

London Luton Airport Operations Limited

## London Luton Airport 19 mppa

### Outline Carbon Reduction Plan



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## Report for

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## Document revisions

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## Executive summary

This outline Carbon Reduction Plan (CRP) is presented to confirm the steps London Luton Airport Operations Ltd (LLAOL) has taken, and continues to take, to achieve carbon neutrality by 2026 and deliver net zero carbon for London Luton Airport's (LLA) direct operational emissions by 2040. This is consistent with Luton Borough Council (LBC) aims to be a carbon neutral borough by 2040<sup>1</sup>, and with the UK's Government carbon reduction targets as set out in the Climate Change Act (as amended), *"to ensure that the net UK carbon account for the year 2050 is at least 100% lower than the 1990 baseline"*. The outline CRP also supports legislation being introduced by the UK Government for its 6<sup>th</sup> Carbon Budget to achieve a 78% reduction target by 2035 for carbon emissions, compared to 1990 levels<sup>2</sup>, through measures that would support a reduction in LLA's indirect carbon emissions related to surface access and aviation emissions.

The CRP is being provided in outline to inform LLAOL's planning application to LBC to lift the current 18 million passengers per annum (mppa) cap for LLA to 19 mppa. Recognising the need to implement tangible measures for carbon reduction, LLAOL has committed to develop a detailed Carbon Reduction Plan that builds on this outline plan, by the end of 2022, which will provide detailed and viable targets for an absolute reduction in carbon emissions and achieving net zero.

LLAOL's key partners in developing an integrated carbon management strategy for LLA are the airport landowners, London Luton Airport Ltd (LLAL), LLAL's owners, LBC and the airlines. As operator of the airport under the concession agreement to 2031, LLAOL has a primary role in reducing carbon emissions from operational activities at LLA, and an enabling role to support LLAL, LBC and airline operators in the reduction of the airport's most significant emissions from surface access transportation and aviation flights. Measures to reduce carbon in the outline CRP are focussed on LLAOL's role as the airport operator up to the end of the current concession agreement in 2031, but acknowledges that no single body has responsibility for emissions at the airport, and highlights areas where a collaborative approach by LLAOL with other stakeholders will be required to achieve net zero carbon.

The outline CRP incorporates existing targets for carbon reduction measures included in LLAOL's Responsible Business Strategy (RBS), published in 2019<sup>3</sup>, which established the overarching aim for LLAOL to achieve the UK net zero target for 2050 and to review the net zero target annually with the aim to achieve this sooner than 2050. Further to this, the outline CRP has developed a series of additional measures targeted at achieving carbon neutrality for LLA by 2026 and net zero for LLA's direct operational emissions by 2040, along with measures that support a reduction in third party emissions related to aviation and surface access. Headline descriptions of the additional measures proposed in the outline CRP covering short, medium and long term timescales are provided in the tables below, along with a summary of the targets listed in the RBS (noting the need to focus on short to medium term actions that will support the UK Government's national 78% carbon reduction target by 2035, and that responsibility for measures beyond 2031 are outside of LLAOL's scope).

### LLAOL Responsible Business Strategy (2019) – Carbon Mitigation Targets:

- Achieve UK net zero target for 2050 and review the net zero target annually with the aim to achieve this sooner than 2050;
- Establish a plan for low-carbon airside and landside vehicles by mid-2021 (including potential savings for a full fleet of electric vehicles using renewable electricity);
- Source 100% of purchased electricity from renewable sources by end of 2021;
- Reduce operational electricity demand (excluding vehicles) to less than 2.0 kWh/pax by end of 2023;
- Reduce single occupancy vehicle travel to the airport (employees: 2022 = 64%);
- Greater than 28% of employees travelling to and from the airport using sustainable modes of transport by 2022;
- Promote and monitor sustainable travel for staff at the airport, including promoting cycling schemes, discounted travelcards for public transport and car sharing;
- Secure 12% participation in the staff travel survey by 2020 and increase the number of organisations attending the airport travel forum (12 by 2022);
- Reduce single occupancy vehicle travel to the airport (customers: 2022 = 47%);
- Greater than 36% of customers travelling to and from the airport using sustainable modes of transport by 2022;
- Assess if slightly steeper approaches can be adopted and implement recommendations by 2023;
- Airport Carbon Accreditation (ACA) scheme – achieve ‘Reduction’ level by 2022 (carbon management towards a reduced carbon footprint); and
- Supply at least 25% of energy used by the airport (or by LLAOL) from on-site renewables by end of 2026.

#### Short Term (2020-2025) mitigation measures additional to RBS targets for achieving net zero carbon by 2050

Source electricity from renewable sources and review options with LLAL and LBC for increasing on-site renewable energy generation, and opportunities for linking to local off-site renewable generation

Setting a 5-year carbon reduction target and strategy, which will be reviewed annually and incorporated into LLAOL's strategic business plans

Achieve Airport Carbon Accreditation Level 3 'Optimisation' through engagement with third parties in carbon footprint management

Continue with the programme of introducing energy efficient equipment and behaviours to reduce energy consumption and GHG emissions

Review of energy data and Building Management Systems (BMS) to inform carbon management strategies and identify opportunities for energy savings

Promote the use of sustainable travel for passengers and staff using the airport, with targets for reducing the use of single occupancy vehicle travel and increased use of sustainable transport, including the Luton DART

Establish a programme for the phased electrification of airside vehicles

Work with LLAL to conduct feasibility assessments and review of funding models for the provision of electrical vehicle charging infrastructure, based on expected demand and charging patterns (noting the UK Government's policy to phase out the sale of new petrol and diesel cars in the UK by 2030<sup>14</sup>).

In conjunction with LLAL and airlines, create a working group with academia and innovators to seek solutions for sustainable aviation and the decarbonisation of energy use for the airport (noting the inclusion of international aviation emissions in legislation being introduced for the UK's 6<sup>th</sup> Carbon Budget<sup>2</sup>)

Work with airlines to promote and incentivise low-carbon techniques during landing and take-off operations, including single-engine taxiing and continuous decent approach

### Medium Term (2026-2031) mitigation measures additional to RBS targets for achieving net zero carbon by 2050

Work with LLAL to increase the generation of electricity used to supply LLA operational requirements from on-site renewables to 50% by 2030,

Facilitate options for low carbon technology, including alternatives to gas for heating requirements and review developments in the application of hydrogen-based energy infrastructure

In partnership with LLAL and LBC provide 40 to 60 electric vehicle charging points by 2030 to decarbonise energy supplies, ensuring the strategic location of infrastructure to match the progressive demand for electric vehicle capacity

Update surface access strategy and targets for staff and passengers using sustainable modes of transport for travel to and from the airport

Review scope to reduce embodied and operational carbon in development projects

Work with airlines, LLAL and the innovation working group to help facilitate the uptake of low-carbon flights, including infrastructure requirements for energy and fuel supplies, focusing on sustainable aviation fuels for international flights and LLA domestic aviation and short haul flights as the likely forerunners for development of hybrid-electric flights

Achieve carbon neutrality for LLA's direct emissions by 2026, through offsetting residual carbon emissions and achieving ACA Level 3+ 'Neutrality' (the fourth ACA Accreditation level).

