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APPLICATION BY LONDON LUTON
AIRPORT OPERATIONS LTD

VARIATION OF CONDITIONS
RELATING TO
LONDON LUTON AIRPORT

(REF APP/B0230/V/22/3296455)

Proof of Evidence:
Carbon and Climate Change

Dr M P Osund-Ireland
PhD BSc(Hons) CEnv MEnvSci MIAQM

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Glossary of abbreviations

Abbreviation	Definition
ACA	Airport Carbon Accreditation
ATM	Air Transport Movement
CCC	Climate Change Committee
CH ₄	Methane
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
Defra	Department of Environment, Food and Rural Affairs
DfT	Department for Transport
EEA	European Economic Area
ES	Environmental Statement
ESA1	July 2015 ES Addendum in relation to section 73 application dated 25 June 2015 with ref. 15/00950/VARCON
ESA2	January 2021 ES Addendum in relation to section 73 application 21 January 2021 with ref. 21/00031/VARCON
ESA3	May 2021 ES Addendum in response to a Regulation 25 request for clarifications on the noise assessment
ESA4	July 2022 ES Addendum to update the ES in relation to some changes to the description of the proposed wording of Condition 10 and also due to the passage of time since the original application
EU	European Union
EU ETS	European Emissions Trading Scheme
IAQM	Institution of Air Quality Management
IAS	International Aviation and Shipping
ICAO	International Civil Aviation Organisation
IEMA	Institute of Environmental Management and Assessment
KPI	Key Performance Indicators
KtCO ₂ e	Thousand Tonnes of carbon dioxide equivalent

LBC	Luton Borough Council
LLAOL	London Luton Airport Operations Limited
MBU	The UK Government strategy, "Beyond the horizon: The future of UK aviation: Making best use of existing runways", published 5 June 2018
MJ	Mega Joule
mppa	Million Passengers Per Annum
MtCO ₂ e	Million Tonnes of carbon dioxide equivalent
NPPF	National Planning Policy Framework
NO _x	Nitrogen oxides
RTFC	Renewable Transport Fuel Certificate
RTFO	Renewable Transport Fuel Obligations Order
SAF	Sustainable Aviation Fuel
S73 Application	The application dated 8 January 2021 under section 73 of the Town and County Planning Act 1990 by LLAOL to vary Conditions 8 (Passenger Throughput Cap), 10 (Noise Contours), 22 (Car Parking Management), 24 (Travel Plan) and 28 (Approved Plans and Specifications) to planning permission 15/00950/VARCON granted by LBC on 13 October 2017 to accommodate 19 million passengers per annum and to amend the day and night noise contours (with ref. 21/00031/VARCON)
UK	United Kingdom
UK ETS	UK Emissions Trading Scheme
USA	United States of America

1. Introduction

1.1 Qualifications and Experience

- 1.1.1 My name is Matthew Peter Paul Ösund-Ireland and I hold a BSc (Hons) in Combined Science from the Polytechnic of Wales and a PhD in local air quality management and climate change tools for joined up policy from the University of Greenwich. I am a Chartered Environmentalist, a Member of the Institute of Air Quality Management (IAQM) and a Member of the Institute of Environmental Sciences. I am a Director of susteer AB responsible for air quality, climate resilience and carbon management assessments undertaken by the company.
- 1.1.2 I have worked as a professional environmental scientist for 30 years. I have been responsible for conducting air quality and carbon studies for transport schemes, including road, rail, shipping and aviation, and schemes in the oil and gas, energy, industry, mining and commercial development sectors.
- 1.1.3 I have worked on numerous airport projects including Birmingham, Bournemouth International, Bristol, Heathrow, London City, the proposed airport at Cliffe in Kent and airports outside the UK. Most recently I was retained by Bristol Airport Limited to advise on carbon matters concerning its successful appeal proposal to increase capacity from 10 million passengers per annum (mppa) to 12 mppa.
- 1.1.4 In the context of the present application, I provided the technical review of the carbon chapter for the July 2022 Environmental Statement Addendum (ESA) for the Applicant (hereon referred to in my evidence as "ESA4"). I also prepared the joint position statement on Air Quality requested by the Inspectors.
- 1.1.5 As a member of the IAQM I am bound by its Code of Professional Conduct which requires that members *maintain professional integrity at all times and be guided by the principle*

of applying the most appropriate science/practice for any given task. This requires members to display objectivity and refrain from being selective or partial when presenting data or facts for a written report or in oral form. I confirm that I have complied with this professional obligation in preparing this proof of evidence.

1.2 Background and the S73 Application

1.2.1 A short summary of the Airport's planning history and environmental information relevant to this S73 Application is as follows:

- a. In December 2012 LLAOL submitted a planning application (12/01400/FUL) accompanied by an Environmental Statement (dated November 2012) ("the ES"). This was for the expansion of the airport involving inter alia the dualling of Airport Way, extensions to the terminal, a new pier and walkway, extensions to taxiways, enlargement of car parks and the construction of a multi-storey car park;
- b. On 23 June 2014 the Council granted planning permission 12/01400/FUL;
- c. On 25 June 2015 LLAOL made a section 73 Application (15/00950/VARCON) for the variation of condition 11(i) relating to nighttime noise levels. This was accompanied by an ES Addendum dated July 2015 ("ESA1");
- d. On 13 October 2017 the Council granted planning permission 15/00950/VARCON, the Variation Permission;
- e. On 21 January 2021 LLAOL made this S73 Application for:

Variation of Conditions 8 (passenger throughput cap), 10 (noise contours), 22 (car parking management), 24 (travel plan) and 28 (approved plans and documents) to Planning Permission 15/00950/VARCON (dated 13th October 2017) to accommodate 19 million passengers per annum and to amend the day and night noise contours. (21/00031/VARCON)

This application was accompanied by an ES Addendum dated January 2021 ("ESA2").

- f. In July 2021 LLAOL produced a further ES Addendum (“ESA3”) in response to a Regulation 25 request for clarifications on the noise assessment;
 - g. After considering the S73 Application over two evenings on 30 November 2021 and 1 December 2021, the Development Management Committee of Luton Borough Council (LBC) agreed with officers, and resolved to grant planning permission for the Development, subject to the Applicant and LBC entering into a section 106 agreement;
 - h. On 6 April 2022, the Secretary of State for Levelling Up, Housing and Communities called-in the Application for his own determination and directed that it should be referred to him instead of being dealt with by LBC;
 - i. On 11 May 2022, the Secretary of State for Transport made a direction under section 266(1A) of the Town and Country Planning Act 1990 for a joint determination of the Application; and
 - j. In July 2022 LLAOL produced a further ES Addendum in support of its application. The purpose of this addendum was to update the ES in relation to some changes to the description of the proposed wording of Condition 10 and also due to the passage of time since the original application (“ESA4”).
- 1.2.2 In my evidence I refer to the existing airport as the “Consented Development” and to the S73 application in paragraph 1.2.1.e as the “Proposed Scheme”. I also refer to the four ES Addenda using ESA1, ESA2, ESA3 and ESA4 as described above.

1.3 Scope of Evidence

- 1.3.1 The evidence I present addresses one of the main issues set out in the Inspectors’ pre-inquiry meeting advance note. The main issue is: *‘[T]he implications of the proposal for meeting the challenges of climate change’*.

1.3.2 Details of the carbon and climate change assessment for the Proposed Scheme set out have previously been given in two documents:

- a. Chapter 7 of ESA2; and
- b. Chapter 5 of ESA4, which presented an update to the assessment and discussed further relevant and emerging policy.

1.3.3 An Outline Carbon Reduction Plan¹ was prepared in support of the S73 Application made in January 2021 (21/00031/VARCON). Under the proposed Condition 29, a detailed Carbon Reduction Strategy would be submitted to LBC for approval within twelve months of the date of the permission.

1.3.4 I have structured my evidence as follows:

- a. Section 2: A summary of the policy and legislative context;
- b. Section 3: A summary of the assessment results presented in ESA4;
- c. Section 4: Carbon and Climate Change Action;
- d. Section 5: My response to issues raised by Rule 6 and other parties; and
- e. Section 6: My conclusions.

1.3.5 The S73 Application involves no new infrastructure nor any other physical development. As such, this proof of evidence solely addresses the carbon and climate change aspects of the operational phase changes applied for. There is no construction phase.

