

Draft Carbon and Climate Change Action Plan (CCCAP)

Final v3.4



Report for

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Doc Ref. 43002-WOOD-XX-XX-RP-CC-0002_S4_3.4

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Document revisions

No.	Details	Date
1.3	Draft for technical review	20/1/21
2.0	Draft 2 for BAL review	24/1/21
3.0	Final Draft for BAL review	30/4/21
3.1	Final Draft for QC review	11/5/21
3.2	Final Draft	21/05/21
3.3	Final version following BAL comments	25/05/21
3.4	Final version submitted to BAL	27/05/21

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Purpose of this report

This Report has been prepared by Wood Group UK Limited on behalf of Bristol Airport Limited.

This Report represents the draft Carbon and Climate Change Action Plan that will be published by Bristol Airport Limited. For this reason, the Report is written in the first person. Any reference to 'we' or 'us' refers to Bristol Airport Limited and not to Wood Group UK Limited.

Status of this report

This report has been prepared as a draft in accordance with the proposed planning condition associated with Bristol Airport Limited's 12mppa planning application. This proposed planning condition allows six months following a planning decision for the Carbon and Climate Change Action Plan to be agreed with North Somerset Council.

Executive summary

Climate change is the greatest challenge of our time. Bristol Airport Ltd. (BAL) acknowledges the role that it will play in the transition to a lower carbon future and is committed to navigating this journey in a responsible manner. Bristol Airport has been actively reducing its Greenhouse Gas (GHG) emissions for some time and this action plan strengthens that ambition and commitment.

BAL is committed to taking a leadership position in carbon management to achieve direct emission reductions and influence and guide emissions outside of its direct control to achieve emission reductions. BAL's net zero vision is as follows:

By 2021 all our operations and activities will be carbon neutral. This means all of BAL's Scope 1 and 2 emissions will be offset by the end of 2021.

By 2030 and with 12 mppa, all our operations and activities will be 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 removed.

By 2050 Bristol Airport as a whole will be carbon net zero. This includes Scope 1, 2 and 3 emissions, and 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.

Our carbon management journey began in 2014, followed in 2019 by our Carbon Roadmap which heightened BAL's intent, particularly beyond our Scope 1 and 2 emissions sources. This draft **Carbon and Climate Change Action Plan (CCCAP)**, aims to accelerate the process of reducing GHG emissions. We are targeting both emissions that we **control** (Scope 1 and 2 emission sources), and those that we can **guide** and **influence** (Scope 3 emission sources) through engagement with stakeholders and our value chain.

We are proud to say there has been a reduction of approximately 50% in our Scope 1 and 2 CO₂e emissions per passenger over the period 2006 to 2019. Recent actions that we have taken to reduce our GHG emissions include upgrading to a more energy efficient baggage handling system, installing solar photovoltaic (PV) panels and Electric Vehicle (EV) charging bays on site, and switching to a 100% renewable electricity supply.

By 2030, we aim to develop Bristol Airport from the current capacity of 10 million passengers per annum (mppa) to accommodate 12 mppa. This CCCAP incorporates our commitments for GHG emission reduction as part of both our current airport operations and with the proposed development. Actions which are associated to the Airport growing to 12mppa will need to be reviewed if growth is not permitted. As a result, the CCCAP will remain in a draft status until the application has been determined.

Emission sources

Three separate scopes of GHG emissions are reported within the CCCAP which follows best practice from the GHG protocol. These are defined as:

- Scope 1: direct emissions relating to activities owned or controlled by BAL
- Scope 2: indirect emissions relating to consumption of purchased fuel (e.g., electricity) which is controlled by BAL
- Scope 3: emissions associated with activities controlled by third parties where BAL can guide and influence (e.g., aviation emissions and surface access emissions)

Carbon neutral

BAL's residual emissions from Scope 1 and 2 sources will be offset at a recognised high standard. This will balance BAL's emissions with the same amount of greenhouse gas removals, resulting in carbon neutrality.

Net zero

Emissions from BAL's Scope 1 and 2 sources will be minimised as far as practicable. Any residual GHG emissions, which cannot be minimised due to technological challenges etc., will be removed to achieve net zero emissions. BAL will leverage its role to guide and influence this vision for Scope 3 emissions, including surface access and aviation emissions.

Our vision is to deliver a **carbon neutral airport** in 2021 by continuing the trajectory that has been set to reduce the emissions that we control and offsetting all residual emissions that remain. Going forward, we will develop the Airport to serve 12 mppa as a **net zero airport** for Scope 1 and 2 emissions by 2030. This will be achieved by further reducing direct emissions to as close to zero as possible, noting that there may remain a minimal requirement to remove residual emissions due to feasibility and technological constraints of some emission sources. As part of this commitment, we aim to achieve the internationally recognised standard of Airport Carbon Accreditation Level 4+ (Transitional) by 2030.

We have been working with third parties and taking action to guide and influence emission reduction in Scope 3 emissions, of which surface access and aviation emissions are our largest sources. Steps we

have taken so far include offsetting all GHG emissions from passenger journeys by road from 2020 onwards and actively engaging with innovation partners, the airlines and the aviation sector through networks such as Sustainable Aviation. Our carbon vision in this draft CCCAP includes the commitment to continuing to **guide** and **influence** the companies and passengers that use the Airport to help them to reduce their GHG emissions in line with the UK's net zero 2050 target.

In developing this CCCAP, we have characterised the GHG emissions from Bristol Airport within four key focus areas that each represent different emission sources and levels of control or influence for BAL: **Carbon Net Zero Airport; Reducing Emissions from Vehicles; Sustainable Flights; and Low Carbon Design and Construction**. Three sets of measures have been developed for each focus area spanning the following timelines:

- Measures that we will employ in the **short term** (approximately 2021-2024) as part of our business-as-usual operations. This includes delivering an on-site zero emission building, introducing a landside EV coach trial and establishing a league table to measure GHG emissions from aircraft operators arriving at Bristol Airport;
- Measures which will be employed in the **medium term** (from planning approval – 2030) with the additional investment that will be possible as a result of growing the airport to 12mppa. This includes delivering an Aviation Carbon Transition (ACT) Programme worth £250k each year, transforming our fleet to all zero-emission vehicles, and installing a mobility hub delivering electrical vehicle charging infrastructure; and
- Measures that will be employed in the **long term** (beyond 2031-2050) which are dependent on wider developments within the UK economy, government policy and technological developments in the aviation sector.

Each measure detailed in the CCCAP has a Key Performance Indicator (KPI) and a target date. Progress towards achievement of these KPIs will be reviewed and reported on every year in our Annual Monitoring Report that will be accessible from our public website. The CCCAP will be reviewed every five years in line with UK carbon budgets and adaptation cycles.

Contents

1.	Introduction	9
1.1	Scope	10
1.2	Objectives of the CCCAP	11
1.3	Measuring sustainability at airports	11
2.	Policy Context	12
3.	Overview of the Carbon and Climate Change Action Plan	14
3.1	BAL's carbon vision	14
3.2	Focus areas	15
3.3	Timescales for action	16
4.	GHG emissions at Bristol Airport	17
4.1	Introduction	17
4.2	Baseline GHG emissions	17
4.3	Our Ongoing Work to Reduce Emissions	19
4.4	The future of the airport	22
5.	Carbon Neutral Airport (BAL Scope 1 and 2)	24
5.1	Key measures	24
5.2	Short-term / business as usual measures	24
5.3	Medium- and long-term measures	25
6.	Carbon Net Zero Airport (BAL Scope 1 and 2)	26
6.1	Our trajectory beyond carbon neutrality	26
6.2	Key measures	26
6.3	Short-term / business as usual measures	27
6.4	Medium-term measures	27
6.5	Long-term measures	29
7.	Reducing Emissions from Vehicles	30
7.1	Reducing emissions from surface access and the role of offsetting	30

7.2	Key measures	30
7.3	Short-term/business as usual measures	31
7.4	Medium-term measures	32
7.5	Long-term measures	33
8.	Sustainable Flights	34
8.1	Working with our partners to achieve Sustainable Flights	34
8.2	Key measures	34
8.3	Short-term/ business as usual measures	35
8.4	Medium-term measures	36
8.5	Long-term measures	37
8.6	Considering non-CO ₂ impacts	37
9.	Low Carbon Design and Construction	38
9.1	Designing for carbon neutral and net zero	38
9.2	Embedding good practice	38
9.3	Key measures	39
9.4	Short-term/business as usual measures	40
9.5	Medium-term measures	40
9.6	Long-term measures	41
10.	Partnerships and Communities	42
10.1	Listening, engaging and learning	42
10.2	Partnering for progress	42
10.3	Innovating for Sustainable Flight	43
11.	Governance	44
11.1	Internal Governance	44
11.2	External Engagement	45
12.	Climate Change Adaptation Plan	46
12.1	Physical Risks	46
12.2	Transition Risks	48
13.	Reporting, Monitoring and Review	49

Table 3.1	Focus areas covered in the draft CCCAP and their timescales for action	16
Table 4.1	Details of offsets secured in 2020 to offset all passenger journey GHG emissions to and from the airport by road.	20
Table 4.2	Airport Carbon Accreditation scheme and Bristol Airport's journey	21
Table 5.1	Short term actions to deliver a carbon neutral zero airport (Scope 1 and 2)	24
Table 6.1	Short term actions to deliver a carbon net zero airport (Scope 1 and 2)	27
Table 6.2	Medium term actions to deliver a carbon net zero airport (Scope 1 and 2)	28
Table 7.1	Short term actions to influence surface access emissions (Scope 3)	31
Table 7.2	Medium term actions to influence surface access emissions (Scope 3)	32
Table 8.1	Short term actions to guide and influence reductions in aviation emissions (Scope 3)	35
Table 8.2	Medium term actions to guide and influence reductions in aviation emissions (Scope 3)	36
Table 9.1	Short term actions to reduce emissions associated with design and construction emissions	40
Table 9.2	Medium term actions to reduce emissions associated with design and construction emissions	40

Figure 3.1	Representation of the cross-cutting themes and focus areas in the draft CCCAP	15
Figure 4.1	Estimated baseline Scope 1, 2 and 3 GHG emissions (ktCO ₂ e/yr) at Bristol Airport	18
Figure 4.2	Scope 1 and 2 CO ₂ e emissions per passenger over the period 2006 to 2019.	19
Figure 4.3	Scope 1 and 2 CO ₂ e emissions, passenger numbers and CO ₂ e emissions per passenger over the period 2015 to 2019.	19
Figure 4.3	Baseline and projected GHG emissions at Bristol Airport	23
Figure 9.1	Construction GHG emissions associated with the 12 mppa planning application	39
Figure 11.1	Internal governance structure at BAL	44

Appendix A	Approach to producing the CCCAP	
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1. Introduction

Climate change is the greatest challenge of our time. Bristol Airport Ltd. (BAL) acknowledges the role that it will play in the transition to a lower carbon future and is committed to navigating this journey in a responsible manner. While there will be a requirement to introduce significant changes to our society, including the way we travel, air travel does not need to be at the expense of our planet's future and can continue to provide essential economic benefits regionally and locally.

BAL has been working to lower carbon¹ and greenhouse gas (GHG) emissions from its own operations over the last seven years. In 2014, we introduced our Carbon Management Plan and in July 2019, we updated our GHG commitments, which are set out in our roadmap *Becoming a net zero airport: Our roadmap to reduce carbon emissions*². This includes a commitment to achieving carbon neutral emissions for direct emission sources by 2025.

BAL hopes to develop Bristol Airport to accommodate 12 million passengers per annum (mppa) and is currently submitting an appeal application³. This draft Carbon and Climate Change Action Plan (CCCAP) incorporates our most up to date progress and commitments for reducing GHG emissions.

Building on the commitments made in the 2019 roadmap, the CCCAP increases the ambition of the carbon targets for BAL under a business-as-usual scenario within the current capacity of 10 mppa. Additionally, it establishes an action plan to ensure our operations at Bristol Airport achieve our GHG emission commitment targets, while additionally allowing for future planned demand growth at the Airport. Recognising the urgency of the climate emergency we have increased our response to mitigate and adapt to climate change. We want to be more ambitious and now commit to being carbon neutral for our Scope 1 and 2 GHG emissions by the end of 2021 and, if the airport is permitted to grow to 12mppa, become net zero by 2030. This is 5 and 20 years ahead of our previous ambitions we publicly set out in 2019.

Carbon neutral

BAL's residual emissions from Scope 1 and 2 sources will be offset at a recognised high standard. This will balance BAL's emissions with the same amount of greenhouse gas removals, resulting in carbon neutrality.

Carbon net zero

Emissions from BAL's Scope 1 and 2 sources will be minimised as far as practicable. Any residual GHG emissions, which cannot be minimised due to technological challenges etc., will be removed to achieve net zero emissions. BAL will leverage its role to guide and influence this vision for Scope 3 emissions, including surface access and aviation emissions.

¹ 'Carbon' is used here as shorthand for carbon dioxide and other GHG emissions, as is common in Government policy documents. Where carbon dioxide emissions only are considered, as is current common practice for aviation emissions, this is explicitly stated.

² BAL (2019). Carbon Roadmap. [online]. Available at: <https://www.bristolairport.co.uk/about-us/environment/carbon-roadmap#:~:text=Our%20carbon%20roadmap%20sets%20out,greatest%20challenge%20of%20our%20time>.

³ BAL (2020). Environmental Statement Addendum Volume 1. [online]. Available at: https://planning.n-somerset.gov.uk/online-applications/files/7A149BB796B80EEE51CED34DB2DDD01F/pdf/20_P_2896_APPCON-ENVIRONMENTAL_STATEMENT_ADDENDUM_VOLUME_1__MAIN_REPORT-2988071.pdf

This CCCAP contains three sets of measures. One set of measures that we will employ as part of our business-as-usual operations, one set of measures will be employed with the additional investment that will be possible because of growth to 12mppa, and one set of longer-term measures that will be kept under continual review as they are dependent on wider developments within the aviation sector, technology and policy requirements.