### Long Term (2032-2050) – Indicative mitigation measures for achieving net zero carbon by 2050

Achieve net zero carbon for London Luton Airport's Scope 1 and 2 operational emissions by 2040, and achieve significant reductions associated with surface access and aviation emissions, within the airport's sphere of influence

Review the feasibility of investing in on-site renewable and low-carbon energy generation to reduce reliance on energy from grid supplies

Review of surface access strategy to support sustainable transport, including capacity requirements for public transport and low-carbon vehicle use

Implement infrastructure to meet demand for low carbon aircraft

Progress to the advanced levels of the ACA scheme, achieving Level 4 'Transformation' and Level 4+ 'Transition'

Address any residual carbon emissions for the airport, using approved carbon removal schemes to achieve net zero carbon for the airport's emissions

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# 1 Introduction

## 1.1 Achieving Net Zero Carbon for London Luton Airport

The purpose of this Outline Carbon Reduction Plan (CRP) is to confirm the steps London Luton Airport Operations Ltd (LLAOL) is taking to ensure that their operations are consistent with not only the UK Government's legislated target as set out in the Climate Change Act (as amended), "to ensure that the net UK carbon account for the year 2050 is at least 100% lower than the 1990 baseline" but also the ambitions of Luton Borough Council (LBC) to achieve net zero carbon by 2040<sup>1</sup>. The outline CRP also supports legislation being introduced by the UK Government for its 6<sup>th</sup> Carbon Budget to achieve a 78% reduction target by 2035 for carbon emissions, compared to 1990 levels<sup>2</sup>, through measures that would support a reduction in LLA's indirect carbon emissions related to surface access and aviation emissions.

As stated in LLAOL's Responsible Business Strategy published in 2019<sup>3</sup>, LLAOL is committed to supporting the Government in achieving its 2050 net zero target. Further to this, and in support of LBC's targets for net zero, the Outline CRP provides the framework for the future detailed CRP to support LLAOL achieve carbon neutrality for the airport's direct emissions by 2026 and net zero by 2040. The Outline CRP explains the actions that LLAOL can commit to, in support of the below mentioned planning application, to establish the foundations for a detailed CRP for the airport. The CRP focusses on LLAOL's role as the airport operator, but also highlights areas where a joined-up approach with other stakeholders will be required to achieve net zero carbon. In developing the Outline CRP there are a number of uncertainties that affect the level of detail that can be provided in defining measures for reducing carbon emissions beyond the short term (i.e. 2025). These include the timescales of LLAOL's concession agreement up to 2031, the landowners London Luton Airport Limited (LLAL) proposals for expansion of the airport's capacity to 32mppa, and anticipated technological developments in the aviation sector, particularly relating to future aircraft.

LLAOL are committed to ensuring operations at London Luton Airport (LLA) are compatible with delivering net zero for the airport's direct operational emissions by 2040. The CRP is being provided in outline to inform LLAOL's planning application LBC to lift the current 18 million passengers per annum (mppa) cap for LLA to 19 mppa. Further to this, LLAOL has committed to develop a detailed Carbon Reduction Plan, that will build on this outline plan, by the end of 2022 which will provide detailed targets for an absolute reduction in carbon emissions and achieving net zero for LLA's direct operational emissions by 2040. LLAOL will not do this in isolation; the detailed CRP will be based on collaboration with relevant stakeholders and due consideration of responsibilities and investment requirements to meet the stated timeline and the associated works of the Planning Application.

## 1.2 London Luton Airport 19 mppa Proposals

By way of background, in 2014 planning permission was granted for London Luton Airport (ref: 12/01400/FUL), limiting the airport to 18 million passengers per annum (mppa), which was expected to be reached by 2026/2027. According to the London Luton Airport Vision for Sustainable Growth 2020-2050<sup>4</sup>, the forecasts for LLA anticipated that the 18 mppa capacity was expected to be fully utilised by 2020. However, LLA reached the 18 mppa cap during 2019<sup>5</sup>, almost a decade earlier than previously forecast. LLAOL has therefore submitted a planning application to increase the 18 mppa cap to a 19 mppa cap.

<sup>1</sup> Luton Borough Council, (2019). Climate change action plan: Becoming a carbon neutral borough by 2040.

<sup>2</sup> UK Government, (2021). UK Draft Statutory Instrument 2021 No. Climate Change, The Carbon Budget Order 2021 (and Draft Explanatory Memorandum) [online]. Available at: <https://www.legislation.gov.uk/ukdsi/2021/9780348222616>

<sup>3</sup> London Luton Airport (2019). Our Responsible Business Strategy 2020-2025

<sup>4</sup> London Luton Airport Ltd (n.d.). London Luton Airport Vision for Sustainable Growth 2020 – 2050, [online]. Available at: <https://www.llal.org.uk/Documents/vision2020-2050.pdf>

<sup>5</sup> London Luton Airport Operations Limited (LLAOL), (2019). Carbon footprint report. [online]. Available at: <https://www.londonluton.co.uk/LondonLuton/files/50/50af686c-ffae-49fd-981d-180f588dd5d6.pdf>

The 2020 Environmental Statement<sup>6</sup> (ES) submitted to evaluate the impact of the proposals for expansion of the airport to 19 mppa included an assessment of the likely significant effects of the proposals with respect to climate (Chapter 7 of the ES). Within the Climate chapter, reference is made to LLAOL's commitment to the UK net zero target for 2050, and the development an outline CRP during the consideration of the ES that would identify how residual carbon emissions associated with the 19 mppa proposals would be reduced to net zero:

*7.13.2 A Carbon Reduction Plan will be produced which will set out the roadmap for achieving a net zero airport for Scope 1 and 2 emissions, as well as indicating the approaches by which LLAOL can influence Scope 3 emissions. An outline version of the Carbon Reduction Plan will be set out ahead of the determination of the planning application by LBC.*

*7.13.4 Through the Responsible Business Strategy, LLAOL has committed to being aligned with the UK net zero target for 2050. LLAOL has therefore committed to develop a Carbon Reduction Plan, which will set out the ambition and actions required for ensuring LLA's Scope 1 and 2 emissions are in-line with the UK net zero 2050 target. An outline version of the Carbon Reduction Plan will be produced during consideration of the ES, and ahead of determination of the planning application. The full version would be provided following planning approval, as a time-bound condition of the planning permission.*

This outline CRP responds directly to the above statement made in the ES in providing the platform from which LLAOL will provide a detailed CRP, also noting that the CRP will define measures to achieve net zero for LLA's direct operational (Scope 1 and 2) emissions by 2040 rather than 2050.

#### **UK targets for international aviation emissions**

With respect to international aviation, Chapter 7 of the ES assessed that the 19 mppa proposals were unlikely to materially affect the ability of the UK Government to meet the 37.5 MtCO<sub>2</sub>/yr 'planning assumption' for UK international aviation GHG emissions in 2050. In addition, the ES included sensitivity analysis with respect to a 23 MtCO<sub>2e</sub>/yr target for 2050 based on recommendations for a lower UK aviation sector target made in the December 2020 Climate Change Committee (CCC) 6<sup>th</sup> Carbon Budget report for Aviation (<https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Aviation.pdf>), based on the CCC's Balanced Pathway scenario. The ES found that given national and aviation sector ambition and associated implementation of aviation policy, the share of LLA's aviation emissions under a 19 mppa proposal would be unlikely to increase compared to the 2019 baseline. It should be noted that domestic aviation was included in the contextualisation against UK carbon budgets within the ES.