1.3.6 A separate summary of my proof has also been provided.

¹ CD4.05

1.4 Summary of evidence

1.4.1 In my proof I show, by reference to relevant legislation and policy, and to ESA2 and ESA4, that:

- a. Aviation emissions are regulated at a national level, with reductions being driven by Government policies, incentives and participation in the UK Emissions Trading Scheme (UK ETS) and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).
- b. Government aviation policy is to embrace innovation for a sustainable future, realising benefits for the UK.
- c. Government projections as to how the UK aviation sector may reach carbon net zero factor in growth in passenger numbers at London Luton and other airports.
- d. Reductions in surface transport emissions are being driven by national and local transport planning policy.
- e. A Carbon Reduction Strategy, the detail of which is controlled by LBC, will detail how the airport will monitor and report all emissions associated with the airport, set targets and continue to build on its work to reduce emissions from airport buildings and ground operations, in addition to supporting measures to reduce aviation and surface access emissions.
- f. Using several tests of impact significance, the increase in airport capacity from 18mppa to 19mppa would not materially increase carbon emissions and would be insignificant and would not impede Government policy to achieve carbon net zero.
- g. In terms of non-CO₂ impacts, the Government position remains one of monitoring the science although inclusion of aviation emissions of nitrogen oxides (NO_x) within the UK ETS is being considered.

- h. A Climate Change Adaptation Plan was submitted to Government in respect of Luton Airport².
 - i. Objections raised by Rule 6 parties are not well-founded, particularly in light of local and national policy which support the proposed growth at the Airport.
- 1.4.2 Overall, I conclude that there is no basis for objection to the Proposed Scheme by reference to carbon and climate change impacts and the proposal complies with all relevant parts of local and national policy in relation to such matters.

² CD11.32

2. Legislative and Policy Context

2.1 Summary

2.1.1 The relevant legislation described in this section of my evidence identifies the following:

- a. The Secretary of State for Business, Energy and Industrial Strategy is legally obliged to reduce emissions in accordance with successive carbon budgets until the UK reaches carbon net zero by 2050.
- b. Emissions from domestic aviation are included in carbon budgets up to and including carbon budget five (i.e. up to and including 2032).
- c. Emissions from international aviation (to the European Economic Area (EEA) and rest of the world) and domestic aviation are accounted for in what was identified as the 'planning assumption' of 37.5 MtCO₂.
- d. Emissions from flights within the UK and to the EEA and rest of the world are now included in the sixth carbon budget (from 2033).
- e. Emissions from flights within the UK and to the EEA are included in the UK ETS and are addressed within the UK budget from 2021.
- f. Emissions from international flights not included in the UK ETS are covered by CORSIA.
- g. Regulations are in place for airlines to report their emissions, including monitoring, reporting and verification methods that comply with both the UK ETS and CORSIA.
- h. Through the mandate for sustainable aviation fuels (SAF), the Government is keen to develop domestic production of SAF as a means of increasing energy security as well as generating employment and extending the lifetime of fuel refining and distribution infrastructure.

- i. Companies such as LLAOL are required to provide climate related financial disclosure as part of annual reporting by 2025 at the latest.

2.1.2 The relevant policy described in this section of my evidence gives rise to the following key points:

- a. Government aviation policy is to embrace innovation for a sustainable future, realising benefits for the UK.
- b. Government projections of how the UK aviation sector may reach carbon net zero factor in growth in passenger numbers, at London Luton and other airports.
- c. Government policy is that existing planning frameworks for airport growth provide a robust and balanced framework for airports that want to grow within strict environmental criteria.
- d. Government policy aspiration is for UK airports to be carbon zero by 2040, including airport buildings and ground operations.
- e. Planning policy is geared towards radical reductions in greenhouse gas emissions (GHG), minimising vulnerability and improving resilience.
- f. Reductions in aviation emissions are being driven by Government policies, incentives and participation in the UK ETS and CORSIA.
- g. Reductions in surface transport emissions are being driven by national and local transport planning policy.
- h. The Carbon Reduction Strategy provides the basis for LLAOL to reduce emissions from airport buildings and ground operations, in addition to supporting measures to reduce aviation and surface access emissions.
- i. LLAOL has submitted a Climate Change Adaptation Plan to Government. This shows how heavy rainfall as a physical risk at Luton Airport in the short term will be

addressed by investment to upgrade existing drainage infrastructure. It also addresses the effects in the longer term of increased temperatures are likely to impact take-off weights and passenger comfort.

- j. In terms of non-CO₂ impacts, the Government position remains one of monitoring the science, but inclusion of aviation emissions of NO_x within the UK ETS is being considered.

2.1.3 In reviewing legislation and policy relating to aviation emissions, my conclusion is that the Government is sending a strong signal for the aviation industry to grow, supported by legislation and policy measures to enable this growth to be achieved without veering away from the pathway to carbon net zero.

2.2 National Legislation: Climate Change Act and Carbon Budgets

2.2.1 Since 1 December 2008 when the Climate Change Act 2008 came into force, the Secretary of State for Business, Energy and Industrial Strategy has a legal duty to progressively reduce emissions in accordance with successive carbon budgets. In 2019 the Climate Change Act was amended, committing the UK to being carbon net zero by 2050³.

2.2.2 The first three carbon budgets, for the periods 2008-2012, 2013-2017 and 2018-2022, were implemented via the Carbon Budgets Order 2009⁴. The fourth carbon budget (2023-2027) was set at 1,950 MtCO₂e⁵ and the fifth budget (2028-2032) was set at 1,725 MtCO₂e⁶. All of these budgets formally exclude international aviation and international shipping, but were set at a level that took international aviation into account:

³ CD11.03

⁴ CD11.48

⁵ CD11.49

⁶ CD11.50

“Emissions from international aviation should continue to be allowed for by setting the budget on the path to meeting the 2050 target with international aviation emissions included. However, the accounting for these emissions remains uncertain, so they should not be formally included in the fifth carbon budget”⁷.

2.2.3 The Climate Change Act 2008 also established the Climate Change Committee (CCC) whose advice the Government is required to consider but not follow when setting carbon budgets.

2.2.4 In 2009 the CCC published its Report on Meeting the UK aviation target – options for reducing emissions to 2050⁸ in response to a January 2009 request from Government to provide advice on options for reducing CO₂ emissions from UK aviation (including both domestic and international flights) down to, or below, 2005 levels by 2050. UK aviation CO₂ emissions in 2005 were estimated to be 37.5 MtCO₂ on a bunker fuels basis. This aviation target for 2050 later became known as the ‘*planning assumption*’ in the context of carbon budgets one to five.

2.2.5 The 2009 CCC Report goes on to state that:

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

and

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

⁷ CD11.51

⁸ CD11.02

2.2.6 The sixth carbon budget, for the period 2033-2037, was set at 965 MtCO₂e⁹ and, for the first time, includes emissions from international aviation¹⁰.

2.2.7 Carbon emissions associated with aviation, including emissions from aircraft, surface access, ground support services and buildings at Luton Airport, are taken into account along with other sectors within UK commitments to reaching carbon net zero by 2050. Emissions up to and including 2032 are the subject of the relevant carbon budget and the planning assumption for international aviation. Emissions from 2033 to 2037 are subject to the sixth carbon budget with no separate planning assumption as emissions from international aviation are included within the budget. Emissions beyond 2038 are reasonably expected to be subject to successive carbon budgets up to 2050 with no planning assumption in relation to aviation as both domestic and international aviation emissions will be included within those budgets.

2.3 National Policy: Aviation and Climate Change

Jet Zero Strategy

2.3.1 On 19 July 2022 the Government published the policy paper Jet Zero strategy: delivering net zero aviation by 2050¹¹, described as the framework and plan for achieving net zero aviation by 2050. This strategy follows 12 months of consultation with over 1500 responses received by the Department for Transport (DfT).

2.3.2 The Government acknowledges the challenge of decarbonising the aviation sector but states (page 8):

⁹ CD11.10

¹⁰ CD11.44

¹¹ CD11.19

“We will use the transition to Jet Zero to create new jobs, industries and technologies across the entire sector and the UK.”

2.3.3 The Government highlights (page 8):

“[We are] taking a leading role internationally, including negotiating for agreement on a long-term aspirational goal for the CO₂ emissions of international aviation that is aligned with the temperature goal of the Paris Agreement. The UK believes that it is paramount that ICAO adopt an ambitious long-term goal to help set the direction for future international and national policy, attract green investment, and show that the sector is taking credible action to tackle its emissions.”

2.3.4 The Jet Zero strategy includes the following:

- a. Committing the sector to achieve Jet Zero by 2050, acknowledging there are multiple pathways to see it achieved.
- b. Introducing a CO₂ emissions reduction trajectory from 2025, that sets ambitious in-sector targets of 35.4 MtCO₂e in 2030, 28.4 MtCO₂e in 2040, and 19.3 MtCO₂e in 2050.
- c. Setting a target for domestic flights to reach net zero by 2040.
- d. Targeting airport operations to be zero emission by 2040. A Call for Evidence will be made in autumn 2022 to gather information on the scope and implementation route to see this achieved.
- e. By 2025, committing to have at least five UK SAF plants under construction and a SAF mandate in place with a target of at least 10% SAF by 2030.

