carbon studies for transport schemes, including road, rail, shipping and aviation, and schemes in the oil and gas, energy, industry, mining and commercial development sectors.
- 1.1.3 I have worked on numerous airport projects including Birmingham, Bournemouth International, Heathrow, London City and Luton, the proposed airport at Cliffe in Kent and airports outside the UK. In this matter, I have been retained by Bristol Airport Limited (BAL) to advise on carbon matters concerning the Appeal Proposal of Bristol Airport to accommodate 12 million passengers per annum (mppa) (the Appeal Proposal). Specifically, I provided the technical review for the team that produced the carbon chapter for the Environmental Statement Addendum (ESA).
- 1.1.4 As a member of the IAQM I am bound by its Code of Professional Conduct which requires that members *maintain professional integrity at all times and be guided by the principle of applying the most appropriate science/practice for any given task. This requires members to display objectivity and refrain from being selective or partial when presenting data or facts for a written report or in oral form.* I confirm that I have complied with this professional obligation in preparing this proof of evidence.

1.2 Scope of Evidence

- 1.2.1 This Proof of Evidence relates to an appeal, made by BAL pursuant to Section 78 of the Town and Country Planning Act 1990, against the decision of North Somerset Council (NSC) on 19 March 2020 to refuse planning application reference 18/P/5118/OUT for the development of Bristol Airport to accommodate 12 mppa.

- 1.2.2 Details of the carbon and climate change assessment for the Appeal Proposal have previously been given in two documents:
- Chapter 17 of the ES included with the planning application; and
 - Chapter 10 of an addendum (ESA) to the ES, of November 2020, that presented an updated assessment using later data.
- 1.2.3 In this proof, I address the Reasons for Refusal given by NSC in its Decision Notice, and other comments by NSC and Rule 6 parties, where they relate to carbon and climate change in their respective Statements of Case.
- 1.2.4 I have structured my evidence as follows:
- Section 2: My response to the Reasons for Refusal;
 - Section 3: A summary of the policy and legislative context;
 - Section 4: A summary of the assessment presented in the ES and ESA;
 - Section 5: Carbon and Climate Change Action
 - My response to issues raised by NSC and other parties; and
 - Section 6: My conclusions.
- 1.2.5 A separate summary of my proof has also been provided.

2. Reasons for Refusal

2.1 Decision Notice

2.1.1 In December 2018, BAL submitted a planning application to NSC for the development of Bristol Airport to accommodate 12 12mppa (reference 18/P/5118/OUT). Despite an officer recommendation to approve the scheme, the planning application was refused at the Planning and Regulatory (P&R) Committee meeting on 18 March 2020 and the Decision Notice was issued on 19 March 2020. Greenhouse gas (GHG) emissions associated with the Appeal Proposal was identified as one of the reasons for refusing the application (Reason 3) in NSC's Decision Notice¹. This reason for refusal is as follows:

“3. The scale of greenhouse gas emissions generated by the proposed increase in passenger numbers would not reduce carbon emissions and would not contribute to the transition to a low carbon future and would exacerbate climate change contrary to the National Planning Policy Framework, policy CS1 of the North Somerset Core Strategy 2017 and the duty in the Climate Change Act 2008 (as amended) to ensure that the net UK carbon account for the year 2050 is at least 100% lower than the 1990 baseline.”

2.1.2 The NSC Statement of Case² expands on this:

- a. Acknowledging that the context and policy in terms of carbon budgets and UK airport proposals have been changing through the period of consideration of the application and is expected to change again before the Appeal concludes.
- b. Referring to the Appeal Proposal being consistent with the planning assumption in “Beyond the Horizon³” (also known as ‘Making Best use of Existing Runways’ (“MBU”)) of 37.5 MtCO₂, the 23 MtCO₂ for aviation in the recommendations of the Climate Change Committee (CCC) on the Sixth Carbon Budget published on the 9th December 2020⁴ and not being prejudicial to the Net Zero 2050 target enshrined in the Climate Change Act 2008 (as amended)⁵ being attained.
- c. Referring to *Aviation 2050*⁶, which states that planning applications should demonstrate *that their project will not have a material impact on the Government's ability to meet its carbon reduction targets*, and highlighting the CCC recommendation for demand management, suggesting the Government will need to choose which regional airports can expand.

¹ CD 2.17: North Somerset Council, 2020. Notice of Decision Town and Country Planning Act 1990.

² North Somerset Council, 2021, Statement of Case, Reference 18/P/5118/OUT

³ CD 6.4: Beyond the horizon - The future of UK aviation: Making best use of existing runways, Department for Transport, June 2018, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/714069/making-best-use-of-existing-runways.pdf accessed 21 April 2021

⁴ CD 9.34: Sixth Carbon Budget Report, Climate Change Committee, 2020 available at <https://www.theccc.org.uk/publication/sixth-carbon-budget/> accessed 09 April 2021

⁵ CD 9.2: Climate Change Act 2008 c.27 available at <https://www.legislation.gov.uk/ukpga/2008/27/contents> accessed 07 April 2021

⁶ CD 9.29: Aviation 2050: The future of UK aviation - A consultation, December 2018, Cm 9714, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/769695/aviation-2050-web.pdf accessed 09 April 2021

- d. Referring to the global warming effect of non-carbon impacts from aircraft and the lack of consideration in these impacts which may result in misallocation of investment in the wrong mitigation measures.
- e. Noting the measures and aspirations that BAL proposes to reduce the airport's impact upon greenhouse gases and the need for certainty of deliverability.

2.2 Response

2.2.1 From my evidence I would like to highlight the following points:

1. There is a clear direction of travel in terms of climate policy and legislation, with the UK Government committing to progressively tighter emission targets, including emissions from aviation.
2. *Beyond the Horizon – Making Best Use of existing runways* published by the Department of Transport in 2018 remains a key reference as this represents current UK Government policy on aviation and climate change. Paragraphs 1.8 to 1.12 clearly differentiate between local and national planning requirements, with carbon emissions from air traffic being a matter of national policy.
3. Regulations expected to be passed in June 2021 will place international aviation emissions within the legally binding sixth carbon, budget rather than being accounted for as a 'planning assumption'. The inclusion of international aviation within the Sixth Carbon Budget would negate the need for a 'planning assumption' but not change the pathway to carbon net zero.
4. Whilst BAL can only seek to influence aviation's carbon emissions, such emissions are more properly controlled at the national level, with UK Government providing clear mechanisms for capping aviation emissions within UK carbon budgets and encouraging the industry to drive emission reductions through innovation to make best use of existing runways.
5. The Environmental Statement (ES) and the Environmental Statement Addendum (ESA) provide the methodology and results of calculating carbon emissions from the Appeal Proposal. The methodology and results are agreed with NSC. The assumptions made in the ES / ESA about future reductions in emissions from aviation can be described as a 'reasonable worst case' when compared to the five CCC assumptions of: Balanced Pathway; Headwinds; Widespread Engagement; Widespread Innovation; and Tailwinds. None of the assumptions in the ES/ESA is considered to be optimistic.

6. With reference to IEMA guidance, the assessment of significance was first considered in terms of the change in carbon emissions as a percentage of the planning assumption. Comparing to the assessments made for other airport expansions and having regard to the recent Appeal Decision for Stansted Airport, I conclude that the incremental increase in emissions from the Appeal Proposal is not significant when compared with the planning assumption of 37.5 MtCO₂ or, indeed, when compared with the lower figure of 23 MtCO₂ considered by the CCC.
7. In a second test of significance I considered whether the change in carbon emissions would prevent UK Government achieving net zero GHG emissions by 2050. Emissions from aircraft can only be influenced by BAL and are controlled at the national level, with UK Government providing clear mechanisms for capping aviation emissions within UK carbon budgets and encouraging the industry to drive emission reductions through innovation to make best use of existing runways. Those mechanisms include the Sixth Carbon Budget and the UK ETS / CORSIA, but Government clearly has the means to apply such additional mechanisms as it deems appropriate to meet its net zero target. In that context, it is clear that granting planning permission for the Appeal Proposal cannot prejudice the Government's ability to meet net zero in 2050..
8. Emissions from buildings and ground operations are under the control of BAL and are already being reduced. As described in section 5 below, BAL has produced a draft CCCAP to ensure Scope 1 and 2 emissions are net zero by 2030 and, indeed, has already taken a number of steps along that route. In this context too, therefore, I conclude that the emissions from buildings and ground operations arising from the Appeal Proposals are not significant.
9. Emissions from surface access can only be influenced by BAL but will fall in any event as a result of the general decarbonisation of the road vehicle fleet. Since 2020, BAL has offset surface access to the airport by passengers travelling via road and the Section 106 Agreement includes a number of measures to improve public and active transport access to the airport in addition to providing facilities for electric vehicle charging at the airport and implement staff travel plans, for example. All of these measures will enable BAL to continue influencing surface access emissions. Again, therefore, I conclude that the surface access emissions from the Appeal Proposals are not significant.
10. Through its Carbon Roadmap BAL is already on the path to carbon net zero, both as its own activities and for the airport as a whole. This commitment is supported by national

measures to control aviation emissions and can be strengthened through the Section 106 Agreement and implementation of the CCCAP.

11. In a context where aviation emissions are to be controlled at the national level, the Appeal Proposal complies with relevant national and local planning policies.
12. I consider that both tests of significance have been met and the carbon emissions associated with the Appeal Proposal are not significant.
13. Non-CO₂ emissions cannot be ignored and need to be acknowledged today so choices made in the technologies used to reduce aircraft emissions do not result in non-CO₂ impacts increasing; as the scientific understanding increases, the choices of technology will become better informed. BAL acknowledges this in its Carbon and Climate Change Action Plan (CCCAP).

2.2.2 Finally, I note that the Inspector's Report for the Stansted Appeal Decision concluded⁷ as follows:

"Although UK statutory obligations under the CCA have been amended since the publication of MBU to bring all greenhouse gas emissions to net zero by 2050, with an additional target of a 78% reduction in carbon emissions by 2035 set to be introduced, MBU remains Government policy. Given all of the foregoing and bearing in mind that there are a range of wider options that the Government might employ to meet these new obligations and that aviation is just one sector contributing to greenhouse gas emissions to be considered, there is also good reason to conclude that the Appeal Proposal would not jeopardise UK obligations to reach net zero by 2050 or to achieve the planned 2035 intermediate target."

2.2.3 **Reason 3 is therefore rejected.**

⁷ CD 9.107: Para 94

3. Legislative and Policy Context

3.1 Summary

- 3.1.1 This section of my evidence includes a timeline of UK Government policy on climate change with particular reference to aviation. This timeline illustrates the incremental steps that have been taken are all in the same direction with the UK committing to progressively tighter emission targets, including emissions from aviation.
- 3.1.2 A key reference in this timeline is *Beyond the Horizon – Making Best Use of existing runways* published by the Department of Transport in 2018 as this represents current UK Government policy on aviation and climate change. Paragraphs 1.8 to 1.12 clearly differentiate between local and national planning requirements, with carbon emissions from air traffic being a matter of national policy.
- 3.1.3 This timeline ends with the draft Regulations expected to be passed in June 2021 which would place international aviation emissions within the legally binding Sixth Carbon Budget rather than being accounted for as a 'planning assumption'.
- 3.1.4 I then provide an overview description of the Climate Change Act and the legally binding carbon budgets. If passed in June 2021, the sixth and latest budget (2033-2037) will be 965 MtCO₂, including international aviation and shipping. This will align the UK Sixth Carbon Budget with its latest Nationally Disclosed Contribution ('NDC') under the Paris Agreement. It is important to note, however, that the UK's international aviation emissions were already 'taken into account' in the setting of previous carbon budgets and so what has changed is the way international aviation is reflected in carbon budgets, not the fact that it is reflected in carbon budgets. A consequence of the change of approach in the Sixth Carbon Budget, however, is that from that period (2033-2037) there is no longer the need for a 'planning assumption'.
- 3.1.5 Next, I describe the mechanisms for emissions trading, namely the European Emissions Trading Scheme (EU ETS), CORSIA and the UK Emissions Trading Scheme (UK ETS). Coming into force on 1 January 2021, the UK ETS is a key mechanism for the UK Government to regulate and limit carbon emissions as part of assuring compliance with the carbon budgets. Emissions from both domestic and international aircraft movements originating in the UK are included in the UK ETS, albeit with a time limited provision to accommodate CORSIA for international flights. CORSIA is a UN scheme that has been in development for several years (since the Kyoto Protocol) and is now in its pilot phase, due to end in 2023. If the pilot phase is successful and CORSIA is extended then airline

operators will be able to continue using CORSIA offsets rather than UK ETS allocations. At this time, UK origin flights to destinations within the European Economic Area (EEA) qualify for both CORSIA and UK ETS. There is a potential for double counting and the UK Government is consulting on the most appropriate policy interface. The UK Government's preferred approach is to enable airline operators to use CORSIA offsets for EEA destination flights but with the removal of equivalent allowances from the UK ETS to avoid double counting. Consultation on this is planned for summer 2021 and the outcome needs to be in place before reconciliation of the 2021 emissions account in early 2022. At this time, UK origin flights to destinations beyond the European Economic Area (EEA) qualify for CORSIA only. The EU ETS legislation includes a provision that if CORSIA is not implemented then international aviation emissions (i.e. flights originating in the EU and landing in a destination either within or beyond the EEA) would be included in the EU ETS from 2024. Although this provision is not included in the UK ETS legislation, the UK Government policy position is clear that the UK ETS and CORSIA should be integrated is clear. I conclude from this that UK Government policy is to support international measures, as per Article 2 of the Kyoto Protocol, to manage aviation emissions but with UK regulatory measures in place to ensure aviation emissions can be limited to meet UK national objectives (i.e. carbon net zero by 2050) should these international measures not be completely effective.

3.1.6 Turning to national, regional and local planning policy, I identify the three key paragraphs of the National Planning Policy Framework (paragraphs 148, 150 and 151), the key policies of NSC's Core Strategy (CS1, CS2 and CS23), Policy DM50 of the Sites and Policies Plan, and the declaration of a Climate Emergency by NSC. I demonstrate how each of these policies would be met in Section 4 of this evidence.

3.1.7 Finally in this section, I provide a brief review of the climate change impact of non-CO₂ emissions from aircraft movements. Although there remains uncertainty in the science this issue cannot be ignored. The science will continue to improve and will inform the choices in technologies to reduce the net climate change impact of aircraft emissions and not just carbon. My conclusion is that the acknowledgement of this use within the CCCAP is the most appropriate approach.

3.2 National Policy on Climate Change and Aviation

3.2.1 UK Government policy on climate change and aviation can be traced back almost 30 years, as presented in the following timeline:

- a. **1990 Second World Climate Conference**, during which the UK Prime Minister acknowledged the climate was changing, the risks associated with that and the need for action, including reducing emissions, domestically and internationally⁸.
- b. **1992 Rio Summit**, which established the United Nations Framework Convention on Climate Change (UNFCCC)⁹, with all parties *acknowledging that change in the Earth's climate and its adverse effects are a common concern of humankind*. The UNFCCC includes important terminology:
 - *"Reservoir" means a component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored.*
 - *"Sink" means any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere.*
 - *"Source" means any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere.*

The UNFCCC entered into force on 21 March 1994 and there are now 197 Parties to the UNFCCC. The UK signed on the 12 June 1992¹⁰.

- c. **1997 Kyoto Protocol**¹¹, in which Article 2 calls for:
 - *the protection and enhancement of sinks and reservoirs of greenhouse gases.*
 - *the promotion, research, development and increased use of ... carbon dioxide sequestration technologies.*
 - *limitation or reduction of emissions of greenhouse gases not controlled by the Montreal Protocol¹² from aviation ... working through the International Civil Aviation Organization.*

Annex A of the Kyoto Protocol lists the greenhouse gases referred to, namely: carbon dioxide (CO₂); methane (CH₄); nitrous oxide (N₂O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF₆). Section 24 of the Climate Change Act 2008 (as amended) refers to the same list as the 'target greenhouse gases' to which the Act relates.

⁸ <https://www.margareththatcher.org/archive>

⁹ CD 9.19: UNFCCC (1992) Available at

https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

¹⁰ https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=IND&mtmsg_no=XXVII-7&chapter=27&Temp=mtmsg3&clang=_en

¹¹ CD 9.19: <https://unfccc.int/sites/default/files/resource/docs/cop3/107a01.pdf>

¹² The UNFCCC defines greenhouse gases as *'those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation'*. Carbon dioxide is estimated to have contributed two-thirds of the current enhancement in the greenhouse effect, but other greenhouse gases directly affected by human activities make a larger contribution to the greenhouse effect in relation to the amounts in which they are present in the atmosphere. Some of them exist naturally but are now present at higher concentrations, such as nitrous oxide and ozone (in the lower part of the atmosphere). Others are synthetic, for example, halocarbons such as chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs) and related bromine compounds. The other greenhouse gases covered by the Kyoto Protocol are methane, nitrous oxide, HFCs, perfluorocarbons and sulphur hexafluoride. Adopted on 15 September 1987, the Montreal Protocol on Substances that Deplete the Ozone Layer is a multilateral environmental agreement that regulates the production and consumption of nearly 100 anthropogenic chemicals referred to as ozone depleting substances. The substances controlled by the treaty are: chlorofluorocarbons (CFC); halons; other fully halogenated CFCs; carbon tetrachloride; methyl chloroform; hydrochlorofluorocarbons (HCFCs); methyl bromide; and hydrofluorocarbons (HFCs). HCFCs also have a high global warming potential and their phase out under the Montreal Protocol has been accelerated to achieve 100% phase out by 2030. HFCs have been used to replace CFCs and HCFCs but they also have a high global warming potential. From January 2019, also under the Montreal Agreement (Kigali Amendment) a gradual reduction in HFCs of 80-85% is expected by the late 2040s.

The Kyoto Protocol also clearly establishes the role of the International Civil Aviation Organization (ICAO) in addressing aviation emissions. As the Government's website states¹³:

"The International Civil Aviation Organization (ICAO) is the United Nations agency established under the Chicago Convention (1944) to manage the administration and governance of international aviation, which includes responsibility for tackling international aviation emissions, which fall outside of states' nationally determined contributions (NDCs) under the Paris Agreement."

- d. **2000 Royal Commission on Environmental Protection**, which recommended UK emission reductions of 60% by 2050 based on reducing concentrations of CO₂ to 550 ppmv¹⁴.
- e. **2003 The Future of Air Transport**, the UK Government White Paper which sets out a strategic framework for aviation up to 2030¹⁵.

Paragraph 3.36 states that:

"the Government is committed to taking a lead in tackling the problem of climate change, and to putting the UK on a path to a reduction in carbon dioxide emissions by some 60 per cent from current levels by 2050. International flights from the UK do not currently count in the national inventories of greenhouse gas emissions as there is no international agreement yet on ways of allocating such emissions. However, the Government's Energy White Paper makes it clear that we should ensure that the aviation industry is encouraged to take account of, and where appropriate reduce, its contribution to global warming. The aviation sector needs to take its share of responsibility for tackling this problem."

The text box on page 39 clearly identifies the contributors to climate change: carbon dioxide; water vapour; nitrogen oxides; particulates; and other compounds including sulphur oxides, carbon monoxide, hydrocarbons and radicals such as hydroxyl, and goes on to state that:

"while further research is needed on these issues, the broad conclusion that emissions are significantly more damaging at altitude is clear".

Paragraph 3.39 states that:

"the Government therefore believes that the best way of ensuring that aviation contributes towards the goal of climate stabilisation would be through a well designed emissions trading regime. For an international industry, an international trading regime is the best solution. We are pressing for the development and implementation through ICAO of such a regime, consistent with the request to ICAO from the UN Climate Change Convention for action on aviation emissions. The ICAO Assembly has already endorsed the development of an open emissions trading system for international aviation."

¹³ <https://www.gov.uk/government/consultations/implementing-the-carbon-offsetting-and-reduction-scheme-for-international-aviation/implementing-the-carbon-offsetting-and-reduction-scheme-for-international-aviation-corsia>

¹⁴ Energy - The Changing Climate, Twenty-second Report of the Royal Commission on Environmental Pollution November 2000, Cm 4749 no longer available on-line.

¹⁵ CD 6.12: The Future of Air Transport – White Paper, Department for Transport, 2003, CM 6046 available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685595/6046.pdf accessed 29 March 2021

Paragraph 3.40 refers to the EU Emissions Trading Scheme (developing at the time) and makes clear the UK Government intent to press for the inclusion of intra-EU air services in the forthcoming EU emissions trading scheme.

- f. **2008 Environmental Audit Committee** recommends a more stringent target than 60% by 2050 for consistency with the 2°C limit¹⁶.
- g. **2008 Letter from Lord Turner** to the Secretary of State for the Department of Energy and Climate Change recommending a 2050 carbon target of at least an 80% reduction of emissions for consistency with 2°C limit¹⁷.
- h. **2008 Climate Change Act**, came into force on 1 December 2008⁵, established a “carbon target” of at least 80% emissions reductions by 2050 and established the Committee on Climate Change (“CCC”) whose advice the Government is required to consider but not follow when setting carbon budgets¹⁸. This is described further in Section 3.2. **2009 CCC Report on Meeting the UK aviation target – options for reducing emissions to 2050**¹⁹ was published in response to a January 2009 request from Government to provide advice on options for reducing CO₂ emissions from UK aviation (including both domestic and international flights) down to, or below, 2005 levels by 2050. UK aviation CO₂ emissions in 2005 were estimated to be 37.5 MtCO₂ on a bunker fuels basis. This aviation target for 2050 later became known as the ‘planning assumption; in the context of carbon budgets.

The 2009 CCC Report considers five dimensions that would affect future carbon emissions from aviation:

- i. Projected demand growth - in the absence of a carbon price and with unconstrained airport expansion, UK aviation demand could grow over 200% between 2005 and 2050.
- ii. A rising carbon price and capacity constraints could reduce demand growth by 2050 to 115%.
- iii. Modal shift and videoconferencing - there is scope for a useful contribution to achieving the 2050 target through modal shift from air to rail and increased use of videoconferencing.
- iv. Improvements in fleet fuel efficiency - fleet fuel efficiency improvement of 0.8% annually in the period to 2050 is likely given current technological trends and investment intentions
- v. Use of biofuels in aviation - concerns about land availability and sustainability mean that it is not prudent to assume that biofuels in 2050 could account for more than 10% of global aviation fuel.