It is noted that the UK Government is currently developing policy on aviation emissions guided by advice in the CCC's 6<sup>th</sup> Carbon Budget Report. In line with the CCC's recommendations the UK Government has announced that the 6<sup>th</sup> Carbon Budget for the 2033-2037 budgetary period is 965,000,000 tonnes of carbon dioxide equivalent, with a target to reduce the UK's emissions by 78% by 2035 compared to 1990 levels, and for the first time will incorporate the UK's share of international aviation and shipping emissions<sup>2</sup>. Further details on policy and sectoral targets required to meet the 6<sup>th</sup> Carbon Budget are expected to be contained within the UK's Aviation Decarbonisation Strategy, anticipated to be released later in 2021. The CCC has advised that additional aviation policy implementation, including development of new aviation technologies such as sustainable aviation fuel (SAF) and aircraft efficiency measures, are needed in order for the aviation sector to achieve the recommended 6<sup>th</sup> carbon budget. The Jet Zero Council has guided this with initial investment in a number of aviation projects which will support the whole aviation sector. LLAOL is committed to continuous review of its Carbon Reduction Plan in line with sector best practice and current policy, and to work with airlines in reducing their aviation emissions. In line with the need for ongoing review of new policy, including legislation of the 6<sup>th</sup> Carbon Budget and any associated policy (still to be confirmed), these would be incorporated, where relevant, into further iterations of LLAOL's Carbon Reduction Plan.

<sup>6</sup> Wood (2022). Luton Airport Expansion - 19 mppa, Environmental Impact Assessment, Volume 2: Environmental Statement Addendum. [online] Available at: [https://planning.luton.gov.uk/online-applications/files/EB44765ED7F038BBB48E57D636486B81/pdf/21\\_00031\\_VARCON-DC07\\_2021-00031\\_Volume\\_2\\_Environmental\\_Statement-908779.pdf](https://planning.luton.gov.uk/online-applications/files/EB44765ED7F038BBB48E57D636486B81/pdf/21_00031_VARCON-DC07_2021-00031_Volume_2_Environmental_Statement-908779.pdf)



## 1.3 Carbon Emissions Scope and Definitions

Various terms are used when referring to the sources and management of greenhouse gas (GHG) emissions. This section defines some of the key terms used within the Outline CRP with respect to carbon management.

### GHG Emissions Scope

LLAOL's carbon emissions can be categorised in terms of sources it can control, and also those where it has significant ability to influence the sources or behaviours generating the emissions. In line with the GHG protocol the Outline CRP uses the following GHG emission scopes to categorise LLAOL's carbon emissions:

- Scope 1: covers GHG emissions released into the atmosphere directly from activities that LLAOL controls (e.g. combustion of gas/fuel and use of refrigerants).
- Scope 2: covers GHG emissions released into the atmosphere associated with LLAOL consumption of purchased electricity, heat, steam or cooling. These are indirect GHG emissions attributable to activities that LLAOL can control through its use and management of energy, and procurement of energy supplies.
- Scope 3: covers GHG emissions from sources linked to London Luton Airport that LLAOL does not directly control, but it does have a role in supporting reduction of these GHG emissions (e.g. emissions related to international and domestic aviation and surface access transport for staff and passengers accessing the airport).

It should be noted that in the 2019 Environmental Statement, Scope 1 and 2 emissions were grouped as "airport buildings and ground operations", while Scope 3 emissions were presented as "surface access", "domestic aviation" and "international aviation".

### Net Zero and Carbon Neutral

LLAOL is working with the Airport Carbon Accreditation (ACA) scheme<sup>7</sup>, operated by the Airport Council International (ACI). Based on the GHG Protocol approach ACI provides internationally recognised methodologies for carbon management and reduction standards for airports. LLAOL has achieved Level 1 'Mapping' certification of the ACA scheme and is progressing with advanced levels of certification. The ACI highlights the difference between the terms 'Net Zero' and 'Carbon Neutral' used in conjunction with the accreditation programme<sup>8</sup>:

**Carbon neutrality** requires reducing emissions as much as possible and then compensating the remaining ones by offsetting – e.g. by investing in emissions reductions elsewhere (in other organisations/sectors) through the purchase of carbon credits.

The **net zero** concept does not allow for offsetting. This means that it requires emission reductions to a greater degree than carbon neutrality – ideally down to 0 (zero). However, it does allow for removal of any residual emissions from the atmosphere e.g. relying on natural processes (carbon sinks such as forests) or dedicated technologies (carbon capture & storage).

The ACA scheme allows for offsetting of residual emissions at certain levels of certification. In the context of LLAOL making a net zero commitment, any residual emissions from operations fully within LLAOL's own control, Negative Emissions Technologies (NETs) will be required, where NETs rely on natural processes or dedicated technologies to eliminate CO<sub>2</sub> from the atmosphere.

<sup>7</sup> Airport Carbon Accreditation: <https://www.airportcarbonaccreditation.org/>

<sup>8</sup> Airports Council International – Europe, Net Zero <https://www.aci-europe.org/netzero/faq.html>

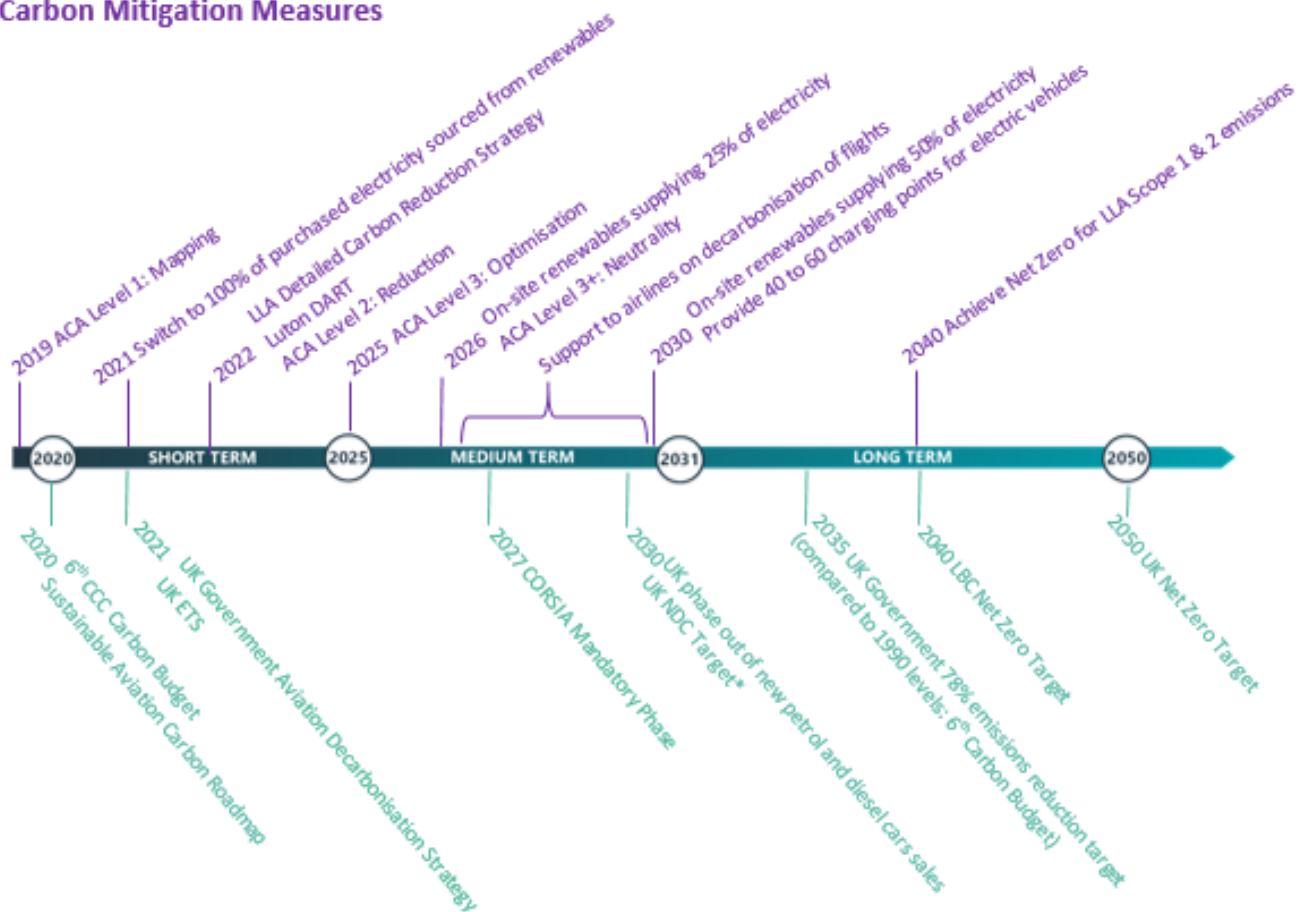
## 2 Carbon Management at London Luton Airport

