3. Climate Change

Final Draft Scope for Bristol Airport's Carbon and Climate Change Action Plan for Growth to 12mppa

1. Context

In December 2018, Bristol Airport Limited (BAL) submitted a planning application to North Somerset Council (NSC)[1] seeking consent to increase the passenger throughput of Bristol Airport to 12 million passengers per annum (mppa) and for the associated infrastructure and facilities necessary to accommodate the growth (the proposed development).

The planning application included an Environmental Statement (ES) that examined the likely significant effects of the proposed development on carbon and other Greenhouse Gas (GHG) emissions, and considered the vulnerability of the development to climate change.

This assessment concluded that the effects of the proposed development were not significant, and it identified a range of embedded and other environmental measures to limit the effects of growth on GHG emissions. The measures identified in the ES included a commitment to produce a Carbon and Climate Change Action Plan (CCCAP) for Bristol Airport following approval of the proposed development.

The commitment to produce a CCCAP was included in the proposed draft conditions contained at Appendix D to the Planning Statement submitted in support of the planning application. Condition 36 states:

"*A Carbon and Climate Change Action Plan shall be submitted to and approved in writing by the Local Planning Authority 12 months from the date of the permission or before the occupation of any new building or completion of any development included in the application, whichever occurs first. This shall include: (i) a baseline against which carbon management initiatives can be measured; (ii) a timetable with targets for Carbon Management being agreed. Progress made against agreed targets and recommendation for reviewing targets where deemed necessary will be included within the Annual Operations Monitoring Report. The Carbon and Climate Change Action Plan will be reviewed every 5 years.*

This document sets out a proposed draft scope for the CCCAP consistent with the draft condition.

2. Objective

The objective of this document is to propose the draft scope of the CCCAP for consideration before the planning application for the proposed development is determined. It is not intended to provide the final detailed elements of the CCCAP, but instead to present its scope including subject areas and outline illustrative targets to reduce GHG emissions.

This document seeks, therefore, to define:

- the activities and illustrative targets to be managed by the CCCAP;
- the contents and structure of the CCCAP; and
- the timeframe, governance and monitoring arrangements of the CCCAP.

[1] Application reference 18/P/5118/OUT.

BAL welcomes comments NSC have made prior to finalising this revised scope of the CCCAP; noting comments from the Council have been considered in the latest revision. Therefore, this version is final for agreement.

3. Scope and illustrative targets of the CCCAP

The scope of the CCCAP will cover both actions to **mitigate** climate change (through the management of GHG emissions) and actions to ensure **adaptation** to climate change. The scope of each element is considered separately in the sections that follow.

The broad context of the CCCAP will be to ensure BAL can meet its **carbon commitments targets**. For the purposes of the CCCAP, these have been defined to be:

- for operational emissions it directly **controls -** to ensure the airport is carbon neutral by 12mppa, with any residual emissions in 2025 thereafter are offset through certified carbon reduction credits;
- for operational emissions it **influences -** to be a regional leader in carbon management with an aspiration for carbon neutral growth of aircraft emissions from 2027, based on the proposed mandatory launch of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA);
- will seek to reduce the emissions related to surface access through the Airport Surface Access Strategy (ASAS) and the Workplace Travel Plan;
- to reduce absolute emissions directly controlled by BAL (Scope 1 and 2) by 20%, compared to a 2017 baseline; and
- for construction related emissions to target BREEAM 'Very Good' certification and strive for 'Excellent'.

3.1 Activities to be covered by the CCCAP

3.1.1 Mitigation

The Greenhouse Gas Protocol[2] is widely recognised as the accepted basis for the reporting of GHG emissions. The GHG Protocol's approach has been adopted by UK Government in its guidance for company reporting[3] and by the Airport Carbon Accreditation Scheme[4] (ACAS) operated by Airport Council International (ACI), the international trade body representing world airports of which BAL is a member. The ACAS has been endorsed by a number of international bodies including the European Civil Aviation Conference (ECAC), European Organisation for the Safety of Air Navigation (EUROCONTROL) and United Nations Framework Convention on Climate Change (UNFCCC).[5]

The GHG protocol recommends that GHGs are reported under three separate scopes, known as:

Scope 1: These include emissions from activities owned or controlled by BAL that release GHG emissions into the atmosphere. They are known as direct emissions and can be **controlled** by BAL.

[2] Green House Gas Protocol, A Corporate Accounting and Reporting Standard, World resource Institute, Revised Edition

[3] HM Government, Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance, March 2019

[4] See https://www.airportcarbonaccreditation.org/

[5] https://www.airportcarbonaccreditation.org/about/endorsements.html

Scope 2: These include emissions released into the atmosphere associated with BAL's consumption of purchased electricity, heat, steam and cooling. These are indirect emissions that are a consequence of BAL's activities. Whilst BAL does not directly emit these emissions, it can **control** them through its energy management and purchasing decisions.

Scope 3: Emissions that are associated with BAL but occur from sources which are not owned or controlled by the airport and are not classed as scope 2 emissions. BAL can **influence** these emissions but not control them.

The mitigation element of the CCCAP will report and manage GHG emissions based on these GHG scope definitions. It will also differentiate between **operational** emissions that occur due to ongoing airport activities that continue on an annual basis, and **construction** activities that are linked to specific projects forming part of the proposed development.

The GHG protocol does not specify which activities should be reported under scope 3 emissions; however, ACAS identifies good practice for reporting scope 3 emissions at an airport level and this will be adopted by the CCCAP.

Operational Emissions

Table 3.1 below sets out in detail the operational GHG generating activities that are proposed to be reported and managed under the mitigation element of the CCCAP. The table also details operational GHG data for the 2017 baseline and the operational carbon commitments BAL is seeking to achieve through the detailed actions that will be developed through the CCCAP.

Figure 3.1 summarises the change in GHG emissions between the 2017 baseline, future baseline (BAL at 10mppa) and with the proposed development (12mppa).

The operational boundary for the mitigation of GHG emissions will be for activities associated with BAL, who operate from one site, with no joint ventures.