At the time of submission for consideration as part of the 12 mppa planning appeal, this document will remain a draft with only the business-as-usual measures having been integrated into BAL's business planning and budgeting arrangements thus far. With a positive appeal decision, BAL will develop a full version, within six months of the decision, engaging thoroughly with the local planning authority (LPA) and other stakeholders during the process. For clarity, those measures contained within this document that have board approval, but funding is linked to the 12mppa planning application are highlighted as such and therefore their delivery are reliant on approval of said plans.

1.1 Scope

The CCCAP covers both actions to **mitigate** climate change (through the management of GHG emissions) and actions to **adapt** to climate change. The CCCAP also differentiates between **operational** GHG emissions that occur due to ongoing airport activities that continue annually, and **construction** activities that are linked to specific projects forming part of accommodating 12 mppa.

Best practice from the GHG protocol⁴ has been followed with GHG emissions reported under three separate scopes defined as:

- Scope 1: These include activities owned or controlled by BAL that release GHG emissions into the atmosphere. They are known as direct emissions and we can **control** them.
- Scope 2: These include 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 we do not directly emit these GHG emissions, we can **control** them through our energy use, management and purchasing decisions.
- Scope 3: These include GHG emissions associated with Bristol Airport that occur from sources not owned or controlled by BAL, and not classed as Scope 2. We can **guide** and **influence** these GHG emissions which include both aviation and non-aviation GHG emissions. Aircraft

Offsetting and removal of carbon

The terms carbon offset and carbon removal are often mixed up, although they are fundamentally different. Carbon offsets help reduce or avoid emissions, but they have no effect on the current CO₂ levels in the atmosphere. Carbon removals go one step further than offsets. They remove CO₂ that has already been emitted into the atmosphere, thus lowering the absolute amount of CO₂ in the atmosphere.

Carbon offsets are generated by different projects around the world. These typically involve investment in energy efficiency or tree planting, for example, to reduce or avoid emissions. A number of verification bodies exist that document these emission reductions as 'carbon credits' which are then sold internationally as carbon offsets. These projects would not occur without the revenue generated by selling these offsets.

Carbon removal is the process of capturing CO₂ from the atmosphere and locking it away for decades, centuries, or longer. The various proposals for doing this take three main approaches: biological methods, which use forests, agricultural systems, and marine environments to capture and store carbon; geologic methods, which capture carbon dioxide by various means and store it underground or in rock; and carbon-utilisation methods, which capture carbon dioxide and use it to produce long-lived products such as plastics or cement.

⁴ GHG Protocol. Corporate Standard. [online]. Available at: <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

ground movements, grid power/fuel consumed by partners and stakeholders, and disposal of airport waste are examples of emissions that BAL can guide but are ultimately controlled by third parties. Take-off/landing approaches and arrangements, and power/fuel consumption made by third parties, are GHG emissions that BAL can influence.

The Government has a fundamental role in controlling Scope 3 emission sources through the setting of policy, national carbon budgets and emission cap and trading schemes. For surface access emissions, the UK Government's Decarbonising Transport Plan, anticipated in 2021, and the end of sales of new petrol and diesel cars by 2030 will have a considerable impact to reduce surface access emissions and step towards net-zero for this sector. For aviation emissions, the UK Emissions Trading Scheme (UK ETS) provides a mechanism by which the UK Government to control and limit emissions from aircraft movements from flights departing UK airports to either UK or European Economic Area (EEA) destinations. BAL are committed to supporting these efforts by the Government to minimise and control Scope 3 emissions.

All Scope 1, 2 and 3 GHG emissions associated with the operation of Bristol Airport, and any construction it requires as part of the 12mppa planning application, are covered by this CCCAP. The emission sources have been split into key focus areas based on BAL's level of control, guidance or influence.

1.2 Objectives of the CCCAP

This document provides a draft action plan against relevant focus areas for our operations. The actions within the CCCAP will allow us to manage and reduce GHG emissions and climate change adaptation risks. It provides targets including timescales, governance arrangements and monitoring requirements. Periodic updates of the CCCAP will drive ambition and ensure our long-term ambitions are realised.

This document therefore details:

- baseline GHG emissions;
- the existing and updated carbon commitments made by BAL;
- actions to achieve GHG reduction required to meet carbon commitment targets and to adapt to climate change projections; and
- timeframes, governance, monitoring and reporting arrangements.

1.3 Measuring sustainability at airports

Reducing carbon and increasing airport sustainability at individual airports is recognised by the Airport Carbon Accreditation Scheme (ACA). This is an institutionally endorsed, global carbon management certification programme for airports which independently assesses and recognises the efforts of airports to manage and reduce their carbon emissions. The common framework for active carbon management is based around six levels and allows flexibility to account for national and local legal requirements.

The ACA scheme was launched in 2009 and Bristol Airport achieved the first level (Level 1: Mapping) in 2015, moving to the second level in 2019 (Level 2: Reduction). BAL will continue to use the independently verified ACA scheme to monitor progress on our journey to net zero and achieving further levels in the ACA accreditation will be a core metric for measuring BAL's success in this CCCAP.

2. Policy Context

As a global challenge, climate change requires a global response. In December 2015, 196 countries, including the UK, adopted the Paris Agreement, an international treaty on climate change⁵. The treaty sets a long-term goal of limiting global average temperature increases to well below 2 degrees Celsius (°C), and to pursue efforts to limit global average temperature increases to 1.5°C, compared to pre-industrial levels, through reductions in GHG emissions. The Paris Agreement was ratified in November 2016, with countries having to submit five-yearly nationally determined contributions (NDCs) toward meeting the long-term temperature goal. The UK's current NDC commits to a 68% reduction in the UK new carbon budget by 2030 compared to 1990 levels⁶.

The Climate Change Act 2008 (as amended) sets a UK national target of 'net zero' emissions by 2050⁷. In line with advice from the independent advisors to the UK Government, the Committee on Climate Change (CCC), the government sets five-year carbon budgets with a view to achieving the UK national target. Carbon budgets have traditionally been set having regard to a 'headroom' allowance, known as the 'planning assumption', for international aviation. In other words, the size of each successive carbon budget has been set at a lower level than would otherwise be required to allow for the planning assumption. The 'planning assumption' allowed for in all carbon budgets to date is 37.5 MtCO₂ which reflects the advice of the CCC in *'Meeting the UK aviation target – options for reducing emissions to 2050'*⁸.

On the advice of the CCC, the UK now plans to reduce emissions by 78% by 2035 compared to 1990 levels in what is considered the world's most ambitious climate change target. This has been included in the draft statutory instrument that will set the Sixth Carbon Budget⁹. It is proposed that the carbon budget will include the UK's share of international aviation and shipping emissions, rather than allowing for them by the use of a 'planning assumption'.

BAL welcomes this change of approach and, together with the introduction of the UK Emissions Trading Scheme at the start of 2021, regards it as an invitation to encourage greater sector innovation in sustainable aviation practice. BAL will significantly contribute to this goal with approval of the expansion of the airport to allow 12 mppa and the increased level of ambition in the proposed Sixth Carbon Budget has been reflected in the CCCAP.

Alongside all sectors, aviation has an important role to play in reducing GHG emissions. Through the Sustainable Aviation Group of which BAL is a founding member, UK aviation has committed to achieving net zero emissions by 2050 using an international approach. Through the adoption of more fuel-efficient aircraft and operations, along with use of sustainable biofuels, the CCC has suggested that growth in the aviation sector can be compatible with the UK achieving its long-term climate change goals.

Whilst BAL can control its own emissions and influence those of others, including airlines, the UK Government has overall responsibility for controlling emissions from aircraft and this is currently achieved through two

⁵ UNFCCC (2015). The Paris Agreement. [online]. Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

⁶ The UK Government (2020) The UK's Nationally Determined Contribution under the Paris Agreement. [online] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/943618/uk-2030-ndc.pdf

⁷ The UK Government (2019). Climate Change Act 2008 (as amended). [online] <https://www.legislation.gov.uk/ukpga/2008/27/contents>

⁸ CCC (2009). Meeting the UK aviation target – options for reducing emissions to 2050. [online]. Available at: <https://www.theccc.org.uk/wp-content/uploads/2009/12/CCC-Meeting-the-UK-Aviation-target-2009.pdf>

⁹ The UK Government (2021). The Carbon Budget Order 2021. [online]. Available at: [The Carbon Budget Order 2021 \(legislation.gov.uk\)](https://www.legislation.gov.uk) [Accessed 26 April 2021].

mechanisms. The UK Emissions Trading Scheme (UK ETS)¹⁰ is the statutory mechanism to cap and manage emissions across the UK economy as a whole, including the aviation sector. From 1 January 2021 emissions from flights originating in the UK to destinations either in the UK or the European Economic Area ('EEA'), are included in the UK ETS and the number of allowances, (i.e., tonnes of carbon dioxide equivalent (CO₂e)¹¹ that can be traded), for these flights are included within the legally binding limit¹². This is particularly relevant to Bristol Airport as the vast majority of its flights are to destinations within the UK or the EEA.

Also from 01 January 2021, emissions from flights originating in the UK to destinations outside the UK, are also to be managed using the UN International Civil Aviation Organisation (ICAO), Carbon Offsetting Reduction Scheme for International Aviation (CORSIA). This is a global market-based emissions offsetting scheme was established in 2016 by ICAO and agreed by all 191 member countries, including the UK¹³. This scheme is currently in its pilot phase and the UK is a participating member.

In order to align these two mechanisms, the UK Government is consulting on the policy interface between UK ETS and CORSIA. The first round of consultation is now complete and was focussed on equivalency, to ensure UK ETS and EU ETS allowances and CORSIA offsets are all equal in terms of tCO₂e. The second round of consultation, due to commence in summer 2021, will focus on avoiding the potential for double counting. The UK Government's preferred approach is that airlines can use CORSIA offsets for UK origin flights to destinations outside the UK (i.e., either to the EEA or beyond) but with the equivalent number of allowances then removed from the UK ETS Register. This approach would provide airlines with the flexibility to use

either UK ETS allowances or CORSIA offsets while also enabling the UK Government to limit carbon emissions and adhere to national commitments towards carbon net zero in 2050¹⁴.

Destinations from Bristol Airport

Airlines operating from Bristol Airport in 2019 flew to 13 UK and Ireland destinations, 98 European destinations and seven destinations in the rest of the world.

¹⁰ The UK Government (2020). The Greenhouse Gas Emissions Trading Scheme Order 2020. [online]. Available at: <https://www.legislation.gov.uk/ukdsi/2020/9780348209761/contents>

¹¹ Carbon dioxide equivalent (CO₂e) is a term for describing different greenhouse gases (GHG) in a common unit. For any quantity and type of GHG, CO₂e represents the amount of CO₂ which would have the equivalent global warming impact.

¹² The UK Government (2021). UK Emissions Trading Scheme for aviation: how to comply [online]. Available at <https://www.gov.uk/guidance/uk-emissions-trading-scheme-for-aviation-how-to-comply>

¹³ ICAO (2021). Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). [online]. Available at: <https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx>

¹⁴ Department for Transport (2021). Consultation outcome: Implementing the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). [online]. Available at: <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>

3. Overview of the Carbon and Climate Change Action Plan

3.1 BAL's carbon vision

As a national aviation leader in carbon management, BAL is committed to achieve direct emission reductions and influence and guide emissions outside its direct control to achieve emission reductions. BAL's carbon vision is 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 the end of 2021.

By 2030 and with 12 mppa, 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 removed.

By 2050 Bristol Airport as a whole will be carbon net zero. This includes Scope 1, 2 and 3 emissions, and 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.

Partners at Bristol Airport

In 2019 around 50 companies operate from or provide services to Bristol Airport. This includes ourselves (BAL), commercial airlines and government agencies.

In our 2019 roadmap² we committed to BAL's activities being carbon neutral by 2025. Our commitment in the CCCAP brings this forward to the end of 2021 and is, therefore, four years ahead of schedule.

The carbon vision within the CCCAP is in line with internationally recognised standards for the aviation sector as defined by the Airport Carbon Accreditation (ACA) scheme¹⁵. The CCCAP provides a long-term carbon management strategy oriented towards absolute emission reductions, achieve driving emission reductions from all sources and offsetting residual carbon emissions over which the airport has control. **The carbon vision is therefore targeting the highest level of ACA accreditation of Level 4+: Transition by 2030.**

Where direct emission reductions are not currently possible for Scope 1 emission sources, for example in heavy-duty emergency vehicles for firefighting, BAL will identify offsetting opportunities that are verified at a recognised high standard, to deliver emission reductions. BAL also recognises its role in driving third parties and Scope 3 GHG emission sources towards delivering emission reductions will require long term action. BAL's actions to facilitate and influence Scope 3 emission sources and review technology developments for Scope 1 residual emissions will continue out to 2050, in line with the UK Government net zero target.

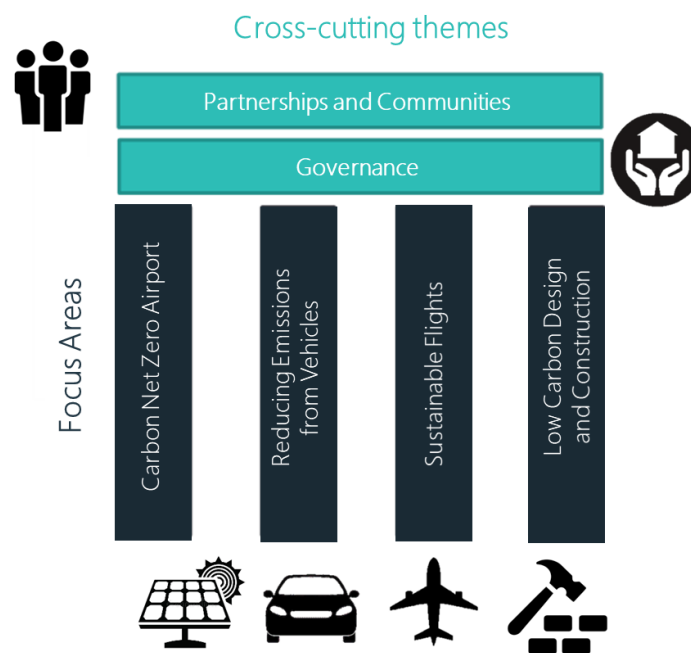
BAL's first step to achieving carbon neutral Scope 1 and 2 emissions, and guiding Scope 3 emissions utilises offsetting schemes. Offsetting is not intended to replace efforts to reduce GHG emissions, but rather to complement continued advancement in mitigating and adapting to the impacts of climate change. BAL's action plan for reducing GHG emissions enables a reduced dependency on offsetting over time.