### 2.1 Overview of LLAOL Carbon Management

London Luton Airport Operations Ltd (LLAOL) is committed to achieving carbon neutrality by 2026 and to reaching net zero carbon by 2040 across the direct operations (Scope 1 and 2), and to working with partners to support carbon reduction in areas outside of LLAOL's direct control (Scope 3). To support this commitment LLAOL has implemented measures that deliver a reduction in its operational emissions and has identified further reductions in its Responsible Business Strategy (RBS) 2020-2025<sup>3</sup>. The RBS confirmed LLAOL's commitment to be aligned with the UK net zero target for 2050 and to review opportunities to achieve this sooner (which it is seeking to achieve through measures being developed in the CRP). In support of this, the RBS includes measures for reducing LLAOL's direct operational emissions, along with proposals that would reduce emissions outside its immediate area of operations. Figure 1 below represents the path LLAOL is taking within the scope of its current concession agreement, to ensure net zero is achieved for LLA, highlighting key milestones for the future (upper section), along with related policy and legislative drivers (lower section).

Figure 1 2050 net zero timeline including carbon mitigation measures within LLAOL's concession to 2031

#### Carbon Mitigation Measures



#### Policy & Legislative Drivers

\*UK NDC: On 12 December 2020, the UK communicated its new Nationally Determined Contribution (NDC) under the Paris Agreement to the United Nations Framework Convention on Climate Change (UNFCCC). The NDC commits the UK to reducing economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990

## 2.2 Baseline Carbon Emissions

The current baseline for London Luton Airport's carbon emissions is summarised in Table 2.1. For consistency with the 19 mppa Environmental Statement Climate chapter this presents the total carbon emissions for London Luton Airport in 2019<sup>6</sup>, noting that this incorporates emissions associated with the whole airport, including sources that LLAOL has the ability to influence, such as aviation emissions and surface access journeys for staff and passengers accessing the airport (e.g. by road and rail). Additional differentiation of emissions sources contributing to the 2019 baseline is provided in Table 2.1 to aid transparency in identifying LLAOL's Scope 1, 2 and 3 emissions.

The summary highlights that the emissions where LLAOL has most control (Scope 1 and 2) account for <1% of the total carbon emissions attributable to London Luton Airport, with electricity use presenting the most significant opportunity for reduction in operational emissions. Although surface access emissions (27% of emissions) are not within LLAOL's direct control it is acknowledged that LLAOL, in collaboration with other stakeholders, can influence both passenger and staff travel to the airport, for example through the development of a surface access travel plan for the airport and infrastructure investment, such as the Luton DART (Direct Air-Rail Transit). As may be expected aviation emissions represent the largest source of emissions for the airport (72% of emissions); for these emissions LLAOL has the greatest influence on sources related to the Landing and Take-Off cycle (LTO, 9% of emissions). Emissions for aircraft at cruising altitudes (63% of emissions) are predominantly controlled by carbon reduction mechanisms governing airlines, such as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and the emerging UK Emission Trading Scheme (ETS). However, LLAOL does have an enabling role in working with airlines to reduce their aviation emissions, both through its 'Conditions of Use' policies and in supporting the uptake of lower carbon aviation technologies, considering opportunities such as those proposed in the Sustainable Aviation decarbonisation road map<sup>9</sup>.

Table 2.1 London Luton Airport GHG emissions/year for the 2019 baseline

Source	Activity	London Luton Airport 2019 (baseline) (ktCO <sub>2</sub> e/yr) <sup>a</sup>	% of Total	GHG Scope
Aviation	International aviation	1,033.83		
		<i>Landing and Take-Off:</i> 117.97 <i>Cruising Phase:</i> 915.86	7.89% 61.25%	Scope 3
	Domestic aviation	41.86		
		<i>Landing and Take-Off:</i> 10.99 <i>Cruising Phase:</i> 30.87	0.73% 2.06%	Scope 3
Surface access	Passengers	396.06	26.49%	Scope 3
	Employees (airport total)	9.69 <sup>b</sup>		
		<i>LLAOL:</i> 1.11 <sup>c</sup> <i>Non-LLAOL:</i> 8.58 <sup>c</sup>	0.07% 0.57%	Scope 3
Airport buildings and ground operations	Grid electricity	10.1		
		<i>Airport:</i> 4.98 <sup>d</sup> <i>Tenant/Transmission &amp; Distribution:</i> 5.12 <sup>d</sup>	0.33% 0.34%	Scope 2 Scope 3
	Gas usage	1.5	0.10%	Scope 1
	Diesel (heating)	0.1	0.01%	Scope 1
	Diesel (power)	0.1	0.01%	Scope 1
	Diesel (vehicles LLAOL)	1.08	0.07%	Scope 1
	Diesel (vehicles third party)	0.67	0.04%	Scope 3
	Refrigerants	0.27	0.02%	Scope 1
Total		1,495.26		

<sup>a</sup> Emissions are quoted in units ktCO<sub>2</sub>e/yr unless otherwise stated for aviation emissions which are reported in ktCO<sub>2</sub>/yr

<sup>9</sup> Sustainable Aviation (2020). Sustainable Aviation Carbon Road-Map: A path to Net Zero

<sup>b</sup> Emissions based on commuting journeys for a total of 10,935 full and part time staff, including non-LLAOL staff

<sup>c</sup> Emissions based on business travel and staff commute for 821 full and part time staff (London Luton Airport Footprint 2019<sup>10</sup>)

<sup>d</sup> Emissions based on split of airport, tenant and T&D electricity consumption (London Luton Airport Footprint 2019<sup>10</sup>)

## 2.3 Existing Carbon Reduction Performance

LLAOL has achieved around a 35% reduction in the airport's absolute carbon emissions from 2016-2019 despite a passenger increase of 23%. LLAOL started calculating scope 3 emissions in 2018 and has seen a decrease of 6% between 2018 and 2019 (scope 3 data will be published as part of 2021 sustainability report). LLAOL has implemented a number of carbon mitigation measures that has helped to manage and reduce carbon emissions for the airport, including the following:

- achieved Level 1 'Mapping' certification within the ACA Scheme in December 2019;
- installation of air handling unit upgrades saving over 1.3 million kWh per year;
- upgrading boilers, reducing gas consumption by 16%;
- installation of LED lighting, reducing electricity demand by over 1 million kWh per year; and
- achieved compliance rate with emissions-reducing Continuous Descent Approach of 91%.