¹⁶ House of Commons Environmental Audit Committee *Reaching an international agreement on climate change*, Sixth Report of Session 2007–08, available at <https://old.parliament.uk/documents/commons-committees/environmental-audit/FormalMinutes2008-09.pdf> accessed 2 June 2021

¹⁷ CCC (2008) Advice on the long-term (2050) target for reducing UK greenhouse gas emissions, available at <https://www.theccc.org.uk/wp-content/uploads/2013/03/Interim-report-letter-to-DECC-SoS-071008.pdf> accessed 9 June 2021

¹⁸ CD 9.2: Climate Change Act 2008 c.27 available at <https://www.legislation.gov.uk/ukpga/2008/27/contents> accessed 07 April 2021

¹⁹ CD 9.3: Meeting the UK aviation target – options for reducing emissions to 2050, Climate Change Committee, available at <https://www.theccc.org.uk/publication/meeting-the-uk-aviation-target-options-for-reducing-emissions-to-2050/> accessed 07 April 2021

The 2009 CCC Report goes on to state that:

"given prudent assumptions on likely improvements in fleet fuel efficiency and biofuels penetration, demand growth of around 60% would be compatible with keeping CO₂ emissions in 2050 no higher than in 2005";

and

"Future technological progress may make more rapid demand growth than 60% compatible with the target, but it is not prudent to plan on the assumption that such progress will be achieved";

and

"a 60% increase in total UK demand could be consistent with a range of policies as regards capacity expansion at specific airports".

- i. **2011 Government Response** to the 2009 CCC Report on Reducing CO₂ Emissions from UK Aviation to 2050²⁰ includes the following statements:

"This Government believes that any growth in aviation has to be sustainable, and that in order to grow the industry needs to create headroom by reducing its environmental impact. We expect that the necessary headroom can be achieved through a combination of technology, better systems, operating procedures and behaviours."

"The Government believes that an effective way to tackle emissions in an international sector like aviation is through international agreement. Consequently we are pressing ahead with the introduction of aviation in the largest multilateral trading system, the EU Emissions Trading System (ETS), from 1 January 2012."

"Airlines already have a considerable cost incentive to reduce fuel consumption which directly reduces emissions. Inclusion in the EU ETS will further incentivise airlines to reduce emissions to stay within the cap, or to invest in other sectors where options for reducing carbon are easier and cheaper to deliver. We will also continue to push for an ambitious global agreement to reduce CO₂ emissions from aviation."

"While the goals agreed at the 2010 International Civil Aviation Organization (ICAO) Assembly are a step in the right direction towards such an agreement, they are not ambitious enough if aviation is to make a fair contribution to global efforts to reduce climate change emissions."

The 2011 Government Response considers itself the second of a three stage process to make evidence based policy decisions, with the first stage being the 2009 CCC Report and the third stage being the Sustainable Framework for UK Aviation that *"will use evidence and analysis from a wide range of sources, including this material to inform the Government's developing policy for reducing aviation emissions"*.

²⁰ CD 9.23: Government Response to the Committee on Climate Change Report on Reducing CO₂ Emissions from UK Aviation to 2050, Department for Transport, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/4208/ccc-response.pdf accessed 07 April 2021

- j. **2011 Scoping Document on developing a sustainable framework for UK aviation**²¹ which states (para 1.14) that:

"the Government has committed to producing a sustainable framework for UK aviation to replace the previous administration's The Future of Air Transport White Paper (2003). While some elements of this white paper might still be relevant, many of its provisions are no longer fit for purpose. They fail to recognise the importance of addressing climate change and give insufficient weight to the local environmental impacts of aviation."

- k. **2012 Doha Amendment** to the Kyoto Protocol entered into force on 31 December 2020²² meaning that commitments by emission reduction commitments of participating developed countries and economies in transition become legally binding. The UK was an early signatory and is committed to reducing emissions to 20% below 1990 levels in the period 2013-2020.

The Doha Amendment reiterates the commitment in the Kyoto Protocol that *"The Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts..."* (Article 3, paragraph 1).

The Doha Amendment included an Annex which rolled forward the five year emission reduction targets included in the Kyoto Protocol.

- l. **2012 Inclusion within the EU Emissions Trading System** (EU ETS) of international aviation emissions from the UK to EEA destinations is supported by UK Government. See Section 3.2.
- m. **2012 Airports Commission** was established as an independent commission to identify and recommend options to maintain the UK's position as Europe's most important aviation hub. Its Final Report was published in 2015 (see below).
- n. **2012 Secretary of State's response** to Section 30 (3) (b) of the Climate Change Act²³ stating:

"At the time of passing the [Climate Change] Act there was recognition that emissions from international aviation and shipping would also need to reduce if the UK were to achieve its long-term climate goals, and they were included within the wider framework of the Act through the requirement to take them into account when setting carbon budgets."

This is discussed further in Section 3.2 below.

- o. **2013 Aviation Policy Framework**²⁴ remains current Government policy and reiterates UK Government support for growth in the aviation sector but highlights the role of the European Union Emissions Trading Scheme (EU ETS – see Section 3.2 below) and the International Civil Aviation Organization (ICAO) with the stated objective *"to ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions"*. UK Government policy is stated as action at the global level being the best means of securing

²¹ Developing a sustainable framework for UK aviation: Scoping document, Department of Transport, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/2579/consultationdocument.pdf accessed 07 April 2021.

²² See [The Doha Amendment | UNFCCC](#)

²³ CD 9.39: International aviation and shipping emissions and the UK's carbon budgets and 2050 target, Department of Energy and Climate Change, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/65686/7334-int-aviation-shipping-emissions-carb-budg.pdf accessed 07 April 2021

²⁴ CD 6.1: Aviation Policy Framework, March 2013, Cm8584, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/153776/aviation-policy-framework.pdf accessed 09 April 2021

this objective *"with action within Europe the next best option and a potential step towards wider international agreement. We will also take unilateral action at a national level where that is appropriate and justified in terms of the balance between benefits and costs"*.

The non-CO₂ impacts of aviation are acknowledged in full but with the position taken to focus on CO₂ emissions *"as scientific understanding improves and evidence of the effects of non-CO₂ emissions becomes clearer, we will adapt our approach as necessary to ensure our strategy addresses aviation's total climate change impacts effectively"*.

- p. **2013 Aviation and climate change discussion paper**²⁵ published by the Airports Commission, providing background information relating to non CO₂ impacts from aviation and reiterating the Government's position regarding the inclusion of international aviation and shipping emissions within carbon budgets, i.e. that the budgets would be legally binding for all other sectors and set at a level that, when summated with emissions from international aviation and shipping, would enable the 2050 target to be achieved.
- q. **2015 Airports Commission Final Report**²⁶ concludes that maintaining the UK's position as Europe's most important aviation hub requires building new capacity by 2030 with a third runway at Heathrow being the preferred option. Carbon emissions are assessed in line with the CCC's planning assumption of 37. 5MtCO₂ in 2050 (paragraph 9.109) with a sensitivity analysis undertaken based on carbon trading.

Paragraph 9.112 states that:

"All of the Commission's forecasts incorporate measures to ensure that carbon dioxide emitted by UK flights and ground movements does not lead to increased emissions overall either at international level (in the carbon-traded forecast) or within the UK economy (in the carbon-capped forecast). Therefore, the increases in emissions from flights are not additional and are not monetised in the Commission's economic analysis of carbon impacts, which focuses on the Commission's objective to reduce carbon emissions from the construction and operation of the airport itself."

The sensitivity analysis for carbon is based on addressing carbon emissions through international measures, namely the EU ETS and the (then emerging) Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) being developed by the International Civil Aviation Organization (ICAO). Paragraph 2.67 states: *"If an international deal cannot be struck (whether EU or global), UK-specific measures may be needed to ensure that aviation makes an appropriate contribution to the UK's overall carbon reduction goals."*

- r. **2015 Paris Agreement** entered into force on 4 November 2016 as a legally binding international treaty on climate change with the *"long term temperature goal"* (Art 4(1)) of limiting global warming to *"well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels"* (Art 2(1)(a)) so as *"to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century"* (Art 4(1))²⁷. The Paris Agreement works on a five year cycle of increasingly ambitious climate action carried out by countries, which are communicated by each country publishing Nationally Determined Contributions (NDCs)

²⁵ Airports Commission: Discussion Paper 03: Aviation and Climate Change, April 2013, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/186683/aviation-and-climate-change-paper.pdf accessed 09 April 2021

²⁶ CD 6.11: Airports Commission: Final Report, July 2015 available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/440316/airports-commission-final-report.pdf accessed 08 April 2021

²⁷ CD 9.26: See https://unfccc.int/sites/default/files/english_paris_agreement.pdf accessed 08 April 2021

(Art 4(2)). The Paris Agreement invites countries to formulate and submit Long-term Low Greenhouse Gas Emission Development Strategies (LT-LEDS), providing the long-term horizon to the NDCs. These are not mandatory but provide a strong indicator of long term policy.

Article 4(13) of the Paris Agreement states:

"Parties shall account for their nationally determined contributions. In accounting for anthropogenic emissions and removals corresponding to their nationally determined contributions, Parties shall promote environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensure the avoidance of double counting, in accordance with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement."

Article 5(1) of the Paris Agreement states:

"Parties should take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases as referred to in Article 4, paragraph 1 (d), of the Convention, including forests."

Article 10(1) of the Paris Agreement states:

"Parties share a long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas emissions."

Article 10 continues, noting the importance of technology and establishing a Technology Mechanism to promote and facilitate enhanced action on technology development and transfer, recognising that *"accelerating, encouraging and enabling innovation is critical for an effective, long-term global response to climate change and promoting economic growth and sustainable development"*.

The UK submitted its LT-LEDS in October 2017 and NDC in December 2020; previously its interim NDC had been submitted as part of the EU. These are discussed further in the timeline below.

- s. **2017 Clean Growth Strategy** is the current LT-LEDS submitted under the Paris Agreement²⁸ and states that (p144):

"The UK's 2050 target and carbon budgets currently exclude emissions from international aviation and international shipping, but the [Climate Change] Act states that in setting carbon budgets, the Government must take these emissions into account. The CCC advises that the UK should plan for international aviation and shipping emissions of around 41 MtCO₂e in 2050 – this has been incorporated into our scenarios and will be kept under review."

The Clean Growth Strategy makes numerous references to technological innovation including, for example, emphasising job creation (p7), economic growth (p8) and securing industrial and economic advantages from the global transition to a low carbon economy (p10) as well as greenhouse gas removal technologies such as afforestation, bio-energy with carbon capture and storage, direct air capture, enhanced weathering and methods for storing carbon in the oceans (p57).

²⁸ CD 9.6: The Clean Growth Strategy: Leading the way to a low carbon future available at <https://unfccc.int/sites/default/files/resource/clean-growth-strategy-amended-april-2018.pdf> accessed 08 April 2021

- t. **2018 Airports National Policy Statement** for new runway capacity and infrastructure at airports in the South East of England²⁹ confirms the Government's policy at the time for a proposed third runway at Heathrow. Paragraphs 5.72 and 5.73 state:

"The Climate Change Act says that the Government must "take into account" the "estimated amount of reportable emissions from international aviation for the budgetary period or periods in question" when setting carbon budgets. The Committee on Climate Change has interpreted the requirement to take these emissions into account as requiring the UK to aim to meet a 2050 target which includes these emissions, and has made its recommendations for the levels of the existing carbon budgets on this basis".

"The Government has accepted the Committee on Climate Change's recommendations on the first five carbon budgets. The fifth carbon budget, for the period 2028-2032, was set in July 2016 in line with the Committee on Climate Change's advice. In effect, this means that carbon budgets for other sectors of the UK economy have been set at a level which the Committee on Climate Change considers is consistent with meeting the overall 2050 target when international aviation emissions are included".

- u. **2018 Aviation 2050: the future of UK aviation** was published as a green paper for consultation, providing a number of statements of Government policy intent³⁰.

Paragraph 2.11 states the Government proposal to:

"continue to lead efforts to negotiate for robust, environmentally effective emissions reduction measures that minimise market distortions and address aviation's emissions in the most cost-effective way [and] support and strengthen the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and negotiate for a long term goal for international aviation climate emissions, ideally by ICAO's 41st Assembly in 2022, that is consistent with the temperature goals of the Paris Agreement".

Paragraph 3.87 states:

"The government agrees with the current CCC advice that international aviation emissions should, for now, continue to be formally excluded from carbon budgets. The government proposes therefore, to continue using the CCC advice and leave 'headroom' for international aviation when setting carbon budgets so that the economy as a whole is on a trajectory to meeting the 2050 Climate Change Act target (including international aviation). To set a clear level of ambition for the sector, the government proposes to accept the CCC's recommendation that emissions from UK-departing flights should be at or below 2005 levels in 2050".

Paragraph 3.95 states that:

"the government proposes to keep non CO₂ emissions under review and reassess the UK's policy position as more evidence becomes available".

- v. **2018 Beyond the Horizon – Making Best Use of existing runways**³ published by the Department of Transport represents current UK Government policy on aviation and climate

²⁹ CD 9.28: Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England, Department for Transport, June 2018, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/714108/airports-nps-new-runway-capacity-and-infrastructure-at-airports-in-the-south-east-of-england-print-version.pdf accessed 09 April 2021

³⁰ CD 9.29: Aviation 2050: The future of UK aviation - A consultation, December 2018, Cm 9714, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/769695/aviation-2050-web.pdf accessed 09 April 2021

change. Paragraphs 1.8 to 1.12 clearly differentiate between local and national planning requirements, with carbon emissions from air traffic being a matter of national policy. The DfT considers two scenarios to illustrate how aviation emissions could be tackled if all regional airports are allowed to make best use of their existing runway capacity. The *carbon traded* scenario assumes the use of global offsets (i.e. the Carbon Offsetting and Reduction Scheme for International Aviation described in Section 3.4 below) which would enable growth in aviation to continue without impact on global emissions. The *carbon capped* scenario uses a combination of carbon pricing and specific measures (e.g. single engine taxiing and renewable aviation fuel) to limit emissions to within the CCC recommended 37.5 MtCO₂ limit. This is the so called 'planning assumption'.

In the recent Appeal Decision for Stansted³¹, the Planning Inspector noted:

"The in-principle support for making best use of existing runways provided by MBU is a recent expression of policy by the Government. It is given in full knowledge of UK commitments to combat climate change, having been published long after the Climate Change Act 2008 (CCA) and after the international Paris Agreement."

- w. **2019 Parliament declares a climate and environmental emergency**³².
- x. **2019 Net Zero – The UK's contribution to stopping global warming** published by the CCC³³ and recommending a new emissions target for the UK of net-zero greenhouse gases by 2050 that includes emissions from international aviation and shipping without reliance on international emissions trading. The analysis supporting this target assumes aviation emissions are limited to 30 MtCO₂.
- y. **2019 Climate Change Act 2008 (2050 Target Amendment) Order 2019/1056**³⁴ came into force amending the carbon target in s.1(1) to at least 100% by 2050 (compared to a 1990 baseline).
- z. **2019 Lord Deben** published a letter on behalf of the CCC to the Secretary of State for Transport³⁵ setting out that international aviation (and shipping) emissions can be formally brought into the net zero target, and what it means for the UK climate strategy. This letter revises the CCC position (from the 2019 Net Zero Report) stating that the primary approach for reducing international aviation emissions should be international, principally through the International Civil Aviation Organisation (ICAO) which managed the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)³⁶. The letter also states that the 'planning assumption' for international aviation should be reduced to 30 MtCO₂ to achieve net-zero emissions by 2050, and that gross zero emission aviation (i.e. without offsetting) is highly unlikely to be feasible by 2050.
- aa. **2020 Sixth Carbon Budget Report** published by the CCC⁴ which recommends that international aviation should be brought into the UK net zero budget rather than being within a 'planning assumption' allowance, and aviation should deliver greater carbon reductions to support the national net zero ambition. The CCC's sixth Carbon Budget Report explores several different emissions reductions options for the aviation sector

³¹ CD 9.107: Para 18

³² <https://www.parliament.uk/business/news/2019/may/mps-debate-the-environment-and-climate-change/>

³³ CD 9.31: Net Zero: The UK's contribution to stopping global warming, Committee on Climate Change, May 2019, available at <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/> accessed 09 April 2021

³⁴ CD 9.7: <https://www.legislation.gov.uk/ukdsi/2019/9780111187654> accessed 09 April 2021

³⁵ CD 9.93: Committee on Climate Change (2019). Letter: International aviation and shipping and net zero. Available at <https://www.theccc.org.uk/wp-content/uploads/2019/09/Letter-from-Lord-Deben-to-Grant-Shapps-IAS.pdf> accessed 09 April 2021

³⁶ CD 9.4: <https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx> accessed 09 April 2021

(including balanced pathway, tailwinds and widespread innovation options). In the balanced pathway option, aviation measures are required to reduce sector emissions to 23 MtCO₂e/year by 2050 for international, domestic and military aviation. The five scenarios for managing aviation emissions are described and referred to in Section 4 of my proof.

- bb. **2020 Nationally Determined Contribution** is published for Great Britain and Northern Ireland³⁷ stating that:

"the UK is committing to reduce economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels";

"Emissions from International Aviation and Shipping are not included in the scope of this NDC, in line with advice from the Climate Change Committee (CCC), the UK's independent advisors. The UK currently reports these emissions as a memo item in the UK's GHG inventory and is supportive of efforts to reduce these emissions through action under the International Civil Aviation Organisation and the International Maritime Organisation";

and

"Ahead of COP26, the UK intends to publish a comprehensive Net Zero Strategy, setting out the government's vision for transitioning to a net zero economy by 2050, making the most of new growth and employment opportunities across the UK. The Net Zero Strategy will constitute the UK's revised Long-Term Low Emission Development Strategy to the UNFCCC. The UK also intends to publish ambitious individual plans across key sectors of the economy, including an Energy White Paper, Transport Decarbonisation Plan, England Peat Strategy and Heat and Buildings Strategy ahead of COP26".

- cc. **2020 Greenhouse Gas Emissions Trading Scheme Order** was published³⁸. See Section 3.2 below.
- dd. **2021 Sixth Budget Press Release**. On 20th April 2021, the UK Government announced the sixth budget will include international aviation and shipping, and also announced a new target to reduce emissions by 78% compared to 1990 levels by 2035³⁹. Legislation has been drafted⁴⁰ and is due to become law before the end of June 2021.

The Press Release offers some insight into Government policy with regard to including international aviation and shipping:

"For the first time, this Carbon Budget will incorporate the UK's share of international aviation and shipping emissions – an important part of the government's decarbonisation efforts that will allow for these emissions to be accounted for consistently."

"CB6 [the Sixth Carbon Budget] includes emissions from International Aviation and Shipping (IAS) for the first time. Previous carbon budgets have formally excluded these emissions, instead

³⁷ CD 9.35: United Kingdom of Great Britain and Northern Ireland's Nationally Determined Contribution available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/943618/uk-2030-ndc.pdf accessed 08 April 2021

³⁸ CD 9.36: <https://www.legislation.gov.uk/ukdsi/2020/1265/contents/made>

³⁹ CD 9.37: Press release: UK enshrines new target in law to slash emissions by 78% by 2035, available at <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035> accessed 03 May 2021

⁴⁰ CD 9.38: The Carbon Budget Order 2021, available at <https://www.legislation.gov.uk/ukdsi/2021/9780348222616> accessed 03 May 2021

leaving 'headroom' for them. However, IAS emissions were included in the CCC's advice, and are included in our 2050 net zero target, which was set on a whole economy basis."

In the recent Appeal Decision for Stansted⁴¹, the Planning Inspector noted:

"Indeed, the Government's press release expressly states, amongst other things, that following the CCC's recommended budget level does not mean we are following their policy recommendations. Moreover, it also says that the Government will 'look to meet' this reduction through investing and capitalising on new green technologies and innovation, whilst maintaining people's freedom of choice, including on their diet. For that reason, the 6CB will be based on its own analysis, and 'does not follow each of the Climate Change Committee's specific policy recommendations.'"

The Press Release also offers some insight into Government policy with regard to innovation⁴² rather than limitation:

- *"The UK will be home to pioneering businesses, new technologies and green innovation as we make progress to net zero emissions, laying the foundations for decades of economic growth in a way that creates thousands of jobs."*
- *"This latest target shows the world that the UK is serious about protecting the health of our planet, while also seizing the new economic opportunities it will bring and capitalising on green technologies – yet another step as we build back greener from the pandemic and we lead the world towards a cleaner, more prosperous future for this generation and those to come."*
- *"The government will look to meet this reduction target through investing and capitalising on new green technologies and innovation, whilst maintaining people's freedom of choice, including on their diet. That is why the government's sixth Carbon Budget of 78% is based on its own analysis and does not follow each of the Climate Change Committee's specific policy recommendations."*
- *"following the CCC's recommended budget level does not mean we are following their specific policy recommendations. Our published analysis is based on the government's own assumptions and does not, for example, assume the CCC's change in people's diet. Ahead of COP26, we will be setting out our own vision for net zero, and ambitious plans across key sectors of the economy to meet carbon budgets."*

3.3 Climate Change Act and Carbon Budgets

3.3.1 Section 30 of the Climate Change Act addresses emissions from international aviation and international shipping, stating (emphasis added):

(1) Emissions of greenhouse gases from international aviation or international shipping do not count as emissions from sources in the United Kingdom for the purposes of this Part, except as

⁴¹ CD 9.107: Para 86.

⁴² One example of innovation that has emerged in recent years is Direct Air Capture. This is a technology that removes CO₂ directly from the air for subsequent storage underground or in rock, or for subsequent production of long-lived products such as plastics or cement. Direct Air Capture was not identified in the 2009 CCC Report.

provided by regulations made by the Secretary of State.(3) The Secretary of State must, before expiry of the period ending with 31st December 2012—

- (a) make provision by regulations as to the circumstances in which, and the extent to which, emissions from international aviation or international shipping are to be regarded for the purposes of this Part as emissions from sources in the United Kingdom, or*
- (b) lay before Parliament a report explaining why regulations making such provision have not been made.*

3.3.2 Section 10 of the Climate Change Act also refers to international aviation, requiring that international aviation and shipping emissions be taken into account when setting carbon budgets (emphasis added):

(1) The following matters must be taken into account—

- (a) by the Secretary of State in coming to any decision under this Part relating to carbon budgets, and*
- (b) by the Committee on Climate Change in considering its advice in relation to any such decision.*

(2) The matters to be taken into account are—

- (a) scientific knowledge about climate change;*
- (b) technology relevant to climate change;*

...

(h) circumstances at European and international level;

(i) the estimated amount of reportable emissions from international aviation and international shipping for the budgetary period or periods in question.

(3) In subsection (2)(i) “the estimated amount of reportable emissions from international aviation and international shipping”, in relation to a budgetary period, means the aggregate of the amounts relating to emissions of targeted greenhouse gases from international aviation and international shipping that the Secretary or State or (as the case may be) the Committee estimates the United Kingdom will be required to report for that period in accordance with international carbon reporting practice.