¹⁵ Airport Carbon Accreditation (2021). [online]. Available at: <https://www.airportcarbonaccreditation.org/>

3.2 Focus areas

GHG emissions from Bristol Airport are characterised within four focus areas, with two cross-cutting themes that are relevant to all GHG emissions sources, as shown in Figure 3.1.

Figure 3.1 Representation of the cross-cutting themes and focus areas in the draft CCCAP



The four key focus areas are:

- **Carbon neutral airport** and **carbon net zero airport**: relates to the Scope 1 and 2 GHG emissions on-site only, which BAL has direct control over.
- **Reducing emissions from vehicles**: relates to the second largest source of Scope 3 GHG emissions at Bristol Airport (i.e., surface access emissions). BAL can only guide and influence these emissions. This focus area therefore aims to deliver emission reductions through our role as a guide and influencer.
- **Sustainable flights**: relates to the largest source of Scope 3 GHG emissions at Bristol Airport (i.e., aviation emissions). BAL can only guide and influence these emissions. This focus area therefore aims to deliver emission reductions through our role as a guide and influencer.
- **Low carbon design and construction**: This focus area includes Scope 1, 2 and 3 emissions sources that are specifically associated with the infrastructure we build at Bristol Airport. This focus area is unique in that it is considered separately as a one-off emission source at the time of construction.

The full version of the CCCAP, to be developed following planning approval, will include a trajectory to carbon net zero 2030 to indicate how and when our Scope 1 and 2 emissions will be reduced.

We will guide and influence emissions associated with Bristol Airport that do not fall under Scope 1 and 2 through our efforts with subcontractors, close partners and suppliers, including the airlines. These will be in

line the UK's net zero 2050 target. The measures provided for these Scope 3 emissions are qualitatively described in this CCCAP, as they are influencing measures that are dependent on a range of third parties.

3.3 Timescales for action

The measures proposed for reducing carbon emissions at Bristol Airport have been allotted according to short-, medium- and long-term timescales, covering the period up to 2050. These categories are defined by BAL's milestones previously reported and updated in this CCCAP.

Short Term (approximately 2021-2024): These have been approved by BAL's management board in 2021 and are included within the current business plan. These measures therefore form **business-as-usual** operations and are expected to be achieved by 2024, when it is expected that 10 mppa capacity will be reached. Measures are proposed that will deliver a reduction in carbon emissions within BAL's direct control (Scope 1 & 2) and those it can guide and influence (Scope 3).

Medium Term (from planning approval – 2030): These measures have been approved by BAL's management board in 2021 and remain conditional on additional investment that is only made possible by growth of the airport to 12 mppa. These measures show BAL's intent in the medium-term and BAL is committed to engaging in further discussion with key stakeholders to ensure these measures will be delivered and finalised in the full version of the CCCAP. These measures are expected to be achieved by 2030, when it is estimated that 12 mppa capacity would be reached in an expanded scenario. Measures are proposed that will deliver a reduction in carbon emissions within BAL's direct control (Scope 1 & 2) and those it can guide and influence (Scope 3).

Long Term (beyond 2031-2050): These measures recognise uncertainty in the longer term but provide an indication of BAL intent to deliver further measures to support the UK's target for net zero economy by 2050. These measures are subject to refinement as uncertainties decrease and may be finalised only in a future iteration of the CCCAP, delivered as part of its regular review cycle. These measures will need to be approved by BAL's management board in due course when finally identified through the regular review cycle. These measures are expected to be delivered after 2030, although this is highly dependent on external factors such as technology advancements. Measures are proposed that will focus on reducing emissions through guidance and influence of Scope 3 emission sources and mechanisms for addressing any residual Scope 1 and 2 emissions where necessary.

The focus areas and timescales for action are summarised in Table 3.1.

Table 3.1 Focus areas covered in the draft CCCAP and their timescales for action

Emission Source	Short-term	Medium-term	Long-term
Scope 1	✓ greater reliance on offsetting	✓ focus on emission reductions	✓ where necessary, focus on residual emissions
Scope 2	✓ focus on renewable electricity through the grid	✓ focus on renewable energy production and direct reductions	✓ Maintain medium-term achievement level
Scope 3	✓ focus on guide and influence role	✓ focus on delivering emission reductions through guide and influence role	✓ focus on technology developments and policy changes

4. GHG emissions at Bristol Airport

4.1 Introduction

We are committed to continuing to reduce our own GHG emissions across the Airport site and guiding and influencing the reduction of GHG emissions associated with the Airport that we do not control. In our carbon roadmap², we recognise that we need to show ambition and action to play our part in achieving the UK government's target of 'net zero' by 2050. We are committed to becoming a net zero airport before 2050 and have set out carbon vision to achieve this.

We calculate and report Bristol Airport's Scope 1 and 2 GHG emissions on an annual basis. The footprint is measured in accordance with the Airport Council International's (ACI's) Airport Carbon Accreditation (ACA) Scheme¹⁵. These emissions are reported within our Annual Operations Monitoring Report, the most recent of which was published in 2020¹⁶. This information was used to inform the GHG assessment presented in the Environmental Statement (ES) Addendum³ and will be used to inform the baseline for the draft CCCAP.

We understand that our direct and indirect GHG emissions (Scope 1 and Scope 2 respectively) are only part of the GHG emissions story at Bristol Airport. GHG emissions are also generated at various points in the passenger journey, including the journey to and from the airport, the activities that prepare the aircraft for flight and the flights themselves, as well as the offsite management of the airport's waste. We can guide and influence the reduction of these Scope 3 emissions, and are committed to doing so.

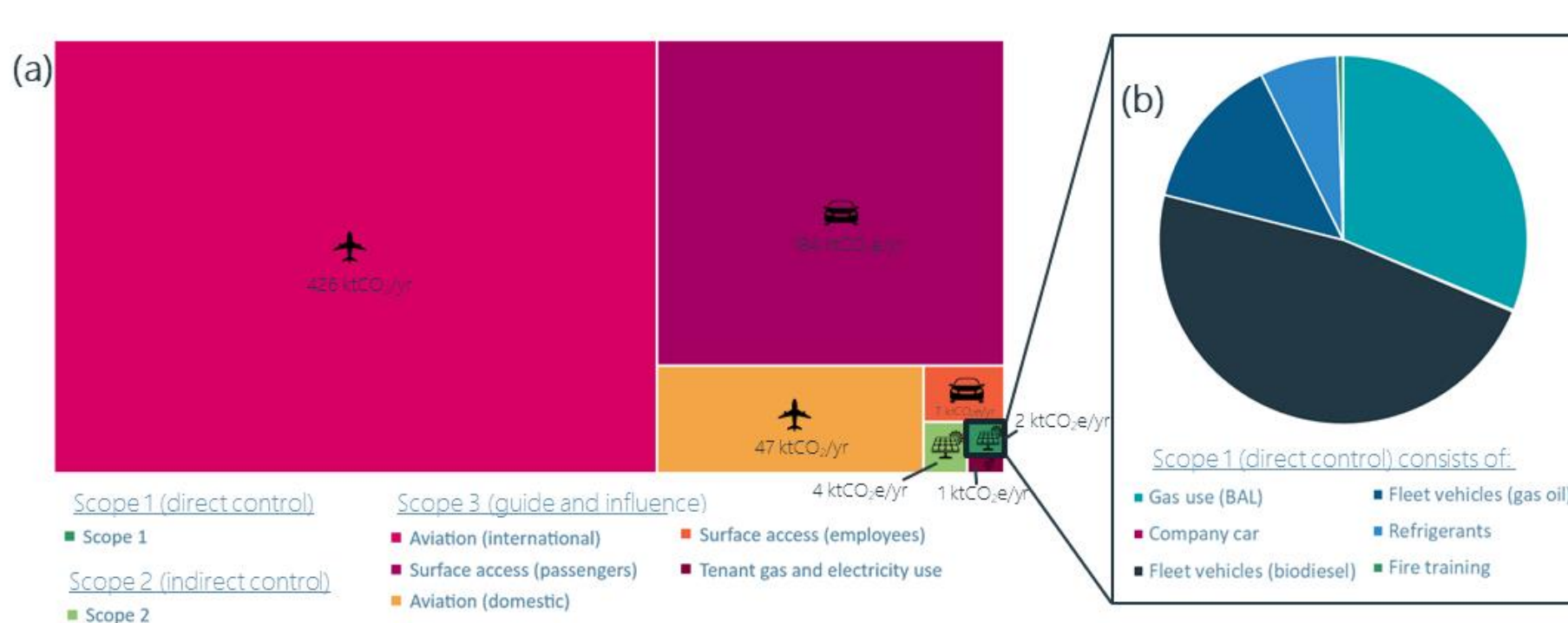
In order to inform the actions we take to reduce GHG emissions, we have quantified baseline GHG emissions for Scope 3 using the information available for the ES Addendum, including GHG emissions associated with tenant electricity and gas use, passenger surface access and aviation activities. We will update and report these GHG emissions with every iteration of the CCCAP.

4.2 Baseline GHG emissions

An illustration of the current estimated GHG emissions associated with the operation of Bristol Airport is shown in Figure 4.1. The most up-to-date information has been used for each GHG emissions source. For Scope 1 and 2 GHG emissions, as well as on-site Scope 3 GHG emissions, this is 2019. For surface access and aviation GHG emissions, this is 2017, to be in-line with the 12mppa ES Addendum³.

The majority of the GHG emissions relate to our airline partners using the airport and passengers accessing the airport over land. Of the GHG emissions for which we have control, the electricity we purchase has the largest footprint, followed by our fleet vehicles.

¹⁶ BAL. (2020). Bristol Airport 2019 Annual Monitoring Report. [online]. Available at: <https://www.bristolairport.co.uk/~media/files/brs/about-us/environment/annual-monitoring-report-2019.ashx?la=en>

Figure 4.1 Estimated baseline Scope 1, 2 and 3 GHG emissions (ktCO₂e/yr) at Bristol Airport

Note: Aviation GHG emissions are reported as CO₂ by convention, all other GHG emissions are measured as CO₂e. Baseline aviation and surface access GHG emissions are taken from 2017 as per the 12mppa planning application. Airport building and ground operation GHG emissions (Scope 1, 2 and tenant gas and electricity use) are taken from 2019 actual data. Note company car GHG emissions are 0.003 ktCO₂e/yr and therefore not visible on the scale of the pie chart.

Construction GHG emissions are treated separately as they are not part of ongoing operational activities. The GHG emissions associated with the 12mppa infrastructure are set out in the ES Addendum³. Any other construction work will be required to meet the targets in this draft CCCAP and future iterations and will be monitored and managed on a project-by-project basis. The baseline provided is associated with the calculation of GHG emissions for the 12mppa construction activities, as detailed in the ES and ES Addendum.

4.3 Our Ongoing Work to Reduce Emissions

At Bristol Airport we have been actively reducing our Scope 1 and 2 GHG emissions. Since 2006, there has been a reduction of approximately 50% in CO₂ emissions per passenger over the period 2006 to 2019 (Figure 4.2), which has been achieved through absolute emission reductions (Figure 4.3). In 2014 we started our carbon management plan and in 2019 we launched our carbon roadmap. This process of reducing our direct emissions will be accelerated by the actions set out within this CCCAP.

Figure 4.2 Scope 1 and 2 CO₂e emissions per passenger over the period 2006 to 2019.

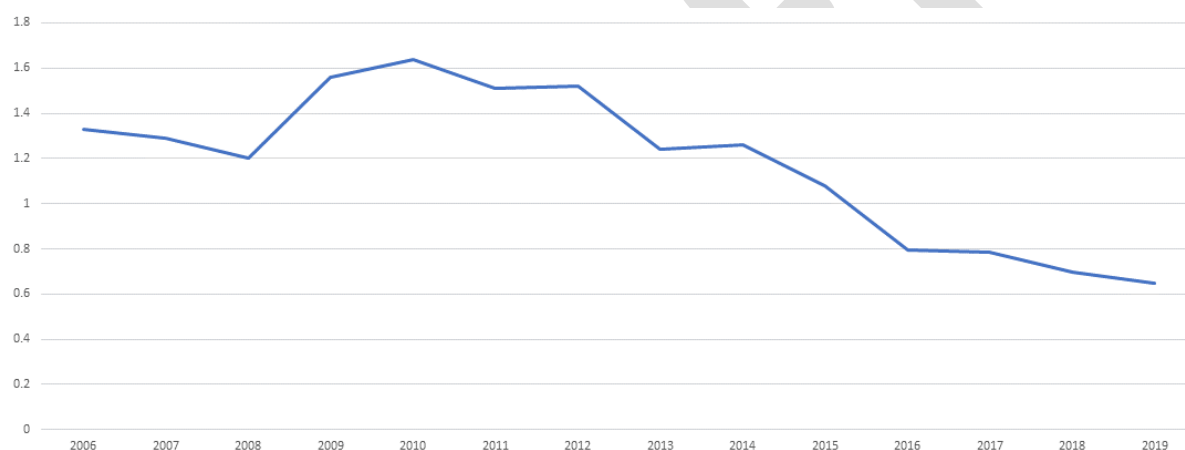
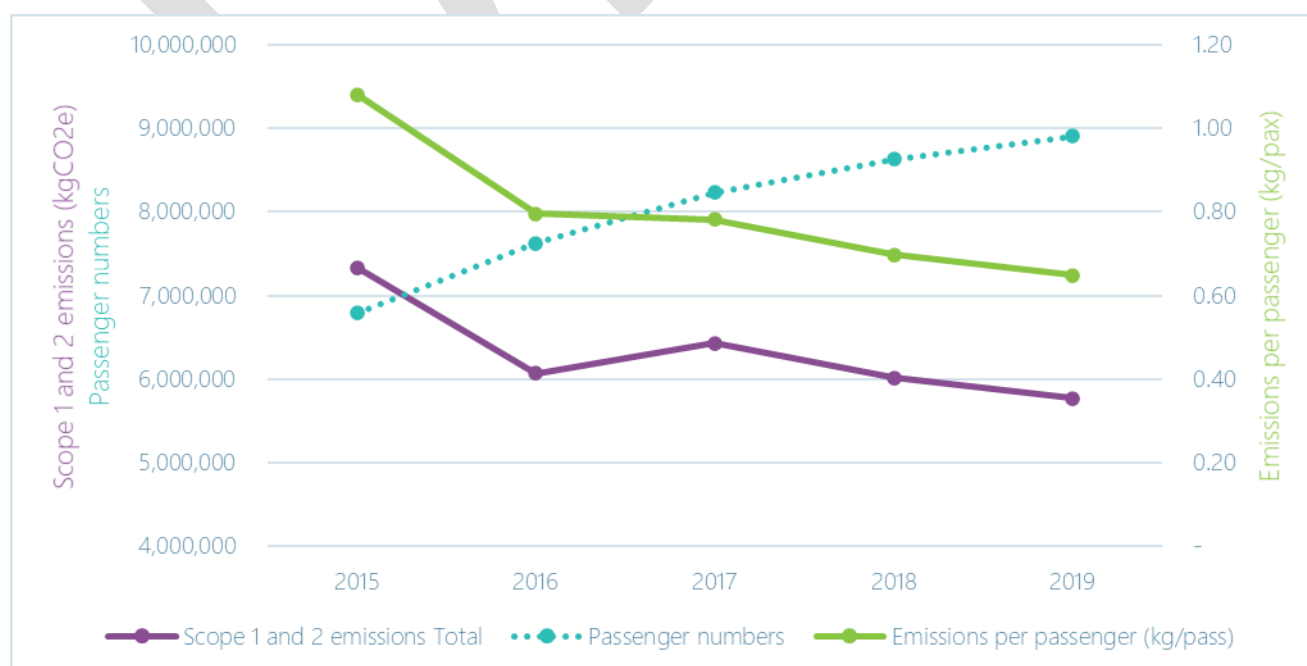