Table 3.1: Scope of operational GHG emissions covered by the CCCAP (Mitigation)

Scope	BAL's ability to manage scope	BAL Commitment	Activities included within scope	2017 baseline (kilotonnes CO_2e per year)	% of total
Scope 1	**Control**	Ensure the airport is carbon neutral by 2025 as defined by the ACI Airport Carbon Accreditation Scheme, with any residual emissions in 2025 and after offset through certified carbon reduction credits	Heating with gas Fleet vehicle use of biodiesel Heating with gas oil Fire training with LPG Company car consumption of fuel Refrigeration and loss/use of F-Gas	1.8	0.2%
Scope 2			Electricity consumption	4.6	0.5%
Scope 3	**Influence**	Be a regional leader in carbon management with an aspiration for carbon	Air Transport: Landing and take-off cycle (LTO) Air Transport: Climb out, Cruise and Descent (CCD)	116.2 630.6	12.3% 66.7%

		neutral growth of emissions from 2027	Surface Access: Passenger travel to Bristol Airport Surface Access: Employee travel to Bristol Airport	184.4 7.4	19.5% 0.8%
Total				945	100%

Figure 3.1: Summary of operational GHG emissions for BAL and effect of the proposed Development

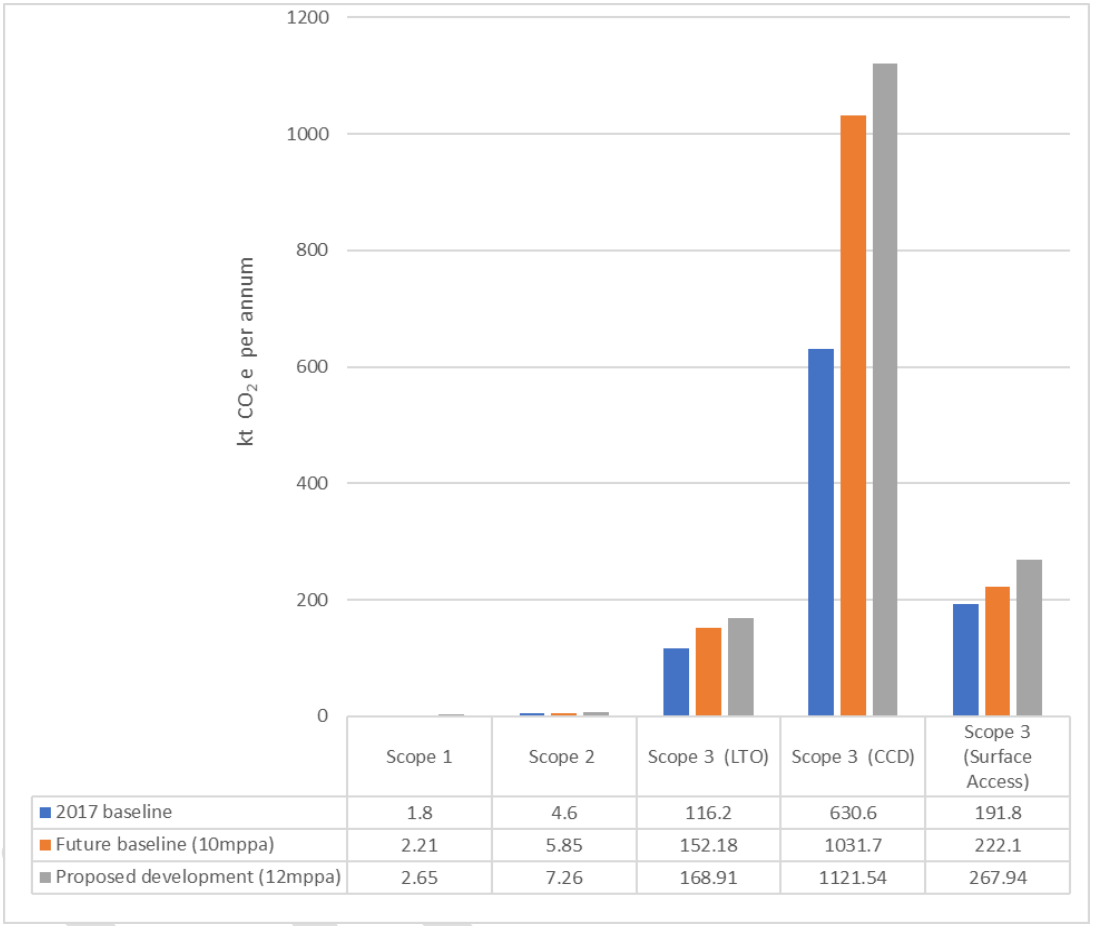

Table 3.1 and Figure 3.1 show that GHG emissions from Air Transport, and specifically from the climb, cruise and descent phase (CCD), are the most significant sources of operational emissions at Bristol Airport. In 2017, for example, these emissions accounted for 67% of the airport's total operational emissions. These emissions are defined as scope 3 and are under the control of airlines, although they can be influenced by other actors such as BAL, air traffic control and more directly through government policies and international regulations. For example, the International Civil Aviation Organisation (ICAO) recently put in place international regulations (known as CORSIA covering the period 2020 to 2035) to ensure that any growth in emissions from international aviation from 2020 are offset.

Construction Emissions

There are also GHG emissions from construction that will be managed through the CCCAP. These occur due to construction related activities, processes and from GHG emissions embedded in construction materials. Unlike the GHG emissions described above, these emissions do not occur on a regular annual basis and are related to specific projects. The ES for the proposed development has

estimated construction-related GHG emissions as 48.09 kt CO_2e. Under the GHG Protocol, these emissions are considered to be scope 3.

BAL's commitment for construction related emissions is to target BREEAM 'Very Good' certification and strive for 'Excellent'.

3.1.2 Adaptation

The CCCAP will also identify and manage climate change related adaptation risks to BAL's infrastructure and operations as well as interdependency risks related to road and rail transport, telecommunications and utility provision. Bristol Airport has an Adaptation Plan prepared in 2015 and this is reviewed every 5 years as required. It is currently being determined by DEFRA if whether an Adaptation Plan will be required to be submitted in 2020; the intention is that the CCCAP will aligned and support the Adaptation Plan.

3.2 Contents and structure of the CCCAP

The CCCAP will define actions and measures to be followed by BAL to manage its GHG emissions and climate change adaptation risks. Actions will be specified that reflect the airport's ability to manage GHG emissions and climate adaptation risks including whether BAL directly controls the GHG generating activities or can only influence them.