3.3.3 The Secretary of State’s response to Section 30(3)(b) was published on 19 December 2012²³ stating:

“At the time of passing the [Climate Change] Act there was recognition that emissions from international aviation and shipping would also need to reduce if the UK were to achieve its long-term climate goals, and they were included within the wider framework of the Act through the requirement to take them into account when setting carbon budgets.”

“... problems with inclusion of international aviation and shipping emissions within the UK’s carbon budgets and carbon target were identified:

- *Lack of international agreement over how to allocate international emissions to individual countries.*

- *Significant uncertainty over how best to measure and monitor these emissions in a sufficiently robust manner, e.g. high levels of uncertainty over both long-term emissions trends and in-year fluctuations. Specifically, for aviation there were concerns over the proposed aviation European Union Emissions Trading System (EU-ETS) methodology at the time, and for shipping there was uncertainty over which methodology to adopt.*
- *Concern that inclusion without international commitments to emissions reductions would necessitate unilateral action to reduce emissions from these heavily globalised sectors, and so may generate perverse incentives for these sectors to move operations elsewhere, thus failing to reduce net emissions (carbon leakage) and impacting the UK economy.”*

3.3.4 The first three carbon budgets, for the periods 2008-2012, 2013-2017 and 2018-2022, were implemented via the Carbon Budgets Order 2009⁴³. The fourth carbon budget (2023-2027) was set at 1,950 MtCO₂e⁴⁴ and the fifth budget (2028-2032) was set at 1,725 MtCO₂e⁴⁵. All of these budgets formally exclude international aviation and international shipping, but were set at a level that took international aviation into account:

*“Emissions from international aviation should continue to be allowed for by setting the budget on the path to meeting the 2050 target with international aviation emissions included. However, the accounting for these emissions remains uncertain, so they should not be formally included in the fifth carbon budget”.*⁴⁶

3.3.5 If passed, the sixth budget (2033-2037) will be 965 MtCO₂e, including international aviation and shipping. The Sixth Carbon Budget is to be set to align with the UK’s latest Nationally Declared Contribution under the Paris Agreement. As noted above, however, the UK’s international aviation emissions were already ‘taken into account’ in the setting of previous carbon budgets and so what has changed is the way international aviation is reflected in carbon budgets, not the fact that it is reflected in carbon budgets. A consequence of the change of approach in the Sixth Carbon Budget is that from that period (2033-2037) there is no longer the need for a ‘planning assumption’.

3.3.6 In the recent Appeal Decision for Stansted⁴⁷, the Planning Inspector noted:

“Of course, the headroom approach of taking account of emissions from international aviation which has been used to date means that accounting for such carbon emissions as part of the Carbon Budget process is nothing new. What is set to change, however, is the process by which it is taken into account. As of yet, there has been no change to the headroom planning assumption. Nor has there been any indication from the Government that there will be a need to restrict airport growth to meet

⁴³ The Carbon Budgets Order 2009 No.1259, available at https://www.legislation.gov.uk/uksi/2009/1259/pdfs/ukxi_20091259_en.pdf accessed 07 April 2021

⁴⁴ The Carbon Budgets Order 2011 No.1603, available at <https://www.legislation.gov.uk/uksi/2011/1603/made> accessed 07 April 2021

⁴⁵ The Carbon Budgets Order 2016 No.785, available at <https://www.legislation.gov.uk/uksi/2016/785/contents/made> accessed 07 April 2021

⁴⁶ UK Carbon Budgets, House of Commons Research Briefing, available at <https://commonslibrary.parliament.uk/research-briefings/cbp-7555/> accessed 07 April 2021

⁴⁷ CD 9.107: Paras 25 and 85.

the forthcoming budget for international aviation, even if it differs from the current planning assumption.”

And

“The Government intends to set the sixth Carbon Budget at the 965 MtCO_{2e} level recommended by the CCC. As outlined above, carbon emissions from international aviation have always been accounted for in past carbon budgeting. There is no good reason to assume that the coming change in how they are accounted for will significantly alter Government policy in this regard or that the Government intends to move away from its MBU policy.”

3.4 Emissions Trading

EU Emissions Trading Scheme (EU ETS)

- 3.4.1 The European Union Emissions Trading Scheme (EU ETS) was established in 2005 and now accounts for some 10,000 heavy energy-using installations and airlines operating between countries within the European Economic Area (EEA), covering around 40% of the EU's greenhouse gas emissions⁴⁸. The aviation sector was brought into the EU ETS on 1st January 2012 although inclusion of emissions from flights to and from non-European countries was suspended from 2012 following protests from airlines based in countries outside the EU. This led to the EU deciding to limit the scope of the EU ETS to flights within the EEA until 2016 to support the development of a global measure by the International Civil Aviation Organization (ICAO). This limit remains in place subject to a new review in the light of the international developments related to the operationalisation of ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and how this global measure can be implemented through a revision of the EU ETS legislation. In the absence of a new amendment, the EU ETS would revert back to its original full scope from 2024 (i.e. including emissions from all flights into and out of the EEA).
- 3.4.2 CORSIA was adopted by the ICAO in 2016 to supplement industry initiatives to reduce carbon emissions (e.g. through fuel efficiency, etc) and enables airline operators to purchase carbon credits from the carbon market to offset emissions. These industry initiatives and CORSIA were intended to ensure aviation emissions globally remained at levels equal to average baseline emissions of 2019 and 2020. CORSIA has three phases. The pilot and first phases run from 2021 to 2023 and 2024 to 2026 respectively, and is voluntary; the UK is participating. The second phase, running from 2027 to 2035, would include the majority of countries based on the proportion of aircraft movements.

⁴⁸ CD 9.69: The International Council on Clean Transportation (2017), Policy Update: International Civil Aviation Organization's Carbon Offset and Reduction Scheme for International Aviation (CORSIA) available at https://theicct.org/sites/default/files/publications/ICAO%20MBM_Policy-Update_13022017_vF.pdf accessed 15 June 2021. See also https://ec.europa.eu/clima/policies/ets_en and https://www.icao.int/environmental-protection/Pages/A39_CORSIA_FAQ2.aspx

3.4.3 In June 2020 the European Commission published an inception impact assessment on the proposed revision to the EU Emission Trading System Directive 2003/87/EC concerning aviation⁴⁹ to secure the aviation sector's adequate contribution to the Union's climate objectives, while taking account of any potential impacts, including on mobility in Europe. This report included indicative planning for implementation by June 2021. Six potential scenarios are described:

- A. **EU ETS full legal scope:** *In case no amendment is adopted by the European Parliament and Council by December 2023, the EU ETS for aviation would cover flights departing from airports in the EU/EFTA and arriving to other airports in EU/EFTA or to third countries and, if not exempted through delegated legislation, incoming flights to airports in the EU/EFTA from third countries (exercising empowerment in Article 25a of the EU ETS Directive).*
- B. **Intra-EU/EFTA ETS only:** *Maintaining the status quo, the EU ETS would be applied exclusively and confined to the scope of the system as currently applied: allowance surrendering obligations for aircraft operators would be based solely on emissions from flights between aerodromes located in the EU/EFTA, with the exception of flights between EU outermost regions and other regions of the EU/EFTA (including other outermost regions), while including flights within any given outermost region.⁹ NB: in this option, CORSIA is neither applied to ETS-exempted routes.*
- C. **CORSIA only:** *Only CORSIA would be applied to international flights, non-domestic intra-EU/EFTA flights, flights to and from the EU/EFTA States (including their outermost regions) and third countries.*
- D. **ETS-CORSIA "clean cut":** *The EU ETS would continue to apply to the current intra-EU/EFTA scope, as in option B above, and CORSIA would be introduced for extra-EU/EFTA flights, i.e. flights to and from EU/EFTA States (including their outermost regions) and third countries. In other words, the EU ETS would be applied as at present and CORSIA would be applied to all other flights (to the extent that CORSIA is applicable to them).*
- E. **ETS-CORSIA "mix":** *Regarding non-domestic intra-EU/EFTA flights, the EU ETS would apply up to each operator's 2020 emissions. Above the 2020 emissions, CORSIA would apply. Regarding flights between EU/EFTA States (including their outermost regions) and third countries, CORSIA would apply on emissions above 2020 levels. This option would cover domestic flights.*
- F. **ETS-CORSIA "mix" according to licence of aircraft operators:** *The EU ETS would apply to non-domestic, intra-EU/EFTA flights, operated by operators with licences issued by Member States. For operators with licences issued by third countries, only CORSIA would apply on those non-domestic intraEU/EFTA flights and flights between EU/EFTA States (including their outermost regions) and third countries. This option would not cover domestic flights.*

3.4.4 In summary, all domestic, intra EEA and extra EEA flights are included within the EU ETS, although we are currently in a period of reprieve where extra EEA flights are temporarily excluded. Different scenarios are being considered to determine how the EU ETS may best interface with CORSIA but the default legal position is that, from 1 January 2024, all domestic, intra EEA and extra EEA flights will be included within the EU ETS.

⁴⁹ CD 9.40: <https://ec.europa.eu/info/law/better-regulation/>

UK Emissions Trading Scheme (UK ETS)

3.4.5 As part of the withdrawal from the EU, the UK Emissions Trading Scheme (UK ETS) replaced the UK's participation in the EU ETS on 1 January 2021. The UK ETS was established through the 2020 Greenhouse Gas Emissions Trading Scheme Order³⁸. The Explanatory Memorandum which accompanies this Order⁵⁰ makes it clear the UK Government intention that the UK ETS and EU ETS are able to operate side by side, even stating that (paragraph 6.8):

"A link between the UK and EU trading schemes could help to establish a much larger carbon market, which could increase opportunities for emissions reduction and cost-efficiency of emissions trading".

Of particular note is that the aviation scope for the UK ETS covers UK domestic flights, flights between the UK and Gibraltar, and flights from the UK to the EEA. Article 21 of the Greenhouse Gas Emissions Trading Scheme Order states:

(4) In this article, a reference to reportable emissions or aviation emissions is a reference to reportable emissions or aviation emissions—

(a) verified in accordance with the Verification Regulation 2012 or the Verification Regulation 2018;

(b) where relevant, set out in an emissions report accompanied by the notice or declaration referred to in paragraph 3(8)(b)(ii) of Schedule 5 to GGETSR 2012 or paragraph 11(2)(b)(ii) of Schedule 7 to this Order; or

(c) where relevant, considered to be verified under regulation 35(7) of GGETSR 2012 or article 33(2) of this Order.

Article 24 states:

Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council(1) has effect for the purpose of the UK ETS...

3.4.6 The Explanatory Memorandum makes the inclusion and capping of aviation emissions very clear (my emphasis):

"The cap on allowances that are created under the UK ETS each year will initially be set at 5% below the UK's expected notional share of the EU ETS cap for Phase IV of the EU ETS. Based on the proposed design scope, this equates to roughly 156 million allowances in 2021. The initial cap will be reduced annually by a little over 4.2 million allowances, meaning that the UK ETS cap will remain 5% below where we would have expected the UK's notional share of the Phase IV EU ETS cap to be year on year. These cap figures include the aviation scope."

3.4.7 This is a temporary cap but the Government also states its intention to consult on an appropriate trajectory for the UK ETS cap within nine months of the Committee on Climate Change publishing its advice on the Sixth Carbon Budget, and aims (paragraph7.6):

⁵⁰ CD 9.45: Explanatory Memorandum to the Greenhouse Gas Emissions Trading Scheme Order 2020 No. 1265 available at https://www.legislation.gov.uk/ukxi/2020/1265/pdfs/ukxiem_20201265_en.pdf accessed 10 April 2021

“to appropriately align the cap with a Net Zero trajectory by January 2023, and no later than January 2024, while aiming to give the industry at least one year’s notice to provide the market with appropriate forewarning”.

- 3.4.8 On 26 May 2021 the Air Navigation (Carbon Offsetting and Reduction Scheme for International Aviation) Order 2021⁵¹ came into force providing details of the requirements for monitoring, reporting and verification of emissions for the purposes of complying with the Greenhouse Gas Emissions Trading Scheme Order.
- 3.4.9 Similar to the EU, the UK Government has consulted on implementing CORSIA¹³, reiterating its commitment to fully participating in CORSIA from the start of the scheme in 2021 and recognising that further action is required to ensure that international aviation contributes to the global temperature goals of the Paris Agreement: *“The UK is therefore negotiating in ICAO for a long-term goal for international aviation emissions that, like our national targets under the Climate Change Act, is consistent with the Paris Agreement. The UK is also acutely aware of its responsibility as COP26 President to push for great ambition in tackling climate change across all sectors. The UK will use the platform of COP26 to push for progress in decarbonising all sectors including aviation”.* The reason why departing the UK to aerodromes in the European Economic Area were included under the UK ETS from 1 January 2021 is stated because *“the UK government and the devolved administrations have higher climate change ambitions than those currently set by ICAO”.*
- 3.4.10 Seven policy options are proposed with Option 2 being the preferred option:
- a. **Option 1: Simple hybrid scheme.** *Under this option, an aeroplane operator’s UK ETS obligations would be reduced by an amount equivalent to their CORSIA obligations on flights from the UK to EEA states. This means that an operator’s UK ETS obligations would be reduced by the amount of CO₂ they are required to offset under CORSIA for UK ETS international flights. In effect, this means that the UK ETS would apply to emissions on these flights unless they are covered by CORSIA. A method of calculating or estimating the split between an operator’s obligations on these routes, that also considers the implications of different surrendering deadlines, would need to be devised if this option is taken. This option does not allow an aeroplane operator to directly use CORSIA emissions units against their UK ETS surrendering obligations. This option is broadly similar to the ‘ETS-CORSIA “mix”’ option in the EU’s inception impact assessment. This option would see the demand for allowances reduced without an equivalent adjustment to the supply, which could contribute to a build-up of surplus UK ETS allowances.*
 - b. **Option 2: ‘Supply-adjusted’ hybrid scheme.** *This option is based on the simple hybrid option above. Aeroplane operators would be entitled to claim a reduction in their UK ETS obligations equivalent to their CORSIA obligations on flights from the UK to EEA States. However, in addition, to maintain the supply-demand balance (and therefore the UK ETS auction price), the UK ETS cap would also be adjusted to account for those emissions covered by CORSIA. For every tonne of CO₂ that is removed from the UK ETS obligations of an aeroplane operator due to CORSIA, a tonne of CO₂ in UK ETS allowances would also be retired*

⁵¹ Available at <https://www.legislation.gov.uk/ukSI/2021/534/made> accessed 3 June 2021

from the system. Allowances could be taken from the overall UK ETS cap or from the allowances allocated to the aviation sector. As with option 1, a method of calculating or estimating the split between an aeroplane operator's obligations on UK ETS international routes would need to be devised if this option is taken forward in the next consultation. This option does not allow an aeroplane operator to directly use CORSIA emissions units against their UK ETS surrendering obligations.

This option would be more environmentally stringent than the Simple Hybrid as it would go further towards maintaining the integrity of the UK ETS cap. It would also be fully compliant with the CORSIA SARPs. This option would also help reduce any potential impacts on the UK ETS price as it would help to maintain the supply/demand balance of the UK ETS. This is therefore the government's initial preferred option. This option is likely to be the most complicated to administer, although any additional complexity compared to option 1 is likely to fall on the administering authority and regulators, rather than the aeroplane operator.

- c. **Option 3: 'Restricted' hybrid scheme.** Under this option, aeroplane operators would be allowed to use CORSIA emissions units against their UK ETS obligations, but only if those units meet additional criteria to further minimise any risk that the CORSIA emissions units used did not represent additional verifiable emissions reductions or that they have been double-counted. In this option, CORSIA emissions units would be eligible for use against UK ETS obligations, although this could be capped at a level equal to the CORSIA obligations on UK ETS international routes. If this safeguard were to be introduced, a method of calculating or estimating an aeroplane operator's CORSIA obligations on UK ETS international routes would need to be devised, as for options 1 and 2. Without this safeguard, this option could lead to cheaper CORSIA emissions units being used in place of UK ETS allowances, leading to oversupply and a significantly reduced price. The safeguard is therefore assumed to be included in this option as depicted in figure 2 above. This option would mean the UK developing its own emissions unit criteria, in addition to those in the CORSIA implementation elements. However, this would contradict our long-held position that the criteria for CORSIA emissions units should not vary between states to avoid competitive distortions. This option would see the demand for allowances reduced without an equivalent adjustment to the supply, which could contribute to a build-up of surplus UK ETS allowances.
- d. **Option 4: ETS and CORSIA.** This option would implement both the UK ETS and CORSIA independently. Aeroplane operators with international flights in the UK ETS would be required to comply with both schemes for emissions above the CORSIA baseline and therefore have overlapping obligations on these flights. This would be the most environmentally ambitious option. This option would mean aeroplane operators were required to pay twice for the same tonne of CO₂ but it is expected that this would be less administratively complex than a 'hybrid' scheme as the 2 schemes would run largely separately.
- e. **Option 5: Domestic offsetting scheme.** In this case, CORSIA would still be applied to international flights, as per the ICAO SARPs. However, instead of aviation being covered by the UK ETS, an offsetting scheme based on the design of CORSIA would be applied to the flights that would have been in scope of the UK ETS. This means it could use CORSIA MRV, thresholds, exemptions and compliance periods. However, as a UK policy, this scheme could also: (i) have a more stringent baseline than CORSIA for international flights, potentially achieving the same emissions reductions as would be achieved through including these flights in the UK ETS; (ii) include UK domestic flights' or (iii) apply its own emissions unit criteria for emissions not covered by CORSIA, including limiting the provenance to certain jurisdictions or to negative emissions. This option would use offset credits, rather than allowances, for all emissions. This option would aim to ensure aeroplane operators were required to purchase enough offsets through both CORSIA and the UK scheme to achieve the same level of emissions reductions as

would be achieved through an emissions trading system. A method would need to be devised to split an operator's obligations on UK ETS international routes between CORSIA and the UK scheme, as for options 1, 2 and 3. Because this option would replace the UK ETS it would require some time to deliver. It may not be possible to bring this into effect from 2021, but we expect it could be introduced by the start of the CORSIA First Phase. This option would be fully compliant with the CORSIA SARPs as it would apply separately in addition to CORSIA. As this option uses offset credits rather than ETS allowances, it would provide the highest demand for domestic and potentially international emissions reduction programmes, consistent with the government's carbon finance ambitions. However, the price of offsets is likely to be below the price of allowances for some years. Because all emissions obligations would be met through offsetting, rather than the surrender of allowances, there could therefore be a significantly reduced incentive to reduce in-sector aviation emissions.

- f. **Option 6: UK ETS only.** Under this option, only the UK ETS would apply on UK to EEA flights, whilst CORSIA would apply to all other international flights in scope of the scheme. In this case, UK to EEA flights would not be subject to CORSIA obligations and the UK would need to file a difference against the definition of international flights in the CORSIA SARPs. This option is broadly similar to the 'ETS-CORSIA 'clean-cut' option in the EU's Inception Impact Assessment. This option would ensure the same level of ambition as today on UK to EEA flights, without double charging for the same emissions. However, this option does not fully comply with CORSIA SARPs since UK to EEA flights, despite being international flights, would not be covered by CORSIA.

- 3.4.11 The outcomes of consultation on the detailed design of the preferred CORSIA-UK ETS interaction policy will be published by summer 2021.
- 3.4.12 In summary, as for the EU ETS, all domestic and intra EEA flights are included within the UK ETS. Allowances within the UK ETS are capped and will reduce year on year to align with a Net Zero trajectory by January 2023 and no later than January 2024. Different scenarios are being considered to determine how the UK ETS may best interface with CORSIA. The UK Government preferred option is to allow CORSIA but to remove the equivalent number of allowances from the UK ETS total.
- 3.4.13 Finally, I have reproduced the schedule for implementing UK ETS and CORSIA in Figure 3.1, as published by the UK Government^{Error! Bookmark not defined.}. We are currently in Phase 1a of the UK ETS and the Pilot Phase of CORSIA. The end of Phase 1a of the UK ETS coincides with the end of the Pilot Phase for CORSIA, and is due to end in 2022 after the first two years of free allocation of allowances, reporting and trading within the UK ETS and the first two years of emissions reporting and confirmation of offsetting requirements within CORSIA. Also by the end of 2022, changes may occur as a result of the UK Government's net zero review and any outcomes of the 41st ICAO Assembly CORSIA review, and a full review of the UK ETS will be initiated. Phase 1b of the UK ETS extends for five years, ending in 2028, and encompassing both the First and Second Phases of CORSIA. By 2028 there will have been seven years of trading within the UK ETS and within CORSIA, a whole system review of UK ETS will have been completed and changes implemented, and three

rounds of review of CORSIA completed. From this schedule I conclude that significant effort is being made by UK Government to integrate UK ETS and CORSIA.

		Pilot Phase			First Phase			Second Phase	
CORSIA	May – 2020 Emissions reporting	April – 2021 Emissions reporting	April – 2022 Emissions reporting	April – 2023 Emissions reporting	January – Cancellation of 2021-23 emissions units	April – 2024 Emissions reporting & Emissions Unit Cancellation Reporting.	April – 2025 Emissions reporting	April – 2026 Emissions reporting	January – Cancellation of 2024-26 emissions units
		November – 2021 Offsetting requirements confirmed	November – 2022 Offsetting requirements confirmed	November – 2021-23 Offsetting requirements confirmed	November – 2024 Offsetting requirements confirmed	November – 2025 Offsetting requirements confirmed	November – 2024-26 Offsetting requirements confirmed	November – 2027 Offsetting requirements confirmed	November – 2027 Offsetting requirements confirmed
		41 st ICAO Assembly – CORSIA Review			42 nd ICAO Assembly – CORSIA Review			43 rd ICAO Assembly – CORSIA Review	
UK ETS		Phase I(a)			Phase I(b)				
	Free allocation issued	February – 2022 Free allocation issued	February – 2023 Free allocation issued	February – 2024 Free allocation issued	February – 2025 Free allocation issued	February – 2026 Free allocation issued	February – 2027 Free allocation issued	February – 2028 Free allocation issued	
		March – 2021 Emissions reporting	March – 2022 Emissions reporting	March – 2023 Emissions reporting	March – 2024 Emissions reporting	March – 2025 Emissions reporting	March – 2026 Emissions reporting	March – 2027 Emissions reporting	
		April – 2021 Allowances surrendered	April – 2022 Allowances surrendered	April – 2023 Allowances surrendered	April – 2024 Allowances surrendered	April – 2025 Allowances surrendered	April – 2026 Allowances surrendered	April – 2027 Allowances surrendered	
Spring 2021 - CORSIA MRV in force	April – Target to implement CORSIA offsetting	Changes as a result of: <ul style="list-style-type: none"> • Net zero review • Free allocation review • CORSIA First whole system review begins 				Changes as a result of first whole system review		Second whole system review begins	

Figure 3.1 UK ETS and CORSIA timelines

3.5 Planning Policy on Climate Change

3.5.1 The National Planning Policy Framework (NPPF)⁵² seeks to ensure that development proposals mitigate, and are resilient to the impacts of, climate change.