Further to this, LLAOL has identified a series of ongoing carbon reduction targets in its Responsible Business Strategy 2020-2025 (published in 2019). These describe targets LLAOL is committed to in the short term, which include measures to address Scope 3 emissions related to surface access and aviation:

- achieve ACA Level 2 'Reduction' by 2022;
- sourcing all purchased electricity from 100% renewable sources by the end of 2021;
- generating at least 25% of electricity demand from on-site renewables by 2026;
- reducing operational electricity demand (excluding vehicles) to less than 2.0 kWh/pax by end of 2023;
- promote and monitor sustainable travel at the airport;
- reduce single occupancy vehicle travel to the airport for customers and employees (employees to 64%, and passengers to 47% by 2022);
- greater than 28% of employees and 36% of passengers travelling to and from the airport using sustainable modes of transport by 2022;
- establish a plan for low-carbon airside and landside vehicles by mid-2021; and
- assess if steeper approaches can be adopted and implement recommendations by 2023.

## 2.4 Related Carbon Management Strategies

LLAOL's key partners in developing an integrated carbon management strategy for London Luton Airport are the airport landowners, London Luton Airport Ltd (LLAL), LLAL's owners, Luton Borough Council (LBC) and the airlines. In addition to LLAOL's Responsible Business Strategy, and initiatives being progressed through the ACA scheme, LLAL and LBC have set out strategies that have been considered with respect to LLAOL's own strategy to achieve net zero.

<sup>10</sup> Ricardo Energy and Environment (2021), London Luton Airport Footprint 2019

### Luton Borough Council (LBC)

The LBC climate change action plan<sup>1</sup> sets out a commitment that LBC will aim “for net zero carbon in advance of the national target in 2050”. LBC has an ambition for the Borough to be carbon neutral by 2040. Although this strategy does not specifically mention aviation, London Luton Airport is described as a partner in some of the targets and LLAOL will work with LBC on ways to support this aim. Emerging policies from the action plan relating to GHG emissions at London Luton Airport include investigating:

- introduction of a workplace parking levy to secure investment in sustainable transport;
- setting up a council PV company to install renewable technologies (PV panels) at suitable private properties; and
- creation of a local community carbon offsetting mechanism to channel funds for local energy efficiency measures.

Since LBC’s climate action plan was published further progress has been made on measuring current emissions across Luton and expanding the commitment to be a ‘carbon neutral town’ by 2040. In January 2020, LBC set out in an executive report that it will work with LLAL and LLAOL to work towards net zero carbon by 2040 and published a climate change report as an evidence base of current GHG emissions<sup>11</sup>.

### London Luton Airport Ltd (LLAL)

LLAL published a report in 2017 setting out a vision for sustainable growth of London Luton Airport through to 2050<sup>12</sup>. The report recognises that the airport “has a significant influence over factors that contribute to it, such as: emissions from aircraft; vehicle trips; and those associated with the activities of other companies operating at the airport.” It commits LLAL to developing a comprehensive strategy to reduce carbon emissions where possible prior to future expansion work. In support of LLAL’s commitment LLAOL is actively working on measures targeting emissions from its direct operations and emissions linked to other sources for the airport.

LLAL’s 2019 Sustainability Strategy<sup>13</sup> provides an overarching framework to address the contribution of LLAL’s properties and activities where it has direct or indirect control, aligned with nine key themes for sustainability, including ‘Carbon and Energy’ and ‘Surface Access’. The Sustainability Strategy confirms that LLAOL was engaged in the development of measurable actions, with a series of shorter-term targets relevant to LLAOL in line with its RBS, and also longer term targets with dates set beyond the current concession agreement.

As part of its commitment to continual review LLAL is in the process of updating its Sustainability Strategy, which would support LLAL’s ambition to make London Luton the UK’s most sustainable airport over the next 20 years. A preview of proposed strategies for carbon mitigation has been provided to inform this outline CRP, which LLAOL will need to consider further for a detailed CRP.

<sup>11</sup> Luton Borough Council/Anthesis (2020). Climate Action Plan Support.

<sup>12</sup> London Luton Airport Ltd., (2017). London Luton Airport Vision for Sustainable Growth 2020-2050.

<sup>13</sup> London Luton Airport Ltd., (2019). London Luton Airport Limited, Sustainability Strategy.



## 3 Scope of the Outline Carbon Reduction Plan

### 3.1 Areas for mitigation

This outline CRP sets out LLAOL's framework to progressing towards a clear roadmap to achieving net zero. The outline CRP identifies areas to be targeted for carbon reduction, with credible mitigation measures being considered by LLAOL at this stage, along with indicative timescales and relevant stakeholders. The principle adopted for mitigation measures is to focus on achieving a reduction in energy consumption and emissions before considering mechanisms for addressing residual emissions in support of the net zero target. The development of detailed actions, commitments and targets is subject to further consideration of the strategy for London Luton Airport, which would be defined in the detailed CRP.

Areas for mitigation have been aligned with the GHG Protocol Scope 1, 2 and 3 definitions listed in Section 1.3. Although the GHG Protocol does not prescribe activities that should be reported under Scope 3 the ACA scheme identifies good practice for categorising Scope 3 emissions at an airport level, which have been applied to the CRP. The following areas have been identified within LLAOL's sphere of control or influence for proposals to mitigate operational emissions:

- Scope 1 and 2:
  - ▶ Energy efficiency and reduction
  - ▶ Energy procurement
  - ▶ Use of renewables and/or low carbon technologies
  - ▶ Operational vehicles
- Scope 3:
  - ▶ Surface access – staff travel
  - ▶ Surface access – passenger travel
  - ▶ Electric vehicle charging
  - ▶ Aviation operations, including landing and take-off cycle and fixed electric ground power (FEGP)
  - ▶ Support to airline sustainable aviation strategies for decarbonisation

Additional mitigation areas addressed within the CRP with potential for cross-over in terms of the GHG scope categories are:

- establishing systems for measuring, monitoring and reporting, including setting KPIs;
- measures to reduce embedded and operational carbon associated with construction projects, particularly noting LLAL's proposals for expansion of the airport's capacity; and
- valid options to address residual emissions through carbon offsetting or other carbon removal mechanisms.

A summary of the sources for carbon reduction in terms of London Luton Airport's baseline emissions for 2019 and LLAOL's ability to implement measures that control or influence the sources of emissions is presented in Table 3.1.

Table 3.1 Priority sources for carbon mitigation in the Carbon Reduction Plan

Source	London Luton Airport 2019 carbon footprint	Stakeholder input
Airport buildings (Scope 1 & 2)	Low	Low
Ground operations (Scope 1 & 2)	Low	Low
Surface access – staff (Scope 3)	Very Low	Medium
Surface access – passengers (Scope 3)	High	High
Domestic aviation (Scope 3)	High	High
International aviation* (Scope 3)	Very High	Very High

\* Mitigation of carbon emissions associated with international aviation routes are primarily governed by CORSIA, which will become mandatory in 2027.

## 3.2 Timescales

Due to the range of emissions sources the CRP is seeking to address, and future uncertainties in LLA operations, technology developments and aviation policy, the measures proposed for reducing carbon emissions have been allotted according to short, medium and long term timescales, covering the period up to 2050. These categories are defined by LLAOL's current known milestones and ability to determine its remit for future operational activities at the airport.

**Short Term (2020-2025):** mitigations included for the short term are predominantly those in-line with LLAOL's Responsible Business Strategy addressing sources of Scope 1, 2 and 3 carbon emissions, which have been approved by LLAOL's management board and are budgeted within the business plan. Additional measures are proposed within this timeframe that provide the foundations for future actions.