Figure 4.3 Scope 1 and 2 CO₂e emissions, passenger numbers and CO₂e emissions per passenger over the period 2015 to 2019.



Recent actions and the approximate emission reductions (where applicable) that we have taken to reduce our Scope 1 and 2 GHG emissions include:

- Installation of a more energy efficient baggage handling system in 2018 (saving approximately 85 tCO₂e each year);
- Installation of solar photovoltaic (PV) panels in 2018 at Lulsgate House (saving approximately 21 tCO₂e each year);
- Implementation of a light emitting diode (LED) lighting programme (saving approximately 100 tCO₂e each year);
- Building Management System optimisation across the site (saving approximately 125 tCO₂e each year);
- Installation of energy efficient equipment through IT installations and new infrastructure being opened at Aviation House (saving approximately 125 tCO₂e each year);
- Installation of 14 passenger and employee EV charging bays on site;
- Three new hybrid airfield operations vehicles;
- Provision of a new car wash facility on site which reuses water and harvests rainwater for use;
- Air conditioning CO₂ sensors through the western walkway of the terminal; and
- In 2019, Bristol Airport switched to a 100% renewable electricity supply through a global renewable energy supplier, Total Gas and Power. We have committed to purchasing a renewable electricity supply for residual electricity needs not met by on-site or near-site production. Therefore, indirect controlled (Scope 2) GHG emissions are reduced to zero, saving approximate 3,600 tCO₂e each year.

Recent actions that we have taken to help reduce GHG emissions from our passengers accessing the airport include offsetting all surface access GHG emissions from passenger journeys to and from the airport by road from 2020 onwards¹⁷. Thus far, the offsetting projects selected have been international in nature, however included in this CCCAP is exploration of local offsetting projects and investment in our supply chain (known as carbon insetting). Our offsetting projects are Verified Carbon Standard (VCS) or Gold Standard and have been through the Airport Consultative Committee Structure to approve as a third party. While the emissions from passengers travelling to and from the airport in 2020 were limited due to the travel bans in place as an impact of the COVID-19 global pandemic, 26,000 tCO₂e were offset (Table 4.1).

Table 4.1 Details of offsets secured in 2020 to offset all passenger journey GHG emissions to and from the airport by road.

Project Name	Standard	Country	Delivery	Vintage	Volume (tonnes CO ₂ e)
Bundled Wind Power	VCS	India	October 31, 2020	2015-2019	20,000
Grouped Solar¹⁸	VCS	India	October 31, 2020	2017-2019	2,000

¹⁷ This voluntary commitment will be kept under review in line with national progress in line with the Government phase out of petrol and diesel vehicles from 2030.




¹⁸ <https://registry.terra.org/app/projectDetail/VCS/1497>

Project Name	Standard	Country	Delivery	Vintage	Volume (tonnes CO ₂ e)
Organic Waste Management¹⁹	Gold Standard	India	October 31, 2020	2016	4,000
Contract Quantity					26,000




We have also shown leadership in the way we go about construction. Between 2015-2016, BAL undertook its biggest construction project since the current terminal building opened in 2000. A £24 million extension to the west terminal was constructed. The major extension saw state-of-the-art technology installed within the terminal building and improvements made to existing security and immigration facilities. During the terminal expansion, 15,000 tonnes of excavated material from Bristol Airport was exported and re-used as part of the South Bristol Link (SBL), reducing waste and material use, and minimising transportation of materials. The SBL improves road connections and public transport links in the local area and access to Bristol Airport from the north, east and west.

As a result of successfully reducing our GHG emissions year-on-year, Bristol Airport has been accredited in the ACA scheme since 2015 (Table 4.2). In June 2018, we gained ACA Level 2 Certification (Reduction). We retained ACA Level 2 in 2019. We plan to be carbon neutral in 2021 (Level 3A) and move towards Level 4 Transformation and Level 4+ Transition by 2030 as we work with our business partners and suppliers to ensure Bristol Airport as a whole is contributing to the UK carbon net zero economy.

Table 4.2 Airport Carbon Accreditation scheme and Bristol Airport's journey

ACA Level	ACA Description	Number of airports worldwide certified	Bristol Airport's progress
1: Mapping	Footprint measurement	117 (5 in UK)	 airport carbon accredited MAPPING Achieved in 2015, retained in 2016 and 2017
2: Reduction	Carbon management towards a reduced carbon footprint	95 (6 in UK)	 airport carbon accredited REDUCTION Achieved in 2018, retained in 2019
3: Optimisation	Third party engagement in carbon footprint reduction, widen scope of GHG emissions to be measured to include Scope 3.	66 (1 in UK)	 airport carbon accredited OPTIMISATION Commitment to achieve Optimisation in 2021

¹⁹ <https://registry.goldstandard.org/projects/details/311>

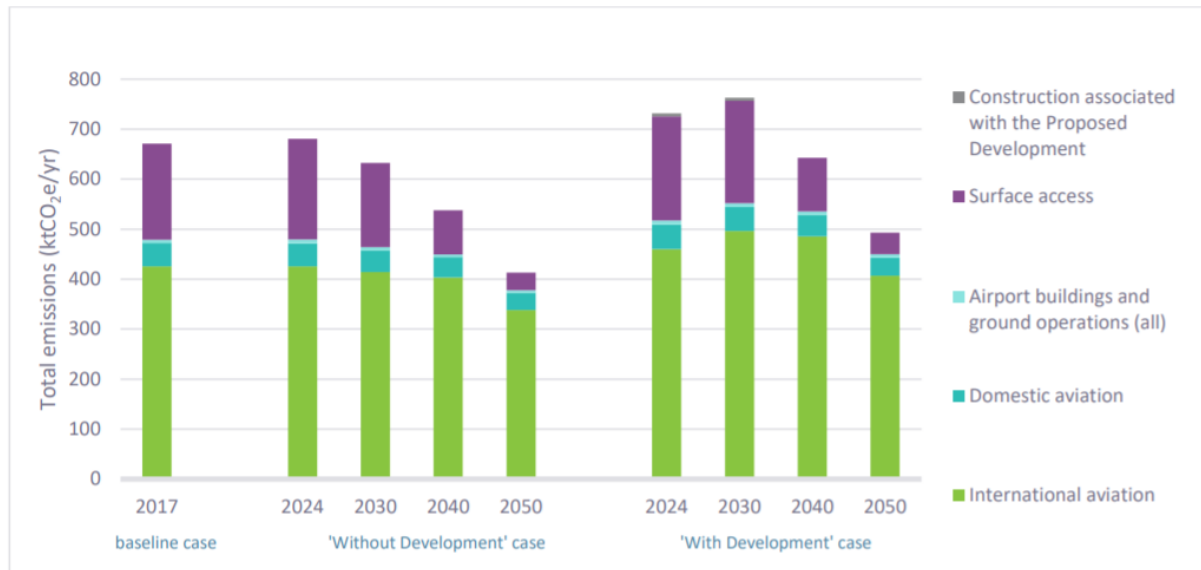
ACA Level	ACA Description	Number of airports worldwide certified	Bristol Airport's progress
3a: Neutrality	Carbon neutrality for direct GHG emissions by offsetting residual Scope 1 and 2 GHG emissions.	60 (6 in UK)	 Commitment to achieve Neutrality by 2025 now updated to 2021
4: Transformation	Transforming airport operations and those of its business partners to achieve absolute emissions reductions while strengthening stakeholder engagement.	1 (non-UK)	 Target to achieve Transformation by 2030
4+: Transition	Compensation for residual GHG emissions with reliable offsets	4 (non-UK)	 Target to achieve Transition by 2030

4.4 The future of the airport

GHG emissions for the baseline case (2017 actual data) and project futures 'without development' (where the airport capacity is 10mppa) and 'with development' (where the airport capacity is 12mppa) are shown in Figure 4.4.

The Scope 1 GHG emissions associated with the 12mppa airport without mitigation are provided in the ES Addendum. Projections of Scope 2 and 3 GHG emissions are based on a series of scenarios for how the technologies and policies required to decarbonise the UK will develop over time. Included in the future scenarios are trajectories for UK grid electricity, transport sector including private car use, public transport and car type, and the aviation fuel, aircraft types and efficiency gains required in the aviation sector.

Figure 4.4 Baseline and projected GHG emissions at Bristol Airport



Total GHG emissions for the 2017 baseline, the 'without development' and the 'with development' case which represents 12mppa Proposed Development under the central emissions scenario when offsetting and other commitments in the CCAP are not considered. Source: ES Addendum³

We are committed to including appropriate mitigation to limit the potential impact of GHG emissions associated with future growth of the airport to accommodate 12mppa. The CCCAP builds upon the statements made in the Bristol Airport carbon roadmap², extending our ambition with regards to carbon management and bringing forward our carbon targets. It includes existing measures embedded into the GHG assessment and sets out additional measures by which the airport will achieve its carbon vision whilst expanding its capacity to 12mppa.

Growth to 12mppa affords us with an even greater opportunity to reduce emissions. This includes delivering a zero-emission fleet across the airport where practicable, an extended Aviation Carbon Transition (ACT) Programme for Bristol Airport and for the south-west of England, and third party installation of a mobility hub on-site providing electrical vehicle charging infrastructure. Ultimately growth of Bristol Airport will enable BAL to invest in the future of sustainable aviation through partnerships with key third party stakeholders and through investment in tomorrow's technology.

5. Carbon Neutral Airport (BAL Scope 1 and 2)

Before the end of 2021 and beyond all our operations and activities will be carbon neutral. This means all of BAL's residual Scope 1 and 2 emissions will be offset.

We previously committed to reducing our direct emissions in our carbon management plan and to being carbon neutral for GHG emissions in our direct control by 2025 and net zero by 2050 in our 2019 carbon roadmap. We have therefore been taking actions to reduce our direct GHG emissions (Scope 1) since 2014. To date there has been a reduction of approximately 50% in CO₂e emissions per passenger over the period 2006 to 2019 (Figure 4.2).

To acknowledge BAL's increased ambition, we pledge to be carbon neutral before the end of 2021 and beyond for Scope 1 and 2 GHG emissions. This will be achieved through direct emission reductions that have been achieved to date and the offsetting of residual direct GHG emissions. Before the end of Autumn 2021 and beyond, we will offset any residual direct GHG emissions ensuring we are a carbon neutral airport almost 30-years ahead of the UK Government's net zero target and nine years ahead of North Somerset Council's aim for a carbon neutral area by 2030.

In 2019, Scope 1 and 2 GHG emissions were measured as 2.11 and 3.66 ktCO₂e respectively, as reported in our Annual Operations Monitoring Report (Figure 4.4).

5.1 Key measures

Offsetting residual emissions: Before the end of 2021 and beyond, BAL will offset all residual Scope 1 and 2 emissions through carbon reduction credits from regional, national or international projects which meet environmental integrity criteria as defined by the ACI Airport Carbon Accreditation Scheme. As part of efforts for continual improvement and development, we will increase the delivery of localised schemes alongside than international projects in our offsetting projects.

Renewable electricity: We are committed to securing a 100% renewable energy supply as our electricity supply from the grid.

5.2 Short-term / business as usual measures

The short-term actions required for BAL to be carbon neutral are detailed in Table 5.1.