3.5.2 Paragraph 148 states that:

“The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure”.

3.5.3 Paragraph 150 states that:

New development should be planned for in ways that:

⁵² CD 5.19: National Policy Framework, Ministry of Housing, Communities and Local Government, February 2019, available at [MHCLG - National Planning Policy Framework - CP 48 \(publishing.service.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/782222/NPPF-CP48.pdf) accessed 12 April 2021

a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and

b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.

3.5.4 Paragraph 151 states that:

To help increase the use and supply of renewable and low carbon energy and heat, plans should:

a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);

b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and

c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

3.5.5 Policy CS1 of the North Somerset Core Strategy⁵³, as cited in Reason 3 of the Decision Notice, identifies a range of principles for guiding development relating to, inter alia, reducing GHG emissions and climate change resilience, stating that:

"development should demonstrate a commitment to reducing carbon emissions, including reducing energy demand through good design, and utilising renewable energy where feasible and viable".

3.5.6 Policy CS2 states that development proposals should demonstrate a commitment to sustainable design and construction, increasing energy efficiency through design, and prioritising the use of sustainable low or zero carbon forms of renewable energy generation. This policy states that, when considering proposals for development, NSC will:

- A. *Require designs that are energy efficient;*
- B. *Require the use of on-site renewable energy sources to meet a minimum of 15% for non-residential development 1,000m² and above; and*
- C. *Require a Building Research Establishments Environmental Assessment Method (BREEAM) rating of 'Very Good' on all non-residential developments over 500m² and 'Excellent' over 1,000m².*

⁵³ CD 5.20: Available at: <https://www.n-somerset.gov.uk/my-services/planning-building-control/planning-policy/core-strategy/about-our-core-strategy> accessed 12 April 2021

- 3.5.7 Further detail and guidance in respect of the implementation of Policies CS1 and CS2 is contained in the Creating Sustainable Buildings and Places in North Somerset Supplementary Planning Document (SPD)⁵⁴.
- 3.5.8 Policy CS23 of the Core Strategy relates specifically to Bristol Airport and sets out that "*Proposals for the development of Bristol Airport will be required to demonstrate the satisfactory resolution of environmental issues, including the impact of growth on surrounding communities and surface access infrastructure.*"
- 3.5.9 Similarly, Policy DM50 of the Sites and Policies Plan Part 1: Development Management Policies stipulates that development within the Green Belt inset at Lulsgate will be permitted provided that (*inter alia*) environmental impacts such as emissions are minimised.
- 3.5.10 In summary, there are national and local planning policies that are relevant to the Appeal Proposal. It is clear, however, from paragraphs 1.8 to 1.12 of *Beyond the Horizon – Making Best Use of existing runways*³ that development control policies are not intended to apply to carbon emissions from domestic or international aviation; those are a matter for control at a national and, indeed, international level.

⁵⁴ CD 5.21: North Somerset Council (2015). Creating Sustainable Buildings and Places in North Somerset Supplementary Planning Document. Available at: <https://www.n-somerset.gov.uk/wp-content/uploads/2015/11/Creating-sustainable-buildings-and-places-supplementary-planning-document.pdf> accessed 12 April 2021

3.6 Climate Emergency

3.6.1 In February 2019 NSC declared a Climate Emergency and has since published a Climate Emergency Strategy and Climate Emergency Action Plan⁵⁵. The NSC Climate Emergency Strategy (reproduced overleaf as Figure 3.2) states that the council only has direct control over a small proportion of the total carbon emissions of the area (in the order of 2% or less) and refers to a matrix of influence⁵⁶. NSC aims to reduce the emissions it controls to become a net zero carbon council and take a leadership role to enable, support and influence both locally and nationally.

3.6.2 The NSC *Climate Emergency Strategic Action Plan – October Update* details the actions that are being taken by NSC, including:

- a. *Taking a leadership role across the area to encourage, support and enable others to reduce their carbon emissions.*
- b. *Ensuring a programme of robust reporting on progress internally and externally.*
- c. *Assessing all major council projects for their impacts on carbon emissions.*
- d. *Carbon proofing all future strategies and policies and ensure mitigations.*
- e. *Continuous development of the Council's sustainable procurement policies and practices.*
- f. *Proving and promoting active transport.*
- g. *Increasing energy efficiency.*
- h. *Acquiring or funding renewable energy schemes.*
- i. *Using renewable energy (electricity) including electric vehicles, etc.*
- j. *Working with contractors and service providers to support them in reducing their carbon footprint.*
- k. *Encourage partners and stakeholders to procure electricity supply from 100% renewably generated sources.*
- l. *Aiming for all its own new commercial space to be zero carbon or net carbon plus.*
- m. *Continue to drive project delivery to shift from private car use.*
- n. *Develop policies that actively encourage the demand for and delivery of connected public transport.*
- o. *Implement NSC project to deliver an electric charging hub.*

⁵⁵ The Strategy, Action Plan and October Update *all available at* <https://www.n-somerset.gov.uk/council-democracy/priorities-strategies/climate-emergency/our-plans-tackle-climate-change> accessed 13 May 2021

⁵⁶ The matrix includes: *areas we directly control; areas we can influence through our contracts or through funding/support; areas we can influence through policy activity; areas we can influence or ask for help and support locally; and areas we can influence or ask for help and support nationally.*

North Somerset Climate Emergency Strategy

The North Somerset Climate Emergency Strategy is a live document which outlines our **seven key principles** for how we will address the causes and consequences of climate change, with the aim to be carbon neutral by 2030. The Strategy is supported by the accompanying Climate Emergency Strategic Action Plan and Data Dashboard. The Strategy is owned by the cross-party member Climate Emergency working group and will link in with the developing North Somerset Corporate Plan 2020-2025, our Medium Term Financial Plan, and other strategic plans including the Economic Plan and the Joint Local Transport Plan. The Climate Emergency Strategy and Action Plan will be reviewed annually to confirm our principles and to analyse our progress.

Context

- 1°C** Damaging climate impacts are already being felt today at 1° of warming
- 1.5°C** Keeping below 1.5° would help to protect ecosystems limiting impacts on vulnerable groups
- 2°C** Below 2° will limit the most damaging effects of climate change
- 3°C** We are currently on track for 3° of warming - the tipping point
- 4°C** Unchecked emissions growth could lead to severe and widespread climate change by 2100

Our commitment: North Somerset will aim to be a carbon neutral council and a carbon neutral area by 2030

Key principles

- Become a net zero carbon council
- An energy efficient built environment
- Renewable energy generation
- Repair, reuse, reduce and recycle
- Replenish our carbon stores
- Reduce emissions from transport
- Adapting to climate change

The how

- Avoidance
 - Reduction
 - Mitigation
 - Storage
- For each key principle within this strategy, actions have been identified in our **Action Plan** that will help to either avoid carbon production (low carbon homes), reduce the amount (renewable electricity), mitigate against production (public transport) or help to store it away (tree planting).

Our scope

North Somerset Council only has direct control over a small proportion of the total carbon emissions of the area. Analysis is ongoing to confirm this proportion but it is believed to be less than 2%. Reducing these emissions will form our work around **becoming a net zero carbon council**. For our other **key principles**, the council will take a leadership role. Part of this role will be considering our matrix of influence to identify actions that we can help to enable, support and influence both locally and nationally.

The council will also seek to understand how our work will reduce differently scoped emissions in North Somerset. These include **scope one**: all direct emissions from activities within our area, **scope two**: all indirect emissions from energy production/use in our area, and **scope three**: all other indirect emissions from activities within our area, occurring from sources we do not own or control.



Our scope

North Somerset Council only has direct control over a small proportion of the total carbon emissions of the area. Analysis is ongoing to confirm this proportion but it is believed to be less than 2%. Reducing these emissions will form our work around **becoming a net zero carbon council**. For our other **key principles**, the council will take a leadership role. Part of this role will be considering our matrix of influence to identify actions that we can help to enable, support and influence both locally and nationally.

The council will also seek to understand how our work will reduce differently scoped emissions in North Somerset. These include **scope one**: all direct emissions from activities within our area, **scope two**: all indirect emissions from energy production/use in our area, and **scope three**: all other indirect emissions from activities within our area, occurring from sources we do not own or control.



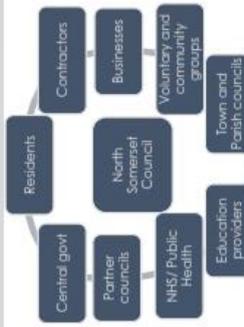
Governance

The Strategy is owned by the cross-party member working group, with the Action Plan owned by the officers working group. Progress is reported to Corporate Management team via officers and to Executive via the members working group.



Stakeholders

Our stakeholders are aligned to our matrix of influence, some we can directly influence through contracts, funding or support, others we can guide through policy change, and others we will need to challenge.



North Somerset Council's matrix of Influence



How we will measure progress

- The Climate Emergency Action Plan is aligned to the seven **key principles** of this strategy, with multiple actions for each principle all aligned to our level of influence and the scope each action will have on emissions (scope one, two or three).
- For each action we ask: **what will success look like?** These success measures form the basis of the Climate Emergency Data Dashboard. The Data Dashboard measures our progress on a quarterly basis.

Examples

Key principle	Scope	Actions	Success measures	Method
Become a net zero carbon council	Scope one and two	100% council electricity supplied by renewables	0% electricity from non-renewable sources	Reduction
Replenish our carbon stores	Scope one, two, three	Identify opportunities for nature recovery networks	Plant x trees by 2025 Reduce amenity gross by x% by 2025	Storage



Also included in the Data Dashboard is an overview of North Somerset's carbon emissions, both by tonnage and per capita. As we progress against our Action Plan we will measure the progress towards our aim of becoming a carbon neutral council and a carbon neutral area by 2030.

Figure 3.2 North Somerset Council Climate Emergency Strategy

3.6.3 There are clear parallels between the NSC *Climate Emergency Strategic Action Plan* and BAL's Carbon and Climate Change Action Plan (CCCAP) described later in my evidence, in terms of: intent; recognition of the ability to control, influence or guide; and the actions being taken.

3.7 Non-CO₂ impacts

3.7.1 From the timeline (above) it is clear the UK Government has acknowledged the non-CO₂ impact of aviation and recognises this impact is potentially greater than from CO₂ alone. This is consistent with the CCC's advice which, in its 2009 Report¹⁹, provided a summary of CO₂ and non-CO₂ aviation radiative forcing components in 2005 (Box 6.1 pp 122 and 123). This is reproduced below as Figure 3.3. Note the last column (LOSU) refers to level of scientific understanding.

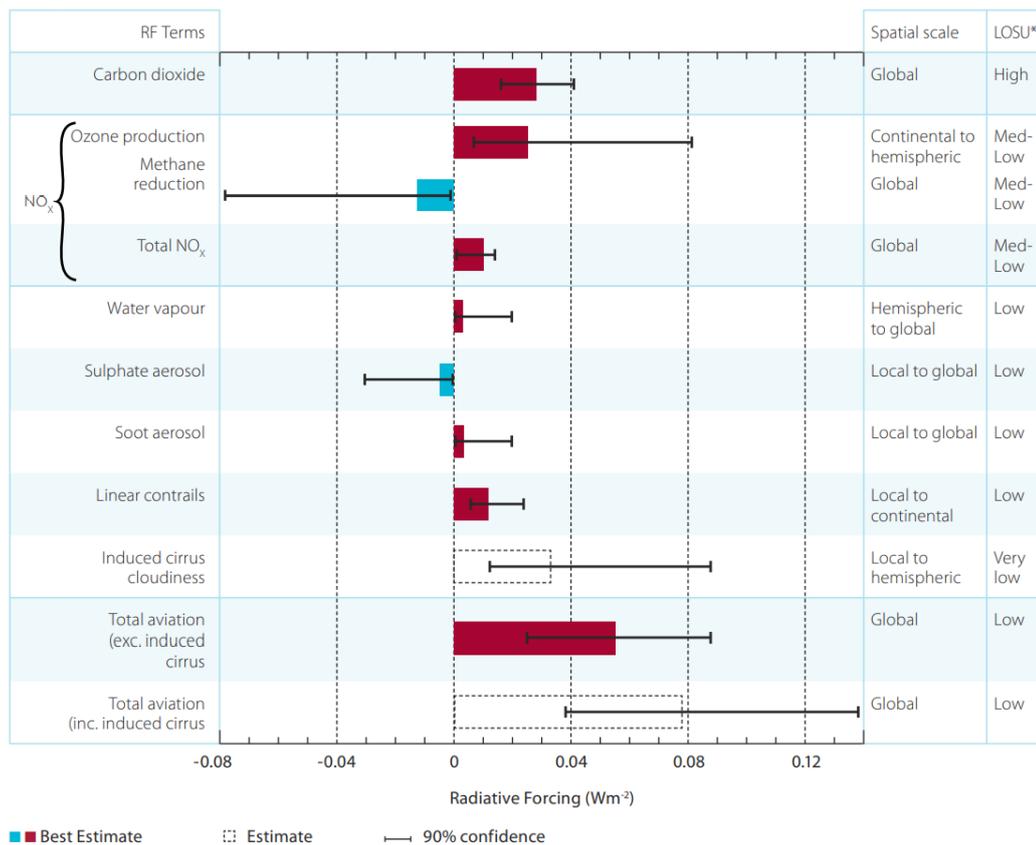


Figure 3.3 Aviation radiative forcing components in 2005

(Source: Meeting the UK aviation target – options for reducing emissions to 2050, Climate Change Committee, 2009 p123)

3.7.2 The impact of CO₂ emissions on global warming is long term (100+ years) whereas non-CO₂ effects are shorter-lived and largely depend on sustained aviation activity to maintain them. Moreover, the magnitude of these effects can depend on the conditions under which the activity occurs (e.g. the extent that contrails are formed depend on the temperature and moisture content of the atmosphere), unlike for well-mixed greenhouse gases which affect the climate similarly independently of where they occur.

3.7.3 The CCC states that (p374):

"It remains extremely challenging to accurately aggregate the effects of these non-CO₂ impacts into a CO₂-equivalence 'multiplier' for use within climate policy mechanisms."

3.7.4 With reference to paragraph 3.94 of *Aviation 2050 – the future of UK aviation*³⁰ The Government's view on non-CO₂ remains that it:

"continues to support work on non-CO₂ emissions, their trade-offs with CO₂ and possible mitigation measures, none of which are yet well enough understood to be able to form policy with confidence that aviation's total climate impact would be reduced".

3.7.5 Paragraph 3.36 of the same document states:

"To implement the government's long term vision and pathway for addressing UK aviation's impact on climate change, the government also proposes to:

- *negotiate in ICAO for standards for all engine emissions with climate effects. As scientific understanding improves, the government will expect ICAO to issue best practice guidance on operational mitigations for non-CO₂ effects*
- *consider the use of all feasible abatement options, particularly in-sector measures, to ensure effective action is taken at the national and international level. This includes policies that may evolve over the long term such as technological developments, operational efficiencies, sustainable fuels, market-based measures, demand management and behavioural change*
- *require planning applications for capacity growth to provide a full assessment of emissions, drawing on all feasible, cost-effective measures to limit their climate impact, and demonstrating that their project will not have a material impact on the government's ability to meet its carbon reduction targets".*

3.7.6 The CCC (Sixth Budget Report, p375⁴) identifies a number of potential options that could reduce non-CO₂ impacts, including: use of low-aromatic sustainable aviation fuels (to reduce soot and therefore cirrus formation); development of low NO_x engine designs; re-routing of aircraft to avoid cirrus formation zones in the atmosphere (although this would require more accurate forecasting, and may increase CO₂ emissions); or switching to electric propulsion or cleaner fuels in these zones.

3.7.7 The UK Government's position on non-CO₂ impacts was recently reiterated in the consultation outcome on implementing CORSIA⁵⁷ stating that *"The UK continues to negotiate in ICAO for increased environmental ambition and supports continued work on aviation's non-CO₂ climate impacts, their trade-offs with CO₂ and possible mitigation measures. The government keeps non-CO₂ emissions under review and reassesses the UK's policy position as more evidence becomes available."*

3.7.8 In the Appeal Decision for Stansted Airport⁵⁸, the Inspector notes:

"The aviation emissions assessments of the ES and ESA are reported as CO₂ only rather than in the wider terms of carbon dioxide equivalent emissions (CO₂e), which also includes nitrous oxide (N₂O) and methane (CH₄), and which the Government has adopted for its sixth Carbon Budget. While it may have been beneficial to have used CO₂e in preference to CO₂ in the ES and ESA, this was not a matter raised by the Council during scoping, nor at any other stage prior to the exchange of evidence. The approach of the ES and ESA, in this regard, is also consistent with the DfT's 2017 Forecasts and with the MBU policy. Consequently, the approach adopted in the ES and ESA is not flawed or incorrect as such. In any event, the evidence indicates that were N₂O and CH₄ to have been included in the ES and ESA assessments, the results would not change significantly on the basis that N₂O and CH₄ account for in the region of only 0.8 to 1.0% of total international aviation CO₂e emissions."

And

"In addition to carbon and carbon dioxide equivalent emissions, other non-carbon sources have the potential to effect climate change. Nonetheless, they are not yet fully understood, with significant uncertainties remaining over their effects and how they should be accounted for and mitigated. There is currently no specific Government policy regarding how they should be dealt with and uncertainty remains over what any future policy response might be. Moreover, no evidence was put to the Inquiry which clearly and reliably establishes the extent of any such effects."

And

"In this context, therefore, the potential effects on climate change from non-carbon sources are not a reasonable basis to resist the Appeal Proposal, particularly bearing in mind the Government's established policy objective of making the best use of MBU airports."

3.7.9 My conclusion is that non-CO₂ emissions cannot be ignored and need to be acknowledged today so choices made in the technologies used to reduce aircraft emissions do not result in non-CO₂ impacts increasing; as the scientific understanding increases, the choices of technology will become better informed. This is fully acknowledged by UK Government and by the CCC. BAL also acknowledges this in its Carbon and Climate Change Action Plan (CCCAP – see Section 5 of my evidence) and I consider this the most appropriate approach to address this issue.

⁵⁷ CD 9.43: Available at [Implementing the Carbon Offsetting and Reduction Scheme for International Aviation \(CORSIA\)](https://www.gov.uk/government/consultations/Implementing-the-Carbon-Offsetting-and-Reduction-Scheme-for-International-Aviation-CORSIA): UK government response - GOV.UK (www.gov.uk) accessed 03 May 2021

⁵⁸ CD 9.107: Paras 95, 96 and 98

4. Assessment of Significance

4.1 Overview

4.1.1 This section of my evidence provides a summary description of the methodology used in the ES and ESA to calculate and report carbon emissions associated with the Appeal Proposal. The methodology and results of the calculations are agreed and presented for context only. I will then describe how significance was assessed in the ES and ESA. With reference to published guidance, I will then use two approaches to assess significance, building on the approach adopted in the ES and ESA. The first approach is to assess significance in the context of the 'planning assumption' of 37.5 MtCO₂ and to benchmark this with the results of other recent assessments of airport developments. I have also included 30 MtCO₂ and 23 MtCO₂ as a sensitivity analysis. The second approach is to test whether the Appeal Proposal would prevent the UK being carbon net zero by 2050. My conclusion is that the 'contribution' made by the Appeal Proposal to the planning assumption is not deemed significant or unacceptable and that the Appeal Proposal would not prevent the UK from being carbon net zero by 2050.

4.2 Environmental Assessment

4.2.1 The overall approach to quantifying emissions associated with the Appeal Proposal was to forecast the relevant sources for the 'With Development' and the 'Without Development' scenarios in 2024, 2030, 2040 and 2050. The sources included were: aviation; surface access; airport buildings and operations; and construction (including embodied carbon). A range of scenarios were presented to reflect the uncertainties in the projections:

- **Upper emission scenario:** This scenario assumes a relatively small amount of GHG emissions reductions based on anticipated policy or market trends;
- **Central emission scenario:** This scenario aligns with current or anticipated policy and market trends in the areas listed above; and
- **Lower emission scenario:** This scenario assumes more substantial improvements in GHG emissions reductions and thus represents an optimistic projection.

4.2.2 The assumptions made regarding emissions from aircraft movements for each of these scenarios is placed in the context of the CCC Sixth Budget Report aviation growth scenarios in Table 4.1. Care must be taken when interpreting the data presented in this table. For example, a like for like comparison of CCC and ES/ESA scenarios cannot be made - see footnote 1 to the table. However,

the purpose of this table is to compare the assumptions made in the ES / ESA about future emissions reductions in the aviation sector with those made by the CCC. In terms of demand management, the ES / ESA assumptions are less than the *Balanced Pathway*, *Headwinds* and *Widespread Innovation* scenarios. The ES / ESA assumptions on efficiency improvements are less than or at the very low end of the range assumed in all five CCC scenarios. Most striking are the assumptions in terms of sustainable aviation fuel. Although the ES / ESA assumptions do not provide a breakdown by fuel type, the total percentage shares are materially lower than those assumed by the CCC. My conclusion is that the assumptions made in the ES / ESA about future reductions in emissions from aviation can be described as a 'reasonable worst case' when compared to the CCC assumptions which themselves are not considered to be optimistic.

Table 4.1 Comparing CCC Aviation Growth Scenarios and ES Emissions Scenarios in 2050

	CCC Sixth Budget Report aviation growth scenarios					ES / ESA emissions scenarios		
	Balanced Pathway	Headwinds	Widespread Engagement	Widespread Innovation	Tailwinds	Upper	Central	Lower
Emissions, MtCO₂e¹	23	25	15	15	1	0.08	0.07	0.07
Demand Management²	+25%	+ 25%	-1.5%	+50%	-1.5%	+20%	+20%	+20%
Efficiency improvements³	1.4%	1.4%	1.6%	2.1%	2.1%	0.8%	1.13%	1.45%
Biofuel share in 2050⁴	17%	20%	20%	26%	51%	5%	10%	18%
Bio-waste fuel share in 2050⁵	-	-	5%	-	-			
Synthetic jet fuel share in 2050⁶	8%	-	-	25%	44%			

1. Direct CO₂, CH₄ and N₂O combustion emissions are included for the CCC scenarios and direct CO₂ emissions only for the ES / ESA emission scenarios. CCC scenarios include military aircraft.
2. Compared to 2018 levels. The baseline is unconstrained growth of around 65% over the same period. Widespread Engagement and Tailwinds both assume lower demand in 2050 than in 2018, due mainly to reduced business travel (e.g. use of video conferencing).
3. Expressed as % annual improvement fuel efficiency per passenger. The Balanced Pathway scenario includes 9% of total aircraft distance in 2050 being flown by hybrid electric aircraft.
4. Biofuels are assumed to be produced with carbon capture and storage (CCS) on the production plant – overall carbon-negative but assumed to have zero direct CO₂ emissions in aviation.
5. Waste-based fuels save less CO₂ than biofuels, due to approximately half of the waste carbon content being of fossil origin. Only the biogenic fraction of wastes save CO₂ compared to fossil jet fuel.
6. Produced via direct air capture of CO₂ combined with low-carbon hydrogen, with 75% of this synthetic jet fuel assumed to be made in the UK and the rest imported.