2.3.5 The Strategy states that progress against the trajectory will be published on an annual basis, followed by a major review of the Strategy every five years.

- 2.3.6 The six key measures identified for meeting the trajectory are: system efficiencies; SAF; zero emission flight; markets and removals; influencing consumers; and addressing non-CO₂.
- 2.3.7 The Jet Zero Strategy also highlights maximising opportunities – to use the Jet Zero transition to deliver wider benefits in jobs, skills, and investment that these new technologies will bring.
- 2.3.8 The Jet Zero strategy is supported by the *Jet Zero Investment Flightpath*¹² which seeks to encourage investment in the UK to deliver low and zero emission technologies to decarbonise the aviation sector. The Jet Zero Investment Flightpath provides a 2035 Delivery Plan with a clear timeline and key milestones to measure implementation. The timeline includes 2025, with the start of the SAF mandate and the CO₂ emissions reduction trajectory, 2030 with zero emission domestic flights within the UK and at least 10% of UK jet fuel being SAF, and five year reviews of the Jet Zero Strategy in 2027 and 2032.
- 2.3.9 Underpinning the Jet Zero Strategy are four illustrative scenarios to net zero, taking into account: carbon price; system (airspace and fuel) efficiency improvements; uptake of SAF; uptake of zero emission propulsion technologies; and updated projections of air traffic movements (ATMs) and passenger movements (in millions of passengers per annum; mppa)^{13,14}. The assumptions for each scenario are summarised in Table 2.1.

¹² CD11.52

¹³ CD11.53

¹⁴ CD11.54

TABLE 2.1 : Jet Zero Scenarios

¹ Scenario	² Demand	³ Carbon Price	⁴ Fuel efficiency improvements	SAF uptake	⁵ Zero Emission technology uptake
Scenario 1	74%	⁶ 'Mid' ETS price ⁷ 'Low' CORSIA price	1.5% per annum	2% by 2030 4% by 2040 10% by 2050	None by 2050
Scenario 2	70%	'Mid' ETS price ⁸ 'Mid' CORSIA price	2.0% per annum	10% by 2030 22% by 2040 50% by 2050	None by 2030 5% by 2040 27% by 2050
Scenario 3	70%	As per Scenario 2	As per Scenario 2	10% by 2030 32% by 2040 100% by 2050	As per Scenario 2
Scenario 4	70%	As per Scenario 2	As per Scenario 2	As per Scenario 2	None by 2030 11% by 2040 38% by 2050
Notes: <ol style="list-style-type: none"> Scenario 1: Continuation of current trends, Scenario 2: High Ambition, Scenario 3: High Ambition, breakthrough in SAF, Scenario 4: High Ambition, breakthrough in Zero Emission Aircraft UK Terminal, growth in passengers, 2018 to 2050) 2020 prices Efficiency improvement per annum, from 2017 to 2050. In terms of ATMs £150/t in 2030, £378/t in 2050 £6/t in 2030 £6/t in 2030, £378/t in 2050 					

2.3.10 The first Jet Zero scenario “*represents a continuation of current trends in UK aviation*” with passenger demand increasing by 74% in 2050 from a UK total of 283 mppa in 2018. From a baseline of 34.83 MtCO₂e in 2018, in-sector emissions in Scenario 1 would increase to 37.01 MtCO₂e in 2050. The impact of carbon price, fuel efficiency improvements and SAF uptake would result in 37 MtCO₂e of residual emissions to be removed.

2.3.11 The second Jet Zero Scenario “*high ambition*” includes higher carbon pricing and greater improvements in fuel efficiency, SAF uptake and zero emission technology. Passenger demand increases by 70% in 2050. In-sector emissions in Scenario 2 would reduce to 19.29 MtCO₂e in 2050. Scenario 2 was used in the Jet Zero Strategy to develop the in-sector carbon trajectory (see paragraph 2.3.4.b in my evidence).

2.3.12 The third and fourth Jet Zero Scenarios build on Scenario 2, assuming greater uptake in SAF and zero emission technologies, respectively. By 2050, in-sector emissions in these scenarios would reduce to 8.55 and 11.28 MtCO₂e.

2.3.13 The Jet Zero Strategy dataset underpinning the development of these scenarios includes assumptions on airport capacity. These are reproduced in Annex A of my evidence, including the footnote describing how this information should be interpreted. The Jet Zero Strategy assumes passenger numbers at London Luton Airport could increase from 18 mppa in 2018 to 32mppa by 2030 and this provides some context in terms of this S73 Application to increase capacity from 18 mppa to 19 mppa.

2.3.14 The Jet Zero Strategy includes a policy commitment to (page 74): *“support airport growth where it can be delivered within our environmental obligations”*. The approach to implementing this policy is clearly stated on the same page:

“The Government’s existing policy framework for airport planning in England – the Airports National Policy Statement (ANPS) and Beyond the horizon, the future of UK aviation: Making best use of existing runways (MBU) – have full effect, as a material consideration in decision making on applications for planning permission. Our analysis shows that it is possible to achieve our goals without the need to restrict people’s freedom to fly.”

2.3.15 The Jet Zero policy commitments include (page 65): *“our ambition remains for all airport operations in England to be zero emission by 2040”*. Supporting this is a Government funded technical report by Mott MacDonald and Connected Places Catapult¹⁵ which identifies how the top ten airports in England, including Luton, could become carbon zero by 2040. Carbon zero specifically excludes the use of carbon removals or offsets (page 7, second paragraph). The scope of a carbon zero airport excludes flights and surface access

¹⁵ CD11.55

journeys to/from the airport (page 13, second paragraph, first numbered point). The plans to reduce carbon emissions at Luton Airport, based on the airport's Net Zero Plan published in 2020, are listed on pages 21-22 of the Mott MacDonald / Connected Places Catapult report. These do not include the Outline Carbon Reduction Plan prepared in support of the S73 Application made in January 2021 (see paragraph 1.3.3 of my evidence).

2.3.16 The Mott MacDonald / Connected Places Catapult report also considers each source in turn, identifying how each source could become carbon zero. I have considered how this could be implemented at Luton in Section 4 of my evidence. In almost all cases, the technology is available, or expected to be available. However, the Mott MacDonald / Connected Places Catapult report highlights the role of the Civil Aviation Authority (CAA) and commercial factors, including access to finance and affordability, as well as the role of Government in providing a regulatory framework. These are factors beyond the control of LLAOL.

2.3.17 The key measures included in the Jet Zero Strategy, listed in paragraph 2.3.4 of my evidence, reflect the Government's commitment to decarbonize the transport sector more widely. This is set out in *Decarbonising Transport: A Better, Greener Britain*, published by the DfT in July 2021¹⁶, which includes the following commitments to decarbonise aviation (p11):

- a. To consult on our Jet Zero strategy, which will set out the steps we will take to reach net zero aviation emissions by 2050.
- b. To consult on a target for UK domestic aviation to reach net zero by 2040.

¹⁶ CD11.11

- c. To consult on a target for decarbonising emissions from airport operations in England by 2040.
- d. To further develop the UK Emissions Trading Scheme to help accelerate aviation decarbonisation.
- e. To aim to agree an ambitious long-term global emissions reduction goal in the International Civil Aviation Organization by 2022.

2.3.18 The Secretary of State for Transport's decision on Manston Airport¹⁷ published in August 2022 refers to both the Decarbonising Transport and Jet Zero strategies (see paragraphs 3.2.2 – 3.2.5 of my evidence).

2.3.19 The Manston Decision highlights the conclusion reached by the Examining Authority that (paragraph 148):

".. the Development's Carbon Dioxide contribution of 730.1 Kt CO₂ per annum (N.B. at full capacity on a worst-case scenario assessment), would according to the Applicant have formed 1.9% of the total UK aviation carbon target of 37.5 Mt CO₂ for 2050, will have a material impact on the ability of Government to meet its carbon reduction targets, including carbon budgets [ER 8.2.74]. The Examining Authority concluded that this weighs moderately against the case for development consent being given."

2.3.20 The Manston Decision goes on to state (paragraph 149):

"However, the Secretary of State is satisfied that Government's Transport Decarbonisation Plan and the Jet Zero Strategy, which set out a range of non-planning policies and measures that will help accelerate decarbonisation in the aviation sector, will ensure Government's decarbonisation targets for the sector and the legislated carbon budgets can be met without directly limiting aviation demand. For this reason, he does not accept

¹⁷ CD11.56

the Examining Authority's view that carbon emissions is a matter that should be afforded moderate weight against the Development in the planning balance, and considers that it should instead be given neutral weight at the most."