The CCCAP will cover both mitigation and adaptation from climate change.

3.2.1 Mitigation

For mitigation, the action plan will be structured to cover three areas of performance:

1. Operational GHG emission BAL can **directly control** (scopes 1 and 2);
2. Operational GHG emission BAL can **influence** (scope 3);
3. Construction GHG emission BAL can **influence** (scope 3).

For each of these areas, the CCCAP will provide a plan structured around;

- BAL's carbon commitments (see Section 3) and targets to be developed through the CCCAP, which BAL will consult on with NSC;
- A baseline position based on 2017, as detailed in Figure 3.1 above, against which management initiatives can be measured;
- A comprehensive set of actions and measures to deliver on BAL's carbon commitments, examples of which are provided below;
- A timeframe for completing actions that will reflect interim KPIs;
- Ownership of the actions; and
- Key Performance Indicators (KPIs) to track delivery of the actions and progress against BAL's carbon commitments and targets, where appropriate.

Examples of shorter-term actions and initiatives falling within the mitigation CCCAP are set out below.

Operational GHG emissions BAL can directly control (scopes 1 and 2).

To deliver the commitment of a carbon neutral airport by 2025, BAL will follow a broad strategy that seeks to:

1. First, reduce demand for energy by implementing actions that reduce demand for electricity, gas and other fuels. A key example of this will be to identify areas of inefficiency and opportunities to reduce demand for energy. Energy demand management is typically not capital intensive and focuses on behavioural change and improved monitoring and control of assets, thus it offers a high return on investment.

   Supplementing this will be a review of BAL's assets to identify areas of high energy demand and opportunities for replacement with assets offering improved energy efficiency. Taking a structured and longer-term approach will ensure smooth transition to reducing energy usage and costs.

   Example measures from this step include:

   a. Minimising heat loss through efficient thermal envelope of buildings;
   b. Use of natural daylight where possible in airport buildings;
   c. Introduction of solar shading where appropriate to reduce heat gain causing additional cooling;
   d. Use of low energy building systems such as low energy HVAC systems, occupancy sensors and an integrated Building Management System (BMS) with the existing terminal infrastructure;
   e. Use of high efficacy lighting such as LED as standard;
   f. Sub metering for electricity, gas and water where appropriate, linking with the integrated BMS;
   g. Automatic control of external lighting to prevent operation during daylight hours and of lifts, escalators and walkways to reduce energy consumption when not in use.

2. Secondly, to implement strategies for low carbon energy supply. Examples of this include investment in combined heat and power, investment in micro renewables, and importing low carbon electricity through consideration of BAL's electricity purchasing strategy. BAL's commitment is to meet at least 15% of its energy demand from renewables as part of the 12 mppa planning application. BAL is also making a specific commitment in the CCCAP to review the main electricity supply to the airport in terms of renewable energy tariffs.

3. Finally, by 2025 to offset any residual emissions using certified carbon emission credits meeting BALs' carbon neutral commitment.

Operational GHG emissions BAL can influence (scope 3) excluding construction

BALs' commitment for emissions it influences is to be a regional leader in carbon management with an aspiration for carbon neutral growth of aircraft-related emissions from 2027. Example activities to meet this commitment are described below.

<u>Emissions from Aircraft and Airfield</u>

- Examine opportunities to accelerate adoption of newer, more fuel-efficient lower carbon aircraft options, for example through review of BAL's landing charges. BAL already has charges that limit noisier aircraft operating from the airport. It is known that quieter aircraft which tend to be newer are also more fuel efficient thereby ensuring both noise and GHG emission reductions. BAL intends to review landing charges by June 2020.
- Invest in Fixed Electrical Ground Power (FEGP) to avoid the use of mobile diesel generators on stands. BAL has a commitment to undertake the feasibility of introducing FEGP on all stands by December 2020.

- Implement operational procedures to encourage single engine taxing and reduced use of auxiliary power units (APUs); both of these are expected to be introduced by 2023.
- Examine and implement policies to reduce taxiing times and delays to aircraft on the ground by 2023.
- Invest in electric charging points across the airport campus to encourage third party use of electric vehicles. The airport has committed to installing up to 16 electric vehicle (EV) charging points on airport at locations such as the multi storey car park and the office buildings in 2020. This will be further complemented with further EV charging capacity on site focusing on various key locations to have enhanced coverage. BAL will detail the phasing of such installs within the CCCAP. The CCCAP will also include elements of the emerging Airport Surface Access Strategy (ASAS) in order to investigate the feasibility of adopting other specific measures to encourage / incentivise electric car use beyond the installation of the charging points, for example, preferential parking, discounts, security fast pass.
- Continue to engage with Sustainable Aviation to drive long term policy for the sustainable growth of UK aviation. For example, by supporting the development of industry initiatives to accelerate the development of fuel-efficient aircraft, improve the take up of carbon efficient operation and air traffic management practices and increase the use of Sustainable Aviation Fuels.

Progress on actions and associated outcomes will be included in BAL's Annual Monitoring Report; which is produced on an annual basis.

<u>Emissions from Staff and Public Transportation</u>

The key vehicle for managing GHG emissions will be the ASAS and the Workplace Travel Plan which will be finalised following the grant of planning permission for the proposed development. Example measures include:

- Improvements to public transport services and facilities through the implementation of the Public Transport Improvement Fund; as detailed in the proposed S106 draft Heads of Terms (contained within Appendix D of the planning statement).
- Walking and cycling access improvements through the upgrading of the A38/Downside Road junction to incorporate footway and cycleway facilities, additional cycle parking, E-bike loans and provision of shower facilities for employees.
- Public transport awareness building amongst employees, and provision of sustainable travel modes for travelling around Bristol Airport.
- Internal lift share scheme with branded marketing materials.

It is recommended that full details of analysis, targets and actions will be contained within the ASAS and Workplace Travel Plan.

Construction GHG emission BAL can influence (scope 3)

The key commitment for construction related emissions is to target BREEAM 'Very Good' certification and strive for 'Excellent'.

The key vehicle for meeting this commitment will be the implementation of, and adherence to, the proposed development's Construction Environmental Management Plan (CEMP) which seeks to minimise energy use and GHG emissions.