- 4.2.3 Total emissions are reported in the ES and ESA, including: all aviation emissions (domestic and international); surface access emissions (passengers and employees); airport buildings; ground operations; and construction emissions associated with the Appeal Proposal.
- 4.2.4 The methodology and the results in calculating carbon emissions from the Appeal Proposal were agreed with NSC.
- 4.2.5 The assessment of significance in environmental assessment is based on a combination of receptor sensitivity and the magnitude of impact. The ESA refers to IEMA guidance (see Table 4.2) first stating that *the only receptor for the GHG assessment is the global climate. The global climate is the largest inter-related cumulative environmental effect, so the receptor can be considered highly sensitive.*
- 4.2.6 The environmental assessment included a number of assumptions about the future of the aviation sector and how that relates to this assessment:
- *37.5 MtCO₂ from international aviation departing the UK in 2050 is the 'planning assumption' used by UK Government in setting current UK carbon budgets under the Climate Change Act and it remains the most appropriate value against which to consider the international aviation GHG emissions from the Appeal Proposal.*
 - *30 MtCO₂ from international aviation departing the UK represents a 'Future Ambition' scenario for international aviation to achieve 'net zero' in 2050, as described by the CCC. It has therefore been adopted as a 'sensitivity test' value against which to consider the international aviation GHG emissions from the Proposed Development. This CCC figure is representative of what aviation policy could look like in the future to take into account the amended Climate Change Act (2019).*
 - *Achieving net zero requires increased sustainable fuel use, greenhouse gas removals/offsets and operational improvements, which will be driven by international sector-based mechanisms (such as the EU ETS and CORSIA). Robust and CORSIA-eligible offsetting opportunities in the UK, including substantial investment in Carbon Capture and Storage (CCS), are required to increase the extent amount of carbon removal in the UK.*
 - *National and international-level responses to reducing aviation GHG emissions that have been put in place (e.g. Aviation Strategy, CORSIA) will be effective.*
 - *All GHG emissions associated with the operation of Bristol Airport that are not from international aviation are considered within the context on the UK carbon target for 2050 and the UK carbon budgets. Aside from domestic aviation, these GHG emissions are also relevant to local carbon targets and plans as set by NSC.*

Table 4.2 IEMA Guidance: Assessing Greenhouse Gases

In 2017, the Institute of Environmental Management and Assessment (IEMA) published guidance on Assessing Greenhouse Gas Emissions and Evaluating their Significance⁵⁹ to assist EIA practitioners to take an informed approach to the treatment of GHG emissions within an EIA. IEMA states that the guidance is not a prescriptive 'how to' guide and will be updated once the process of incorporating GHG assessment in EIA matures.

The IEMA guidance states (page 7):

"Baseline is the reference point against which the impact of a new project can be compared against, and is sometimes referred to as business as usual (BaU) where assumptions are made on current and future GHG emissions. Baseline can be in the form of: (a) GHG emissions within the agreed physical and temporal boundary of a project but without the proposed project; or (b) GHG emissions arising from an alternative project design and assumptions. The ultimate goal from establishing a baseline is being able to assess and report the net GHG impact of the proposed project".

With respect to significance, the IEMA guidance highlights three over-arching principles (page 14):

- A. *"The GHG emissions from all projects will contribute to climate change; the largest inter-related cumulative environmental effect."*
- B. *"The consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive – e.g. Population, Fauna, Soil, etc."*
- C. *"GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit, as such any GHG emissions or reductions from a project might be considered to be significant."*

This leads to IEMA stating that (page 14):

"in the absence of any significance criteria or a defined threshold, it might be considered that all GHG emissions are significant and an EIA should ensure the project addresses their occurrence by taking mitigating action. Whilst there is no single preferred method to evaluate significance, extensive research is being undertaken to explore significance, thresholds for GHG emission assessments, and science-based targets".

The IEMA guidance goes on to state (page 16):

"Under the principle that all GHG emissions might be considered significant, and the ongoing research of how to actually measure significance, it is down to the practitioner's professional judgement on how best to contextualise a project's GHG impact".

4.2.7 With reference to these assumptions, the magnitude of the Appeal Proposal was evaluated against the following criteria:

- ***The extent to which the scheme materially affects the ability of the UK to meet the aviation 'planning assumption':***

The scale of international aviation GHG emissions in the 'With Development' case is contextualised within the current UK 'planning assumption' for international aviation of 37.5MtCO₂. The CCC 'Further Ambition' value for GHG emissions from international aviation

⁵⁹ CD 9.47: IEMA (2017) Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance available at: <https://www.iema.net/preview-document/assessing-greenhouse-gas-emissions-and-evaluating-their-significance> accessed 03 May 2021

of 30 MtCO₂, which is not current Government policy, is also considered as a sensitivity assessment.

- **The extent to which the scheme affects the ability of the UK to meet its target and budgets:**

The scale of the GHG emissions from all sources except international aviation in the 'With Development' case is contextualised within their overall impact on the UK Government's UK carbon target of 'net zero' in 2050 and UK carbon budgets. The scale of the GHG emissions from all sources except aviation in the 'With Development' case is also considered within the context of local objectives for reducing GHG emissions. Therefore, the extent to which the Proposed Development affects the ability of NSC to meet its climate change objectives for a carbon neutral area by 2030 is taken into account. However, as the local objectives are not yet part of local planning policy, they are not given the same weight as the national Net Zero target and the associated budgets.

4.2.8 In this evidence I have approached the assessment of significance in two ways:

- a. Consideration of the change in carbon emissions as a percentage of the planning assumption;
- or
- b. Determination of whether the change in carbon emissions would prevent UK Government achieving net zero GHG emissions by 2050.

Both these approaches first assume that the receptor is highly sensitive.

4.2.9 The first approach is the same used in the ESA although I have extended the sensitivity analysis to also consider the figure of 23 MtCO₂ used in the CCC's sixth budget report noting that, as for the CCC 'Further Ambition' proposal of 30 MtCO₂, this is not Government policy. Indeed, I note that in the Government's 2021 Sixth Budget Press Release³⁹ it was said that:

"following the CCC's recommended budget level does not mean we are following their specific policy recommendations. Our published analysis is based on the government's own assumptions and does not, for example, assume the CCC's change in people's diet. Ahead of COP26, we will be setting out our own vision for net zero, and ambitious plans across key sectors of the economy to meet carbon budgets."

4.2.10 In the second approach I have considered aircraft movement and non-aircraft movement emissions⁶⁰ separately. This is in line with Government policy; aircraft movement emissions are subject to national policy and all other emissions are subject to local policy.

4.2.11 As I have explained above, aviation emissions will be controlled at a national level consistent with the UK's target to be net zero by 2050 and included in the Sixth Carbon Budget, the UK ETS and

⁶⁰ Non-aircraft movement emissions includes all emissions from the airport itself, ground support activities and surface access.

CORSIA. These mechanisms will ensure that aviation does not prejudice the UK Government's ability to achieve net zero by 2050.

4.2.12 Non-aviation emissions will be subject to local planning policy and controlled by the CCCAP to achieve net zero well before 2050 and so, again, will not prejudice the UK Government's ability to achieve net zero by 2050.

4.3 Carbon emissions as a percentage of the planning assumption

4.3.1 The initial context for assessing the carbon impact of aviation emissions is the 'planning assumption' of 37.5 MtCO₂ in 2050. As a sensitivity analysis, I have also identified and discussed the results in the context of 30 MtCO₂ and 23 MtCO₂.

4.3.2 In Figure 4.1 below I have reproduced Figure 10.8 from the ESA which presents international aviation emissions from the Appeal Proposal as a proportion of the 37.5 MtCO₂ 'planning assumption'. At their peak in 2030 under all scenarios, the international aviation emissions associated with the Appeal Proposal are projected to equate to 0.22% of the 37.5MtCO₂ 'planning assumption'. This reduces to 0.17 – 0.20% in 2050. If lower sensitivity comparators are used, then these percentages would be 0.21 – 0.25% of 30 MtCO₂ in 2050 or 0.29 – 0.34% of 23 MtCO₂ in 2050.

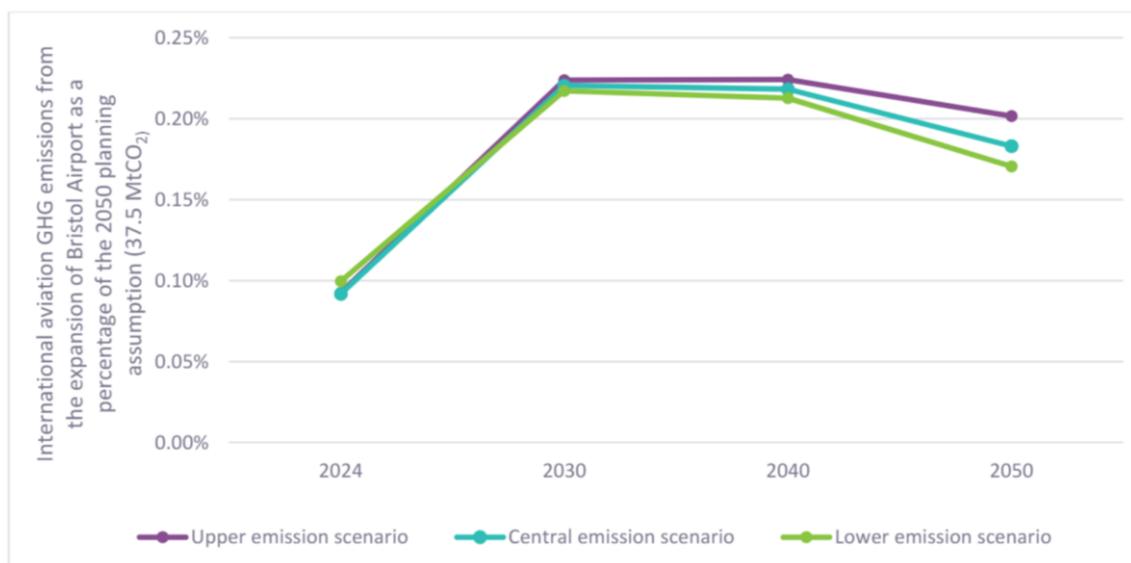


Figure 4.1 International aviation emissions from the Appeal Proposal

4.3.3 To put these percentages in context, Table 4.3 provides the results of comparing the incremental increase in aviation emissions associated with expansion plans at six airports in the UK, all based on submitted planning applications. Note that the “2050 incremental increase in aviation emissions” column is a subset of the “2050 total aviation emissions” and the two columns should not be added together.

Table 4.3 Assessment of significance and carbon: aviation emissions

Airport	Passenger Growth	2050 total aviation emissions (Proposed Development) MtCO ₂ /yr	2050 incremental increase in aviation emissions MtCO ₂ /yr	Increase in aviation emissions as a % of 37.5 MtCO ₂ planning assumption	Status
London Stansted	8 mppa (from 35 to 43 mppa)	1.13 – 1.86	0.07 – 0.12	0.187 – 0.320	Approved with 43 mppa cap (subject to Section 106 Agreement).
Southampton International	1 mppa (from 2 to 3 mppa)	0.367	Cannot be determined	Cannot be determined	Approved with 3 mppa cap (subject to Section 106 Agreement).
Leeds Bradford	3 mppa (c. 4 to 7 mppa)	0.22 – 0.30	0.062 - 0.093	0.165 - 0.228	Conditional approval
London Luton Airport	1 mppa (from 18 to 19 mppa)	0.720 – 0.848	0.018 - 0.021	0.048 – 0.056	Pending
Manston	N/A (non-passenger airport)	0.730 (in 2040)	0.730 (in 2040)	1.95	Pending
Bristol	2 mppa (from 10 to 12 mppa)	0.413 – 0.488	0.066 – 0.078	0.175 – 0.207	At Appeal

4.3.4 For each airport, the incremental increase is also expressed as a percentage of the 37.5 MtCO₂ planning assumption. For the passenger airports, this ranges between 0.048% and 0.32%. In all cases the environmental assessment concludes that this incremental increase is not significant. The recent Appeal Decision for Stansted Airport⁶¹ concludes that:

“the Appeal Proposal would not have a significant or unacceptable effect on carbon/climate change.”

4.3.5 This in the context of that project having an increase in emissions of up to 0.32% of the 37.5 MtCO₂ planning assumption. Indeed, not only is the Bristol Airport increase well below that approved at Stansted, it is actually one of the lowest of the various proposed projects in Table 4.2. With reference to the Appeal Decision for Stansted Airport, my view is that the increase in emissions

⁶¹ CD 9.107: Para 102

from the Appeal Proposal is not significant when compared with the 37.5 MtCO₂ planning assumption.

4.3.6 Further weight can be given to this conclusion by referring to the Stansted Appeal Decision:

"In light of the CCC's recommendations and the Government's 20 April 2021 announcement, the 37.5MtCO₂ planning assumption, as a component of the planned total 965 MtCO_{2e} budget, may well change. Even if it were to be reduced as low as 23MtCO₂, as is suggested might happen by the Council's carbon/climate change witness with reference to the advice of the CCC on the sixth Carbon Budget, an increase in emissions of 0.09MtCO₂ resulting from the appeal development in 2050 would be only some 0.39% of this potential, reduced figure."

4.3.7 Again, with reference to the Appeal Decision for Stansted Airport, my view is that, even if compared with the figure of 23MtCO₂ used in the CCC's Sixth Carbon Budget report, the additional contribution from the Appeal Proposal of 0.29 – 0.34% in 2050 is not significant.

4.3.8 These results can also be considered also in the context of total international aviation emissions from Bristol Airport as a proportion of UK international aviation emissions. Baseline international aviation emissions from flights departing the UK in 2017 were 36.3 MtCO₂⁶² of which flights from Bristol Airport as a whole (0.43 MtCO₂) represented 1.17 % of that UK total. Total international aviation emissions from Bristol Airport in 2050 with the Appeal Proposal represent 1.01 – 1.20 % of the 'planning assumption' (37.5 MtCO₂). I conclude from this that the share of emissions from Bristol Airport will be unlikely to increase.

4.3.9 Finally, I have reproduced Figure 10.3 from the ESA which includes total aviation emission forecasts (international and domestic aviation sources) for the 'Without Development' case (dashed line) and 'With Development' case (solid line) in all future emission scenarios (Figure 4.2).



Figure 4.2 Total aviation emissions from the Appeal Proposal

⁶² BEIS (2020). Final UK greenhouse gas emissions national statistics: 1990 to 2018 available at <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2018>

4.3.10 In 2050, total aviation emissions with the Appeal Proposal are similar to 2017 baseline values in the upper emission scenario. The differences between the scenarios are as follows:

- Under the upper emissions scenario, 2050 total aviation emissions are 488.29 ktCO₂, an increase of 15.83 ktCO₂ (equivalent to a 3% rise in total aviation emissions), relative to 2017 baseline conditions.
- Under the central emissions scenario, 2050 total aviation emissions are 443.01 ktCO₂, a decrease of 29.45 ktCO₂ compared to the 2017 baseline. This represents a decrease of 6%.
- Under the lower emissions scenario, 2050 total aviation emissions are 412.85 ktCO₂, a decrease of 59.60 ktCO₂ compared to the 2017 baseline. This represents a decrease of 13%.

4.3.11 My conclusion from this is that the Appeal Proposal would mostly likely result in aviation emissions being reduced compared to 2017.

4.3.12 Overall, these three sets of results can be summarised as follows:

1. The additional contribution from the Appeal Proposal to either the 37.5 MtCO₂ planning assumption or 23.5 MtCO₂e used in the CCC's Sixth Carbon Budget report is not significant.
2. Bristol Airport's share of emissions from international flights departing from the UK is unlikely to increase with the Appeal Proposal.
3. The Appeal Proposal would mostly likely result in aviation emissions being reduced compared to 2017.

4.3.13 Taking each of these into consideration, I conclude that the Appeal Proposal would not result in a significant increase in carbon emissions.

4.4 Achieving net zero GHG emissions by 2050

4.4.1 Turning to the second test of significance; *whether the change in carbon emissions would prevent UK Government achieving net zero GHG emissions by 2050?*

4.4.2 Emissions from the Appeal Proposal can be considered in terms of:

- aviation emissions; and
- non-aviation emissions, being:
 - emissions from the airport buildings and ground operations; and
 - emissions from surface access.

4.4.3 The approaches to managing these emissions are discussed below.

Aviation emissions

- 4.4.4 These are reported in the ESA to be 472.46 KtCO₂ in 2017 and in the range 412.85 - 488.29 KtCO₂ in 2050 with the Appeal Proposal (lower to upper scenarios). The central scenario is 443.01 ktCO₂ in 2050; a decrease of 29.45 ktCO₂ or 6% compared to the 2017 baseline.
- 4.4.5 As described in paragraph 4.2.2, the assumptions made in the ES / ESA about future reductions in emissions from aviation can be described as a 'reasonable worst case' when compared to the CCC assumptions which themselves are not considered to be optimistic. The Appeal Proposal would mostly likely result in aviation emissions being reduced compared to 2017.
- 4.4.6 Emissions from aircraft movements, are subject to control by UK Government at a national level and can only be influenced by BAL.
- 4.4.7 The UK Government has legislated for the inclusion of both domestic and international aviation emissions within the UK ETS that can be supplemented with CORSIA without compromising international and national requirements for carbon reporting. The inclusion of domestic and EEA destination flights within the UK ETS provides a robust and proven mechanism for the UK Government to ensure such emissions are capped and can be reduced over time. Government Policy is to operate the UK ETS aligned with the EU ETS. Emissions from flights to destinations beyond the EEA qualify for CORSIA only, a scheme that is being developed to meet international commitments to reduce emissions (i.e. the Kyoto Protocol). These existing mechanisms to control aviation emissions at the national level would ensure the UK Government would not be prevented from achieving net zero emissions by 2050.
- 4.4.8 I have stated earlier in my evidence that inclusion of international aviation within the Sixth Carbon Budget would negate the need for a 'planning assumption' but not change the pathway to carbon net zero. My view is that including international aviation emissions within the Sixth Carbon Budget and using the UK ETS and CORSIA to control these emissions on an ongoing annual basis is an effective and flexible response to meeting the UK's net zero target. This view appears to be supported by the UK Government which made it clear in its press release of 20th April 2021 that:
- "The government will look to meet this reduction target through investing and capitalising on new green technologies and innovation, whilst maintaining people's freedom of choice, including on their diet. That is why the government's sixth Carbon Budget of 78% is based on its own analysis and does not follow each of the Climate Change Committee's specific policy recommendations."*
- 4.4.9 With reference to Table 4.1, the 'balanced pathway' option supported by the CCC is only one of five options considered, all of which include new green technologies and innovation to a lesser or greater degree.

- 4.4.10 The UK Government is already committed to investing in green technology to support the aviation sector. The UK Government's Ten Point Plan for a Green Industrial Revolution⁶³ includes six measures relevant to the aviation sector:
- a. Establishing the Jet Zero Council as a sector-wide partnership to accelerate the development and adoption of new technologies to help develop the Government's strategy to reach net zero aviation;
 - b. Investing £15 million into FlyZero – a 12-month study, delivered through the Aerospace Technology Institute (ATI), into the strategic, technical and commercial issues in designing and developing zero-emission aircraft that could enter service in 2030;
 - c. Running a £15 million competition to support the production of Sustainable Aviation Fuels (SAF) in the UK, building on the success of the Future, Fuels for Freight and Flight Competition;
 - d. Establishing a SAF clearing house, the first of its kind in Europe, to enable the UK to certify new fuels, driving innovation in this space;
 - e. Consulting on a Sustainable Aviation Fuel mandate to blend greener fuels into kerosene, which will create a market-led demand for these alternative fuels; and
 - f. Supporting the emergence of a market in zero emission aircraft through investment in R&D into the infrastructure upgrades required at UK airports to move to battery and hydrogen aircrafts.
- 4.4.11 Moreover, on 27th January 2021, £84.6 million of Government and Industry matched funding was announced to support three projects, one being at Bristol, and each of which "*will use British innovation and expertise in green technology to power zero-emissions flights, using alternative energy sources of hydrogen or electricity to reduce the industry's reliance on polluting fossil fuels*"³⁹.
- 4.4.12 My conclusion is that the Government is providing clear mechanisms for capping aviation emissions within UK carbon budgets and encouraging the industry to drive emission reductions through innovation to make best use of existing runways.

⁶³ CD 8.8: HM Government (2020) The Ten Point Plan for a Green Industrial Revolution available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf accessed 10 June 2021

Emissions from buildings and ground operations

- 4.4.13 Non-aviation emissions can arise from the airport's buildings and ground operations. These are reported in the ESA to be 6.78 KtCO₂e in 2019. The majority (85.1%) of these emissions are either direct releases (e.g. from gas boilers) are associated with electricity use and hence, are defined as Scope 1 and 2 emissions respectively⁶⁴. A small proportion (14.9%) is associated with tenant electricity and gas use and is therefore considered Scope 3.
- 4.4.14 Emissions from BAL buildings and ground operations are under the control of BAL.
- 4.4.15 As described in the next section of my evidence, work has already been done to reduce these emissions (see Figure 5.1). The Carbon and Climate Change Action Plan (CCCAP) will build further on this work. The CCCAP includes BAL's carbon vision to be *carbon neutral* in 2021 for Scope 1 and 2 emissions, reporting its emissions in accordance with Airport Carbon Accreditation recommendations and using certified offsets. By 2030, BAL intends to be *carbon net zero* for Scope 1 and 2 emissions by 2030. This means BAL will have reduced its Scope 1 and 2 emissions as far as practicable and used carbon removal projects to balance the residual. Moreover, the CCCAP includes BAL's longer term aim of the airport as a whole being carbon net zero by 2050, recognising that this requires working with the businesses who operate from or provide services to the airport.
- 4.4.16 Implementation of the CCCAP to control emissions from buildings and ground operations would ensure the UK Government would not be prevented from achieving net zero emissions by 2050.