**Medium Term (2026-2031):** the stage up to 2031 covers LLAOL's current Concession Agreement for managing airport operations. It represents a potential transition period, not only in terms of LLAOL's operational responsibilities and pre-emptive actions supporting a reduction in surface access and aviation emissions, but may also be the period where infrastructure requirements for significant expansion of the airport with respect to LLAL's proposals for expansion of the airport's capacity are established. Mitigation measures are proposed that will continue to deliver a reduction in carbon emissions within LLAOL's direct control (Scope 1 & 2) and influence (Scope 3).

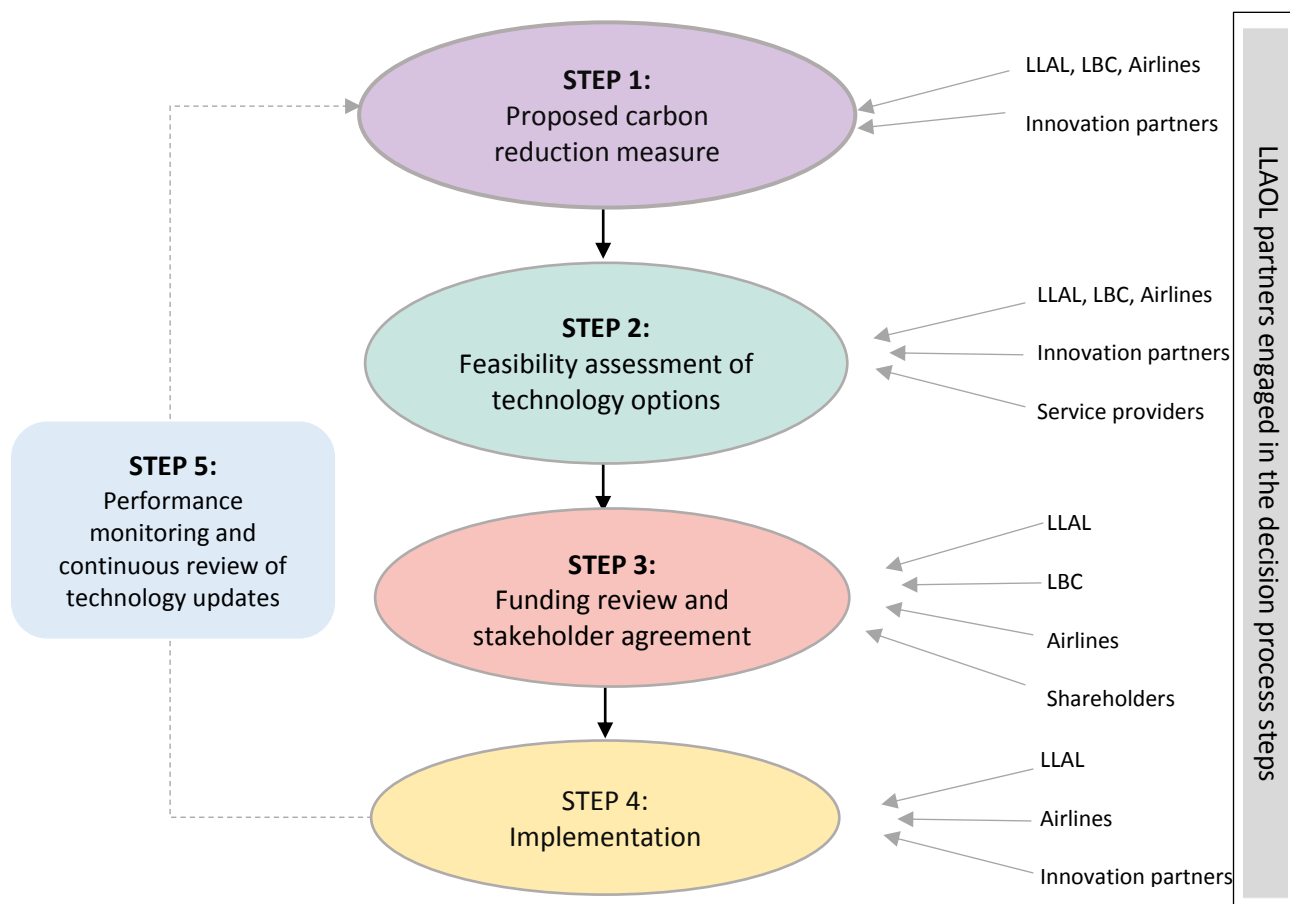
**Long Term (2032-2050):** achieving net zero carbon emissions by 2040 across LLA's direct operations is LLAOL's ultimate aim for managing carbon at the airport, although it is recognised by LLAOL and LLAL that this period extends beyond the current scope for LLAOL to make commitments. During this period there will be a need for ongoing review of opportunities to reduce operational carbon as technology develops, with actions increasingly likely to be focussed on the mitigation of Scope 3 emissions and mechanisms for addressing residual emissions.

## 4 Outline Carbon Reduction Plan

The following sections summarise measures LLAOL will seek to implement under short and medium term timescales to enable London Luton Airport to become a net zero carbon airport, taking into account LBC's aim to be a carbon neutral borough by 2040<sup>1</sup>. For completeness, possible measures to be considered for the long term are also included, although this goes beyond the timeframe of LLAOL's current concession agreement. LLAOL recognises that it can also influence indirect sources of emissions associated with the airport, so the measures proposed include areas beyond LLAOL's commitment to achieve net zero carbon for its direct operational activities.

This outline CRP confirms LLAOL's direction of travel for carbon reduction, which is provided as a precursor to a detailed Carbon Reduction Plan that would include defined commitments. The measures proposed are based on a collaborative approach that takes into account LLAL and LBC's aspirations and roles in achieving net zero carbon for the airport. Figure 2 below provides a simplified outline of the process LLAOL would adopt to facilitate the implementation and review of carbon mitigation measures at LLA, particularly for those that require a joined-up approach from multiple stakeholders and significant logistical changes in a landscape of evolving options for decarbonisation technology.

Figure 2 Decision process summary for implementation of carbon mitigation technologies



In 2019 LLAOL committed to a series of measures to reduce Scope 1, 2 and 3 emissions in its Responsible Business Strategy (see box below), identifying LLAOL's existing targets to achieve carbon reduction, which have been incorporated into the outline CRP. This includes the overarching commitment is to achieve the UK net zero target for 2050, with the aim to achieve this sooner. The remainder of the outline CRP section identifies additional proposals that LLAOL will seek to implement in collaboration with its partners at the airport, which go beyond those included in its RBS.

#### **LLAOL Responsible Business Strategy – Carbon Mitigation Targets**

- Achieve UK net zero target for 2050 and review the net zero target annually with the aim to achieve this sooner than 2050;
- Establish a plan for low-carbon airside and landside vehicles by mid-2021 (including potential savings for a full fleet of electric vehicles using renewable electricity);
- Source 100% of purchased electricity from renewable sources by end of 2021;
- Reduce operational electricity demand (excluding vehicles) to less than 2.0 kWh/pax by end of 2023;
- Reduce single occupancy vehicle travel to the airport (employees: 2022 = 64%);
- Greater than 28% of employees travelling to and from the airport using sustainable modes of transport by 2022;
- Promote and monitor sustainable travel for staff at the airport, including promoting cycling schemes, discounted travelcards for public transport and car sharing;
- Secure 12% participation in the staff travel survey by 2020 and increase the number of organisations attending the airport travel forum (12 by 2022);
- Reduce single occupancy vehicle travel to the airport (customers: 2022 = 47%);
- Greater than 36% of customers travelling to and from the airport using sustainable modes of transport by 2022;
- Assess if slightly steeper approaches can be adopted and implement recommendations by 2023;
- Airport Carbon Accreditation (ACA) scheme – achieve 'Reduction' level by 2022 (carbon management towards a reduced carbon footprint); and
- Supply at least 25% of energy used by the airport (or by LLAOL) from on-site renewables by end of 2026.