Example measures from the CEMP and more broadly include:

- To operate high euro standard HGVs;
- To optimise use of high efficiency plant and building equipment;
- To introduce a Phased Low Emissions Zone (PLEZ) for airside vehicles over the duration of the CCCAP;
- To ensure construction site connection to grid electricity to reduce use of mobile generation;
- Regular carbon emissions reporting to target outstanding emissions sources and continually improve performance;
- To ensure construction plant is switched off when not in use (no idling) and avoid waste to landfill wherever possible;
- Consideration of whole-life carbon in materials selection to reduce embodied carbon wherever possible including use of The Green Guide to Materials Specification to encourage the use of construction materials with a low environmental impact (including embodied carbon);
- Optimise transport and logistics of materials brought to site;
- Maximise procurement of materials/goods and services from local suppliers.

3.2.2 Adaptation

A Climate Change Adaption Plan will be produced as part of the CCCAP. The plan will**;**

- As a first step, identify and prioritise climate change adaptation risks to BAL's infrastructure including risks due to key interdependencies. A risk-based approach will be used that draws on latest projections of UK climate change to identify key asset vulnerabilities and potential effects to BAL's operation.
- As a second step, and in response to the prioritised risks, develop climate adaptation measures to protect existing assets ensuring this is reflected in BAL's asset management and operational plans and develop a climate adaptation standard for new assets at risk from future climate change.
- Finally, monitor and track climate change adaptation actions on an annual basis.

3.3 Timeframe, monitoring and governance

BAL will aim to produce a draft CCCAP within 6 months of the approval of the proposed development based on this scope. As a first step, and prior to issuing the draft CCCAP, BAL will seek to identify and consult NSC on the final targets consistent with its carbon commitments.

In response to BALs' carbon commitments and targets, the CCCAP will set out a five year programme of actions covering the period 2020 to 2026 which is in line with the timeframes to reach up to 12 mppa.

An annual performance report will be produced and shared with NSC within 3 months of calendar year end. This will report whether actions specified within the CCCAP are effective and conclude if they are complete, on track or behind schedule. For actions that are behind, the report will propose remedial actions to remedy performance. This report will be summarised as part of BALs existing Annual Monitoring Report.

An annual review meeting will be convened between BAL and NSC to consider the annual performance report. The annual review will be an opportunity to agree any remedial actions and changes to the CCCAP that may be required, for example to reflect a change in UK climate change policy.

Following the annual review, the Annual Monitoring Report and the CCCAP will be placed on BAL's website.

The table below sets out Jacobs' comments on the Environmental Statement (ES) for the proposed development of Bristol Airport to accommodate 12 million passengers per annum (mppa), Bristol Airport Limited's (BAL) response and further, subsequent comments provided by Jacobs' in May 2019. BAL's response to Jacobs' further comments is provided in the fourth column.

Please Note: Since this response was prepared in May 2019 the airport has subsequently published its Carbon Road Map (link). The Carbon Road Map provides updated targets on emissions covering all scopes associated to the airport and should be read in conjunction with this response.

Jacobs' Comment (ES) (January 2019)	**BAL Response (April 2019)**	**Jacobs Response to BAL Response to Jacobs' comments on the ES (May 2019)**	**BAL Response (May 2019)**
Baseline Conditions The ES describes the overall climate baseline in terms of the current baseline emissions as well as future baselines applicable to the site. Both sections are clearly set out, detailed and suitable for purpose. In the current baseline, it is noted that it does not include construction emissions associated with construction which occurred in 2017, as this is seen as a 'one-off' emission source. It is noted that the future baseline takes account of existing commitments to mitigate GHG emissions from operation whilst developing Bristol Airport to accommodate 10 mppa. Please elaborate on these commitments and the estimated impact these have on the overall future baseline. It is noted that UKCP18 was not available during the assessment, as was only released at the end	Jacobs' observation that the baseline section of Chapter 17 of the ES is clear, detailed and suitable for purpose is welcomed. BAL notes the request for further clarification in respect of the future baseline vis-à-vis existing commitments to mitigate greenhouse gas (GHG) emissions. As set out in the Design and Access Statement (DAS) submitted in support of the planning application for the Proposed Development and Chapter 17 of the ES, BAL has committed to using decentralised renewable electricity generation (such as combined heat and power, wind and solar PV technologies) for 15% of electricity used across the airport site. BAL is seeking to deliver this target regardless of the Proposed Development. BAL has a positive track record in terms of emissions performance, gaining Level 2 ACI Carbon Accreditation in 2018 and its ambition is to be carbon neutral by 2030. On this basis, the 15% target has been taken into account in the future baseline for the purposes of the ES. In addition, the future baseline in the ES assumes a 15% public transport mode share (which would be expected to minimise GHG emissions associated with surface access). This is consistent with the Section 106 obligations of the 10 mppa planning consent3 (in 2017, this figure stood at 12.5%). It should be noted that a large proportion of the emissions included in the future baseline are from aviation sources. As a result, the measures described above have only limited effect on the	From the response it is evident that the existing commitments to the mitigation of greenhouse gas (GHG) emissions from operations are limited to non-aviation sources. Please could you ellaborate, highlighting the current and future commitments to reduce GHG emissions from aviation sources. Furthermore, it is noted that BAL has set a target to use decentratlised renewable electriity generation of 15% of its electricity use across the site (this is irrespective of the Proposed Development), as well as assuming a 15% public transport mode share. Could a more ambitious target be set considering the Proposed Developement as it would appear that there is no additional mitigation for the expansion from 10 million passengers per annum (mppa) to 12 mppa in this regard? In addition to this, what will BAL do to ensure that these targets are acheived – i.e. proposed future plans, targets and	BAL has provided to North Somerset Council (NSC) the revised draft Carbon and Climate Change Action Plan (CCCAP) scope which covers the increased level of detail and commitment requested in Jacobs' response. Measures in the ES for mitigating GHG emissions from aviation relate to the incentivisation of more fuel efficient aircraft and engagement with the Sustainable Aviation CO_2 Road Map. These are expanded upon in the revised draft CCCAP, which includes the following measures: • Opportunities to accelerate adoption of newer more fuel-efficient aircraft, for example through review of BAL's landing charges;