Making Best Use

2.3.21 *Beyond the Horizon – Making Best Use of existing runways*¹⁸ (MBU) was published by the Department of Transport in 2018 and remains current UK Government policy on aviation and climate change.

2.3.22 Paragraphs 1.8 to 1.12 of MBU clearly differentiate between local and national planning requirements, with carbon emissions from air traffic being a matter of national policy.

2.3.23 The DfT considers two scenarios to illustrate how aviation emissions could be tackled if all regional airports are allowed to make best use of their existing runway capacity. The carbon traded scenario assumes the use of global offsets (i.e. the Carbon Offsetting and Reduction Scheme for International Aviation described in Section 2.4 below) which would enable growth in aviation to continue without impact on global emissions. The carbon capped scenario uses a combination of carbon pricing and specific measures (e.g. single engine taxiing and renewable aviation fuel) to limit emissions to within the CCC recommended 37.5 MtCO₂ limit. This is the so called 'planning assumption'.

2.3.24 In the 2021 Appeal Decision for Stansted¹⁹, the Planning Inspectors noted in paragraph 18:

"The in-principle support for making best use of existing runways provided by MBU is a recent expression of policy by the Government. It is given in full knowledge of UK

¹⁸ CD10.13

¹⁹ CD15.01

commitments to combat climate change, having been published long after the Climate Change Act 2008 (CCA) and after the international Paris Agreement.”

2.3.25 MBU was also referenced in the 2022 Appeal Decision for Bristol²⁰ (paragraph 74) and the 2022 Secretary of State decision for Manston²¹ (paragraph 42) , reinforcing the view that MBU remains a most recent national policy statement and as such is a material consideration.

Airports National Policy Statement 2018

2.3.26 Airports National Policy Statement for new runway capacity and infrastructure at airports in the South East of England²² was published by the Department of Transport in 2018. Paragraph 5.72 states:

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

2.4 Emissions Trading: UK ETS and CORSIA

UK Emissions Trading Scheme

2.4.1 As part of the withdrawal from the European Union (EU), the UK ETS replaced the UK's participation in the EU ETS on 1 January 2021. The UK ETS was established through the 2020 Greenhouse Gas Emissions Trading Scheme Order²³ . Both the UK ETS and EU ETS

²⁰ CD15.05

²¹ CD11.56

²² CD10.15

²³ CD11.20

are 'cap and trade' schemes with the total number of allowances in either scheme being capped and reduced, year on year. When the UK ETS was established, the number of allowances was reduced to the equivalent of 95% of the UK 'share' of EU allowances.

- 2.4.2 The aviation scope for the UK ETS covers UK domestic flights, flights between the UK and Gibraltar, and flights from the UK to the European Economic Area (EEA). All airlines operating such flights need to secure sufficient UK ETS allowances equivalent to the carbon emissions from those flights.
- 2.4.3 On 26 May 2021, the Air Navigation (Carbon Offsetting and Reduction Scheme for International Aviation) Order 2021²⁴ came into force providing details of the requirements for monitoring, reporting and verification of emissions for the purposes of complying with the Greenhouse Gas Emissions Trading Scheme Order
- 2.4.4 The Explanatory Memorandum²⁵ which accompanies the 2020 Greenhouse Gas Emissions Trading Scheme Order makes it clear that the UK Government's intention is that the UK ETS and EU ETS can operate side by side, which could increase opportunities for emissions reduction and cost-efficiency of emissions trading.
- 2.4.5 In March 2022 the UK Government launched a consultation on developing the UK ETS²⁶. The consultation closed in June 2022 and the feedback is now being analysed. The principal objective of the consultation is to determine how to most appropriately align the UK ETS emissions cap with a net zero trajectory, to be implemented by no later than January 2024.

²⁴ CD11.21

²⁵ CD11.22

²⁶ CD11.23

2.4.6 The UK ETS consultation includes a whole chapter on aviation, highlighting the following issues to be addressed:

- a. Ensuring the free allocation of allowances is balanced with the need to retain a carbon price sufficient to incentivise decarbonisation without resulting in the 'leakage' of carbon emissions outside the UK ETS.
- b. Extending the scope of the UK ETS to include flights to Switzerland with no change to the overall cap.
- c. Reviewing how the UK ETS incentivises SAF uptake to support broader Jet Zero proposals.
- d. Confirming that non-CO₂ impacts will remain a consideration but no long term changes to the UK ETS will be made before January 2024.
- e. How the UK ETS will interact with CORSIA.

CORSIA

2.4.7 Emissions from international flights not included in the UK ETS are covered by CORSIA developed by the International Civil Aviation Organization (ICAO). In 2010, the 37th Session of the ICAO Assembly adopted two aspirational goals: (1) to improve energy efficiency by 2% per year until 2050; and (2) to achieve carbon neutral growth from 2020 onwards. These goals are to be met with the implementation of a basket of measures that includes technological innovations, operational improvements, sustainable aviation fuels, and market-based measures. At the 39th Session of the ICAO Assembly in 2016, States adopted a global market-based measure scheme for international aviation, CORSIA, to address the increase in total CO₂ emissions from international aviation above the 2020 levels (now revised, following COVID, to 2019 levels). CORSIA will be implemented in three phases: a pilot phase from 2021 to 2023, a first phase from 2024 to 2026, and a second phase from 2027 to 2035. For the pilot and first phase (2021 to 2026), participation is

voluntary. As of 14 July 2021, 106 States, including the UK²⁷, are participating, representing more than 77% of international aviation²⁸. CORSIA requires all airlines operating a route between two participating States (e.g., UK and USA) to monitor, report and verify the emissions from flights on that route, and for those emissions to be offset using CORSIA eligible emission units²⁹.

2.4.8 ICAO is also exploring the feasibility of a long-term global aspirational goal for international aviation, as requested by the 40th Session of the ICAO Assembly, noting the commitments by various bodies representing the international aviation sector to reduce carbon emissions by 50% from 2005 levels by 2050³⁰. This is the subject of the international negotiation referred to in paragraph 2.3.3 above. Progress on this by the ICAO is expected to be discussed at its 41st Assembly in September / October 2022 based on a feasibility report published in March 2022³¹ that details the output of two years of research.

2.4.9 In the Appeal Decision for Bristol Airport¹⁷, the Inspectors note that the UK ETS as currently enacted is due to run until 2030 and will not run into the period of the Sixth Carbon Budget in 2033 (paragraph 165). Similarly, the Inspectors also note that CORSIA runs until 2035 (paragraph 166). This may change as an outcome of the recent UK ETS consultation described in paragraphs 2.4.5 and 2.4.6 of my evidence or as an outcome of the 40th Session of the ICAO Assembly (paragraph 2.4.8 of my evidence). Nonetheless, as the Inspectors note (paragraphs 169 and 170):

“... there is currently an offsetting gap beginning in the next decade, and this cannot be ignored. But equally, given the international and national context it is not unreasonable to assume that something will come forward to fill the space. Whether that is a

²⁷ The Monitoring, Verification and Reporting (MRV) requirements are being implemented via The Air Navigation (Carbon Offsetting and Reduction Scheme for International Aviation) Order 2021, enacted 26th May 2021

²⁸ CD11.57

²⁹ CD11.24

³⁰ CD11.25

³¹ CD11.26

refreshment of UK ETS/CORSIA or other measures remains to be seen.”

And

“...in any event UK ETS/CORSIA are only two of the measures available to address aviation carbon emissions in the light of the legal duty to ensure that carbon budgets are not breached.”

2.5 SAF Mandate

2.5.1 In July 2021, the DfT issued a consultation on introducing a mandate to increase the use of SAF in aviation³². SAF can be blended with jet fuel and used in existing aircraft, resulting in reduced carbon emissions with little or no change in fuelling infrastructure required at airports. The UK Government is keen to develop domestic production of SAF as a means of increasing energy security as well as generating employment and extending the lifetime of fuel refining and distribution infrastructure. If adopted (expected 2025), a SAF mandate would require jet fuel suppliers to ensure SAF uptake up to 10% by 2030 and up to 75% by 2050 with the SAF meeting a minimum GHG saving threshold of 60% compared to a jet fuel benchmark of 89 gCO₂e/MJ on a lifecycle basis.

2.5.2 The SAF mandate builds on the existing mechanism to reduce the carbon intensity of transport fuels. The Renewable Transport Fuel Obligations Order (RTFO)³³ sets annual obligations on fuel suppliers to ensure the supply of renewable transport fuel, which fuel suppliers can discharge through acquiring Renewable Transport Fuel Certificates (RTFCs). To date, the annual obligation has increased from 2.5641% in 2008 to 5.2632% from 2010 onwards. Following consultation in 2021³⁴, a proposed update to the RTFO would extend the scheme to include suppliers of renewable hydrogen used in fuel cell rail and non-road

³² CD11.27

³³ CD11.28

³⁴ CD11.29

transport, and to renewable fuels of non-biological origin used in maritime. The new statutory instrument would also increase the RTFO obligation level to 10.2632% and update the sustainability and GHG emissions criteria that renewable fuels must meet to receive RTFCs^{35,36}.