Emissions from surface access

- 4.4.17 Non-aviation emissions can also arise from surface access to and from the airport. These emissions are reported in the ESA to be 191.89 KtCO₂e in 2017.
- 4.4.18 Emissions from surface access can only be influenced by BAL.
- 4.4.19 Emissions from surface access will fall in any event as a result of the general decarbonisation of the road vehicle fleet, moving from fossil fuel to electric and hydrogen powered vehicles. In the ESA, surface access emissions in 2050 with the Appeal Proposal are estimated to be between 7.36 – 169.20 ktCO₂e. The variation is largely due to the assumption used on the uptake of electric vehicles.

⁶⁴ Table 5.2 provides a description of Scope 1, 2 and 3 emissions.

- 4.4.20 Since 2020, BAL has offset surface access to the airport by passengers travelling via road (i.e. by car, tax or bus), and is committed to continuing to do so.
- 4.4.21 The Section 106 Agreement includes a number of measures to improve public and active transport access to the airport in addition to providing facilities for electric vehicle charging at the airport and implement staff travel plans, for example. All of these measures will enable BAL to continue influencing surface access emissions.
- 4.4.22 The general decarbonisation of the road vehicle fleet and implementation of the transport related measures included in the Section 106 Agreement reduce emissions from surface access would ensure the UK Government would not be prevented from achieving net zero emissions by 2050.

4.5 Assessment of Significance - Conclusions

- 4.5.1 The assumptions made in the ES / ESA about future reductions in emissions from aviation can be described as a 'reasonable worst case' when compared to the five CCC assumptions of: Balanced Pathway; Headwinds; Widespread Engagement; Widespread Innovation; and Tailwinds. None of these assumptions is considered to be optimistic.
- 4.5.2 With reference to IEMA guidance, the assessment of significance was first considered in terms of the change in carbon emissions as a percentage of the planning assumption. Comparing to the assessments made for other airport expansions and having regard to the recent Appeal Decision for Stansted Airport, I conclude that the incremental increase in emissions from the Appeal Proposal is not significant when compared with the planning assumption of 37.5 MtCO₂ or, indeed, when compared with the lower figure of 23 MtCO₂ considered by the CCC.
- 4.5.3 In a second test of significance I considered whether the change in carbon emissions would prevent UK Government achieving net zero GHG emissions by 2050. Emissions from aircraft can only be influenced by BAL and are controlled at the national level, with UK Government providing clear mechanisms for capping aviation emissions within UK carbon budgets and encouraging the industry to drive emission reductions through innovation to make best use of existing runways. Those mechanisms include the Sixth Carbon Budget and the UK ETS / CORSIA, but Government clearly has the means to apply such additional mechanisms as it deems appropriate to meet its net zero target. In that context, it is clear that granting planning permission for the Appeal Proposal cannot prejudice the Government's ability to meet net zero in 2050.
- 4.5.4 Emissions from buildings and ground operations are under the control of BAL and are already being reduced. As described in section 5 below, BAL has produced a draft CCCAP to ensure Scope 1 and 2 emissions are net zero by 2030 and, indeed, has already taken a number of steps along that route. In this context too, therefore, I conclude that the emissions from buildings and ground operations arising from the Appeal Proposals are not significant.
- 4.5.5 Emissions from surface access can only be influenced by BAL but will fall in any event as a result of the general decarbonisation of the road vehicle fleet. Since 2020, BAL has offset surface access to the airport by passengers travelling via road and the Section 106 Agreement includes a number of measures to improve public and active transport access to the airport in addition to providing facilities for electric vehicle charging at the airport and implement staff travel plans, for example. All of these measures will enable BAL to continue influencing surface access emissions. Again, therefore, I conclude that the surface access emissions from the Appeal Proposals are not significant.

- 4.5.6 Through its Carbon Roadmap BAL is already on the path to carbon net zero, both as its own activities and for the airport as a whole. This commitment is supported by national measures to control aviation emissions and can be strengthened through the Section 106 Agreement and implementation of the CCCAP.
- 4.5.7 In a context where aviation emissions are to be controlled at the national level, the Appeal Proposal complies with relevant national and local planning policies.
- 4.5.8 I consider that both tests of significance have been met and the carbon emissions associated with the Appeal Proposal are not significant.

5. Carbon and Climate Change Action

5.1 Summary

5.1.1 In this section I provide a summary of the progress made to date by BAL in reducing its own carbon emissions and, with reference to the draft Carbon and Climate Change Action Plan (CCCAP), identify the short, medium and long term measures that would be adopted to enable BAL to be carbon net zero by 2030 with a longer term target for the airport as a whole to be carbon next zero by 2050.

5.1.2 BAL can demonstrate material progress in reducing emissions it directly controls and is actively progressing with guiding and influencing emissions it does not control. Implementation of the CCCAP would enable BAL to continue this progress, working towards the highest attainment level in the Airport Carbon Accreditation Scheme.

The CCCAP includes Key Performance Indicators and progress will be reported and published annually. The CCCAP itself will be reviewed every five years and is subject to both internal and external governance. BAL is committed to implementing the CCCAP and this is currently subject to a draft planning condition.

5.1.3 I consider the CCCAP to be robust and the appropriate mechanism for BAL to plan, implement, measure and report on its actions.

5.2 Progress to Date

5.2.1 In 2019, BAL drafted its Carbon Roadmap which set out how BAL will achieve a net zero airport with a target of becoming carbon neutral for our direct emissions by 2025. The roadmap provided baseline figures against which to measure progress, information on changes already implemented to reduce energy use, and actions to achieve carbon net zero.

5.2.2 Progress made by BAL to date in reducing its carbon footprint is reported annually and illustrated in **Error! Reference source not found.** The graph shows the year on year reductions achieved since 2014, in terms of both emissions per passenger using the airport and in terms of absolute emissions⁶⁵. Note that this graph reports Scope 1 and 2 emissions which are directly under the control of BAL (see Table 5.2).

⁶⁵ See Figure 8, page 29 of the 2019 Annual Monitoring Report, available at [file:///C:/Users/matt.osundireland/Downloads/Annual%20Monitoring%20Report%202019%20\(1\).pdf](file:///C:/Users/matt.osundireland/Downloads/Annual%20Monitoring%20Report%202019%20(1).pdf) accessed 03 May 2021

5.2.3

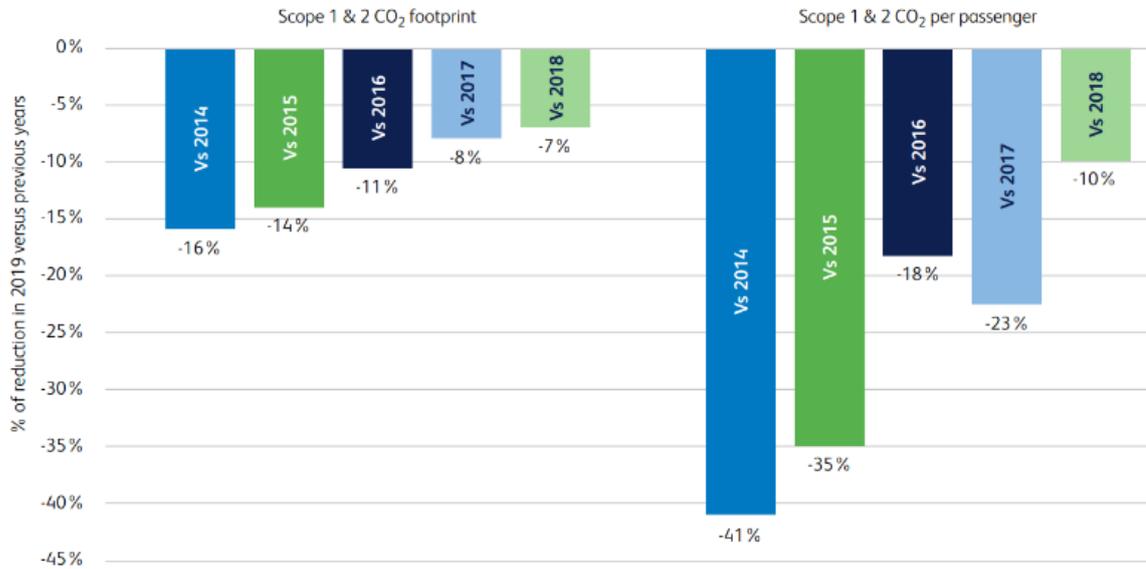


Figure 5.1 Graph Showing Reduction in Total Scope 1 and 2 Emissions at Bristol Airport

(Source: BAL, 2019 Annual Monitoring Report p29)

5.2.4

The progress and commitments that BAL has made to date need to be considered within the context of the Airport Carbon Accreditation scheme launched in 2009 by the Airports Council International⁶⁶. The stated aim of this scheme is to encourage and enable airports to implement best practices in carbon management and achieve emissions reductions. The scheme includes six levels of accreditation, from Level 1 (mapping) to Level 4+ (transitional). BAL’s progress to date is summarised in Table 5.1.

5.2.5

BAL’s progress and commitments to date have enabled Bristol Airport to reach ACA Level 3a neutrality. Achieving ACA Level 4 *transformation* and Level 4+ *transition* requires absolute emissions reductions and reliable offsetting of residual emissions.

⁶⁶ CD 9.44: Short Guide to Airport Carbon Accreditation, ACI, 2020, available at <https://www.airportcarbonaccreditation.org/> accessed 03 May 2021

Table 5.1 BAL Progress to date in the Airport Carbon Accreditation Scheme

ACA Level	Description	BAL Progress
1 Mapping	Footprint measurement	2015
2 Reduction	Carbon management towards a reduced carbon footprint	2018
3 Optimisation	Third party engagement in carbon footprint reduction, widen scope of GHG emissions to be measured to include Scope 3.	From 2021
3a Neutrality	Carbon neutrality for direct GHG emissions by offsetting residual Scope 1 and 2 GHG emissions.	From 2021
4 Transformation	Transforming airport operations and those of its business partners to achieve absolute emissions reductions while strengthening stakeholder engagement.	-
4+ Transition	Compensation for residual GHG emissions with reliable offsets	-

Adapted from BAL CCCAP, pp10, 15 and 16.

5.2.6 From June 2021, BAL has committed to using verified offsets to render BAL's Scope 1 and 2 emissions carbon neutral, enabling BAL to attain ACA Level 3a. This commitment increases the ambition of the original Carbon Roadmap target of being carbon neutral by 2025.

5.2.7 In 2020 BAL committed to using offsets for emissions associated with passenger surface access to the airport by road. Note that these emissions are not under the direct control of BAL (see Table 5.2).

5.3 Carbon and Climate Change Action Plan

5.3.1 BAL published its draft Carbon and Climate Change Action Plan (CCCAP) in May 2021, setting out its commitments to managing carbon emissions and adapting to climate change. Table 5.2 provides an overview of how the CCCAP classifies emissions sources, timeline and the approach to mitigation.

5.3.2 The draft CCCAP includes a further commitment from BAL to continue reducing its Scope 1 and 2 emissions with the aim of minimising the use of carbon offsets as far as practicable to render BAL's operations as carbon net zero by 2030. This will require further investment into BAL's operational infrastructure and is subject to agreement with NSC. For this reason, the CCCAP remains in draft form.

Table 5.2 Focus areas covered in the draft CCCAP and their timescales for action

Emission Source	Short-term (2021 – 2024)	Medium-term (2025 – 2030)	Long-term (2031-2050)
Scope 1 includes activities owned or controlled by BAL that release GHG emissions into the atmosphere. They are known as direct emissions and BAL can control them.	✓ focus on offsetting	✓ focus on emission reductions	✓ where necessary, focus on residual emissions
Scope 2 includes GHG emissions released into the atmosphere associated with BAL's consumption of purchased electricity, heat, steam and cooling. These are indirect GHG emissions that are a consequence of our activities. Whilst BAL does not directly emit these GHG emissions, BAL can control them through its energy use, management and purchasing decisions.	✓ focus on renewable electricity through the grid	✓ focus on on-site renewable energy production and direct reductions	✓ Maintain medium-term achievement level
Scope 3 include GHG emissions associated with Bristol Airport that occur from sources not owned or controlled by BAL, and not classed as Scope 2. BAL can guide and influence these GHG emissions which include both aviation and non-aviation GHG emissions. Aircraft ground movements, grid power/fuel consumed by partners and stakeholders, and disposal of airport waste are examples of emissions that BAL can guide. Take-off/landing approaches and arrangements, and power/fuel consumption made by third parties, are GHG emissions that BAL can influence.	✓ focus on guide and influence role	✓ focus on delivering emission reductions through guide and influence role	✓ focus on technology developments and policy changes

Adapted from BAL CCCAP, pp10, 15 and 16.

- 5.3.3 BAL's aspiration with regards to carbon emissions it controls (i.e. Scope 1 and 2) is clear:
- A. They are being measured, verified and reported.
 - B. They have reduced in absolute terms since 2014.
 - C. The residual in 2021 will be offset reliably.
 - D. There are plans for further investment to minimise absolute emissions as far as practicable by 2030.
 - E. The residual will continue to be offset reliably.
- 5.3.4 If these aspirations, as set out in the draft CCCAP are realised, then BAL will have achieved Level 4+ for Bristol Airport in terms of Scope 1 and 2 emissions by 2030. This is termed by BAL as being carbon net zero.

- 5.3.5 In addition to Scope 1 and 2, achieving ACA Levels 4 and 4+ also requires both reducing absolute Scope 3 emissions and offsetting the residual reliably. BAL does not have direct control over these emissions and can only influence and guide.
- 5.3.6 The most significant source of Scope 3 emissions is aircraft movements. Although these are controlled at the national level, BAL can seek to influence these emissions. Specific measures that BAL will apply to influence emissions from aircraft movements are highlighted below,
- 5.3.7 The draft CCCAP includes a number of measures to influence the reduction of absolute Scope 3 emissions associated with passenger, staff and contractor transport to the airport. As for Scope 1 and 2 emissions, this will require further investment into BAL's operational infrastructure. The measures to reduce Scope 3 emissions include:
- Short term:
 - Improve and encourage the use of public transport links through the Public Transport Improvement Fund.
 - Encouraging modal shifts through marketing activity.
 - Implement an EV bus trial on site.
 - Continual review of drop off charges with higher fees to discourage "kiss and fly" traffic.
 - Medium term:
 - Delivery of a Workplace Travel Plan in line with surface access targets set out in the ES Addendum.
 - Encourage and support third party vehicle operators (including bus operators) to use low emission/ alternative fuelled vehicles.
 - Develop a mobility hub on-site for EV charging infrastructure.
 - Installation of electric and hydrogen charging infrastructure.
 - Long term:
 - Further increases in the percentage of staff and passengers using public and active transport.
 - Monitor demand shifts in private car usage in line with policy targets, to ensure that the necessary infrastructure in terms of alternative fuel charging technologies at the Airport is provided.
 - Supporting initiatives to facilitate public and active transport use in the wider Bristol area, working with local partners where needed.

- 5.3.8 In 2020, BAL became the first UK airport operator to commit to offsetting Scope 3 emissions associated with passenger transport to the airport by private vehicle. This represents approximately 76% of Scope 3 emissions (excluding aircraft landing, taxiing, on stand, take off and cruise).
- 5.3.9 The draft CCCAP includes medium term proposals to influence the reduction of Scope 3 emissions airside:
- Provide power and distribution methods to support electric vehicles, ground support equipment and mobile electric ground power units.
 - Actively encourage single engine taxiing.
 - Trial autonomous aircraft taxiing / parking.
- 5.3.10 All of these measures listed in paragraph 5.3.7 would influence absolute reductions in ground based Scope 3 emissions, including emissions from aircraft on the ground, taxiing to / from the runway and terminal building and on stand.
- 5.3.11 Also included in the draft CCCAP are a number of short, medium and long term measures to reduce emissions from aircraft off the ground. These include measures specific to Bristol Airport that would influence airline operators, including:
- Short term:
 - A league table will be established in 2021 to measure and record GHG emissions and noise levels from aircraft operators arriving at Bristol Airport.
 - Continuous descent approaches will be actively encouraged through the committees that BAL uses to engage with airlines such as the Night Time Slot Committee and Flight Operations Sub Committee. Recommendations will continue to be included in policy and procedure documents.
 - Work across the aviation sector to push for sustainability metrics within aircraft slot allocation guidelines.
 - Provide a feasibility study on delivering infrastructure to facilitate SAF uptake at Bristol Airport.
 - Medium Term:
 - Incentivise the introduction of short-haul, low- zero-emission, hybrid flights or electric vertical take-off and landing (eVOLT) through landing charge structures. Landing charge structures will be reviewed on an annual basis considering demand and availability of low/zero emission flight technologies.
 - Banning aircrafts greater than QC 1.00 will reduce emissions as it is incentivises the use of newer, cleaner aircraft to contribute to a greater proportion of the fleet mixes operating from Bristol Airport.
 - BAL will conduct airspace modernisation with National Air Traffic Services to minimise miles flown from 2027. This will reduce GHG emissions and noise impacts.

- Long term:
 - Delivering infrastructure required for airlines to operate low carbon aircraft.
 - Working with airlines and innovation partners to drive understanding, developments at scale and uptake of low-carbon flight initiatives such as SAF and hybrid-electric aircraft.
 - Introducing a zero landing fee charge for the first zero-emission aircraft to fly from Bristol Airport.

5.3.12 The draft CCCAP also includes a number of measures that may be considered to guide absolute reductions in Scope 3 remissions:

- Short term:
 - BAL will continue to convene an Airport Transport Forum (ATF), which will include GHG emissions as an agenda item to help improve surface access in a collaborative and strategic manner.
 - BAL will put in place an Aviation Carbon Transition (ACT) Programme with funding of £250k available in 2021 for enabling sustainable aviation fuel (SAF) and other sustainable flight solutions to enable decarbonisation at Bristol Airport. Subject to Board approval, this fund will be used by BAL to work with its key strategic partners to develop the innovations and technologies required to fast-track the reduction of GHG emissions from aviation.
 - BAL is a founding member of Sustainable Aviation and will actively support the goal of net zero UK aviation GHG emissions by 2050 through a regional leadership approach on SAFs and the introduction of next-generation zero-low carbon aircraft.
- Medium term:
 - BAL will develop a SAF working group to drive regional leadership from 2024. The group will include and work with BAL's key partners in airlines, airport operations, energy, fuel, aerospace manufacturing, fuel supply, regulatory, investment and governance spaces.
- Long term:
 - Monitoring scientific progress on quantifying non-CO₂ emission sources from aviation emissions, and embedding best-practice in decision making processes where feasible.
 - Working with airlines and innovation partners to drive understanding, developments at scale and uptake of low-carbon flight initiatives such as sustainable aviation fuel and hybrid-electric aircraft.

5.3.13 BAL's aspiration with regards to carbon emissions it can influence and guide (i.e. Scope 3) is clear:

- A. They are being measured, verified and reported.
- B. There is commitment to reduce these emissions, in partnership with those who control them.

- c. Passenger related surface travel by private vehicle, which represents 76% of non-airline Scope 3 emissions, are being offset reliably from 2020.
- d. Collaboration and communication is identified as a key factor to reducing Scope 3 emissions at Bristol Airport.

5.3.14 If these aspirations, as set out in the draft CCCAP are realised, then BAL will have achieved Level 4+ for Bristol Airport in terms of Scope 1, 2 and 3 emissions by 2050, excluding emissions from aircraft off the ground. The draft CCCAP states that by 2050 Bristol Airport as a whole will be carbon net zero. This means all of the companies that operate from or provide services to the airport, including BAL and the airlines, will be contributing to the UK's carbon net zero economy. This statement includes the assumption that airlines operating from Bristol Airport emissions would be fully compliant with UK Government carbon net zero policy and legislation in terms of aircraft emissions in flight as well as on the ground.

5.3.15 The draft CCCAP also includes reference to non-CO₂ impacts, stating that:

BAL is committed to considering all emission sources in the CCCAP, including the impacts of non-CO₂ emissions from aviation. Recent research has shown that impacts of non-CO₂ effects, including nitrous oxide, water vapour, nitrogen oxides and aerosols, may have a significant role in the global warming effect of air travel. At this time there remains scientific uncertainty in understanding these effects and what the consequent policy implications will be.

We will continue to monitor government policy in this respect, and reflect best practice in regular updates to the CCCAP as part of the five year review cycle. Where possible, BAL will take an active role in influencing airlines to consider the non-CO₂ impacts of their operations.

5.3.16 As stated above, the draft CCCAP includes a long term measure to guide absolute reductions in Scope 3 emissions monitoring scientific progress on quantifying non-CO₂ emission sources from aviation emissions and embedding best-practice.

6. Response to Issues Raised by Third Parties

6.1 Third Parties

- 6.1.1 A number of objections relating to carbon were made by: North Somerset Council (NSC); the Parish Councils Airport Association (PCAA); Bristol Airport Action Network (BAAN); Bristol XR Elders; the Campaign Against Climate Change (CaCC); Campaign to Protect Rural England (CPRE) Avonside; Isonomia; the Welsh Assembly; Winford Parish Council; and Wrington Parish Council.
- 6.1.2 I have grouped these objections under seven headline topics, as described in Table 6.1 below. A summary of objections raised by Rule 6 and other parties is provided in Appendix A.

Table 6.1 Headline Topics of Objections by Rule 6 and Third Party Comments

Headline Topic	North Somerset Council	Parish Councils Airport Association	Bristol Airport Action Network	Bristol XR Elders	Campaign Against Climate Change	Campaign to Protect Rural England Avonside	Isonomia	Welsh Assembly	Winford Parish Council	Wrington Parish Council
International policies not satisfied: contrary to UNFCCC Article 3 and reliant on CORSIA	✓	✓	✓	✓	✓					
National policies not satisfied: contrary to the NPPF's objectives for sustainable development, and not consistent with the UK Government's declaration of a climate emergency and commitment to net zero by 2050	✓	✓	✓	✓	✓	✓		✓		✓
Regional and/or local policies not satisfied: contrary to CS1, CS23 or DM50 of the Development Plan, would not contribute to the transition to a low carbon future, would exacerbate climate change and be incompatible with the declaration of a climate emergency	✓	✓		✓		✓		✓		✓
Legislation not satisfied: Climate Change Act and UK target to be carbon net zero by 2050	✓	✓	✓	✓		✓		✓	✓	✓
Assessment insufficient: ES and ESA does not comply with TAG A5.2, there is no cumulative assessment for climate change effects arising with other airport expansion plans, no consideration of the human health impact of climate change, no consideration of the physical and transitional risks of climate change, the ES and ESA data do not present a worst case scenario, no consideration of emissions from land use changes, no consideration of tankering	✓	✓		✓	✓		✓			✓
BAL has not published its carbon and climate change action plan, mitigations proposed by BAL in the ES and ESA would be insufficient to mitigate the increased emissions and the Carbon Road Map is not a sensible way to mitigate the increased emissions as it does not include aviation emissions, which are the majority of the emissions	✓	✓								✓
The effects of non-CO ₂ impacts such as NO _x at high-altitudes, and the formation of contrails, are ignored despite the CCC's advice in the Sixth Carbon Budget report that the Government should set both CO ₂ and non-CO ₂ targets	✓	✓								

6.2 Witness Response

6.2.1 My response to the arguments put forward by objectors are set out below using the same headline topics and with reference to the NSC's Officer's Report (OR).