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of November 2018, and has therefore not been considered as part of this review."	absolute amount of GHGs emitted as a result of the Proposed Development. Overall, the future baseline is considered to be a realistic worst-case scenario on which to compare the GHG emissions as a result of the Proposed Development.	timeframes. Please provide further details in this regard. It is agreed that based on current BAL achievements around carbon reductions, that the future baseline is considered a realistic worst-case scenario to compare GHG emissions as a result of the Proposed Development, however it would be beneficial if further information could be provided on what BAL is currently doing / planning to do and achieve with specified timeframes in order to reach its ambition to be carbon neutral by 2030, and how this relates to or may be affected by the Proposed Development. The carbon neutral target, which appears to focus on non-aviation operations, which, as stated are only a small component of the overall emissions from the Proposed Development. It is welcomed that the Proposed Development is incentivised to use quieter more efficient aircraft as identified in the Noise and Vibration Chapter. However it is not clear if and how this committment will be realised or secured. In addition it is not clear why off-setting has not been considered at this stage or if	• Invest in FEGP to avoid the use of diesel generators, with a feasibility assessment for FEGP on all stands by December 2020; • Implement operational procedures to encourage single engine taxing and reduced use of auxiliary power units (APUs). Both of these are expected to be introduced by 2023; • Examine and implement policies to reduce taxi-ing times and delays to aircraft on the ground; • Continue to engage with Sustainable Aviation to drive long term policy for the sustainable growth of UK aviation. BAL considers that the proposed target for renewable generation is a realistic but stretching target, in-line with a revised commitment for

Jacobs' Comment (ES) (January 2019)	BAL Response (April 2019)	Jacobs Response to BAL Response to Jacobs' comments on the ES (May 2019)	BAL Response (May 2019)
		this is something that may be considered as part of the Carbon and Climate Change Action Plan at a later date.	the airport's emissions (Scopes 1 and 2) to be carbon neutral by 2026. In addition, BAL have committed in the CCCAP to reduce absolute emissions directly controlled (Scope 1 and 2) by 20%, compared to a 2017 baseline. It should be noted that progess against the targets will be monitored in accordance with the CCCAP which will help to identify longer term opportunities to further enhance renewable generation. With regard to public transport modal share, the 15% target will form part of an ambitious Airport Surface Access Strategy (ASAS) and has been carefully calculated taking into account the current modal share of 12.5% and the limited period of time for investment in public transport before 12 mppa is reached and is considered to be realistic and achievable given BAL's ability to influence passenger travel choice. It should be noted that,

Jacobs' Comment (ES) (January 2019)	BAL Response (April 2019)	Jacobs Response to BAL Response to Jacobs' comments on the ES (May 2019)	BAL Response (May 2019)
			delivered through the Workplace Travel Plan, a non-single occupancy vehicle target of at least 25% for employees is also proposed. These modal share targets are supported by further measures to encourage sustainable travel contained in the proposed Section 106 Heads of Terms. The revised draft CCCAP scope also sets out BAL's carbon commitments, which are: • For operational emissions BAL **controls**: Ensure the airport is carbon neutral by 12mppa (2026) as defined by the ACI Airport Carbon Accreditation Scheme, with any residual emissions in 2026 and after offset through certified carbon reduction credits; • For operational emissions BAL **influences**: to be a regional leader in carbon management

Jacobs‘ Comment (ES) (January 2019)	BAL Response (April 2019)	Jacobs Response to BAL Response to Jacobs‘ comments on the ES (May 2019)	BAL Response (May 2019)
			with an aspiration for carbon neutral growth of emissions from 2027, and • For **construction**-related emissions: to target BREEAM ‘Very Good’ certification and strive for “Excellent. Specific timeframes for all actions to meet the proposed illustrative targets will be defined in the Final CCCAP to be delivered following the grant of planning permission and appoved by NSC. As detailed in the scope document, an annual performance report will be produced and shared with NSC within 3 months of calendar year end. This will report whether actions specified within the CCCAP are effective and conclude if they are complete, on track or behind schedule. For actions that are behind, the report will propose remedial measures to remedy performance. This report will be included as part of BAL‘s existing Annual

Jacobs‘ Comment (ES) (January 2019)	BAL Response (April 2019)	Jacobs Response to BAL Response to Jacobs‘ comments on the ES (May 2019)	BAL Response (May 2019)
			Operations Monitoring Report. Offsetting of emissions within the control of BAL through certified carbon reduction credits is considered within the revised draft CCCAP scope. This is-line with BAL’s commitment to be carbon neutral by 2027 for Scope 3 emissions. Full details of the targets will be incorporated into the Final CCCAP delivered following planning approval.
<u>Prediction of the Magnitude of Impacts</u> “The likely significant effects are noted as being an increase in GHGs from non-aviation related construction and operations as well as an increase in aviation associated with the proposed development. Overall, there are no significant effects identified for climate change resilience, as the embedded mitigations and commitment to embed Climate Change within the detailed design and operation of the airport through a Carbon and Climate Change Action Plan are made. It is agreed that this is as	Jacobs’ statement that the proposed embedded measures detailed in Chapter 17 of the ES and the Carbon and Climate Change Action Plan are appropriate mitigation with regard to climate change resilience, as well as the observation that there would not be significant in-combination climate change impacts, is welcomed.	It is still agreed that the proposed mitigation is appropriate at this stage of the project. However, it is important that the Construction Environment Management Plan (CEMP) and Carbon and Climate Change Action Plans are transparent and dynamic documents that are at intervals appropriately updated in line with changes in legislation / technology and opportunities identified to ensure that BAL minimises emissions and also achieves its ambition of being carbon neutral by 2030. It is noted that the Environmental Statement (ES) indicates that the Carbon and Climate Change Action Plan will be reviewed and updated	BAL welcomes Jacobs‘ comment that the proposed mitigation is appropriate at this stage of the project. BAL provided to NSC an initial draft CCCAP scope which has subsequently been revised to take into account officer comments; a revised draft CCCAP has now been submitted to NSC alongside this response. The Final CCCAP will be be delivered following the grant of planning permission and appoved by NSC. In this context, to increase transparency, the scope, commitments and key measures of the