Table 5.1 Short term actions to deliver a carbon neutral zero airport (Scope 1 and 2)

Measure	Target implementation date	GHG reduction potential	Description	Key Performance Indicator (KPI)
Securing renewable electricity supply	Ongoing since 2019.	Grid electricity emissions purchased by BAL (for its own use and tenant use) in the 2017 baseline case is 4.63 ktCO ₂ e/yr.	Our current agreement is for a 100% renewable energy supply.	100% of electricity supply from renewable energy sources.
Delivery of direct renewable energy	From 2021, milestone in 2025.	2017 baseline data suggests ~6.4	From 2021 we will install solar panels at various points across BAL to meet our	Installation of solar PV and energy reduction measures

Measure	Target implementation date	GHG reduction potential	Description	Key Performance Indicator (KPI)
supply to meet 25% of demand by 2025.		ktCO ₂ e/yr. for Scope 1 and 2 emissions. 25% of this would be ~1.6ktCO ₂ e/yr.	target of 25% direct renewable energy supply by 2025.	of 3,000,000 kWh per annum in 2025.
Offsetting of residual direct GHG emissions from 2021 to 2030 to achieve carbon neutrality.	From 2021 to 2030.	2017 baseline Scope 1 and 2 emissions were ~6.4 ktCO ₂ e/yr.	Offsets will be through carbon reduction credits from regional, national or international projects which meet environmental integrity criteria as defined by the ACI Airport Carbon Accreditation Scheme. As part of efforts for continual improvement and development, we will increase the delivery of localised schemes rather than international projects in our offsetting projects.	Achievement of ACA Level 3+ accreditation by the end of 2021.

5.3 Medium- and long-term measures

Our carbon neutral airport target is focused on short-term delivery before the end of 2021 as the next step in our journey to carbon net zero. No further measures are required to enable us to achieve this ambition beyond those outlined in Section 5.2.

Our carbon neutral 2021 target represents a substantial advancement in our action to achieve net zero, but we recognise this isn't the final step in our journey. The four focus areas for the CCCAP will build on these measures in our journey to net zero ensuring a programme of continuous improvements, absolute emission reductions, and increased ambition. Short-, medium- and long-term measures under each of these focus areas are set out in the following sections of the CCCAP.

BAL is actively involved in developing local carbon offsetting and removal schemes to deliver co-benefits to the local community. Over time we will increase our contribution to local offsetting and removal with an aspirational target of 10% of all offsets and removals having carry benefits for the south-west region by 2030, subject to availability. This target will include the offsetting and removal of emissions from surface access journeys by passengers by road¹⁷, as committed since 2020, and residual Scope 1 and 2 emissions.

6. Carbon Net Zero Airport (BAL Scope 1 and 2)

By 2030 and with 12 mppa all our operations and activities will be carbon net zero with 12mppa. This means all of BAL's Scope 1 and 2 emissions will be minimised as far as practicable with any residual emissions being removed.

6.1 Our trajectory beyond carbon neutrality

We have set a target to be net zero by 2030 for our Scope 1 and 2 emissions arising from the Airport with a capacity of 12mppa. This will be achieved by delivering direct GHG emission reductions wherever practicable. We will review the need for additional renewable electricity contracts as we generate more renewable energy enabling the move towards net zero carbon operations. Between 2021 and 2030, the need to use offsetting will gradually reduce to only residual elements of our direct emissions which cannot be removed due to technology gaps such as specialist safety critical equipment including fire appliances. Over the same period we will be switching from using offsets to using carbon removal.

6.2 Key measures

Renewable electricity: Over time we will achieve energy demand reductions and generation of renewable electricity, where feasible. This will enable us to reduce our reliance on supply of electricity via the grid network, which will be sourced from renewable electricity contracts as described in Section 5. In order to achieve the required absolute GHG emissions reduction to achieve a net zero Airport, we will invest in renewable electricity methods capable of directly supplying Bristol Airport in the future, where possible. Renewable energy supply will meet 25% of the overall energy demand for our operations in 2025.

Energy consumption: We plan to reduce energy consumption through installing time/occupancy controls on lights, installing chiller plants and air source heat pumps across the airport site where required and through engagement with tenant users (including introducing an on-site sustainability league table for energy, water and waste). Additionally, to gain greater clarity of on-site electricity consumption, there will be a drive towards energy metering across BAL with plans to install c.30 meters across the site by 2025.

Zero emission fleet: By 2030, we will provide the onsite infrastructure necessary to transition to a zero-emissions fleet, including airside and landside buses, the Airport Flyer and airside support vehicles where feasible. This will include not only fleet replacement but also associated infrastructure for ourselves and our on-site business partners. We are committed to establishing a trial period in the short-term with a phased transition planned beyond this, capturing lessons learned.

Zero emission buildings: By 2030 we will deliver zero-emissions buildings, beginning with the Consolidated Car Rental Centre (CCRC). The CRCC will be an ultra-energy efficient building supplied only by renewable energy generated on-site.

Offsetting residual emissions: By 2030 we will have reduced our reliance on using carbon reduction credits as far as practicable.

6.3 Short-term / business as usual measures

Measures shown in Table 6.1 will be adopted by 2024 as part of BAL's efforts to reduce and where necessary offset. Confirmation of these measures will be included in the first iteration of the CCCAP, which will be developed following planning decision.

Table 6.1 Short term actions to deliver a carbon net zero airport (Scope 1 and 2)

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Upgrade external lighting.	2024	We will install time/occupancy controls on external lighting by 2024. Our security system will be upgraded to IR CCTV such that lights can be switched off externally and around the apron.	Installation of controls on external lighting by 2024.
Terminal chilled water upgrades.	2024	We will replace our existing CHW pumps and WTE chilled water pumps with new local pumps and a secondary circuit local to the chillers. We will replace existing turbocore chillers with ultra-efficient units. We will investigate Absorption chillers.	Replacement of existing pumps with ultra-efficient units.
On-site zero-emission building.	By 2030.	Deliver a zero-emission building (a highly energy efficient building supplied only by renewable energy generated on-site), for the Consolidated Car Rental Centre (CCRC). In April 2021, energy data loggers have been installed to determine demand, of which 200,000 kWh pa of solar PV will be installed to meet the demand.	A zero-emission building on the CCRC with energy use covered by renewable energy generated on-site.
Increased energy metering in terminal building.	By end of 2024	Installation of c.30 meters throughout BAL to help further clarify GHG emissions generated by key infrastructure, plants and third parties by 2025. Our Annual Operations Monitoring Report will therefore benefit from better detail and better identification of areas for emission reduction.	Install c.30 meters across BAL by 2025.
Feasibility study of tree planting / re-wilding on- and off-site.	By 2022	In the short-term, a feasibility study will be completed for ecological and carbon sequestration including tree planting on airport land. If feasible, the delivery of the planting project would be in the medium term and included in future iterations of the CCCAP.	Delivery of feasibility study
Implement an EV coach trial on site.	By 2022	Implement an on-site trial of a landside/airside bus switching to EV. This will be used as a feasibility study on the phasing of zero emission fleet including details on charging specifications, fleet renewals, and coverage. This will become the blueprint for zero emissions fleet by 2030.	Include 1 EV coach within BAL fleet and conduct a feasibility study on future investments.

6.4 Medium-term measures

Measures shown in Table 6.2 will be delivered between the time of planning approval and 2030. These measures have been approved by BAL's management board in 2021 and remain conditional on additional investment only made possible by growth of the airport to 12 mppa. These measures will be finalised in the full version of the CCCAP which will be developed following planning decision. Measures that are dependent on the results of feasibility studies to be undertaken in the short-term will be kept under review in future iterations of the CCCAP.

Table 6.2 Medium term actions to deliver a carbon net zero airport (Scope 1 and 2)

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Deliver energy reductions across the airport site.	By 2030.	Install a chiller plant and air source heat pumps across the airport site where required.	Installation of chiller plant and air source heat pumps.
Reduce tenant gas and electricity use and establish corporate sustainability objectives.	From 2024	We will endeavour to influence our value chain and on-site third parties to enter carbon reduction partnerships that meet our low carbon commitments from 2024. Partnerships will be publicly reported for transparency.	Reporting of partnerships with value chain and inclusion of tenant emissions within Annual Operations Monitoring Report.
Integrating water metering wherever possible.	By 2028.	Continued installation of point-of-use electrical hot-water heating for tenants thus reducing gas dependency.	Installation of [number/percentage] of point-of-use electrical hot water heating for tenants across the airport.
Transition to zero emission fleet.	By 2030.	We will transition to zero emission (hydrogen/full electric plug-in/alternative fuels) ground fleet vehicles by 2030. This commitment includes airside and landside buses, airside support vehicles and the Airport Flyer. By 2027 a trial period will be completed with a phased transition planned beyond this. On-site infrastructure will be provided as required.	TBC following results of short-term feasibility study involving the EV coach trial.
Introduce sustainability league table for tenants in energy, water and waste efficiency.	2025	We will establish an on-site sustainability league table of tenant resource use, recognising and rewarding best behaviours by 2025 as part of our efforts to guide and influence reductions in direct tenant gas and electricity use.	Reporting of league table on website.
Upgrade apron floodlights for efficiency improvements.	2026	We will install remote controls to the apron floodlights from the Airport Control Centre such that the lights are only switched on when needed. Lighting levels will be reduced for staff movements etc.	Installation of controls on apron floodlights by 2026.
Further on-site zero-emission buildings.	By 2030.	Consider the feasibility of delivering further zero-emission buildings across the airport site based on learning from the Consolidated Car Rental Centre (CCRC). This will likely include transitioning heating systems to air/ground heat pumps to reduce reliance on gas.	Feasibility study of delivering further net zero emission buildings

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Delivery of tree planting / re-wilding on- and off-site.	By 2030	If deemed feasible, ecological and carbon sequestration including on and off-site tree planting will be delivered.	To be set following results of the feasibility study.

6.5 Long-term measures

The Airport aims to be carbon net zero by 2030 for its operations. No further measures are required to enable us to achieve this ambition beyond those outlined in Section 6.3 and Section 6.4. However, BAL recognises there may be some residual emissions sources where technological developments are not yet in place to allow for net zero emissions by 2030 and these will need to be offset and eventually removed, for example this is current the case with emergency fire-trucks which are diesel powered.

BAL will monitor opportunities to reduce residual emissions sources. The long-term measures for BAL's carbon net zero vision airport are therefore:

- Continued review of technological developments to allow direct emission reductions of residual emissions sources for Scope 1 and 2;
- Sharing best practice learning and discussions with stakeholders to disseminate BAL's journey to net zero with the wider community and provide support to partners in their own journey where possible;
- Remaining up to date with best practice and technological development which may allow for increased ambition with regards to direct emission reductions from Scope 1 and 2 sources.

7. Reducing Emissions from Vehicles

We are committed to influencing and guiding reductions in Scope 3 emissions wherever possible in line with the UK Government's net zero target by 2050. This includes a commitment to facilitate surface access emission reductions through the provision of required infrastructure and to take steps to offset surface access emissions in the meantime.

7.1 Reducing emissions from surface access and the role of offsetting

At Bristol Airport we recognise that the environmental impacts of our operations reach beyond the boundary of the Airport. As can be seen in our baseline GHG emissions (Figure 4.4 **Error! Reference source not found.**), surface access emissions for passengers and staff account for a large proportion of GHG emissions at Bristol Airport (~29%). We are committed to facilitating and influencing the reduction of GHG emissions associated with accessing the Airport, but also recognise the value in offsetting their impact in the meantime.

Surface transport is a sector where GHG emission reductions are achievable and anticipated to occur because of government policy, individual action and market shifts to electric and hydrogen vehicles. At national and/or sector level, government initiatives such as subsidies on low-carbon vehicles and phase-outs of conventionally fuelled vehicles will encourage the shift to lower-emission transport methods. Individual choices regarding use of public transport or active transport methods will also be important for reducing GHG emissions.

We are committed to playing our part in encouraging transitions to low-carbon surface transport methods as rapidly as possible. We will use our influence on our customers and employees to reduce actual surface access GHG emissions where possible. This will be achieved through encouraging and supporting modal shifts to public transport modes, supplying relevant infrastructure, and putting in place operational measures to incentivise the adoption of low-carbon personal vehicles.

The draft CCCAP includes the necessary action that will encourage and enable rapid reductions in surface access GHG emissions from both passengers and employees at Bristol Airport. When combined with policy changes and individual action, this will result in substantial surface access GHG emission reductions and a reduced need for offsetting.

In the short-term, we are mitigating the impact of GHG emissions from passenger road journeys by implementing a sector-leading, pioneering offsetting commitment. Announced in 2019 and implemented for the first time in 2020, we are committed to offsetting all passenger journeys to and from the Airport by road. We know this is not a viable solution in the long-term, so over time direct emission reductions will reduce the need for offsetting. In the meantime, this enables us to make immediate progress in reducing the impact of surface journeys associated with Bristol Airport.

7.2 Key measures

Offsetting of road journeys: In 2020, Bristol Airport became the first airport in Europe to make a voluntary commitment to offset all passenger journeys to and from the airport by road. To do this, we are supported by an external provider who sanctions carbon reduction accredited offsetting projects. This commitment means that the vast majority of passengers (only excluding those travelling by public transport through rail connections) will be able to make carbon neutral journeys to and from the airport directly from their front door.

Installation of electric and hydrogen fuelling infrastructure in an on-site mobility hub: In recognition of future shifts in demand towards alternative fuelled vehicles, we will investigate and install charging points across the Bristol Airport site, including retrofitting of existing car parks. This charging infrastructure would be delivered in an on-site EV mobility hub provided by 2030. A third-party supplier will be engaged to develop and deliver the hub containing approximately 20 EV or other sustainable energy outlets. This will be available for passengers, employees and local communities to use, enabling them to make emission free road journeys. Alternative fuel sources including hydrogen will also be considered as part of the development of the mobility hub.

Airport Transport Forum (ATF): BAL hosts an ATF to influence surface access emission reductions, including GHG emissions as an agenda item. The engagement includes national and regional governments to further plans for mass, low- emission transit to Bristol Airport.

7.3 Short-term/business as usual measures

Measures shown in Table 7.1 will be adopted by 2024 as part of BAL's efforts to offset and where possible to guide and influence reductions in carbon emissions associated with road journeys. These have been approved by BAL's management board in 2021 and are included within the current business plan.