International policies not satisfied: contrary to UNFCCC Article 3 and reliant on CORSIA

6.2.2 The Appeal Proposal would neither impede UK Government in meeting its international obligations nor require reliance on CORSIA.

6.2.3 Article 3 of the UNFCCC states, amongst other things, that:

(1) The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.

And

(3) The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. ...

6.2.4 I am advised that it is well-established that English law is a dualist legal system under which international law or an international treaty has legal force at the domestic level only after it has been implemented by a national statute⁶⁷. Therefore, UNFCCC treaty obligations only have effect in domestic law to the extent that they have been incorporated by an Act of Parliament. The same would be true of the Kyoto Protocol, the Doha Amendment and the Paris Agreement.

6.2.5 Nevertheless, it is important to understand the scope of these international treaties. Article 2(2) of the Kyoto Protocol makes it clear that:

The Parties included in Annex I shall pursue limitation or reduction of emissions of greenhouse gases not controlled by the Montreal Protocol from aviation and marine bunker fuels, working through the International Civil Aviation Organization and the International Maritime Organization, respectively.

6.2.6 This explains why section 30(1) of the Climate Change Act 2008 stated clearly that "*Emissions of greenhouse gases from international aviation or international shipping do not count as emissions from sources in the United Kingdom for the purposes of this Part ...*".

6.2.7 For the same reason, international aviation was not included within the 'Quantified emission limitation or reduction commitment' percentages in Annex B of the Kyoto Protocol or, indeed, in the Nationally Determined Contributions to be declared pursuant to Article 4 of the Paris

⁶⁷ See: *J. H. Rayner (Mincing Lane) Ltd. v Department of Trade and Industry* [1990] 2 A.C. 418, at p.500 per Lord Oliver of Aylmerton, and *R. v Secretary of State for the Home Department, ex p. Brind* 1 A.C. 696, at p.747F-H per Lord Bridge of Harwich).

Agreement. As mentioned above, the Government's website states¹³ that: "*The International Civil Aviation Organization (ICAO) is the United Nations agency established under the Chicago Convention (1944) to manage the administration and governance of international aviation, which includes responsibility for tackling international aviation emissions, which fall outside of states' nationally determined contributions (NDCs) under the Paris Agreement."*

- 6.2.8 Within that context, the recent UK Government announcement to reduce national emissions by at least 78% by 2035, compared to 1990 levels reinforces UK leadership in international climate change policy. The inclusion of international aviation and shipping within the legally binding carbon budget for the UK is actually a demonstration of UK Government policy going beyond the ambition of the UN treaties. Furthermore, the UK Government's preferred position is that emissions from the aviation sector are included in within the UK ETS, requiring any use of CORSIA to be managed with an equivalent surrender of UK ETS allowances.
- 6.2.9 In my view it is very clear that the Appeal Proposal is not contrary to UNFCCC Article 3. It is also clear that emissions from the aviation sector will be controlled through the UK ETS and will only be integrated with CORSIA to the extent that Government considers appropriate. Furthermore, these are matters of Government policy, the merits of which (as I understand it) are not to be debated at local planning inquiries.

National policies not satisfied: contrary to the NPPF's objectives for sustainable development, and not consistent with the UK Government's declaration of a climate emergency and commitment to net zero by 2050

- 6.2.10 As I set out in Section 4 of this proof, national policies are satisfied and in my view the Appeal Proposal is consistent with the UK Government's declaration of a climate emergency and commitment to net zero by 2050.
- 6.2.11 The inclusion of international aviation and shipping within the legally binding Sixth Carbon Budget removes any uncertainty about how emissions from aircraft movements will be managed by the UK Government. The UK ETS is an existing mechanism used by the UK Government to manage aviation emissions that can be supplemented with CORSIA without compromising international and national requirements for carbon reporting. This mechanism does not require an aviation 'planning assumption' or the allocation of aviation emission caps to individual airports.
- 6.2.12 In relation to those non-aviation carbon emissions that are local to the airport and within BAL's control or influence, a key mechanism for delivering climate change objectives is the CCCAP which is currently subject to a draft planning condition. The CCCAP includes specific actions to reduce

emissions that are directly controlled by BAL and to reduce emissions that BAL can guide and influence. The CCCAP will require the provision of renewable and low carbon energy and associated infrastructure, not just for BAL's use but also for passengers and for business partners at the airport, including the airlines.

6.2.13 The CCCAP includes BAL's carbon vision to be carbon neutral in 2021 for Scope 1 and 2 emissions, reducing reliance on offsets to be carbon net zero by 2030. The CCCAP also includes BAL's carbon vision for Bristol Airport as a whole to be carbon net zero by 2050. This requires participation by all of the companies that operate from or provide services to the airport, including BAL and the airlines.

6.2.14 In relation to climate change adaptation, the ES included an assessment of flood risk, concluding the site is not vulnerable to climate change impacts. Although not directly relevant in planning terms, it is also worth noting that BAL has started the process of assessing business risks associated with climate change in accordance with the Taskforce on Climate-related Financial Disclosure. This is a business facing approach to assessing and addressing the risks and opportunities of climate change that is being promoted by HM Treasury.

Regional and/or local policies not satisfied: contrary to CS1, CS23 or DM50 of the Development Plan, would not contribute to the transition to a low carbon future, would exacerbate climate change and be incompatible with the declaration of a climate emergency

6.2.15 As I set out in Section 4 of this proof, local policies are satisfied and the Appeal Proposal is consistent with the UK Government's declaration of a climate emergency and commitment to net zero by 2050.

6.2.16 My response to this objection first considers local planning policy and then the transition to a low carbon economy.

6.2.17 With reference to Policy CS1 of the North Somerset Core Strategy, the CCCAP demonstrates BAL is committed to reducing carbon emissions, including reducing energy demand through good design, and utilising renewable energy where feasible and viable.

6.2.18 With reference to Policy CS2 of the North Somerset Core Strategy:

- The design of the Appeal Proposal will be aligned with BREEAM standard "very good" as agreed with NSC officers in addition to providing 15% of energy requirements from renewable power sources.
- The CCCAP includes specific short term actions to provide renewable energy sources (solar photovoltaics) on-site or near-to-site to meet a minimum of 15% of the building related energy requirements, medium term actions to develop a mobility hub on-site for EV

charging infrastructure and the installation of electric and hydrogen charging infrastructure for cars, and long term actions to deliver the infrastructure required for airlines to operate low carbon aircraft (e.g. sustainable aviation fuel, electric power and / or hydrogen).

6.2.19 With reference to Policy CS23 of the Core Strategy and Policy DM50 of the Sites and Policies Plan Part 1, meeting the requirements of NPPF paragraphs 148, 150 and 151 and policies CS1 and CS2 of the Core Strategy demonstrate both Policy CS23 and Policy DM50 would be achieved.

6.2.20 Although not directly relevant in planning terms, it is also worth noting that BAL has started the process of assessing business risks associated with climate change in accordance with the Taskforce on Climate-related Financial Disclosure (TCFD)⁶⁸. This is a business facing approach to assessing and addressing the risks and opportunities of climate change that is being promoted by HM Treasury.

Examples of Climate-Related Risks and Potential Financial Impacts			Examples of Climate-Related Opportunities and Potential Financial Impacts					
Type	Climate-Related Risks ⁶⁸	Potential Financial Impacts	Type	Climate-Related Opportunities ⁶⁸	Potential Financial Impacts			
Transition Risks	Policy and Legal	<ul style="list-style-type: none"> Increased pricing of GHG emissions Enhanced emissions-reporting obligations Mandates on and regulation of existing products and services Exposure to litigation 	<ul style="list-style-type: none"> Increased operating costs (e.g., higher compliance costs, increased insurance premiums) Write-offs, asset impairment, and early retirement of existing assets due to policy changes Increased costs and/or reduced demand for products and services resulting from fines and judgments 	Resource Efficiency	<ul style="list-style-type: none"> Use of more efficient modes of transport Use of more efficient production and distribution processes Use of recycling Move to more efficient buildings Reduced water usage and consumption 	<ul style="list-style-type: none"> Reduced operating costs (e.g., through efficiency gains and cost reductions) Increased production capacity, resulting in increased revenues Increased value of fixed assets (e.g., highly rated energy-efficient buildings) Benefits to workforce management and planning (e.g., improved health and safety, employee satisfaction) resulting in lower costs 		
	Technology	<ul style="list-style-type: none"> Substitution of existing products and services with lower emissions options Unsuccessful investment in new technologies Costs to transition to lower emissions technology 	<ul style="list-style-type: none"> Write-offs and early retirement of existing assets Reduced demand for products and services Research and development (R&D) expenditures in new and alternative technologies Capital investments in technology development Costs to adopt/deploy new practices and processes 		Energy Source	<ul style="list-style-type: none"> Use of lower-emission sources of energy Use of supportive policy incentives Use of new technologies Participation in carbon market Shift toward decentralized energy generation 	<ul style="list-style-type: none"> Reduced operational costs (e.g., through use of lowest cost abatement) Reduced exposure to future fossil fuel price increases Reduced exposure to GHG emissions and therefore less sensitivity to changes in cost of carbon Returns on investment in low-emission technology Increased capital availability (e.g., as more investors favor lower-emissions producers) Reputational benefits resulting in increased demand for goods/services 	
	Market	<ul style="list-style-type: none"> Changing customer behavior Uncertainty in market signals Increased cost of raw materials 	<ul style="list-style-type: none"> Reduced demand for goods and services due to shift in consumer preferences Increased production costs due to changing input prices (e.g., energy, water) and output requirements (e.g., waste treatment) Abrupt and unexpected shifts in energy costs Change in revenue mix and sources, resulting in decreased revenues Re-pricing of assets (e.g., fossil fuel reserves, land valuations, securities valuations) 			Products and Services	<ul style="list-style-type: none"> Development and/or expansion of low emission goods and services Development of climate adaptation and insurance risk solutions Development of new products or services through R&D and innovation Ability to diversify business activities Shift in consumer preferences 	<ul style="list-style-type: none"> Increased revenue through demand for lower emissions products and services Increased revenue through new solutions to adaptation needs (e.g., insurance risk transfer products and services) Better competitive position to reflect shifting consumer preferences, resulting in increased revenues
	Reputation	<ul style="list-style-type: none"> Shifts in consumer preferences Stigmatization of sector Increased stakeholder concern or negative stakeholder feedback 	<ul style="list-style-type: none"> Reduced revenue from decreased demand for goods/services Reduced revenue from decreased production capacity (e.g., delayed planning approvals, supply chain interruptions) Reduced revenue from negative impacts on workforce management and planning (e.g., employee attraction and retention) Reduction in capital availability 				Markets	<ul style="list-style-type: none"> Access to new markets Use of public-sector incentives Access to new assets and locations needing insurance coverage
Physical Risks	Acute	<ul style="list-style-type: none"> Increased severity of extreme weather events such as cyclones and floods 	<ul style="list-style-type: none"> Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions) Reduced revenue and higher costs from negative impacts on workforce (e.g., health, safety, absenteeism) Write-offs and early retirement of existing assets (e.g., damage to property and assets in "high-risk" locations) 	Resilience				<ul style="list-style-type: none"> Participation in renewable energy programs and adoption of energy efficiency measures Resource substitutes/diversification
	Chronic	<ul style="list-style-type: none"> Changes in precipitation patterns and extreme variability in weather patterns Rising mean temperatures Rising sea levels 	<ul style="list-style-type: none"> Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants) Increased capital costs (e.g., damage to facilities) Reduced revenues from lower sales/output Increased insurance premiums and potential for reduced availability of insurance on assets in "high-risk" locations 					

Figure 6.1 Examples of Climate Related Risks, Opportunities and Financial Impacts

(Source: TCFD, Final Report, June 2017 pp 10-11)

⁶⁸ The Taskforce for Climate-related Financial Disclosure has published guidance on how businesses and organisations can identify and manage the risks and opportunities associated with a climate changing world. The UK Government has published a roadmap for mandatory disclosure. *Details available at <https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf> and <https://www.gov.uk/government/publications/uk-joint-regulator-and-government-tcf-d-taskforce-interim-report-and-roadmap> accessed 06 May 2021*



Legislation not satisfied: Climate Change Act and UK target to be carbon net zero by 2050

- 6.2.21 The Appeal Proposal would not prevent compliance with the carbon budgets nor meeting the UK target to be 'net zero' by 2050.
- 6.2.22 The inclusion of international aviation within the Sixth Carbon Budget removes the need for a 'planning assumption', but does not change the pathway to carbon net zero. Emissions from aircraft are controlled at a national level, with UK Government providing clear mechanisms for capping aviation emissions within UK carbon budgets and encouraging the industry to drive emission reductions through innovation to make best use of existing runways. Moreover, the UK Government has made it clear in its press release of 20th April 2021 that:
- "The government will look to meet this reduction target through investing and capitalising on new green technologies and innovation, whilst maintaining people's freedom of choice, including on their diet. That is why the government's sixth Carbon Budget of 78% is based on its own analysis and does not follow each of the Climate Change Committee's specific policy recommendations."*
- 6.2.23 Emissions from buildings and ground operations are under the control of BAL and are already being reduced. BAL has produced a draft CCCAP to ensure Scope 1 and 2 emissions are net zero by 2030. Emissions from surface access can only be influenced by BAL but will fall in any event as a result of the general decarbonisation of the road vehicle fleet. Since 2020, BAL has offset surface access to the airport by passengers travelling via road and the Section 106 Agreement includes a number of measures to improve public and active transport access to the airport in addition to providing facilities for electric vehicle charging at the airport and implement staff travel plans, for example. All of these measures will enable BAL to continue influencing surface access emissions.
- 6.2.24 In the context of aviation emissions being controlled at a national level, the Appeal Proposal complies with relevant national and local planning policies.

Assessment insufficient: ES and ESA does not comply with TAG A5.2, there is no cumulative assessment for climate change effects arising with other airport expansion plans, no consideration of the human health impact of climate change, no consideration of the physical and transitional risks of climate change, the ES and ESA data do not present a worst case scenario, no consideration of emissions from land use changes, no consideration of tankering.

- 6.2.25 I consider the assessment to be sufficient. Each of these points is taken in turn below.
- 6.2.26 TAG A5.2 is addressed in the evidence provided by Mr Brass. In short, whilst WebTAG A5.2 is useful in identifying concepts and in providing guidance on appraisal techniques, it is not applicable guidance here. By its own admission, applying the general principles of WebTAG to aviation is highly challenging, as it was designed for considering publicly funded surface transport modes. It is

only suitable and appropriate for consideration of major airport capacity development schemes, such as the third runway at Heathrow, which have enormous national significance and implications. It is not an appropriate tool for considering a much smaller increase in the planning cap at a UK regional airport, which is being funded by private sector investment and is not reliant on wider public sector infrastructure investment. Mr Brass's evidence clearly demonstrates that there is not a requirement to comply with WebTAG A5.2 and, hence, these comments are misplaced.

- 6.2.27 The assessment has contextualised the emissions against the 'planning assumption' used in setting the First to Fifth Carbon Budgets and has identified known emissions from other expansion projects where such forecast emissions are known. The assessment has also explained the effect of including international aviation within the Sixth Carbon Budget in the context of the UK ETS and CORSIA. These provisions will apply equally to all UK airports and to all domestic and international aviation to, from and within the UK. This is, by its very nature, a cumulative approach in that the carbon budgets and the UK ETS permits are set at a national level. There is, therefore, no need for any further cumulative assessment as the Sixth Carbon Budget is aligned with the UK's current Nationally Determined Contribution under the Paris Agreement and its Climate Change Act 2008 'net zero' target by 2050.
- 6.2.28 BAL has set out in its CCCAP its strategy for airport and surface access emissions from the Appeal Proposal to be carbon neutral in 2021 and carbon net zero by 2030.
- 6.2.29 In terms of airport and surface access emissions, this will be addressed through annual reporting of emissions, five year review of the CCCAP and demonstration of progress being made to being a carbon net zero airport (Scope 1 and 2) by 2030, noting that the vision is to reduce reliance on using offsets as far as practicable by that date. In terms of emissions from aircraft movements, these will be controlled nationally by UK Government using the existing UK ETS mechanism.
- 6.2.30 There is no requirement to undertake a human health impact of climate change. This is addressed as part of UK Government policy setting.
- 6.2.31 Climate change adaptation is addressed in the ES, which concludes that the site is not vulnerable to the impacts of climate change.
- 6.2.32 Any transitional risks of climate change are being addressed by BAL as part of its business planning to address the risks and opportunities associated with climate change in preparation for TCFD-aligned disclosures being mandatory from 2025. This is not a planning requirement and applies to business operations beyond the Proposed Development.

- 6.2.33 The assessment of changes in land use associated with the Appeal Development are included in Chapter 11 of the ES. This has not been determined in terms of carbon as any changes in the capacity to absorb carbon is considered negligible. Impacts on the changes in land use are addressed in the evidence of Mr Melling.
- 6.2.34 As far as 'tankering' is concerned, emissions factors in the EMEP/EEA approach used in the ES are based on real-world operations and data, as well as surveys of fuels use. The assessment therefore implicitly considers tankering based on the reasonable assumption that tankering at Bristol Airport is similar to Europe-wide operations of similar aircraft types on similar routes that have been modelled. This applies to both the 10 and 12 mppa forecasts. A EUROCONTROL paper on the effects of tankering⁶⁹ states that the impact of tankering is approximately 2.21% extra fuel used for a 600 nautical mile round-trip and approximately 4.66% extra fuel for a 1200 nautical mile round-trip. This is considered to be within the error bounds of the GHG assessment due to inevitable uncertainty in flight forecasts. The NSC Officer's Report, informed by advice from NSC's independent consultants Jacobs, supported the assumption that reported emissions represent a realistic worse-case increase and are not significant when measured against the relevant UK carbon budgets.

BAL has not published its carbon and climate change action plan, mitigations proposed by BAL in the ES and ESA would be insufficient to mitigate the increased emissions and the Carbon Road Map is not a sensible way to mitigate the increased emissions as it does not include aviation emissions, which are the majority of the emissions

- 6.2.35 The CCCAP is now published which sets out BAL's vision as follows:
- *By 2021 all our operations and activities are carbon neutral. This means all of BAL's Scope 1 and 2 emissions will be offset.*
 - *By 2030 all our operations and activities are carbon net zero. This means all of BAL's Scope 1 and 2 emissions will be minimised as far as practicable with any residual emissions being offset.*
 - *By 2050 Bristol Airport as a whole will be carbon net zero. This means all of the companies that operate from or provide services to the airport, including BAL and the airlines, will be contributing to the UK's carbon net zero economy.*
- 6.2.36 With reference to Figure 4.2, aircraft movement emissions from the airport would be reduced in 2050 compared to 2017.

⁶⁹ EUROCONTROL Aviation Intelligence Unit, Think Paper #1 : Fuel Tankering: economic benefits and environmental impact, June 2019, available at <https://www.eurocontrol.int/publication/fuel-tankering-european-skies-economic-benefits-and-environmental-impact> accessed 16 April 2021

The effects of non-CO₂ emissions such as NO_x at high-altitudes, and the formation of contrails, are ignored despite the CCC's advice in the Sixth Carbon Budget report that the Government should set both CO₂ and non-CO₂ targets.

- 6.2.37 The climate change impact of non-CO₂ emissions from aircraft movements is known but there remains great uncertainty in the science. The impact of CO₂ emissions on global warming is long term (100+ years) whereas non-CO₂ effects are shorter-lived and largely depend on sustained aviation activity to maintain them. Moreover, the magnitude of these effects can depend on the conditions under which the activity occurs (e.g. the extent that contrails are formed depend on the temperature and moisture content of the atmosphere), unlike for well-mixed greenhouse gases which affect the climate similarly independently of where they occur.
- 6.2.38 The CCC states in paragraph 374⁴ that:
- "It remains extremely challenging to accurately aggregate the effects of these non-CO₂ impacts into a CO₂-equivalence 'multiplier' for use within climate policy mechanisms."*
- 6.2.39 With reference to paragraph 3.94 of *Aviation 2050 – the future of UK aviation*³ The Government's view on non-CO₂ remains that it:
- "continues to support work on non-CO₂ emissions, their trade-offs with CO₂ and possible mitigation measures, none of which are yet well enough understood to be able to form policy with confidence that aviation's total climate impact would be reduced".*
- 6.2.40 In the Appeal Decision for Stansted Airport⁷⁰, the Inspector notes:
- "In this context, therefore, the potential effects on climate change from non-carbon sources are not a reasonable basis to resist the Appeal Proposal, particularly bearing in mind the Government's established policy objective of making the best use of MBU airports."*
- 6.2.41 I note that the UK Government position on non-CO₂ impacts is³⁰:
- "to continue negotiating in ICAO for increased environmental ambition and supports continued work on aviation's non-CO₂ climate impacts, their trade-offs with CO₂ and possible mitigation measures. The government keeps non-CO₂ emissions under review and reassesses the UK's policy position as more evidence becomes available."*
- 6.2.42 In its Sixth Budget Report paragraph 374⁴ the CCC identifies a number of potential options that could reduce non-CO₂ impacts, including: use of low-aromatic sustainable aviation fuels (to reduce soot and therefore cirrus formation); development of low NO_x engine designs; re-routing of aircraft to avoid cirrus formation zones in the atmosphere (although this would require more accurate forecasting, and may increase CO₂ emissions); or switching to electric propulsion or cleaner fuels in these zones.

⁷⁰ CD 9.107: Para 98

6.2.43 The UK Government's position on non-CO₂ impacts was recently reiterated in the consultation outcome on implementing CORSIA ^{Error! Bookmark not defined.} stating that:

"The UK continues to negotiate in ICAO for increased environmental ambition and supports continued work on aviation's non-CO₂ climate impacts, their trade-offs with CO₂ and possible mitigation measures. The government keeps non-CO₂ emissions under review and reassesses the UK's policy position as more evidence becomes available."

6.2.44 My conclusion is that non-CO₂ emissions cannot be ignored and need to be acknowledged today so choices made in the technologies used to reduce aircraft emissions do not result in non-CO₂ impacts increasing; as the scientific understanding increases, the choices of technology will become better informed. BAL acknowledges this in its CCCAP and I consider this the most appropriate approach to address this issue.