## 4.1 Short Term: 2020 to 2025

The short term measures incorporate several actions identified in LLAOL's RBS, including sourcing all of the airport's electricity from renewable sources and targets to reduce emissions from staff and passenger access to the airport. The short term measures from the RBS are clearly defined in terms of targets and timescales for mitigation, with significant progress being made in implementing measures to reduce LLAOL's emissions from its direct operational activities.

A summary of the key proposals for carbon reduction LLAOL would seek to implement in the short term up to 2025, both by itself and through collaboration with other stakeholders, are provided below. A full list of mitigation measures LLAOL is considering for the short term (in addition to those stated in its RBS), are presented in Table 4.1, which includes identification of key stakeholders that would be needed to support the initiatives. These include:

- Purchase electricity from 100% renewable sources and review options with LLAL and LBC for increasing on-site renewable energy generation, and opportunities for linking to local off-site renewable generation;
- Setting a 5-year carbon reduction target and strategy, which will be reviewed annually and incorporated into LLAOL's strategic business plans;
- Achieve Airport Carbon Accreditation Level 3 'Optimisation' through engagement with third parties in carbon footprint management;
- Continue with the programme of introducing energy efficient equipment and behaviours to reduce energy consumption and GHG emissions;
- Review of energy data and Building Management Systems (BMS) to inform carbon management strategies and identify opportunities for energy savings;
- Promote the use of sustainable travel for passengers and staff using the airport, with targets for reducing the use of single occupancy vehicle travel and increased use of sustainable transport, including the Luton DART;
- Establish a programme for the phased electrification of airside vehicles;
- Work with LLAL to conduct feasibility assessments and review of funding models for the provision of electrical vehicle charging infrastructure, based on expected demand and charging patterns (noting the UK Government's policy to phase out the sale of new petrol and diesel cars in the UK by 2030<sup>14</sup>);
- In conjunction with LLAL and airlines, create a working group with academia and innovators to seek solutions for sustainable aviation and the decarbonisation of energy use for the airport (noting the inclusion of international aviation emissions in legislation being introduced for the UK Government 6<sup>th</sup> Carbon Budget<sup>2</sup>); and
- Work with airlines to promote and incentivise low-carbon techniques during landing and take-off operations, including single-engine taxiing and continuous decent approach.

<sup>14</sup> UK Government (2020). <https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030>



Table 4.1 Short Term (2020-2025): Mitigation measures additional to RBS targets for achieving net zero carbon by 2050 within the timeframe of LLAOL's Responsible Business Strategy

Source	GHG Scope	Mitigation Area	Description
Airport buildings & ground operations	1 & 2	Operational vehicles	Establish a programme for the phased electrification of airside vehicles. All new contracts with Ground Handling Agencies to require electric vehicles, if possible
Airport buildings & ground operations	1 & 2	Renewables / Low Carbon Technologies	Conduct feasibility studies and funding review with LLAL and LBC for on-site and near-site renewable or low carbon energy generation, e.g. from solar, biomass, CHP etc, including consideration of any existing feasibility studies carried out by airport partners
Airport buildings & ground operations	1 & 2	Energy efficiency and reduction	Continue programme of upgrades to more energy efficient equipment and systems (e.g. air-handling equipment), supported by detailed survey of buildings and energy data to identify potential for energy savings and improved Building Management System controls.
Surface Access	3	Surface Access Staff & Passengers	Work with the council to improve pedestrian and cyclist access routes, and cycle facilities at the airport (noting that policies are under consultation by LBC on the 'Transport Strategy and Local Transport Policies' <sup>15</sup> )
Surface Access	3	Surface Access Staff & Passengers	Review strategies for car-parking allocation, consider preferential parking for electric or hybrid vehicles and penalty charges for high emissions vehicles
Surface Access	3	Electric vehicle charging	Noting timescales to phase out the sale of new petrol and diesel cars in the UK by 2030, instigate feasibility studies and funding review to ensure the smart provision of electrical vehicle charging infrastructure, based on expected demand and charging patterns.
Aviation	3	Aviation Operations	In collaboration with LLAL and airlines conduct feasibility assessment and funding review for installing Fixed Electric Ground Power (FEGP) and air-conditioning supplies at aircraft stands
Aviation	3	Aviation operations	Update airlines' "Conditions of use" policy to encourage low-carbon techniques during landing and take-off operations e.g. single/reduced-engine taxiing, advised take-off speeds
Aviation	3	Aviation operations	Incentivise implementation of more efficient aircraft through contractual agreements
Aviation	3	Sustainable Aviation	Work with airlines, LLAL and an innovation working group, to plan for operational measures that will support airlines to implement policies from the Sustainable Aviation Decarbonisation Road Map <sup>9</sup> for fuel-efficient aircraft, efficient operations and use of sustainable aviation fuels (noting also the inclusion of international aviation emissions in legislation being introduced for the UK's 6 <sup>th</sup> Carbon Budget <sup>2</sup> )
All sources	1, 2 & 3	Measuring, Monitoring & Reporting	Develop a Carbon Reduction Strategy with a 5 year emission reduction target, incorporated into LLAOL's strategic business plans, and reviewed on an annual basis regarding progress and any material changes in local or national policies
All sources	1, 2 & 3	Measuring, Monitoring & Reporting	ACA scheme – achieve 'Optimisation' level 3 (engagement with third parties in carbon footprint management)
	LLAOL responsible for implementation of measure		
	LLAOL working with LLAL on implementation of the measure		
	LLAOL working with LLAL and LBC on implementation of the measure		
	LLAOL liaising with airlines (and where indicated LLAL) on implementation of the measure		

<sup>15</sup> Luton Borough Council (2020). Transport Strategy and Local Transport Policies (Draft for consultation). Available at: [https://engage.luton.gov.uk/planning-transport-parking-highways/copy-of-luton-transport-plan-consultation/user\\_uploads/luton\\_transport-strategy-and-policies.pdf](https://engage.luton.gov.uk/planning-transport-parking-highways/copy-of-luton-transport-plan-consultation/user_uploads/luton_transport-strategy-and-policies.pdf)

## 4.2 Medium Term: 2026 to 2031

By 2026 the majority of the carbon mitigation measures proposed in LLAOL's Responsible Business Strategy will have been implemented, although several of these may continue as ongoing strategies or require revised targets in the medium and long term. This period marks the end of LLAOL's current Concession Agreement for management of operations at London Luton Airport, which may require further consideration of inputs required from other stakeholders for the airport. There is also uncertainty regarding the level of preparatory work that would be required during this period for the potential expansion of the airport to 32 mppa under LLAL's expansion proposals. This is considered in part in the medium term measures, but would require further assessment to determine requirements for mitigation of carbon emissions from not only LLAOL's operational sources, but also those associated with surface access, aviation and the construction process.