Table 7.1 Short term actions to influence surface access emissions (Scope 3)

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Improve and encourage the use of public transport links through the Public Transport Improvement Fund.	2021	We have committed to encouraging the use of public transport and increasing modal splits of passengers and employees travelling to the airport by public transport. These targets are detailed in the ES Addendum and are dependent on the passenger capacity at the airport. Under business-as-usual there is a commitment of 15% of passengers travelling by public transport by 2030 (note this increase to 17% in a future expansion scenario with a capacity of 12 mppa). Improved ticketing, cheaper fares, bus and coach priority, real-time travel information and additional capacity through the Public Transport Improvement Fund will be provided in 2021.	Increase the percentage of passengers travelling by public transport to 15% by 2030 for a 10 mppa capacity airport, as detailed by targets in the ES Addendum. This will be measured within CAA data.
Implement an EV coach trial on site.	2022	This is part of a feasibility study for delivering net zero BAL fleet, that has also been included in the Carbon Net Zero Airport section. The study includes an on-site trial of a landside/airside bus switching to EV. Local bus companies will be invited to a lesson learned session following this bus trial to discuss ways that the technology can be delivered most effectively in the local area	Include 1 EV coach within BAL fleet.
Offsetting passenger surface access journeys by road.	2020 onwards	We will offset all emissions from passenger journeys to and from the airport by road from 2020 onwards ¹⁷ . Where possible local, stacked benefit schemes will be used, although not verified. BAL will seek to increase delivery of localised schemes rather than international projects over time.	Annual reporting of offsets and emission calculations based on CAA passenger survey data of modal splits on an annual basis.
Continual review of drop off charges with higher fees to discourage "kiss and fly" traffic.	2022 and every year thereafter.	Drop-off fees are reviewed on a regular basis. These will be revised in 2022 to discourage "kiss and fly" traffic of high-carbon vehicles, reducing Scope 3 emissions.	This KPI aims to achieve up to 29% of passengers travelling by car drop off (under a 12 mppa scenario) by 2030 as detailed in the ES Addendum.

			This will be measured within CAA passenger survey data.
To convene an Airport Transport Forum (ATF)	From 2021	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. The engagement will include national and regional governments to further plans for mass transit to Bristol Airport. The ATF will also provide a platform for monitoring and reporting progress. The ATF will continue to meet every 6 months.	ATF meeting minutes to be provided to the Airport Consultative Committee.

7.4 Medium-term measures

Measures shown in Table 7.2 will be delivered between the time of planning approval and 2030 to guide and influence reductions in carbon emissions associated with road journeys.

Table 7.2 Medium term actions to influence surface access emissions (Scope 3)

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Delivery of a Workplace Travel Plan in line with surface access targets set out in the ES Addendum.	From 2023	Low-carbon alternatives such as carsharing, a Cycle to Work scheme and the introduction of an employee travel scheme, including a new travelcard package by 2025, will be incorporated into the plan. Needs-based allocation of staff car parking will also be implemented from 2025 to assist with overall reduction in staff car parking spaces by 10% for conventionally fuelled vehicles. Additionally, a charging system for internal combustion engine vehicles at staff car parking areas may be introduced to disincentivise high-carbon vehicles.	Increase the percentage of staff travelling by public transport such that 14% of employees required for a 12 mppa scenario use public transport in 2030, as detailed in targets within the ES Addendum. This will be recorded in staff travel surveys.
Encourage and support third party vehicle operators (including bus operators) to use low emission/ alternative fuelled vehicles.	By 2025	BAL has committed to delivering a trial EV coach within its own fleet. Using lessons learned and sharing of information with third parties, BAL will encourage third parties including bus operators to use low emission/alternative fuelled vehicles. Based on interactions with key stakeholders BAL will conduct feasibility studies to support the implementation of infrastructure that is needed to achieve successful operations.	Sharing of lessons learned from BAL's internal fleet EV trial with external partners and conducting feasibility studies where needed on infrastructure investment
Develop a mobility hub on-site for EV charging infrastructure.	By 2030	Establish a strategic partnership with a third-party supplier to develop and deliver an EV forecourt with approximately 20 EV or other sustainable energy outlets. This will be designed for passenger and employee use but will also be available for local communities to use if required / desired. Work is ongoing on a feasibility study regarding potential grid capacity increases and identification of appropriate sites across the airport.	Publication of a feasibility study on the delivery of a mobility hub with c. 20 EV chargers.
Installation of electric and hydrogen charging infrastructure for cars.	By 2030.	The mobility hub and other or other sustainable energy outlets fuels charging infrastructure on-site will be kept under review to ensure it is fit for purpose in the future and meets emerging demand in private and public vehicles. Installation of charging points in new car parks will be part of our policy and procurement requirements for capital design projects. Existing car parks will be retrofitted with charging points as the demand (determined through government data), requires. We will investigate larger battery storage options to support charging infrastructure needed for rapid charging of buses, cars etc. We are investigating how alternative fuel	Installation of EV/hydrogen charging points across at BAL site. Feasibility study into delivery of hydrogen supply or other alternative fuel sources by 2025. Update of policy and procurement requirement for capital design projects.

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
		sources including hydrogen would be delivered to site (e.g., road, rail, pipeline), stored on site or potentially provided on-site through a hydrogen plant.	

7.5 Long-term measures

Surface access emissions over the long-term are likely to reduce due to anticipated changes in government policy, individual action and market shifts to alternatively fuelled vehicles. These policy, behaviour and technology shifts will have implications for BAL's role to guide and influence surface access emissions related to the Airport. BAL are therefore committed in the long-term to reviewing the measures within the CCCAP relating to:

- 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

8. Sustainable Flights

Airlines will need to manage and reduce their emissions in accordance with national government legislation and policies. However, we are committed to influencing and guiding emission reductions in Scope 3 emission sources in line with the UK Government's net zero target by 2050. This includes a commitment to support and enable airlines to achieve reductions within their control through operational procedures and infrastructure.

8.1 Working with our partners to achieve Sustainable Flights

International and domestic aviation accounts for the majority (~70%) of GHG emissions at Bristol Airport (Figure 4.4) and we recognise that whilst we do not control them, we can guide and influence them. We already work with airlines to encourage the introduction of the latest, most efficient aircraft, as well as the aviation sector more broadly to encourage policy improvements and technology developments. Our ambitious plan is to show leadership in the aviation sector by installing Bristol Airport as a low carbon innovation hub at the centre of the south west aviation cluster.

Sustainable Flight

Sustainable flight is a long-term ambition to ensure cleaner, quieter and greener practices associated with airline emissions. For carbon emissions this is aligning with the net zero goal by 2050 through the work of Sustainable Aviation group, of which BAL is a member, and working through an international approach.

For over 100 years, the city of Bristol and its surrounding areas has been critical to the success of the aviation sector. Bristol City and the south-west of England has been at the forefront of design, development and manufacture of new aircrafts and aviation systems. Bristol Airport will act as a regional leader and hub for carbon management in aviation, ensuring the heritage and legacy of the aviation sector in this region continue in a sustainable manner in the future.

Aerospace companies sustain a large presence in the south-west regional aerospace cluster, a base for 14 of the top 15 global companies. Bristol Airport will work with our local industry and airline partners to deliver sector-leading change and transition towards sustainable flight. Together, these partnerships will drive the aviation sector to reduce GHG emissions from flights and lobby for change at a national and international level.

Already in 2021, we have completed a feasibility study for transforming ground power supply for aircrafts. Alternative fuel sources, including mobile, electrical or hydrogen Ground Power Units (GPUs) will be introduced by 2030.

We recognise that achieving Sustainable Flight is a long-term journey. We have set out a number of immediate actions we will take to reduce GHG emissions, as well as a number of medium- and longer-term, strategic actions.

8.2 Key measures

Aviation Carbon Transition (ACT) Programme: We 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. This fund will be used to work with our key strategic partners to develop the innovations and technologies required to fast-track the reduction of

GHG emissions from aviation. Consideration to non-CO₂ effects of aviation will be considered as part of programmes that receive funding through the ACT Programme. If approval is granted for increased capacity at Bristol Airport, this fund will continue..

Infrastructure change: We are committed to supporting airlines utilise best-in-class technology and will install and provide infrastructure to enable introduction of SAF at scale when it is commercially viable. In the short- to medium-term we will explore the best method to provide SAF infrastructure.

Strategic action for long-term system change: Bristol Airport 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.

8.3 Short-term/ business as usual measures

Measures shown in Table 8.1 will be adopted by 2024 as part of BAL's efforts to guide and influence reductions in carbon emissions associated with sustainable flight, where possible.

Table 8.1 Short term actions to guide and influence reductions in aviation emissions (Scope 3)

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Establish an Aviation Carbon Transition (ACT) Programme worth £250k in 2021 for enabling SAF and other sustainable flight solutions at Bristol Airport.	2021, with ongoing commitment approval granted.	The starter fund will provide external funding to enable SAF and other solutions at Bristol Airport and in the south-west of England. The fund will be open for solution developers to apply for in 2021. With 12mppa approval, a fund will be provided every year from approval to 2030 with a budget of £250k in the first year.	Delivery of external fund and details of projects funded including their outcomes on BAL's website.
Provide a feasibility study on delivering infrastructure to facilitate SAF uptake at Bristol Airport.	within twelve months of approval	We will conduct a feasibility study into installing and providing infrastructure to enable introduction of SAF at scale when it is commercially viable and there is demand from the airlines. This demand will be assessed through regular conversations with key airline stakeholders, outcomes of the ACT Programme projects and through engagement with the aviation sector through Sustainable Aviation group. It is anticipated that Bristol Airport will either a) utilise the tankering arrangements on site to benefit from the flexibility provided over pipeline and hydrant systems or b) use the fuel farm modernisation process to drive the process of supplying SAF.	Feasibility study on the best method to provide SAF infrastructure based on demand and availability by 2023.
Encourage quieter and greener fleets through a league table.	From 2021.	A league table will be established in 2021 to measure and record GHG emissions and noise levels from aircraft operators arriving at BAL. This will encourage and drive airlines to continually engage in improvement.	Production of league table showing 2021 movements, published on the BAL website in early 2022.
Support long-term policy developments for Sustainable Flight.	From 2021.	We will continue to engage with Sustainable Aviation and other aviation sector groups to drive long-term policy developments for sustainable growth to UK aviation. We will support action in line with the Sustainable Aviation Decarbonisation Roadmap ²⁰ e.g.,	BAL to attend Sustainable Aviation meetings

²⁰ Sustainable Aviation (2020). Decarbonisation Road-Map: A Path to Net Zero. [online]. Available at: https://www.sustainableaviation.co.uk/wp-content/uploads/2020/02/SustainableAviation_CarbonReport_20200203.pdf

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Encourage airlines to use continuous descent approaches (CDAs).	2023 (TBC).	supporting initiatives to develop fuel-efficient aircraft or carbon efficient operations). CDAs will be actively encouraged through the committees that we use 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.	Achieve 85% of scheduled aircraft using CDAs from 2023.
Work across the aviation sector to push for sustainability metrics within aircraft slot allocation guidelines.	from 2021	We are committed to working across the sector to push for sustainability metrics within local and national aircraft slot allocation rules / guidelines encouraging the take-up of new, more fuel-efficient aircraft into the fleet.	BAL attendance at Sustainable Aviation

8.4 Medium-term measures

Measures shown in Table 8.2 will be delivered between the time of planning approval and 2030 to guide and influence reductions in carbon emissions associated with sustainable flight.

Table 8.2 Medium term actions to guide and influence reductions in aviation emissions (Scope 3)

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Support SAF research and development.	From 2023	We will develop a SAF working group to drive regional leadership from 2023. The group will include and work with our key partners in airlines, airport operations, energy, fuel, aerospace manufacturing, fuel supply, regulatory, investment and governance spaces. Ambitions include building a regional SAF sourcing mechanism in the south-west, building on regional clusters for innovation and legacy in the aviation sector. SAF implementation will reduce the whole life carbon cost for aviation fuels and thus has a high mitigation potential, demonstrating our leadership in accelerating SAFs for the industry.	Development of an SAF working group by 2023 which will meet every 6 months. Meeting minutes will be published on BAL's website.
Single-engine taxiing.	From 2024	We actively encourage single-engine taxiing through the committees that we use to engage with airlines such as the Night Time Slot Committee and Flight Operations Sub Committee, as well as operational procedures. We will work to make single-engine taxiing common from 2024.	Achieve up to 30% of aircraft using single engine taxiing from 2024. The relevant data will be monitored and provided as feedback to airlines to encourage improvement.
Autonomous aircraft taxing / parking.	By 2027	We will operate a Trial and Test for autonomous aircraft taxing/parking by 2027.	Operate a Trial and Test for autonomous aircraft taxing/parking by 2027.
Airspace modernisation.	From 2027.	We will conduct airspace modernisation with National Air Traffic Services (NATS) to minimise miles flown from 2027. This will reduce GHG emissions and noise impacts.	Minimise miles flown from 2027.
Development of new airside power and distribution methods.	2027	Building on feasibility studies conducted in early 2021, where it is deemed feasible, BAL will develop a new power and distribution site(s) for airside vehicles, ground support equipment (GSE) and mobile Electric GPUs by 2027. We will	Installation of power and distribution site(s) for airside vehicles, ground support equipment (GSE) and

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Support customer offsetting of flights to / from Bristol Airport via an online platform.	TBC	ensure that use of mobile EGP/GPU is mandatory where provided. We will work with airline partners to highlight their processes for customers to offset flight emissions. This will provide details of offsetting provisions provided by flight operators from Bristol Airport, giving the customer choice and increasing transparency around offsetting commitments delivered by airline operators.	mobile Electric GPUs by 2027 Development of webpage on BAL website providing customers with details to offset their GHG emissions.
Review of landing charge structure to incentivise low-carbon flights	By 2030	We will 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.	

8.5 Long-term measures

Policy and technological developments in the aviation sector are occurring rapidly but will likely have a long-term feed-in due to the long design life of aircraft. To remain competitive and attract airlines, and to a lesser extent passengers, BAL must be able to support airlines to implement and operate new technologies as they become available. At the current time, there is large amounts of uncertainty regarding aircraft and engine efficiencies, operational improvements and low-carbon aviation technologies such as electric planes, sustainable aviation fuel or hydrogen fuels. BAL are therefore committed in the long-term to reviewing measures within the CCCAP relating to:

- Delivering infrastructure required for airlines to operate low carbon aircraft.
- 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 SAF and hybrid-electric aircraft.
- Continue to offer Bristol Airport as a 'test bed' for innovation projects, making funding available through the ACT Programme, where appropriate.
- Continue to review landing fees and charges to incentivise sustainable flight

8.6 Considering non-CO₂ impacts

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 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.