Jacobs' Comment (ES) (January 2019)	BAL Response (April 2019)	Jacobs Response to BAL Response to Jacobs' comments on the ES (May 2019)	BAL Response (May 2019)
appropriate mitigation at this stage. The combined impact of the proposed development, as well as climate change considerations in other relevant chapters supports the conclusion that there are no significant effects expected relating to in-combination climate change impacts."		periodically to ensure continuous improvement in the aiports GHG emissions. Following receipt of additional third party comments, it would be beneficial if BAL could provide an outline of the Carbon and Climate Change Action Plan to give the planning authority and consultees confidence that proposed mitigation measures are robust, reliable, practical and implementable. This would enable the planning authority and consultees to have confidnce that the mitigation measures proposed in the ES can be appropriately described and secured. It is noted that progress made against agreed targets/measures and recommendation for reviewing targets/measures where deemed necessary will be included within BAL's Annual Operations Monitoring Report with the Action Plan reviewed every 5 years.	CCCAP have been provided to NSC. The measures put forward are at a suitable level of detail for the stage of the project. The revised draft CCCAP scope sets out the monitoring and updating requirements for continual improvement of GHG mitigation at Bristol Airport, ensuring a dynamic plan that meets BAL's commitment to be a regional leader in carbon management. As detailed in the scope document, an annual performance report will be produced and shared with NSC within 3 months of calendar year end. This will report whether actions specified within the CCCAP are effective and conclude if they are complete, on track or behind schedule. For actions that are behind, the report will propose remedial measures to remedy performance. This report will be included as part of BAL's existing Annual Operations Monitoring Report.

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Impact Significance "Impact significance has been described in terms of the UK Carbon budgets and reduction targets and it is agreed that the reported figures are not considered to be significant. Reference to the possible impacts that the project may have on the current localised climate, i.e. temperature increases, rainfall pattern changes, etc. and the impacts thereof are described within individual topic chapters. However, it is important to not only consider climate in terms of the impact of the project on climate (i.e. GHGs), which has been done, but also the impact of climate on the project –how climate may impact on the project and how this will be considered / dealt with (e.g. maintenance of the runway etc.). This aspect has been omitted from the assessment."	BAL welcomes Jacobs' view that the figures reported in the ES are not considered to be significant. With regard to the impacts of climate change on the Proposed Development, this is considered in Chapter 2 of the ES (paras 2.4.18 to 2.4.23) with reference to Section 7.12 of the DAS. This text is reproduced below: "2.4.18 The impacts of climate change will be considered throughout the design and operation of the Proposed Development. The projected impacts of climate change on the Bristol Airport site are detailed in Section 7.12 of the Design and Access Statement (DAS) and these have been considered in the design to date where appropriate. 2.4.19 During the operational phase of the Proposed Development, resilience has been addressed through the following measures: • The proposed drainage strategy includes climate change allowances; • The design of ecological mitigation measures takes into account climate change through the planting of climate resilient species and increased connectivity of habitats; • The demand for water is reduced through water efficiency measures such as efficient appliances/processes and the potential use of rainwater recycling; • There is a commitment that decentralised renewable electricity generation will constitute a combined 15% of electricity use across Bristol Airport (decentralised power production reduces the exposure of Bristol Airport to wider power failure, which can be exacerbated by climate change). Heating sourced from waste gas from a CHP plant also decreases reliance on the wider network, thus increasing resilience; and	Noted, agreed that the measures are appropriate at this stage and the design includes for the impacts of climate change as noted in the response. The design elements referred to in the Design Access Statement (DAS) should be approriately secured through the planning process. The DAS should take into account extreme weather events if this is not not currently addressed. The cumulative assessment scopes out any national inter-project effects specifically Heathrow Airport expansion. Given that in Chapter 17, Table 17.1, para 1.12 it states that, *„whilst the Proposed Development is not in the geographic location of the ANPS, the assessment of significance for aviation emissions considers the national context, therefore the ANPS for the sector is significant*', please provide additional clarity on how the cumulative effect with Heathrow Airport or other UK aviation proposals have been addressed.	BAL welcomes Jacobs' comment that the proposed mitigation is appropriate at this stage of the project. Extreme weather events will be considered as the detailed design of the scheme progresses, both for current and future climates. In this context, the DAS has considered exteme weather events (see Section 7.12). Extreme weather events are implictly included within the climate change adaptation aspect of the revised draft CCCAP scope, which will cover Bristol Airport as a whole. A full risk assessment will be carried out to inform the plan, which will consider near-term extreme weather events as well as risks associated with longer-term climate change. Operational measures to reduce risks from extreme weather events will be considered. BAL considers that the ANPS has been used appropriately in the assessment of GHG

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	• The projected central estimate temperature projections for the end of the design life of each asset will be considered in its detailed design stages (e.g. a building with an indicative 50-year design life will consider climate change projections for the 2080s). 2.4.20 Section 7.12 of the DAS also outlines the approaches to include decentralised power production on- site, which increases resilience of the Proposed Development to climate change impacts on the wider power networks. 2.4.21 The impacts of climate change have been considered within the assessments of flood risk in Chapter 12: Surface Water and Chapter 13: Groundwater. Climate change has also been considered in the development of mitigations for biodiversity receptors affected by the Proposed Development in Chapter 11: Biodiversity, and mitigations for soils in Chapter 10: Land Quality. 2.4.22 Further climate change impacts will be considered throughout the detailed design stages of the Proposed Development, following approval for expansion to 12mppa. This is secured through a commitment to develop a Carbon and Climate Change Action Plan (CCAP). The CCAP will use the new UKCP18 projections (released 26 November 2018) to assess the vulnerability of specific assets to climate change and the impact it could have on operational procedures. The resulting CCAP will be relevant to Bristol Airport as a whole, including the new infrastructure and assets required for the Proposed Development. 2.4.23 The CCAP will consider the initial design of assets (e.g. placing climate change uplifts on standards) and designing to enable adaptation in the future as and when required (e.g. oversizing of ventilation shafts). This approach is deemed		emissions in the ES, and a further cumulative assessment of emissions from other proposals (including Heathrow expansion) is not appropriate. The ANPS provides guidance by which the assessment was carried out (for example, the scope of emissions considered and the types of mitigation to be sought). It does not require a cumulative assessment with other airport developments. Furthermore, the national context used in Chapter 17 of the ES inherently considers evolution of the UK aviation sector as it applies the Department for Transport forecast of GHG emissions emissions for 2050.