7. Conclusions

7.1.1 The Decision Notice issued on 19 March 2020 identified carbon emissions as one of the reasons for refusing the applications:

"3. The scale of greenhouse gas emissions generated by the proposed increase in passenger numbers would not reduce carbon emissions and would not contribute to the transition to a low carbon future and would exacerbate climate change contrary to the National Planning Policy Framework, policy CS1 of the North Somerset Core Strategy 2017 and the duty in the Climate Change Act 2008 (as amended) to ensure that the net UK carbon account for the year 2050 is at least 100% lower than the 1990 baseline."

7.1.2 In my evidence I have considered each of the points raised by NSC in its Statement of Case and also the objections raised by third parties. My conclusions are as follows:

- a. BAL has properly assessed the carbon emissions from additional flights that will arise as a result of the Appeal Proposal. The assessment of aircraft related emissions is robust and can be considered reasonably worst case in terms of future technology impacts on emissions.
- b. BAL has examined the carbon emissions from expansion within the context of the 'planning assumption' that has been used in setting the First to Fifth Carbon Budgets and has also explained the legislative and policy context for the treatment of domestic and international aviation within the Sixth Carbon Budget and the UK ETS and CORSIA.
- c. The assessment shows that the Appeal Proposal will not compromise the UK's ability to meet its 2050 'net zero' carbon target or its budgets and nor will it compromise its ability to meet its Nationally Determined Contribution under the Paris Agreement.
- d. The non-CO₂ effects of aviation are acknowledged so choices made in the technologies used to reduce aircraft CO₂ emissions do not result in non-CO₂ impacts increasing. As the scientific understanding increases, the choices of technology will become better informed.
- e. Non-aircraft movement emissions at Bristol Airport and surface access emissions are subject to national and local and planning policy, which seeks to control and reduce emissions.
- f. BAL's proposed Carbon and Climate Change Action Plan is robust and sets out how the Appeal Proposal will meet the requirements of the National Planning Policy Framework and would not be contrary to NSC Core Strategy Policies CS1, CS2 and CS23 or Policy DM50 of the Sites and Policies Plan.
- g. Furthermore, the Appeal Proposal is consistent with the UK's climate change target and its transition to a low carbon economy.

h. In conclusion, it is my view that the climate change effects of the Appeal Proposal are not significant.

7.1.3 For the reasons stated in my evidence, I consider that reason for refusal 3 is entirely misconceived and that there are no proper grounds for refusing planning permission because of the climate change effects of the Appeal Proposal.

Appendix A

Response to Issues Raised by Third Parties

A number of objections relating to carbon were made by North Somerset Council (NSC), the Parish Councils Airport Association (PCAA), Bristol Airport Action Network (BAAN), Bristol XR Elders, the Campaign Against Climate Change (CaCC), Campaign to Protect Rural England (CPRE) Avonside, Isonomia, , The Welsh Assembly, Winford Parish Council and Wrington Parish Council.

These objections are summarised in Table A.1 using the topic headings referred to in Section 6.

Table A.1 Headline Topics and Rule 6 Party Comments

Headline Topic	Rule 6 Party Comments
International policies not satisfied: contrary to UNFCCC Article 3 and reliant on CORSIA.	<p>The PCAA claimed that the Appeal Proposal is contrary to Article 3 of the UN Framework on the Convention of Climate Change.</p> <p>The CaCC contended that CORSIA does not hold up to scrutiny, since this scheme in particular has very weak regulations to ensure carbon offsets are genuine.</p>
National policies not satisfied: contrary to the NPPF's objectives for sustainable development, and not consistent with the UK Government's declaration of a climate emergency and commitment to net zero by 2050.	<p>NSC states that (para 86):</p> <p><i>"BAL has not presented sufficient evidence to demonstrate that:</i></p> <p>a) <i>The Proposed Development can be permitted without prejudicing attainment of the Net Zero 2050 target enshrined in s.1 CAA 2008 (as amended) or making attainment of that target materially more difficult."</i></p> <p>NSC also refer to the CCC's recommendations for demand management to meet the planning assumption, concluding that:</p> <p><i>"As a result, in the absence of any policy announcement from the Government that the planning budget will be increased to enable all of the airport expansion plans to proceed, not all of those airports with expansion plans will be able to expand as they desire consistently with the UK's climate change commitments. A choice has to be made as to which airport expansion plans should come forward and which should not."</i></p> <p><i>As a matter of logic, that choice can only be made at a national level by Government via a comparative exercise which examines all of the competing potential airport expansion proposals against a wide range of considerations relevant to the achievement of sustainable development (i.e. the economic social and environmental objectives of sustainable development). In such an exercise, all of the competing expansion proposals, including the Proposed Development, would need to be considered and compared, with only the highest ranked being selected to come forward and to utilise the carbon budget available and which can be offset."</i></p> <p>NSC states its position to be:</p> <p><i>"the BAL proposal is inconsistent with the attainment of the Net Zero 2050 target and is contrary to the NPPF (in particular paras. 7 and 148), policy CS1 of the CS and the duty in the CCA 2008 (as amended) to ensure that the net UK carbon account for the year 2050 is at least 100% lower than the 1990 baseline"</i>.</p> <p>In referring to the National Planning Policy Framework (NPPF), the PCAA states (paragraphs 20 - 23):</p>

Headline Topic

Rule 6 Party Comments

There is a presumption in favour of sustainable development, defined as: 'Meeting the needs of the present without compromising the ability of future generations to meet their own needs'. An imperative of the NPPF – Government and international policy – is to reduce greenhouse gas emissions (paras 8 (c), 148 and 150). (paragraph 21)

Emphasis on low carbon for example: 'The planning system should support the transition to a low carbon future in a changing climate ... It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions....' (para 148)

Expanding Bristol Airport to 12 mppa in phase 1 and then on to 20 mppa will have the opposite impact to this widely-accepted policy.

The PCAA claimed that the Appeal Proposal is contrary to the NPPF's objectives for sustainable development.

The PCAA argued that as Government policy on GHG emissions from aviation had not been published, the application should not be determined.

The PCAA Addendum 24 further claimed that NSC officers were not interpreting aviation policy correctly in light of the declared Climate Emergency. It stated that officers had failed to appreciate that the target of 37.5MtCO₂ is compromised by conflicting policies relating to aviation. The addendum stated the PCAA's view that "the UK will miss its climate change net zero obligations by 2050 significantly if the UK's massive regional airport expansion plans are realised". It also stated that "the DfT aviation forecasts published in 2017 included no growth at Bristol Airport and these forecasts were used as the basis for the Net Zero Target".

CPRE Avonside objected to the Appeal Proposal on climate change grounds. It stated that the application was not consistent with the UK Government's declaration of a climate emergency, and commitment to net zero by 2050. The response also commented that the application ignores ongoing developments and the clear indications given by the CCC regarding the required direction of travel.

BAAN refers to the NPPF's focus on sustainable development stating that "BAAN's case is that the proposed expansion of the airport would clearly contribute towards compromising that ability" and refers specifically to paragraph 148 of the NPPF.

Bristol XR Elders stated that carbon emissions are not reduced, the proposal does not contribute to a transition to a low carbon future and it would exacerbate climate change contrary to national policy and policy CS1 of the NSCS.

Winford Parish Council stated that the expansion of Bristol Airport would be contrary to international targets for carbon emission reductions.

Wrighton Parish Council objected to the Appeal Proposal on grounds including climate change. In particular, their key objections were:

- That airport expansion is contrary to required emissions reductions to meet internationally agreed targets; and
- Expansion is contrary to the recommendation for limited growth in demand set out by the CCC in their letter from 2019, noting that BAL's 10 mppa cap has not yet been reached.

CPRE commissioned NEF Consulting to review and provide a report on the Appeal Proposal. The report set out the DfT aviation forecasts in the context of the net zero ambition and stated that expansion at Bristol Airport cannot be in line with net zero since the DfT aviation forecasts do not include expansion. The report recommended that the Appeal Proposal should clearly address the case for expansion in a demand constrained world, consistent with meeting a national net-zero GHG target of 2050. It also recommended that the Appeal Proposal should be forwarded to the UK Government for appraisal by the DfT to ensure consistency with national aviation sector planning policy and guidance and climate change targets.

Prior to the February P&R Committee, the PCAA submitted to NSC a legal opinion from Estelle Dehon. The opinion stated that it is open to the P&R Committee to decide whether

Headline Topic	Rule 6 Party Comments
	<p>the climate change impacts of the Appeal Proposal comply with ... paragraph 148 of the NPPF and the statutory duty in the Climate Change Act 2008 to achieve net-zero by 2050. The opinion stated that the GHG impact of the Appeal Proposal should have been measured and assessed against the amended Climate Change Act ("the Net-Zero Obligation") which imposes a statutory obligation for 100% reduction in GHG emission by 2050, relative to 1990 levels. The opinion stressed the advice of the CCC in their September 2019 letter that passenger growth needs to be limited to 25% from 2018 to 2050.</p> <p>During the P&R Committee meeting, Members who did not support the officer's recommendation for approval raised the issue that the Appeal Proposal would not contribute to the transition to a low carbon future and would exacerbate climate change. Key comments raised by Members in opposition to the application included: "the Appeal Proposal does not give consideration to the amended Climate Change Act and the net zero 2050 target.</p>
<p>Regional and/or local policies not satisfied: contrary to CS1, CS23 or DM50 of the Development Plan, would not contribute to the transition to a low carbon future, would exacerbate climate change and be incompatible with the declaration of a climate emergency.</p>	<p>The PCAA claimed that the Appeal Proposal is contrary to Development Plan Policy CS2348 and all transport policies which seek to maximise sustainable travel. The PCAA argued that there is no assessment of how transport-related emissions can be allowed to grow as a result of the Appeal Proposal while still achieving the reduction targets that NSC has agreed and that the ES failed to address how vehicle emissions will be reduced to align with regional and local targets, highlighting discrepancies in vehicle numbers quoted in the ES.</p> <p>Wrighton Parish Council objected to the Appeal Proposal on grounds including climate change. In particular, their key objections included: "expansion of Bristol Airport would be contrary to the declarations of climate emergency in the City of Bristol and NSC".</p> <p>The PCAA Addendum 5 argued with the conclusion that the carbon emissions from the expansion to 12 mppa are insignificant. It also stated that the report by Jacobs/CH2M commissioned by NSC is inadequate and does not address the central question about decisions on national aviation emissions being taken in a piecemeal approach at the regional level. The PCAA Addendum 13 built on this theme, providing a letter from the Aviation Environment Federation calling for a moratorium on planning decisions relating to airports at regional level in the UK due to the lack of available climate policy to inform them.</p> <p>Bristol XR Elders state that <i>"the NPPG emphasises that planning and development plans have a statutory duty to introduce policies to tackle climate change. It draws attention to the Climate Change Act 2008 and the system of regular carbon budgets it introduced as relevant for planning decisions. (Ref: ID 6-001-20140306 and ID 6-002-20140306). The NPPF (para 148) states that planning "should help to shape places in ways that contribute to radical reductions in greenhouse gas emissions". North Somerset Local Plan Policy in the NSCS (CS1) states that the authority is committed to reducing carbon emissions and tackling climate change."</i></p> <p>The Welsh Government Department of Economic Infrastructure appointed White Young Green (WYG) to make representations to NSC in respect of the Appeal Proposal. Their objection stated that "the development will exacerbate carbon emissions and unsustainable travel imbalances in South Wales and the South West, contrary to Policy CS1 and the Council's Climate Change Emergency Strategy and Strategic Action Plan". The Welsh Assembly therefore objected on climate change grounds and favoured expansion of Cardiff Airport over Bristol Airport on the grounds of an imbalance in custom which they argued would lead to unsustainable traffic distribution and unnecessary trips from South Wales to Bristol Airport.</p> <p>Prior to the February P&R Committee, the PCAA submitted to NSC a legal opinion from Estelle Dehon. The opinion stated that it is open to the P&R Committee to decide whether the climate change impacts of the Appeal Proposal comply with Policies CS23, DM50 or CS1 of the Development Plan.</p> <p>During the P&R Committee meeting, Members who did not support the officer's recommendation for approval raised the issue that the Appeal Proposal would not contribute to the transition to a low carbon future and would exacerbate climate change. Key comments raised by Members in opposition to the application included: "expansion of</p>

Headline Topic	Rule 6 Party Comments
	<p>the airport, and the accompanying increased aviation emissions, was incompatible with the declaration of a climate emergency and the Core Strategy”.</p>
<p>Legislation not satisfied: Climate Change Act and UK target to be carbon net zero by 2050</p>	<p>The PCAA contested that the assessment should inform the public of whether or not airport growth fits within the Climate Change Act and how emissions from UK departing flights can be held at or below 2005 levels in 2050.</p>
<p>Assessment insufficient: ES and ESA does not comply with TAG A5.2, there is no cumulative assessment for climate change effects arising with other airport expansion plans, no consideration of the human health impact of climate change, no consideration of the physical and transitional risks of climate change, the ES and ESA data do not present a worst case scenario, no consideration of emissions from land use changes, no consideration of tankering.</p>	<p>NSC states that (para 86):</p> <p><i>“BAL has not presented sufficient evidence to demonstrate that:</i></p> <ul style="list-style-type: none"> <i>a) The Proposed Development is consistent with the planning assumption in “Beyond the Horizon” (also known as ‘Making Best use of Existing Runways’ (“MBU”)) of 37.5MtCO₂ (which was adopted in advance of the adoption of the Net Zero 2050 target enshrined in s. 1 of the Climate Change Act 2008 (“CCA 2008”));</i> <i>b) The Proposed Development is consistent with the 23MtCO₂ for aviation (before offsetting to zero) in the recommendations of the Climate Change Committee (“CCC”) on the 6th Carbon Budget published on the 9th December 2020 (the first prepared in the light of the Net Zero 2050 target enshrined in s. 1 of the CCA 2008 as amended in 2019);</i> <p>The PCAA Submission to North Somerset District Council 01 February 2019 states that: The EIA Addendum, and the EIA as a whole, fails to comply with TAG A5.2. This policy provides a comprehensive framework for the impact appraisal of airport planning proposals, amounts to a material consideration in the Appeal and cannot be ignored at the appellant’s convenience. The socio-economic costs and benefits, noise impacts and carbon emissions associated with the Planning Application must be analysed and monetised in full compliance with the criteria laid down in TAG A5.2 and its supporting policies. (paragraph 5a) Further modelling work needs to be done on traffic numbers as the new Bristol Clean Zone will force cars on to the rural roads rather than through Bristol. (paragraph 5c) There is no cumulative assessment for climate change effects arising with other airport expansion plans such as Stanstead and Leeds in the EIA and this must be carried out in accordance with the CCC Progress Report on net zero. (paragraph 5d) The socio-economic cost benefit analysis has a number of technical flaws, which lead to non-compliance with TAG A5.2, including omission of costs to airlines and air passenger duty and miscalculation of the costs of carbon emissions. (paragraph 24d)</p> <p>The PCAA requested that the human health impact of climate change should be considered.</p> <p>The PCAA requested that climate change risks should be fully considered including physical and transitional risks and not limited to flooding.</p> <p>The data is argued to be not robust. Alternative emissions profiles were postulated by the PCAA which describe an increased impact. The PCAA contested that the figures in the ES do not present a worst case scenario and that a 1.9 multiplier to account for radiative forcing should be added. They also argued that the use of internal buses which connect and circulate between the main terminal, administration building and the staff transport hub should be considered within the assessment.</p> <p>Land use: In the addendum on Land Use Changes– Greenhouse Gas Emissions (unnumbered), the PCAA argued that the emissions from land use changes from 10 mppa to 12 mppa should be recorded as a baseline for future land take and the record should be submitted to the national inventory to be offset.</p> <p>Tankering: The PCAA considered that tankering should be considered in the GHG assessment to make it worst-case.</p> <p>The Campaign Against Climate Change (CaCC) objected to the Appeal Proposal on climate change grounds. The CaCC stated that the GHG assessment contained in the ES should have considered the emissions associated with the Appeal Proposal against the 2017 baseline figure and not the 10 mppa scenario. It additionally proposed an alternative emissions profile, stating that the aviation emissions should be multiplied by a factor of 1.9 to account for other greenhouse gases emitted during aviation movements (a point reiterated by the</p>

Headline Topic	Rule 6 Party Comments
	<p>PCAA). This is referred to as radiative forcing, and it relates to the increased impact of GHG emissions at altitude, although the extent is very uncertain .</p> <p>In July 2019, Isonomia posted a blog regarding the Appeal Proposal. The blog post questioned the ES findings that emissions were ‘not significant’ and the assessment figures for the future baseline of 10 mppa. The post forecasted emissions at the airport out to 2040 and 20 mppa, and contextualised them with NSC emissions as a whole. The post highlighted emissions associated with aviation and further commented on the use of the 1.9 multiplier to account for other greenhouse gases emitted during aviation movements. The post went on to further suggest that a 5.2 multiplier could be appropriate and that return flights should be considered within the assessment.</p> <p>Bristol XR Elders make the point that <i>“it cannot be acceptable, where policy requires reduction, to argue as the appellant does, that their increase in emissions is acceptable because compared with the overall national carbon load it is small (Planning Statement: para 5.14.9). Logically, this argument repeated by every carbon producer would make the targets of the Climate Change Act and its budgets impossible to achieve.”</i></p> <p>Wrington Parish Council objected to the Appeal Proposal as “The cumulative climate change effect of expansion applications by airports in the UK should be considered”.</p> <p>Prior to the February P&R Committee, the PCAA submitted to NSC a legal opinion from Estelle Dehon. The opinion stated that the approach taken in the ES of comparing additional GHG emissions to the whole of the carbon budget for all of the UK is incorrect. It is argued that this approach does not represent the relative impact of an individual project (such as the Appeal Proposal) correctly and that an additional 154.30 kilotonnes of CO₂ per annum produced as a result of the Appeal Proposal would make a meaningful contribution to increasing GHG emissions.</p>
<p>BAL has not published its carbon and climate change action plan, mitigations proposed by BAL in the ES and ESA would be insufficient to mitigate the increased emissions and the Carbon Road Map is not a sensible way to mitigate the increased emissions as it does not include aviation emissions, which are the majority of the emissions.</p>	<p>NSC notes that:</p> <p><i>“the measures and aspirations that BAL proposes in order to reduce the airport’s impact upon greenhouse gases: the intention to produce a Carbon Roadmap to become a net zero airport by 2050; the commitment to offset all passenger surface access journeys from 2020; to be carbon neutral by 2025 for emissions within BAL’s control; and to generate 25% of its energy consumption from onsite renewables over the same period. However, the Council considers that without certainty of deliverability, the proposals to reduce carbon emissions can be afforded little weight in the planning balance.</i></p> <p><i>The Council intends to explore the realism of these measures and the extent to which there is uncertainty in terms of the carbon emission reductions that they are likely to deliver.</i></p> <p><i>The Council considers that the measures proposed apply to a very limited proportion of total carbon emissions associated with the airport. They will not prevent an overall increase in carbon emissions.</i></p> <p><i>Without prejudice to its position that planning permission should be refused, the Council intends to continue discussions with a view to reaching further agreement in relation to measures that will deliver material reduction in carbon emissions with any certainty from activity associated with the airport should expansion be permitted.”</i></p> <p>The PCAA states that the ES fails to address how BAL’s ambition to be carbon neutral by 2030 is to be achieved.</p> <p>The PCAA states that there is little to no improvements in the sustainable travel targets when compared to the 10 mppa scenario.</p> <p>The PCAA requested that a comprehensive CCCAP is provided at the time of the application and not post consent.</p>

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	<p>The PCAA Addendum 9 provided comment on the BAL roadmap to reduce carbon emissions. The comments concluded that the scope of the roadmap is not wide enough and that it does not resolve the problem of reducing aviation emissions, lacking 'perspective'.</p> <p>The PCAA Submission to North Somerset District Council 01 February 2019 states that BAL has not published its carbon and climate change action plan.</p> <p>The PCAA Submission to North Somerset District Council 01 February 2019 states that BAL relies on offsetting rather than reducing emissions to become carbon neutral by 2050. CCC has advised against the use of international offsets for meeting UK 2050 climate obligations. CORSIA, which will not become mandatory for all states before 2027, may offset, but will not reduce emissions. The scheme is also expected to finish in 2035, and recent changes to the baseline to reflect the Covid-19 pandemic mean it 'is unlikely that any offsetting obligation will apply to airlines until traffic exceeds 2019 levels (unlikely before 2024 at the earliest). CCC has recommended that the CORSIA credits should not be used when accounting for UK aviation emissions under the CCA.</p> <p>The PCAA Submission to North Somerset District Council 01 February 2019 states that: the introduction of more fuel-efficient aircraft is long term (with an average life cycle of 22 years in commercial passenger service) and totally beyond BAL's direct control.</p> <p>Wrighton Parish Council objected to the Appeal Proposal as "<i>The mitigations put forward by BAL including the Carbon Roadmap would be insufficient to mitigate the increased emissions</i>".</p> <p>The legal opinion from Estelle Dehon stated that BAL's Carbon Roadmap is not a sensible way to mitigate the increased emissions as it does not include aviation emissions, which are the majority of the emissions.</p> <p>During the P&R Committee meeting, Members who did not support the officer's recommendation for approval raised the issue that the Appeal Proposal would not contribute to the transition to a low carbon future and would exacerbate climate change. Key comments raised by Members in opposition to the application included:</p> <ul style="list-style-type: none"> • The Appeal Proposal does not offer satisfactory measures to mitigate for the increased emissions; and • Moves to sustainable aviation (including electric aircraft and use of biofuels) are beyond BAL's control and are unlikely to occur imminently.
<p>The effects of non-CO₂ impacts such as NO_x at high-altitudes, and the formation of contrails, are ignored despite the CCC's advice in the Sixth Carbon Budget report that the Government should set both CO₂ and non-CO₂ targets.</p>	<p>NSC "<i>notes that at the present time any carbon target should not include carbon equivalent warming. The effect of carbon equivalent warming has been known since 1999, but there is uncertainty in the effects. The Council will say that the ES and Addendum ES should have contextualised these impacts, including the level of uncertainty, which has been the subject of continued study over the years since this first report, and in not doing, was deficient. This is because (1) examination of all warming impacts would be necessary to fulfil Paris Agreement temperature goals, and (2) different mitigation measures have differing impacts in terms of carbon equivalent warming, and without accounting for the full warming impact, there is a risk of misallocation of investment in the wrong mitigation measures.</i>"</p> <p>The PCAA Submission to North Somerset District Council 01 February 2019 states that the effects of non-CO₂ emissions such as NO_x at high-altitudes, and the formation of contrails, are ignored despite the CCC's advice in the Sixth Carbon Budget report that the Government should set both CO₂ and non-CO₂ targets. The latest scientific evidence highlights that CO₂ from aircraft represents only one third of aviation's total impact on climate change to date.</p>

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