9. Low Carbon Design and Construction

We will ensure the design of new buildings and infrastructure is compatible with our carbon neutral 2021 and net zero 2030 targets, driving down Scope 1 and 2 emissions through design and energy efficiency measures. During construction, BAL will guide and influence Scope 3 emissions in line with the UK net zero target.

9.1 Designing for carbon neutral and net zero

We believe the design and construction phases are both crucial for delivering low carbon buildings and infrastructure. Therefore, we will continue to integrate climate change into the design process of all new infrastructure projects, ensuring they are low carbon from the onset and hence have minimal GHG emissions during their operation. Best practice construction processes and requirements will reduce the Scope 3 GHG emissions associated with building of capital projects we require to meet our aspirations for 12mppa as well as our carbon neutral 2021 and net zero 2030 goals.

The assets that are constructed at our airport typically have a long lifespan and must be designed to align with our carbon vision. We are therefore committed to ensuring all new capital projects are designed to support a carbon net zero airport, incorporating appropriate carbon management, energy efficiency and resource management best practice. Considering the project design from the onset will support our aim of achieving direct emission reductions and will reduce the need for retrofitting in the future.

To do this we are embedding best-practice carbon management practices in the design of our construction projects. All major capital projects will include an appraisal of energy efficiency measures that can be implemented as appropriate. All new construction buildings will target a BREEAM standard of "Excellent", with a minimum requirement of "Very Good", where options exist.

Our project design will provide the first opportunity to implement the energy hierarchy principles (be lean, be clean, be green), identifying opportunities for designing out carbon and waste, reducing waste and increasing energy efficiency.

9.2 Embedding good practice

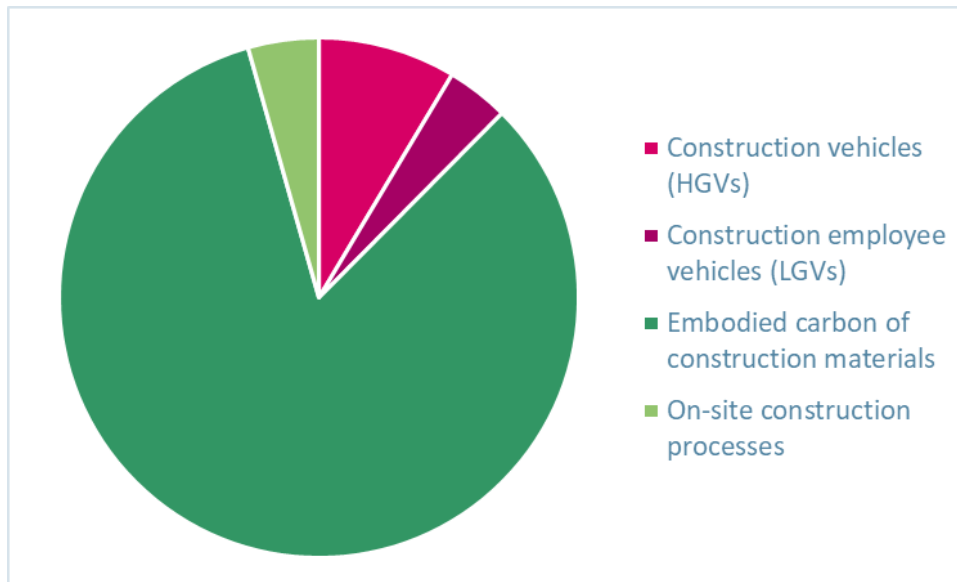
We are also committed to embedding good practice and reducing GHG emissions throughout the construction process to minimise Scope 3 emissions where possible. We will influence our contractors and suppliers to reduce GHG emissions wherever practicable, incentivising the use of lower carbon construction techniques. We will build on our existing record of accomplishment, providing circular economy solutions within our capital projects and increasing our target for recycling.

Our commitment to sustainable construction practices will include the construction works required as part of the 12mppa application. These GHG emissions have been quantified in the GHG assessment within the ES Addendum (reproduced in Figure 9.1).

GHG emissions associated to the embodied carbon of the construction materials make up the largest proportion of the construction stage carbon footprint for the buildings and infrastructure we will need. The embodied carbon of the materials includes GHG emissions that are released throughout the supply chain as the products and materials are extracted and manufactured, refined and/or processed as required. The actions within the CCCAP will implement processes and procedures for optimisation of the use of low

embodied carbon construction material, including the use of recycled waste materials where possible and appropriate.

Figure 9.1 Construction GHG emissions associated with the 12 mppa planning application



Note: Emissions associated with the construction of the infrastructure required to support Bristol Airport operating at a capacity of 12 mppa has been assessed in the ES Addendum³ and is shown here for reference. For assumptions regarding these calculations see the ES Addendum³.

9.3 Key measures

Energy efficient design of capital projects: We will update our internal processes to include an appraisal of energy efficiency for all major capital projects and sustainability criteria in our procurement procedures. All energy efficient measures will be assessed for feasibility with measures to minimise heat loss considered in particular. These processes will be governed by strong internal controls during the design and sign off process.

Low carbon design principals: All new construction buildings under the 12mppa planning application will target a BREEAM standard of "Excellent", with a minimum requirement of "Very Good".

Sustainable procurement of materials: We will implement policy and procedures for inclusion of low embodied carbon construction materials in the internal procurement processes and every effort will be taken to utilise local suppliers where practicable.

Sustainable construction process: We will ensure policies for sustainable construction plant processes are part of the procurement requirement for all development projects. The policy will include the requirement that the construction plant must be switched off when not in use (no idling), contractors are required to use lower-carbon HGVs and low carbon plant equipment, and transport and logistics to site must be optimised. We will provide infrastructure for a direct construction electricity supply to the grid to reduce the use of diesel generators. Electricity consumption will therefore be covered in our commitment to procure 100% renewable grid electricity. Solar temporary lighting will be used in our construction projects rather than diesel generation sets.

Implementation of circular economy construction processes: We will continue to implement circular economy construction processes including the re-use of excavated materials for construction projects.

9.4 Short-term/business as usual measures

Measures shown in Table 9.1 will be adopted by 2024 as part of BAL's efforts to minimise carbon emissions associated with construction, where possible.

Table 9.1 Short term actions to reduce emissions associated with design and construction emissions

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Implement processes and procedures for inclusion of low embodied carbon construction material.	From 2022.	We will implement policy and procedures for inclusion of low embodied carbon construction materials in the internal procurement processes and every effort will be taken to utilise local suppliers where practicable.	Updated internal procurement processes.
Implement sustainable construction processes.	From 2022.	We will ensure policy for sustainable construction plant processes are part of the procurement requirement for all development projects. The policy will include the requirement that the construction plant must be switched off when not in use.	Updated internal procurement processes.
Energy efficiency appraisal for all capital projects	From 2022.	We will update our internal processes to include an appraisal of energy efficiency for all capital projects. Strong internal governance controls will be implemented through the procurement and design sign-off process to ensure appraisals occur.	Updated internal processes for all capital project with sustainability criteria.

9.5 Medium-term measures

Measures shown in Table 9.2 will be adopted by 2030 as part of BAL's efforts to minimise carbon emissions associated with construction, where possible.

Table 9.2 Medium term actions to reduce emissions associated with design and construction emissions

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
New buildings to target a BREEAM standard of "Excellent", with a minimum requirement of "Very Good".	From 2022	If approval is granted, all new construction buildings required to support the 12 mppa planning application will target a BREEAM standard of "Excellent", with a minimum requirement of "Very Good".	Updated internal processes for major capital project with sustainability criteria and availability of BREAM reports on BAL website.
Provide a grid supply for electricity connection during construction.	From 2021	We will provide infrastructure for a construction electricity supply from the grid to reduce the use of diesel generators, where operationally possible. Metering will be installed for projects which are deemed suitable due to scale or activity prior to works to allow for quantification of usage and reductions in wasted energy.	Installation of metering sites as and when required.

Measure	Target implementation date	Description	Key Performance Indicator (KPI)
Lower carbon HGVs for construction projects.	From 2022	Policy and procurement requirements for all development projects will include the requirement to use lower-carbon HGVs for construction projects.	Updated internal procurement processes.
Low carbon plant equipment during construction projects.	From 2022	Policy and procurement documents for all development projects will include the requirement of the use of low carbon plant equipment during construction projects.	Updated internal procurement processes.
Ensure new buildings are energy efficient.	Post planning decision	All new buildings and development projects will be evaluated for energy efficiency by BAL and the cost of implementation of such measures will be understood. Specifically; heat loss will be minimised through efficient thermal envelopes of buildings, using natural daylight where possible in airport buildings and introducing solar shading where appropriate to reduce heat gain. No regret, low-cost options will be incorporated into projects while all others will be assessed for feasibility.	Updated internal processes for major capital projects with sustainability criteria.
Implement circular economy construction processes.	Beyond 2024	This will include the re-use of excavated materials. Contractors will also be expected to utilise the methodology in the Waste Framework Directive (2008/98/EC) to demonstrate the recovery of non-hazardous construction waste.	Updated internal procurement processes.
Optimise transport and logistics of materials brought to site for construction processes.	Beyond 2024	Policy and procurement requirements for development projects will include requirement to optimise transport and logistics of materials brought to site for construction processes.	Updated internal procurement processes.

9.6 Long-term measures

This draft CCCAP deals with activities that are anticipated to occur at Bristol Airport up to 2030, which includes the planned growth of the airport to a capacity of 12 mppa. Construction plans for the airport considered within the CCCAP therefore only consist of those considered as permitted development and those submitted as part of the 12 mppa planning application. It is anticipated that the above short- and medium-term measures for low carbon design and construction would apply to all construction over this period as it would be due for completion in 2029, in line with the programme set out in the ES Addendum. In the draft CCCAP, no long-term measures for low carbon design and construction are therefore presented. This will be reviewed in future iterations as required.

10. Partnerships and Communities

For us to become carbon net zero by 2030 and for Bristol Airport as a whole to be carbon net zero by 2050, we need successful relationships with our partners, suppliers, customers and local communities. Many of the measures described in this CCCAP produce benefits beyond the airport site.

Bristol Airport is an anchor business within the south-west of England. A vast array of organisations, suppliers, customers, commercial partners and companies are involved in the day-to-day running of the airport, enabling the benefits of flight to be realised within the region. To become carbon net zero by 2030 and enable a future for Sustainable Flight, we need to listen to, and engage with, our partners and communities within the local area. BAL is at the centre of a value chain bringing together partners that operate across Bristol Airport, the aviation sector and government policy. Key partners include: employees across the airport operations; customers; local residents; airside partners; commercial partners; airlines; local and regional government; Sustainable Aviation; the Jet Zero Council; energy providers; fuel manufacturers; and others.

10.1 Listening, engaging and learning

Engaging is not just about informing our communities and partners of our plans but listening to their input and learning from it to improve. Having listened to the views raised by consultees in the 12mppa planning application we have set more ambitious targets and proposed further measures to accelerate the trajectory to net zero for our Scope 1 and 2 emissions, whilst taking further action to guide and influence Scope 3 emissions. We will achieve this by:

- Considering and acting on consultation comments on the Airport's growth proposals;
- Actively gaining insight from customers in the airport to build their views into continual improvement;
- Publishing progress against the implementation of the CCCAP each year;
- Continuing our transparent approach to publishing our carbon footprint and seeking independent verification through the ACA scheme;
- Working closely with industry partners, academics and other experts to understand emerging and best practice to ensure early adoption of carbon-reducing technologies; and
- Updating and improving the CCCAP every five years to ensure the views of communities are built into each iteration; and
- Developing a Stakeholder Engagement Plan in 2021.

In addition to the above we will hold an annual stakeholder event to engage and appraise the community and regional stakeholders on the airport's progress.

10.2 Partnering for progress

Many of the measures set out in the surface access focus area require us to partner with local authorities, public transport operators, local businesses and local residents. We will support action in relation to increasing the scale of low carbon vehicle use in the Bristol area through co-development of schemes in the

Bristol Airport corridor, and ensuring the infrastructure we put in place for public transport and low carbon personal vehicles is co-ordinated with the wider plans and needs for the area.

We will also build on our partnerships within the airport boundary. We will engage with airlines regarding measures to reduce their emissions (e.g., continuous descent approaches, and single-engine taxiing) through committees such as the Night Time Slot Committee and Flight Operations Sub Committee. We will put in place an airline league table for GHG emissions from airline operators at the airport. This will help to accelerate the sustainability strategies of Bristol Airport's airline partners, and enable visible recognition in the airport for best practice. We will work with airlines and the wider aviation industry to drive the uptake of carbon efficient operations and air traffic management practices by continuing to play an active role in Sustainable Aviation and supporting the Aerospace Technology Institute FlyZero initiative.

We will also develop carbon reduction partnerships with commercial partners on site, which will include a sustainability league table for energy, water and waste efficiency. This helps to accelerate the sustainability strategies of our partners and enables visible recognition in the airport for best practice.

Bristol Airport is committed to ensuring that offsetting of its GHG emissions has tangible benefits for the local and regional community. We will therefore partner with local organisations in order to gradually move towards localised offsets or carbon insetting, rather than relying on international offsets, which we currently use. An aspiration target of up to 10% of all offsets will have carry benefits for the south-west region by 2030, produced predominantly by our commitment to offset all surface access by land. This could mean that our offsets deliver stacked benefits in the region which ensure value is added beyond GHG reductions, such as flood resilience, biodiversity net gain and increased wellbeing. BAL will quantify the benefits through surveys of residents in an area along with business partner interviews.