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	appropriate as asset-specific climate change adaptation should be integrated into the design as it develops and becomes more detailed. The principles of the upcoming ISO14090: A Framework for Adaptation, due for release in 2019, will be used when developing the CCAP." Additionally, Chapter 19 of the ES summarises the climate change effects of the Proposed Development including in respect of resilience. Paragraph 19.1.50 notes that climate change resilience in the construction phase was scoped out of the ES due to its short term nature whilst paragraph 19.1.51 states: "There are no significant effects identified for climate change resilience, as the embedded mitigations and commitment to embed climate change within the detailed design and operation of the airport through a Carbon and Climate Change Action Plan are regarded as appropriate mitigation at this stage." As referred to above, BAL has committed to develop a Carbon and Climate Change Action Plan following approval of the Proposed Development. This is in accordance with the proposed Condition (36) set out in Appendix D to the Planning Statement which is reproduced below: "Carbon and Climate Change Action Plan shall be submitted to and approved in writing by the Local Planning Authority 12 months from the date of the permission or before the occupation of any new building or completion of any development included in the application, whichever occurs first. This shall include: (i) a baseline against which carbon management initiatives can be measured; (ii) a timetable with targets for Carbon Management being agreed. Progress made against agreed targets and recommendation for reviewing targets where		

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	deemed necessary will be included within the Annual Operations Monitoring Report. The Carbon and Climate Change Action Plan will be reviewed every 5 years. **REASON: To ensure that the development mitigates, and is resilient to, the effects of climate change in accordance with Policies CS1, CS2 and CS3 of the North Somerset Council Core Strategy."** The Carbon and Climate Change Action Plan will be developed during the detailed design phase and will cover ongoing operations and all construction activities. The Action Plan will consider the impact of extreme weather and climate change on the Proposed Development and define measures and actions to ensure that the design and operation of the scheme are resilient to climate change. The Carbon and Climate Change Action Plan will also set out the governance process for the delivery of the measures and actions. The Carbon and Climate Change Action Plan will be reviewed and updated periodically to ensure that continuous improvement in the airport's GHG emissions is achieved and that climate risks are adequately assessed, with the appropriate adaptations put in place. The scope of the Action Plan is being prepared by BAL at the time of writing for prior agreement with the local planning authority. It is proposed that this scope will feature as a schedule within the Section 106 Agreement. Overall, BAL considers that the approach taken in the ES and DAS is proportionate.		
<u>Mitigation</u> "The embedded environmental measures noted are likely to	BAL welcomes Jacobs' comment that the embedded environmental measures are likely to reduce carbon an other GHGs and that the approach to the assessment in this regard is sound.	Noted. Greater clarity should be provded on the mitigation for	As set out above, BAL has provided to NSC the revised draft CCCAP scope which covers the

Jacobs‘ Comment (ES) (January 2019)	BAL Response (April 2019)	Jacobs Response to BAL Response to Jacobs‘ comments on the ES (May 2019)	BAL Response (May 2019)
reduce carbon and other GHGs, and although not quantified are included in the determination of significance. This approach is agreed, as it would be difficult to quantify how these measures would impact on carbon and GHGs quantities as final construction movements, etc. are unlikely to be known at this stage of the project.”		aviation sources of carbon to understand how BAL would contribute to the UK carbon budget and the plan for keeping UK aviation emissions levels at around 2005 levels by 2050.	increased level of detail on mitigation for aviation sources of carbon requested in Jacobs‘ response. Chapter 17 of the ES provides a worst-case scenario of GHG emissions from the Proposed Development and concludes that the effects are not significant in a UK-wide context. BAL welcomes Jacobs‘ reassertion that the approach to assessment and the conclusions regarding significance are sound, subject to the provison of increased clarity regarding mitigation measures.
<u>Monitoring</u> “The embedded environmental measures are adequately detailed. However, it would be worth elaborating noting any assurances that may exist as to how these embedded measures will be monitored and recorded through the lifecycle of the project.”	Jacobs’ opinion that the embedded environmental measures described in the ES are adequately detailed is welcomed. The embedded measures will be monitored and recorded as part of the Carbon and Climate Action Plan which is to be secured by condition (as detailed in Section 4 above). Progress made against agreed targets/measures and recommendation for reviewing targets/measures where deemed necessary will be included within BAL’s Annual Operations Monitoring Report with the Action Plan reviewed every 5 years.	Noted – this will create transparency and accountability. It is questioned whether interim results could be published to indicate complaince with commitments more frequently.	BAL agrees with the need for frequent reporting in order to maintain transparency and accountability. Therefore, progress against the actions specified CCCAP will be continually reviewed and publically reported in-line with the annual update of the Annual Operations Monitoring Report. The revised draft CCCAP scope provides further detail relating to monitoring.

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Plans and Policies “No comments provided. Plans and policies referenced within the reviewed chapters are appropriate to the assessment.”	BAL notes Jacobs’ comments on this aspect of the ES.	Noted	No further comment.
Compliance with EIA Practice & Procedure “Overall the chapters reviewed appear to meet regulatory requirements. However as described there are some aspects that could be clarified with the provision of additional information.”	BAL notes and welcomes Jacobs’ view that the ES chapters reviewed meet regulatory requirements.	Noted	No further comment.
“Provided that the embedded environmental measures are implemented throughout the project, carefully monitored, measured and updated as required, no significant effects as a result of the project are anticipated.”	BAL notes and welcomes Jacobs’ conclusion that, provided that the proposed mitigation measures identified in the ES are implemented, no significant effects are anticipated. This is consistent with the conclusions of the ES.	Noted. However, based on the additional information provided / noted, it is believed that more ambitious targets / plans could be set to further reduce GHGs associated with BAL in line with the ambition to be carbon neutral by 2030. A clear description and plan, including timeframes, on how this ambition will be achieved, promoted, complied with and reported against should form part of the Carbon and Climate Change Action Plan.	As noted above, BAL has provided to NSC the revised draft CCCAP scope which covers the increased level of detail and commitment requested in Jacobs‘ response. BAL is confident that the proposed CCCAP scope presents an appropriate level of detail at this stage and in this context, the ES conclusion of no siginficant effects relating to GHG emissions remain valid.