2.6 Planning Policy: Climate Change

2.6.1 Chapter 2 of the 2021 National Planning Policy Framework (NPPF)³⁷ states that the purpose of the planning system is to contribute to the achievement of sustainable development, including mitigating and adapting to climate change, and moving to a low carbon economy.

2.6.2 Paragraph 152 of the NPPF states that:

“The planning system should support ... shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience...”

2.6.3 Paragraph 153 of the NPPF states that:

“Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures.”

2.6.4 This paragraph also includes a footnote to explain that *“the risk of overheating from rising temperatures”* refers to being in line with the objectives and provisions of the Climate Change Act 2008.

³⁵ CD11.58

³⁶ CD11.31

³⁷ CD09.05

- 2.6.5 Paragraphs 155 and 156 of the NPPF refer to increasing the use and supply of renewable and low carbon energy and heat, and to support community-led initiatives for renewable and low carbon energy.
- 2.6.6 In terms of national planning policy on carbon emissions, the UK aviation sector is responding to the need to decarbonise, with targets for UK airport operations to be carbon net zero by 2040 and the sector as a whole to be carbon net zero by 2050.
- 2.6.7 In terms of national planning policy on climate resilience, LLAOL recently submitted a report to the Department of Environment, Food and Rural Affairs (Defra) as part of the third round of the adaptation reporting process under the Climate Change 2008 Act³⁸. This report provides an assessment of the climate resilience of the airport in terms of:
- a. Physical risks;
 - b. Transition risks; and
 - c. Opportunities.
- 2.6.8 Physical risks result from events or longer-term shifts in climate patterns. They may cause direct damage to assets and indirect impacts from supply chain disruption. Transition risks relate to the pathway to a lower-carbon economy, which may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change. Physical changes to the climate and the transition to a low carbon economy will also present opportunities. These may include resource efficiency and cost savings, the adoption of low-emission energy sources, the development of new products and services, access to new markets, and building resilience in operations.

³⁸ CD11.32

2.6.9 The report to Defra identifies heavy rainfall as a key physical risk at Luton Airport in the short term, requiring investment to upgrade existing drainage infrastructure, and increasing temperatures impacting take-off weights and passenger comfort in the longer term.

2.6.10 As stated in the Statement of Common Ground, the Site is located in Flood Zone 1, so is at low risk of flooding (i.e. less than 0.1% change of flooding in any year) and there are no physical changes proposed that would seek to alter the overall quantum of built development or increase impermeable areas. The risk of flooding as a result of heavy rainfall therefore remains limited to ensure the existing drainage infrastructure is maintained to continue meeting the requirements of the site. The Proposed Scheme does not involve any increase in risk.

2.7 Climate Emergency

2.7.1 On 14th January 2020 LBC declared a climate emergency³⁹:

"With the declaration of a climate emergency, we've put the need to confront climate change as an important priority. To tackle the climate emergency, we've pledged to ensure that Luton is net zero by 2040, ten years ahead of the government's own target."

2.7.2 This is supported by a Climate Action Plan for the borough, last updated in November 2021⁴⁰. This plan includes a wide range of actions including:

- a. reducing emissions from the council's estate;
- b. introducing street lighting;

³⁹ CD11.42

⁴⁰ CD11.59

- c. green roofs;
- d. improving the energy efficiency of council housing;
- e. promoting active transport;
- f. increasing the provision of infrastructure for electric vehicles;
- g. greening the council vehicle fleet;
- h. encouraging all taxis to be electric through licensing;
- i. setting up a council photovoltaic company to install solar panels on council properties and any willing private properties, and to investigate provisions of large solar farms; and
- j. investigating opportunities for community battery storage hubs.

2.7.3 The Climate Action Plan also includes setting up a Carbon Offset Fund through section 106 agreements, to create a local community carbon off-setting mechanism and funds for local energy efficiency measures with potential contributions from easyJet, Luton Airport and Vauxhall.

2.8 Taskforce on Climate-related Financial Disclosure

2.8.1 The Taskforce on Climate-related Financial Disclosure was established in 2015 by the Financial Stability Board, an international body that monitors and makes recommendations about the global financial system. The principle aim of climate related financial disclosure is to promote the communication of how the physical and transition risks and opportunities of climate change (see paragraph 2.6.9 of my evidence) are being managed by a business or organisation. From April 2022, over 1,300 of the largest UK-registered companies and financial institutions are required to disclose climate-related financial information on a mandatory basis. This includes many of the UK's largest traded companies, banks and insurers, as well as private companies with over 500 employees

and £500 million in turnover. By 2025, this mandate will have extended across the economy⁴¹. Similar legislation is either in place or being prepared in Brazil, the EU, Hong Kong, Japan, New Zealand, Singapore and Switzerland.

2.8.2 In preparation for financial reporting in FY2022, LLAOL has identified the key elements required to comply with climate related financial disclosure, building on the airport's Responsible Business Strategy, participation in the airport carbon accreditation scheme, climate change adaptation and the outline Carbon Reduction Plan. These are referred to in my evidence, in paragraphs 4.3.1 to 4.3.3, 2.6.7 – 2.6.10, and 4.4.1 - 4.4.4.

2.9 Non-CO₂ impacts

2.9.1 The UK Government acknowledges the non-CO₂ impact of aviation and recognises this impact is potentially greater than from CO₂ alone. In January 2021, research supported by the Department for Transport was published⁴², highlighting the contribution to climate change made by carbon dioxide (CO₂), NO_x, water vapor, soot, sulfate aerosols and increased cloudiness due to contrail formation. The results of this work are summarised in Figure 2.1 below which compares the effective radiative forcing (i.e. the potential to contribute to global warming) of CO₂ and non-CO₂ components of air traffic movements. Some of these components have a global warming effect and some have a global cooling effect. The impact of CO₂ emissions on global warming is long term (100+ years) whereas non-CO₂ effects are shorter-lived and largely depend on sustained aviation activity to maintain them. Moreover, the magnitude of these effects can depend on the conditions under which the activity occurs (e.g. the extent that contrails are formed depends on the temperature and moisture content of the atmosphere), unlike for well-mixed GHGs which affect the climate independently of where they occur. Overall, the non-CO₂ impact of aviation is potentially greater than from CO₂ alone.

⁴¹ CD11.60

⁴² CD11.61

2.9.2 There is considerable uncertainty in the data and, with reference to paragraph 3.94 of Aviation 2050, the Government's view on non-CO₂ remains that it:

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

2.9.3 The January 2021 research cited in paragraph 2.9.1 was part of a wider analysis of the non-CO₂ climate impacts of aviation⁴³ which identifies a number of technology and operational options for limiting or reducing non-CO₂ impacts and potential policy measures. This work advises against using a single CO₂ emissions equivalent multiplier to account for non-CO₂ impacts as: (1) the magnitude of the multiplier depends on the metric chosen, and mostly, the time horizon considered; and (2) the use of a multiplier does not incentivise reductions of non-CO₂ emissions independently of CO₂ emissions, neither at the global/regional fleet level nor on an individual flight-by-flight basis (pp 8-9). The key mitigation options identified in this work included: reducing NO_x emissions; avoiding the formation of contrail cirrus; and reducing soot particle emissions (measured by number rather than by mass).