10.3 Innovating for Sustainable Flight

Achieving Sustainable Flight is a formidable task, which requires engagement across the aviation sector. We aim to play our part by developing solutions in collaboration with our value chain, both regionally and nationally. We will focus on making Sustainable Flight a realistic goal starting with domestic journeys, by providing a decarbonisation starter fund with the Aviation Carbon Transition (ACT) Programme (see Sustainable Flight focus area) to explore technologies for non-fossil fuel-powered aircraft with our key partners, including Airbus and our airline partners. This fund will be available to key partners across airlines, airport operations, energy, fuel, aerospace manufacturing, fuel supply, regulatory, investment and governance to build up local/regional sourcing of sustainable aviation fuels, thus reducing whole-life impact of fuels.

As the airport for low carbon innovation, Bristol Airport will be open to testing and development of game-changing technologies with our strategic partners. All of our innovation work will be carried out in collaboration with national initiatives such as Sustainable Aviation and collaboration with the Jet Zero Council.

11. Governance

The detail provided in this draft CCCAP shows the level of intent and action to deliver a net zero Airport by 2030 within the context of the Airport being able to grow to 12 million passengers per annum. Net zero by 2030 is on the path for Bristol Airport contributing to the UK carbon zero economy in 2050. T

11.1 Internal Governance

We have developed internal processes to maintain the CCCAP, as well as ensuring linkages into local, regional, sectoral and national governance structures supporting the path to net zero. This has been completed through desk research of local and national policy in conjunction with key internal stakeholders and business partners being involved in reviewing the level of ambition as the CCCAP was developed.

The internal governance structure (Figure 11.1) has been designed to allow for transparency in meeting our targets, openness to provide opportunity for all employees to contribute and accountability to drive our values and strategic intents.

All activities associated to the delivery of the CCCAP will follow the internal governance process.

Figure 11.1 Internal governance structure at BAL

CCCAP Internal Governance Structure	Purpose
BAL Board Audit and Risk Committee (ARC)	To be informed of strategic progress, approve budgets and to provide funding approvals > £500,000.
BAL Executive Board	Responsible for the delivery of the CCCAP including monitoring progress. Funding approvals > £100,000
BAL Health, Safety and Sustainability Committee	To analyze progress of the CCCAP against targets and approve policy, procedures and endorse spend requests to BAL Executive Board as required.
BAL People, Planet, Place Steering Group	As representatives of BALs employee base this group provides practical insights and ideas to further enhance CCCAP measures delivered or those proposed.
Internal Intranet	Accessible to all BAL employees, a dedicated online space for feedback and information on the performance of the CCCAP

11.2 External Engagement

We are developing key strategic partnerships with other parties who support creating action to deliver a net zero Airport. There are three fundamentals to achieve this, firstly a clear process of delivery with an internal governance structure which will monitor, review, and ensure delivery of the contents of the CCCAP. The second is the forming of a Net Zero Working Group of organisations in the South West to both hold us to account on our progress and to support us through creating a carbon value chain.

We are seeking to build upon this with the introduction of the CCCAP, broadening engagement to specialist businesses, government organisations, charities and regional local authorities. This will be achieved, as the CCCAP is adopted, with the creation of a Net Zero Airport Working Group (NZAWG), who will be tasked to hold the airport to account on its progress, cite where there are opportunities for strategic learning and partnerships, and to inform peers on new cutting-edge technological advancements in their sphere of influence to galvanise action to tackle climate change.

Should planning application be granted for the expanded airport, it is anticipated that the CCCAP will be a planning condition. North Somerset Council will therefore play an important role in our external governance structure, holding us accountable to commitments made as part of the expanded airport. Reporting on the CCCAP will be through the publicly available Annual Monitoring Reports which will be available for North Somerset Council to comment on. North Somerset Council will be invited to participate in our NZAWG.

12. Climate Change Adaptation Plan

12.1 Physical Risks

Understanding how climate change may affect the Airport is as important as reducing the airport's impacts through emissions reduction and removal.

We have referred to the Met Office Headline Findings based on the UK Climate Projections 2018 (UKCP18)²¹ to understand the future effects of climate change in broad terms. The report indicates, based on the best available scientific data, by the end of the 21st century, all areas of the UK are projected to be warmer, more so in summer than in winter and therefore hotter summers are expected to be more common. Rainfall patterns across the UK are projected to vary in the future with a higher propensity of heavier summer rainfall events. As an effect this will likely lead to more seasonal extremes.

Future projections of wind pattern changes (including direction, speed and gusts), fog and lightning / electrical storms are associated with higher uncertainty. Global projections show an increase in near surface wind speeds over the latter half of the 21st century in the winter season but this is modest compared to interannual variability²² and therefore considered low risk to Bristol Airport based on current scientific understanding. Uncertainty on climate projections of fog and lightning are limited and the latest UK Climate Projections 2018 (UKCP18) do not model these variables. The earlier iteration of climate projections for the UK, produced in 2009 (UKCP09) suggests a reduction in fog in the future although the data quality is considered low, and a small increase in lightning occurrences. Confidence in these projections is therefore considered low.

The Airport has assessed these trends in broad terms to understand potentially significant effects of climate change and the receptors potentially affected. Such receptors considered include:

- Onsite buildings, now and in the future;
- Any critical assets or interdependent infrastructure – for example surface movement radar; and
- Any current or planned connections to the site, both now and potentially those in the future.

The potentially significant effects of climate change and the receptors that could be affected are as follows:

- High temperatures and heatwave events resulting in effects on overheating of terminals and buildings;
- Extreme precipitation events overwhelming drainage systems across the Airport;
- High temperature and heatwave events resulting in a reduction in the resilience of aircraft operations (e.g., fire risk on site, flashpoint of aviation fuel being exceeded, overheating of aircraft on stands);
- Increased variability of snow events reducing resilience of winter contingency;
- Extreme precipitation events creating hazardous conditions on airside infrastructure;

²¹ Met Office (2019). UK Climate Projections: Headline Findings. [online]. Available at: [ukcp-headline-findings-v2.pdf](https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-headline-findings-v2.pdf) ([metoffice.gov.uk](https://www.metoffice.gov.uk))

²² Met Office (2019). UKCP18 Factsheet: Wind. [online]. Available at: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-fact-sheet-wind_march21.pdf

- Water shortage in drought conditions causing restrictions to water intensive activities;
- Changes in fog occurrences affecting visibility at the airport;
- High wind speeds or gust impacting take off procedures at the airport;
- Increased lightning strikes increasing the fire risk at the airport;
- Extreme weather or climatic events (including strong winds, heatwaves, droughts, intense rainfall events) reducing resilience of airside operations;
- Extreme weather events or climatic events (including strong winds, heatwaves, droughts, intense rainfall events) and flooding resulting in effects on resilience of surface access connecting infrastructure (e.g., local roads and junctions); and
- Extreme weather or climatic events (strong winds, heatwaves, droughts, intense rainfall events) and flooding resulting in effects on resilience of utilities servicing the airport (e.g., power, gas, telecommunications).

Based on these scenarios there is also the possibility of natural ecological effects:

- Changes in seasonal patterns of rainfall and temperature causing changes in soil moisture levels, length of growing season and irrigation requirements for newly planted vegetation and green infrastructure;
- Changes in seasonal patterns of rainfall and temperature causing altered quality and quantity of habitats;
- Changes in seasonal patterns of rainfall and temperature causing altered high and low flows and levels of water bodies in the local water environment; and
- Changes in seasonal patterns of rainfall, temperature and wind causing altered air quality effects, with a knock-on impact on human health.

Our knowledge of adapting to extremes of weather is already well developed, from dealing with winter weather, low visibility, strong winds and hot summers. There are numerous weather-related contingency plans and procedures already in place at the airport because of the weather-sensitivity of the aviation industry. Detailed meteorological forecasts guide day to day activities with the implementation of contingency plans and procedures if needed.

The following is list of actions we will be undertaking as business-as-usual operations in the short-term (approximately 2021 – 2024):

General

- Undertake a localised internal assessment of climate change impacts using latest and best available scientific data during the duration of the first implementation cycle of the CCCAP.

Hotter, Drier Summers

- To assess energy supplies to maintain onsite network resilience and supply continuity, either through liaison with grid infrastructure undertakers or through direct renewable supplies.
- Continue to review heating and cooling requirements in on site buildings to maintain temperate conditions.
- Include within corporate risk register the potential of hotter, drier summers as this is operationally when the airport is at its busiest i.e., hot weather working and welfare.

- Include a high level assessment in business cases for essential asset replacement and/or infrastructure to capture potential direct impacts due to climate change.

Warmer, Wetter Winters

- Assess on site drainage capacity to ensure future, changing, rainfall projections are manageable.
- Continue to assess periodically ground water levels on site against localised meteorological data where available to establish trends.

Extreme Weather Events

- Consider climate change as part of winter operations resilience plans and make amends as required.
- Make sure suitable de-icing kit and supply is in place to best manage severe weather events.

We will continue to evaluate and implement actions to enable further resilience of the airport in response to improvements in the scientific understanding of climate change effects and any changes in UK policy.

12.2 Transition Risks

We also recognise that the global transition to a low carbon economy will have an impact on our business. We are committed to fully understanding the transition risks associated with our operations and are incorporating these into standard risk reporting and monitoring procedures across the airport. BAL's Sustainability and Financial Teams are currently using the guidance provided by the Task Force on Climate-Related Financial Disclosures (TCFD)²³ as part of this process.

²³ TCFD (2017). Recommendations of the Task Force on Climate-related Financial Disclosures. [online]. Available at: <https://www.bristolairport.co.uk/~media/files/brs/about-us/environment/annual-monitoring-report-2019.ashx?la=en>

13. Reporting, Monitoring and Review

We have dedicated personnel who are responsible for reporting, monitoring and review of the CCCAP with BAL.

The implementation of the CCCAP will be reported every year and the results published in our publicly available Annual Monitoring Report²⁴ to show progress towards carbon net zero. This will include the monitoring of GHG emissions and tracking the implementation and performance of each measure against its Key Performance Indicator (KPI). Through the Airport Carbon Accreditation scheme this plan and associated information, e.g. our carbon footprint, will be independently verified.

The CCCAP will be reviewed every five years, in line with other action plan cycles (e.g., the Noise Action Plan), the UK Government review of the carbon budgets and the UK adaptation cycle. New iterations of the CCCAP will set out the performance against KPIs, the carbon neutral 2021 and net zero 2030 targets, and the pathway to contributing to a UK carbon net zero economy by 2050. This will include setting new objectives and targets for Scope 3 emission sources as innovation and progress develops.

We will strive to continually improve our annual energy and carbon monitoring to increase the level of detail in reporting and better enable identification of areas for emission reduction. An example of this is disaggregating and monitoring energy use by individual airside partners to annually track these Scope 3 GHG emissions. We are investigating the use of smarter systems, such as real-time carbon foot printing, which will enable us to provide more information about emissions and help to inform the choices of the passengers and companies using the Airport.

Initial KPIs against each measure have been included in the CCCAP. The following overall KPIs will be used to monitor performance against the overall carbon vision.

- Scope 1 and 2 absolute GHG emissions will be set out in the Annual Operations Monitoring Report.
- Becoming Carbon Neutral by the end of 2021 and continuing to offset residual Scope 1 and 2 emissions until we reach carbon net zero for our direct emissions by 2030. Any residual GHG emissions, which cannot be minimised due to technological challenges etc., will be offset initially and eventually removed to achieve net zero emissions, we anticipate this will be equivalent to 5% or less of total Scope 1 and 2 emissions measured in 2019.
- Scope 3 absolute GHG emissions from airport operations (non-aircraft and/or surface access) will be set out in the Annual Operations Monitoring Report.
- A league table published on BAL's website from 2022 will set out Scope 3 GHG emissions from commercial airline operators (i.e., aircraft emissions), at Bristol Airport.
- Where offsetting or removal is required there will be a focus on local delivery with an aspirational target of up to 10% of offsets or removals allocated to local schemes by 2030.

²⁴ Reporting in the Annual Monitoring Report will commence following the first full year post publication of the final CCCAP.

Appendix A

Approach to producing the CCCAP

We have characterised GHG emissions from all activities at Bristol Airport into four focus areas, with two cross-cutting themes that are relevant to all GHG emissions. Through taking actions within these focus areas, we will be able to achieve our carbon vision of a net zero airport by 2030 and influence the reduction of GHG emissions that we do not control with a view to meeting government's target of Net Zero 2050.

The focus areas are therefore used as the basis for the development of measures in the CCCAP. A series of accompanying actions and measures have been developed through a rigorous process combining expert judgement, operational knowledge and best practice in the aviation sector. Measures are designed to support regional goals, including the Bristol One City Plan, and sector-level goals, including the Sustainable Aviation Decarbonisation Road-map.

As part of the rigorous development process, measures have been reviewed by internal stakeholders with consideration given to their feasibility, impact on GHG mitigation and co-benefits, among other requirements. Airport departments across BAL have also been heavily involved in the development process to ensure buy-in and assess the feasibility of options. All the measures are considered reasonable and realistic and are deemed likely to be commercially viable under a future airport with a 12mppa capacity.

An integrated assessment process has been conducted on all measures to determine approximate timescales for implementation and the magnitude of GHG emissions that are feasible. There is some uncertainty about both these factors and expert judgement has been applied. Timescales are considered to be short-term if they are extensions of actions already in place or will be implemented immediately, these are not conditional on the planning appeal. Medium-term actions are associated with timescales between planning approval and 2030 which represents the period when the airport is anticipated to be at an expanded capacity (i.e., above the 10mppa current planning capacity and growing towards the 12mppa planned capacity). Finally, long-term actions are considered beyond 2030. The exact timing of these measures will be a subject of review in future iterations of the CCCAP.

All short-term and medium-term measures have been approved at executive board level, to ensure appropriate governance arrangements are in place. Long-term measures have executive board level initial support, although approval will be sought during updates to future iterations of the CCCAP.

We recognise that no one action provides a 'golden-bullet' to reducing GHG emissions. We acknowledge that some measures will be easier to implement than others, some will bring greater carbon reductions than others, and some will have additional co-benefits beyond GHG reductions. The strength of this draft action plan is in the variety of measures, targeting the same vision from different angles. The measures within the draft CCCAP will be considered and implemented as a collective. The combined GHG emission reductions achieved through the completion of these actions will collectively result in our carbon vision being achieved.

wood.

Draft