Development of Bristol Airport to Accommodate 12 Million Passengers Per Annum: Climate Change

1. Introduction

This document has been prepared in response to a request for clarification from North Somerset Council[1] concerning the climate change impacts of Bristol Airport Limited's (BAL) proposals for the development of Bristol Airport to accommodate 12 million passengers per annum (mppa) (the proposed development). Specifically, North Somerset Council has sought clarification as to whether an increase in permitted capacity at Bristol Airport will mean that the Committee on Climate Change (CCC)'s recommendation[2] for aviation emissions to not exceed 37.5 Mt CO_2/annum in 2050 cannot be met, particularly when considered in the context of other UK airport expansion projects. In this respect, this document also considers the appropriate approach to environmental assessment of cumulative aviation impacts on greenhouse gas (GHG) emissions.

2. Policy position

Domestic aviation emissions and non-aviation emissions are currently included in UK carbon budgets. The Environmental Statement (ES) for the proposed development makes clear that the forecast domestic aviation emissions and non-aviation operational emissions from the proposed development are 52.58ktCO_2/annum, which is approximately 0.00003% of the 5th UK carbon budget, which applies to the period 2028-2032. This is not a significant effect and nor does it have a material impact on the Government's ability to meet its carbon reduction targets.

International aviation is not currently included in the UK's carbon budgets, but those budgets are recommended by the CCC at a level that allows 'headroom' for international aviation. Since the production of the ES, the UK Government has published its consultation document Aviation 2050: The Future of UK Aviation[3]. That document states that the UK Government wishes to adopt the CCC's recommendation of 37.5 MtCO_2 as the 'headroom' for international aviation when setting overall UK carbon budgets. Chapter 17 of the ES has established that the addition of 2 mppa would represent only 0.28% of the CCC's recommendation of 37.5 MtCO_2/annum, which is not considered to be a significant effect.

[1] The request has been made pursuant to Regulation 25 of 'The Town and Country Planning (Environmental Impact Assessment) Regulations 2017' (the 'EIA Regulations').
[2] The Committee on Climate Change (2009). *Meeting the UK aviation target – options for reducing emissions to 2050*. Available online at: https://www.theccc.org.uk/publication/meeting-the-uk-aviation-target-options-for-reducing-emissions-to-2050/
[3] Department for Transport (2018). *Aviation 2050: The future of UK aviation*. Available online at: https://www.gov.uk/government/consultations/aviation-2050-the-future-of-uk-aviation

Aviation 2050 also sets out the criteria for planning applications to "[demonstrate] *that their project will not have a material impact on the government's ability to meet its carbon reduction targets*". Whilst it is recognised that the Government's carbon reduction targets may change over time, both BAL and local planning authorities must operate within the policy framework that exists at the time of any decision. As stated above, we understand that Government wishes to adopt a figure of 37.5 $MtCO_2$ as the 'headroom' for international aviation.

The ES concludes that the GHG emissions from the proposed development are not significant and would not have a material impact on the Government's ability to meet its carbon reduction targets. Thus in BAL's view, there is no policy reason for refusing planning permission for the proposed development.

3. Approach to cumulative environmental assessment

The assessment of GHG emissions in the ES contextualises emissions from the expansion of Bristol Airport against the most up-to-date Department for Transport (DfT) aviation forecasts[4], which are considered the best available forecast of the UK aviation sector in 2050.[5] Accordingly, as the assessment was based on emissions from the UK aviation sector, it amounts to a qualitative assessment of cumulative aviation impacts on GHG emissions, and no further cumulative calculation beyond the core assessment of significance is required.

The Institute for Environmental Managers and Auditors (IEMA) '*EIA Guide to Assessing Greenhouse Gas Emissions and Evaluating the Significance*'[6] sets out that GHG contributions to climate change are "*the largest inter-related cumulative environmental effect*" and advises contextualising any particular planning application against a relevant carbon budget. This qualitative approach to assessing impacts is exactly that taken in the ES and is consistent with Aviation 2050 which states that the Government only intends to require planning applications to '*provide a full assessment … demonstrating that their project will not have a material impact…*'

A qualitative assessment is a valid and clear approach to contextualising emissions given that GHG emissions from other airports in 2050 are dependent on a myriad of other business, policy and planning decisions across regional, national, supra-national and sectoral scopes that are extremely uncertain. These uncertainties do not support the need for a quantitative cumulative assessment for GHG emissions and

[4] Department for Transport (2018). *UK aviation forecast 2017*. Available online at: https://www.gov.uk/government/publications/uk-aviation-forecasts-2017
[5] The Committee on Climate Change (2015). *The Fifth Carbon Budget: The next step towards a low carbon economy*. Available online at: https://www.theccc.org.uk/publication/the-fifth-carbon-budget-the-next-step-towards-a-low-carbon-economy/
[6] IEMA (2017). *Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance*. Available online at: https://www.iema.net/assets/newbuild/documents/IEMA%20GHG%20in%20EIA%20Guidance%20Document%20V4.pdf

undertaking a quantitative cumulative assessment based on a series of assumptions that may be technically uncertain is not considered appropriate in the context of a project specific EIA.

Notwithstanding the above, it should also be noted that regardless of whether a qualitative or quantitative cumulative assessment is undertaken, the contribution of the proposed development to emissions in 2050 will remain extremely small and would not in itself materially affect the ability of the UK to meet its overall carbon budget. In light of this, the commitments to minimise emissions from factors within the control of the applicant[7] and the reliance of the UK Government on international measures for reducing aviation emissions driven by the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) obligations[8] (which the ES does not quantify due to the uncertainties involved), the ES conclusion that the effects of the proposed development on climate change and emissions will not be significant remains valid as an assessment for the proposed development alone as well as cumulatively.

[7] Bristol Airport (2019). *Becoming a net zero airport: Our roadmap to reduce carbon emissions*. Available online at: https://www.bristolairport.co.uk/~/media/files/brs/about-us/future/carbon-road-map.ashx?la=en

[8] International Air Transport Association (2019). Carbon Offsetting Scheme for International Aviation (CORSIA). Available online at: https://www.iata.org/policy/environment/Pages/corsia.aspx