A summary of some of the key carbon mitigation measures LLAOL will seek to implement in the medium term are provided below. A full list of the measures LLAOL plans to implement by 2031 are presented in Table 4.2, which again identifies key stakeholders for collaboration on the initiatives. Some of the headline measures include:

- Work with LLAL to increase the generation of electricity from on-site renewables to 50% by 2030, used to supply LLA operational requirements;
- Facilitate options for low carbon technology, including alternatives to gas for heating requirements and review developments in the application of hydrogen-based energy infrastructure.
- In partnership with LLAL and LBC facilitate the provision of 40 to 60 electric vehicle charging points to decarbonise energy supplies, ensuring the strategic location of infrastructure to match the progressive demand for electric vehicle capacity.
- Update surface access strategy and targets for staff and passengers using sustainable modes of transport for travel to and from the airport;
- Review scope to reduce embodied and operational carbon in development projects;
- Work with airlines, LLAL and the innovation working group to help facilitate the uptake of low-carbon flights, including infrastructure requirements for energy and fuel supplies, focusing on sustainable aviation fuels for international flights and LLA domestic aviation and short haul flights as the likely forerunners for development of hybrid-electric flights; and
- Achieve carbon neutrality for LLA's direct emissions by 2026, through offsetting residual carbon emissions and progressing to ACA Level 3+ 'Neutrality' (the fourth ACA Accreditation level).

Table 4.2 Medium Term (2026-2031): Mitigation measures additional to RBS targets for achieving net zero carbon by 2050 within the current Concession Agreement timeframe

Source	GHG Scope	Mitigation Area	Description
Airport buildings & ground operations	1 & 2	Renewables / Low Carbon Technologies	Work with LLAL to increase the proportion of on-site renewables used to supply the airport's operational electricity requirements, beyond the existing RBS target of 25% by 2026, to 50% of electricity generated by on-site renewables by 2030.
Airport buildings & ground operations	1 & 2	Energy efficiency and reduction	Facilitate options for replacing diesel generators with battery backup supplies or cleaner technology; alternatives to gas for heating requirements (e.g. air/ground source heat pumps, on-site biomass boiler, connecting to a district heating system); and review developments in the application of hydrogen-based energy infrastructure.
Airport buildings & ground operations / Surface Access	1, 2 & 3	Development projects	Collaborate with LLAL on its expansion proposals in facilitating the development of low carbon or nearly zero net energy buildings
Surface Access	3	Surface Access Staff & Passengers	Update surface access strategy and targets for staff and passengers using sustainable modes of transport to travel to and from the airport
Surface Access	3	Surface Access Staff & Passengers	Review renewals of contracts with bus operators and taxi operators to specify or incentivise the use of electric vehicles
Surface Access	3	Surface access	Incentivise suppliers to promote delivery consolidation and maximise the proportion of full-load trips and use of low carbon vehicles
Surface Access	3	Electric vehicle charging	In partnership with LLAL and LBC provide the infrastructure for 40 to 60 electric vehicle (EV) charging points by 2030, considerate of EV charging requirements, in line with the planned phase out of new petrol and diesel cars in the UK by 2030.
Aviation	3	Aviation Operations	Facilitate installation of Fixed Electric Ground Power (FEGP) on all new stands as part of LLAL's future development of the airport
Aviation	3	Aviation operations	In partnership with LLAL facilitate infrastructure and airline requirements for the introduction of electric flights, focussing on LLA domestic and short haul flights
Aviation	3	Aviation operations	As part of airspace modernisation, review the uptake of low-carbon techniques during landing and take-off operations and opportunities for further improvement
Aviation	3	Sustainable Aviation	In partnership with LLAL and innovation partners promote the uptake of sustainable aviation fuels and review logistical requirements to facilitate storage and access at the airport, taking into account timescales for the development and demand for sustainable aviation technology
All sources	1, 2 & 3	Measuring, Monitoring & Reporting	Produce an updated 5-year Carbon Reduction Strategy and emissions reduction target, with regular monitoring of performance and progress updates
All sources	1, 2 & 3	Measuring, Monitoring & Reporting	ACA scheme – achieve the fourth level: 'Neutrality' (level 3+, achieve carbon neutrality by offsetting residual carbon emissions from airport direct emissions)
	LLAOL responsible for implementation of measure		
	LLAOL working with LLAL on implementation of the measure		
	LLAOL working with LLAL and LBC on implementation of the measure		
	LLAOL liaising with airlines (and where indicated LLAL) on implementation of the measure		

### 4.3 Long Term: 2032 to 2050

The carbon mitigation measures that will be implemented by LLAOL in the short and medium term will set LLA on a path to achieve net zero for Scope 1 and Scope 2 emissions by 2040. As stated previously, LLAOL is not in a position to commit to measures beyond the end of its current concession agreement in 2031, so the measures included here for the long term are indicative of the type of measures that may be considered in the period up to 2050. A summary of the main carbon mitigation measures suggested for the long term are provided below. A full list of the measures that may be considered for implementation in the period 2032 to 2050 are presented in Table 4.3 (noting that the decision on measures and stakeholder input in this period lies with LLAL rather LLAOL).

- Achieve net zero carbon for London Luton Airport's Scope 1 and 2 operational emissions by 2040, and achieve significant reductions associated with surface access and aviation emissions, within the airport's sphere of influence;
- Review the feasibility of investing in on-site renewable and low-carbon energy generation to reduce reliance on energy from grid supplies;
- Review of surface access strategy to support sustainable transport, including capacity requirements for public transport and low-carbon vehicle use;
- Implement infrastructure to meet demand for low carbon aircraft;
- Progress to the advanced levels of the ACA scheme, achieving Level 4 'Transformation' and Level 4+ 'Transition'; and
- Address any residual carbon emissions for the airport, using approved carbon removal schemes to achieve net zero carbon for the airport's emissions.

Table 4.3 Long Term (2032-2050): Indicative mitigation measures for achieving net zero carbon by the UK's target for 2050 (beyond LLAOL's Concession Agreement)

Source	GHG Scope	Mitigation Area	Description
Airport buildings & ground operations	1 & 2	Renewables / Low Carbon Technologies	Continually review the feasibility of investing in on-site renewable and low-carbon energy generation to reduce reliance on energy from grid supplies
Airport buildings & ground operations	1 & 2	Operational vehicles	Provide sufficient electric vehicle charging points for airside and landside operational vehicles to be electric or plug-in hybrid
Surface Access	3	Surface Access – Staff and Passengers	Continued review of surface access strategy, including any capacity constraints for the DART and other public transport options Update targets for staff and passengers using sustainable modes of transport to travel to and from the airport.
Surface Access	3	Electric vehicle charging	Continued review of capacity requirements for the provision of electrical vehicle charging infrastructure
Surface Access	3	Residual Emissions	Offset residual carbon emissions from staff and passenger journeys to and from the airport
Aviation	3	Aviation operations	Implement infrastructure to meet demand for low carbon aircraft e.g. sustainable fuel provision, electrical charging
Aviation	3	Aviation operations	Review the demand and facilitate provision for pre-conditioned air for aircraft stands
All sources	1, 2 & 3	Measuring, Monitoring & Reporting	Produce 5-yearly Carbon Reduction Strategies and emissions reduction targets, with regular monitoring of performance and progress updates
All sources	1, 2 & 3	Measuring, Monitoring & Reporting	<p>ACA scheme – progress to advanced levels of accreditation:</p> <ul style="list-style-type: none"> <li>- Fifth ACA stage, 'Level 4 Transformation': set a policy commitment to achieve absolute emissions reductions, strengthen stakeholder engagement, and further coverage of Scope 3 emissions in carbon footprint reporting</li> <li>- Sixth (and final) ACA stage, 'Level 4+ Transition': compensation for residual Scope 1 and 2 emissions (if required), as well as emissions for staff business travel, using internationally recognised offsets</li> </ul>



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