⁴³ CD11.62

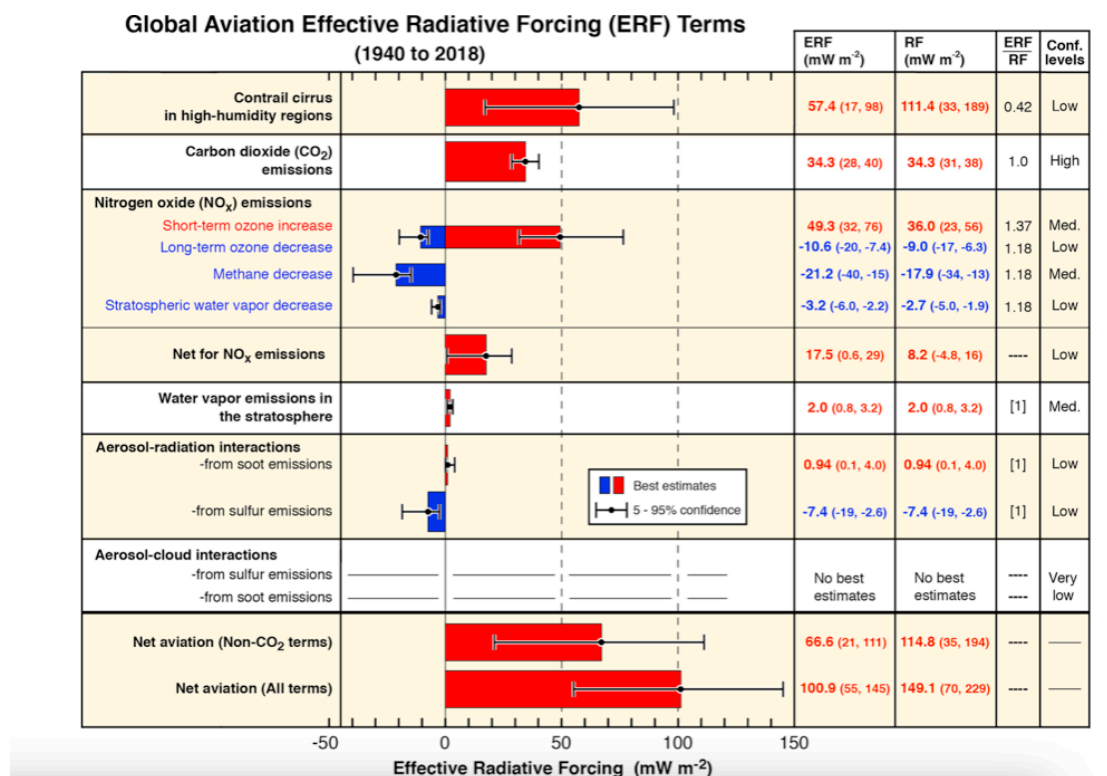


Figure 2.1 Global Aviation Effective Radiative Forcing (ERF) Terms 1940 to 2018

- 2.9.4 In the March 2022 consultation on developing the UK ETS (see paragraph 2.4.6 of my evidence) the Government recognizes the EU is considering the inclusion of aviation NO_x emissions within the EU ETS and confirms the intention to gather evidence alongside the EU over the next five to eight years (p79).
- 2.9.5 Planning flight trajectories to avoid areas of meteorology that would give rise to increased contrail cirrus formation requires consideration of the trade off with increased fuel consumption associated with route diversions.
- 2.9.6 The use of sustainable aviation fuels (SAF) has shown a reduction in volatile particulate emissions due to their lower aromatic and sulphur content (ref. 39, p 12).

2.9.7 In the Appeal Decision for Stansted Airport, the Inspectors note:

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

And

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

And

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

2.9.8 Non-CO₂ emissions cannot be ignored and need to be acknowledged today so choices made in the technologies used to reduce aircraft emissions do not result in non-CO₂ impacts increasing; as the scientific understanding increases, the choices of technology will become better informed. This is fully acknowledged by UK Government. I consider that this acknowledgment and the approach of the UK Government and the Stansted Inspectors (also noted by the Bristol Inspectors – paragraph 216) is the appropriate approach and there is no reasonable basis for resisting the Proposed Scheme in relation to non-CO₂ emissions.

3. Environmental Assessment

3.1 Environmental Assessment

3.1.1 ESA2 includes a review of relevant legislation and policy and an assessment of carbon emissions in accordance with technical guidance and best practice. Emissions are reported for the baseline year of 2019 for aviation, surface access and for airport buildings and ground operations. Emissions are also reported for future years 2024, 2028, 2032, 2040 and 2050 for the Consented Development and Proposed Scheme scenarios. The uncertainty in estimating future emissions was addressed by considering low, central and high assumptions in these scenarios.

3.1.2 Total emissions are reported in ESA2 and, in all cases, are expected to reduce in future years from the 2019 baseline.

3.1.3 ESA2 concludes (paragraph 7.11.32):

“Therefore, the Proposed Scheme:

- Is very unlikely to materially affect the ability of the UK Government to meet the 37.5 MtCO₂/yr ‘planning assumption’ for UK international aviation GHG emissions in 2050.*
- Is unlikely to materially affect the ability of the UK Government to meet its carbon targets for net zero in 2050, on the basis that a Carbon Reduction Plan is produced.*
- Is unlikely to materially affect the ability of Luton Borough Council to meet its carbon neutral borough by 2040 aim, on the basis that a Carbon Reduction Plan is produced.*
- Is consistent with the National Planning Policy Framework (NPPF) requirement for developments to ‘support the transition to a low carbon future in a changing climate’, on the basis that a Carbon Reduction Plan is produced.”*

And (paragraph 7.14.6):

“the overall effect of GHGs associated with the Proposed Scheme on the global climate is considered minor adverse and therefore not significant.”

ESA4 - Key Updates

- 3.1.4 ESA4 includes an update to the assessment of carbon emissions. This update largely addressed any changes in legislation, policy and technical guidance changes, and the shift in assessment years by one year. The overall methodology for the estimation and calculation of carbon emissions remains best practice.
- 3.1.5 The first relevant update in the methodology is in the uptake of SAF. Table 5.5 of ESA4 compares the underlying assumptions regarding SAF made in ESA2 and ESA4. In the central emission scenario of ESA2, the uptake of SAF was assumed to be zero in all years up to and including 2040, and 10% in 2050. This was updated in ESA4 to reflect the Government consultation on SAF (see paragraphs 2.5.1 and 2.5.2 of my evidence) and an expected increasing uptake in SAF from 2028 onwards.
- 3.1.6 The second key update is in the presentation of the results. Figure 5.1 of ESA4 separates emissions in terms of surface access, airport buildings and ground operations, domestic aviation, EEA aviation and rest of the world aviation. ESA2 only considered aviation emissions in terms of domestic and international. The reason for this additional categorisation was to reflect how the UK ETS and CORSIA are expected to interact, with emissions from domestic and EEA flights included, and emissions from flight to the rest of the world covered by CORSIA.
- 3.1.7 The third key update was to clarify the assessment of significance, in terms of inclusion within carbon budgets, and make reference to updated guidance from the Institute of

Environmental Management and Assessment (IEMA)⁴⁴. In my evidence I have also made reference above to the in-sector carbon trajectory included in the Jet Zero Strategy (paragraph 1.2) that has since been published.

3.1.8 The IEMA guidance provides examples of impact significance criteria which are summarised in Table 3.1 below. Impacts that are *major adverse*, *moderate adverse* or *beneficial* are considered significant. Impacts that are *minor adverse* or *negligible* are considered not significant. There are two definitions for minor adverse. The first definition refers to “*applicable existing and emerging policy requirements*” and being “*fully in line with measures necessary to achieve the UK’s trajectory towards net zero*”. This definition is consistent with the approach for determining significance in ESA4. The second definition of minor adverse refers to a “*budgeted, science- based 1.5°C trajectory (in terms of rate of emissions reduction) and which complies with up-to-date policy and ‘good practice’ reduction measures to achieve that has a minor adverse effect that is not significant*” (my emphasis). An example of such a trajectory is the in-sector carbon trajectory included in the Jet Zero Strategy.

3.1.9 The in-sector carbon trajectory included in the Jet Zero Strategy is based on interim targets of 35.4 MtCO₂e in 2030, 28.4 MtCO₂e in 2040, and 19.3 MtCO₂e in 2050. Referring to the Jet Zero Strategy dataset⁴⁵ that accompanies the Jet Zero Strategy⁴⁶ this trajectory is from a 2019 baseline of 38.1 MtCO₂e. From this baseline, the in-sector trajectory is 7.1% reduction by 2030, 25.5% reduction by 2040 and 49.3% reduction by 2050.

⁴⁴ CD11.34

⁴⁵ CD11.54

⁴⁶ CD11.19

TABLE 3.1 : IEMA examples of significance criteria

Significance level	IEMA example
Significant	
Major adverse	The project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
Moderate adverse	The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
Beneficial	A project that causes GHG emissions to be avoided or removed from the atmosphere has a beneficial effect that is significant. Only projects that actively reverse (rather than only reduce) the risk of severe climate change can be judged as having a beneficial effect.
Not significant	
Minor adverse	<p>The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.</p> <p>OR</p> <p>A project that is compatible with the budgeted, science- based 1.5°C trajectory (in terms of rate of emissions reduction) and which complies with up-to-date policy and 'good practice' reduction measures to achieve that has a minor adverse effect that is not significant. It may have residual emissions but is doing enough to align with and contribute to the relevant transition scenario, keeping the UK on track towards net zero by 2050 with at least a 78% reduction by 2035 (or other science-based 1.5°C compatible trajectory as may be defined for a specific sector or local area, as applicable) and thereby potentially avoiding significant adverse effects.</p> <p>Note: these significance conclusions are dependent on delivery of carbon reductions.</p>
Negligible	<p>The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.</p> <p>OR</p> <p>A project that achieves emissions mitigation that goes substantially beyond the reduction trajectory, or substantially beyond existing and emerging policy compatible with that trajectory, and has minimal residual emissions, is assessed as having a negligible effect that is not significant. This project is playing a part in achieving the rate of transition required by nationally set policy commitments.</p>

Results

- 3.1.10 The results of calculating total GHG (or “carbon”) emissions are presented in Tables 5.7 and 5.8, and Figure 5.1 of ESA4. Table 5.8 from ESA4 is reproduced below as Tables 3.2 and 3.3 for ease of reference, with additional data for 2025, 2028, 2032 and 2040. The results are expressed as % reductions from the 2019 baseline.
- 3.1.11 In all cases, either for the Consented or Proposed Schemes (i.e. without or with the expansion from 18 mppa to 19 mppa) and in any of the three assessment scenarios, total emissions are predicted to fall from the 2019 baseline. This is clearly illustrated in Figure 5.1 of ESA4. In terms of overall emissions, the main contributors are surface access and emissions from flights to the EEA, followed by emissions from flights to the rest of the world, domestic flights and, lastly, airport buildings and ground operations.
- 3.1.12 ESA4 reported that total GHG emissions from the Proposed Scheme would be 645.3 ktCO₂e/yr (44%) lower in 2050 compared to the 2019 baseline. In the higher emissions scenario, total emissions would be 287.1 ktCO₂e/yr lower. In the lower emissions scenario, total emissions would be 1,226.6 ktCO₂e/yr lower. This range represents a 19 – 83% reduction in total GHG emissions relative to the 2019 baseline. ESA4 also reports that GHG emissions in the Proposed Scheme peak in the 2025 assessment year in all future scenarios, due primarily to passenger forecasts which are assumed to be constant beyond 2025 while efficiency improvements continue. At their peak in 2025, total GHG emissions associated with the Proposed Scheme are 47 – 71 ktCO₂e/yr lower than the 2019 baseline, dependent on the future scenario considered.

TABLE 3.2 : Summary of % emission reductions from 2019 to 2050 Consented Development

	% Emissions reduction from 2019 for the Central Scenario (range: Upper and Lower Scenarios)				
	2025	2028	2032	2040	2050
Aviation	1% (0%-1%)	6% (4%-9%)	9% (4%-15%)	14% (4%-26%)	31% (12%-80%)
Surface access	30% (30%-32%)	35% (35%-44%)	45% (41%-63%)	68% (50%-87%)	82% (54%-92%)
Airport buildings and ground operation	32% (20-32%)	47% (35%-47%)	49% (37%-49%)	54% (42%-62%)	54% (49%-74%)
Total	9% (9%-10%)	15% (13%-19%)	20% (15%-29%)	29% (18%-43%)	46% (24%-84%)

TABLE 3.3 : Summary of % emission reductions from 2019 to 2050 Proposed Scheme

	% Emissions reduction from 2019 for the Central Scenario (range: Upper and Lower Scenarios)				
	2025	2028	2032	2040	2050
Aviation	-1% ¹ (-2%-0% ¹)	4% (1%-7%)	6% (1%-12%)	11% (2%-23%)	29% (² 9%-80%)
Surface access	13% (13%-16%)	20% (20%-30%)	32% (27%-55%)	61% (38%-85%)	79% (43%-92%)
Airport buildings and ground operation	28% (15%-28%)	44% (32%-44%)	46% (34%-46%)	51% (39%-60%)	51% (46%-73%)
Total	4% (3%-5%)	9% (7%-14%)	14% (9%-25%)	26% (12%-41%)	44% (19%-83%)
Notes: 1. increased emissions. 2. ESA4 included a minor error reporting this value as 10% rather than 9%.					

3.1.13 In terms of percentage reductions, emissions from surface access are expected to reduce the most by 2050, by 79% - 82% in the central scenarios for the Consented and Proposed Schemes respectively. Airport buildings and ground operations reduce by 51% - 54% and aviation by 29% - 31%. This is an important consideration, as discussed in Section 4 of my evidence, as LLAOL has direct control over airport buildings and ground operations, and the surface access of its own staff and contractors, but can only influence the surface access of passengers and emissions from aircraft. Overall, emissions are expected to fall by 44% - 46% between 2019 and 2050 in the central emissions scenario, within the range 19% - 84%.

3.2 Assessment of significance

3.2.1 In accordance with IEMA guidance: *“GHG emissions are not geographically limited. They have a global effect rather than directly affecting any specific local receptor to which a level of sensitivity can be assigned. The receptor for GHG emissions is the global atmosphere. The receptor has a high sensitivity, given the severe consequences of global climate change and the cumulative contributions of all GHG emission sources.”*

3.2.2 The test for significance is whether any increase in emissions as a result of the Proposed Scheme would impede UK climate policy in reaching carbon net zero by 2050 and achievement of the carbon budgets (see Table 3.1). The assessment using this test considers the following aspects:

- a. The differentiation made in MBU that aviation emissions are subject to national policy, and non-aviation emissions are subject to both local and national planning policy.
- b. The year of assessment and the relevant carbon budget.
- c. Differentiation between domestic, EEA and rest of the world aviation emissions, reflecting the role of the UK ETS and CORSIA.

- d. The increase in aviation emissions expressed as a percentage of the planning assumption.
- e. Cumulative emissions from other UK airports.
- f. Alignment with the Jet Zero in-sector trajectory.

Aviation emissions – up to fifth carbon budget

- 3.2.3 The fourth and fifth carbon budgets run from 2023 to 2027 and 2028 to 2032 respectively. These budget periods include assessment years 2025, 2028 and 2032. The results are summarized in Table 3.4. The flight emissions from Luton Airport under the existing consent, including domestic, represent between 2.56% and 2.84% of the planning assumption. During this period, there is an increased uptake of newer, more efficient aircraft with the Proposed Scheme, resulting in emissions reducing in 2028 compared to the Consented Development scenario. More efficient aircraft are also expected in the Consented Development scenario by 2032.
- 3.2.4 The impact of the Proposed Scheme is determined as the difference between the Consented and Proposed Scheme scenarios, expressed as a percentage of the planning assumption. In 2025 this is +0.05%, rising only to +0.07% in 2028 and rising only to +0.08% in 2032.
- 3.2.5 To put these percentages in context, Table 3.5 provides the results of comparing the incremental increase in aviation emissions at London Luton Airport associated with expansion plans at four airports in the UK, all based on approved planning applications albeit with the Bristol Airport Appeal subject to judicial review. For each airport, the incremental increase is expressed as a percentage of the 37.5 MtCO₂ planning assumption, ranging between 0.175% and 1.950%.

TABLE 3.4 : Significance of aviation emissions – fourth and fifth carbon budget periods

Aviation emissions (KtCO ₂)	2023 – 2027 Fourth carbon budget			2028 – 2032 Fifth carbon budget					
	2025 consented	2025 proposed	2025 diff.	2028 consented	2028 proposed	2028 diff.	2032 consented	2032 proposed	2032 diff.
Domestic	39.8	39.8	0.0	38.8	38.2	-0.6	37.0	36.9	-0.1
EEA	823.6	832.0	8.4	781.2	788.6	7.4	757.4	768.6	11.2
Rest of world	183.4	192.2	8.8	168.4	186.3	17.9	163.9	181.6	17.7
Total	1046.8	1064.0	17.2	988.4	1013.1	24.7	958.3	987.2	28.9
% of planning assumption	2.79%	2.84%	0.05%	2.64%	2.70%	0.07%	2.56%	2.63%	0.08%

TABLE 3.5 : Significance of aviation emissions – recent planning approvals

Airport	Passenger Growth	2050 total aviation emissions (Proposed Scheme) KtCO ₂ /yr	2050 incremental increase in aviation emissions KtCO ₂ /yr	Increase in aviation emissions as a % of 37.5 MtCO ₂ planning assumption	Status
London Stansted	8 mppa (35 to 43 mppa)	1130 – 1860	70 – 120	0.187 – 0.320	Approved with 43 mppa cap (subject to S106 Agreement)
Southampton International	1mppa (2 to 3mppa)	367	Cannot be determined	Cannot be determined	Approved with 3 mppa cap (subject to S106 Agreement)
Bristol	2mppa (10 to 12mppa)	413 – 488	66 – 78	0.175 – 0.207	Approved at Appeal, subject to Judicial Review
Manston	Not applicable (freight only)	730 (in 2040)	730 (in 2040)	1.95	Approved (subject to S106 Agreement)
London Luton Airport	1mppa (18 to 19mppa)	¹ 208 - 955	¹ 6 - 28	¹ 0.017 – 0.074	Pending
Total	15 mppa	2848 - 4400	872 - 956	2.325 – 2.549	
Note: 1. Based on Table 5A.7 of ESA4.					

3.2.6 The recent Appeal Decision for Stansted Airport⁴⁷ concluded for the emissions under consideration there that (paragraph 102):

“Accordingly, for all of the foregoing reasons, having due regard to current national aviation policy and wider planning policy, including the development plan and the Framework, the proposed development would not have a significant or unacceptable effect on carbon/climate change.”

3.2.7 The Manston Decision refers to the assessment of cumulative emissions as follows (paragraph 71):

“All MBU developments, regardless of whether they are listed in the forecasts or not, are required to assess the environmental impacts from the proposed development on its own and also in-combination with other existing or known projects. This includes the assessment of carbon impacts.”

3.2.8 The Proposed Scheme at Luton Airport only results in emissions representing 0.074% of the 37.5 MtCO₂ planning assumption. Indeed, not only is the Proposed Scheme at Luton Airport increase well below that approved at Stansted, but it is also the lowest of the various proposed projects in Table 3.5. The emissions from the Proposed Scheme at Luton Airport are simply not significant at all in light of the 37.5 MtCO₂ planning assumption.

3.2.9 I reach the same conclusion when considering the emissions from the Scheme against the relevant national carbon budgets (which involves an inherently cumulative assessment).

3.2.10 Moreover, and alternatively, the cumulative impact of the five developments listed in Table 3.5 would represent an increase in emissions within the range 2.325 – 2.549 % of the planning assumption. As referred to in paragraphs 3.2.3 and 3.2.4 of my evidence,

⁴⁷ CD15.01

the Secretary of State is *“satisfied that Government’s Transport Decarbonisation Plan and the Jet Zero Strategy... will ensure Government’s decarbonisation targets for the sector and the legislated carbon budgets can be met without directly limiting aviation demand.”*

In this context, I conclude that the cumulative impact of the Proposed Scheme with those of other schemes is also not significant and would not impede UK climate policy from reaching carbon net zero by 2050 or the achievement of the relevant carbon budgets.

3.2.11 The Jet Zero in-sector carbon trajectory includes interim targets of reducing emissions to 25.4% below 2019 levels by 2040 and to 49.3% below 2019 levels by 2050. With reference to Tables 3.2 and 3.3 of my evidence, emissions from Luton Airport are expected to fall by 29% (18%-43%) with the Consented Development and by 26% (12%-41%) with the Proposed Scheme by the year 2040 and by 46% (24%-84%) with the Consented Development and 44% (19%-83%) with the Proposed Scheme by the year 2050. The central scenario is slightly ahead of the Jet Zero trajectory in 2040 but may lag behind in 2050. The low emissions scenario in 2040 and 2050 would be well ahead of the Jet Zero in-sector carbon trajectory, representing the potential for reductions that could be achieved. The Jet Zero trajectory represents what Government expects can be achieved. The ESA4 results for 2050 are therefore conservative when compared to this Government expectation. This reinforces my view that the incremental change in emissions in the sixth carbon budget period and up to 2050 is not material in preventing UK Government policies to reach carbon net zero.

Aviation emissions – sixth carbon budget to 2050

3.2.12 The sixth carbon budget runs from 2033 to 2037 with further budgets (seven, eight and nine) expected up to 2050. ESA4 does not include assessment years that fall within the sixth carbon budget period so I have presented the range (from 2032 to 2040 assessment years) in Table 3.6 below. The sixth carbon budget is 965,000 KtCO₂e over five years; equivalent to 193,000 KtCO₂e annually. The results for 2050 are also included, noting that the carbon budget for 2050 is net zero.

- 3.2.13 Aviation emissions from what is already permitted at Luton Airport during the sixth carbon budget period would contribute between 0.47% and 0.51% of the budget. The incremental change as a result of the Proposed Scheme is just +0.01%.
- 3.2.14 As described in paragraphs 2.4.1 to 2.4.6 of my evidence, aviation emissions from domestic and EEA flights are included in the UK ETS emissions cap. For the sixth carbon budget period, this represents 752.9 – 805.6 KtCO₂ or 39% of the incremental increase. The remaining emissions from flights (to the rest of the world) would be included within CORSIA.
- 3.2.15 I do not consider the incremental change to be material in preventing UK Government policies to meet the sixth carbon budget or to reach carbon net zero.

TABLE 3.6 : Significance of aviation emissions – sixth carbon budget period to 2050

Aviation emissions (KtCO ₂)	2033 – 2037 Sixth carbon budget			Up to 2050		
	2032 - 2040 w/out	2032 - 2040 with	2032 - 2040 diff.	2050 w/out	2050 with	2050 diff.
Domestic	35.1 - 37.0	35.0 - 36.9	-0.1	27.9	27.8	-0.1
EEA	717.8 - 757.4	728.4 - 768.6	10.6 - 11.2	570.2	578.6	8.4
Rest of world	155.3 - 163.9	172.1 - 181.6	16.8 - 17.7	123.4	136.7	13.4
Total	908.2 - 958.3	935.5 - 987.1	27.3 - 28.8	721.5	743.1	21.7
% of planning assumption	2.42 - 2.56%	2.49 - 2.63%	0.07 – 0.08%	1.92%	1.98%	0.06%
% of carbon budget	0.47 - 0.50%	0.48-0.51%	0.014 – 0.015%	-	-	-

Non-aviation emissions

3.2.16 As described in Tables 3.2 and 3.3 of my evidence, non-aviation emissions are predicted to fall between 2019 and 2050.

3.2.17 The reductions in surface access emissions largely reflect the decarbonisation of the road transport sector in the UK and the increased provision of public transport. As described in Section 4.3 of my evidence, the Carbon Reduction Plan provides the ability for LLAOL to work with LBC in accelerating the drive to decarbonize surface transport with continued efforts to increase public transport utilization (including the Direct-Air-Rail-Transit system due to come into operation in 2022), the provision of electric charging points and actively encouraging uptake of electric vehicles, in addition to the ongoing replacement of older, less efficient vehicles with newer, more efficient ones within the national fleet. None of these measures is 'new' and would be considered business as usual in transport planning terms. Surface emissions are not included in the Mott MacDonald report (see paragraphs 2.3.15 and 2.3.16 of my evidence) which recommends airports are zero carbon by 2040.

3.2.18 I consider the measures proposed by LLAOL to reduce emissions from surface access are in line with national transport planning policy and, through agreement with LBC, will be in line with local transport planning policy. On this basis, I do not consider the incremental increase in emissions from surface access to the Proposed Scheme would be material in preventing UK Government policies to meeting successive carbon budgets or to reach carbon net zero.

3.2.19 Reductions in airport buildings and ground operations reflect the expected reduction in the carbon intensity of grid electricity supply. There is not sufficient information available to quantify anticipated changes in gas use, fleet vehicles or refrigerants for the future scenarios. These are therefore assumed to be constant, although expected changes such as improved building management processes, further boiler upgrades (including

switching to electric) and fleet upgrades to electric or alternative fuel technologies are anticipated. Fleet vehicle emissions are included in the Mott MacDonald report (see paragraphs 2.3.15 and 2.3.16 of my evidence) which states these emissions may reduce to zero carbon by 2040, largely as a result of electrification.

3.2.20 I consider the measures proposed by LLAOL to reduce emissions from airport buildings and ground operations are in line with Government aspirations for zero carbon airports by 2040. I do not consider the incremental increase in emissions from airport buildings and ground operations associated with the Proposed Scheme would be material in preventing UK Government policies to meet successive carbon budgets or to reach carbon net zero.

4. Carbon and Climate Change Action

4.1 Jet Zero: international and national measures

4.1.1 The Jet Zero Strategy and supporting consultation documentation describe the technical measures already in place or being implemented at the international and national levels to reduce emissions from aviation. These include:

- a. Ongoing incremental improvements in the fuel efficiency of aircraft, in terms of engine performance, airframe design and on-board power management.
- b. Improvements in airspace management.
- c. Development and future introduction of electric and hydrogen propelled aircraft (zero emission aircraft).
- d. Uptake of SAF.
- e. The use of carbon pricing to drive investment in the above.
- f. Development and introduction of GHG removal technologies.

4.1.2 The illustrative pathways referred to in the Jet Zero Strategy include Scenario 2: High Ambition which assumes 70% increase in passenger demand from 2018 and unabated emissions of 52 MtCO₂e in 2050. However, the impact of implementing the measures listed above would result in a 27% reduction in emissions by 2050 due to UK ETS and CORSIA, 15% reduction as a result of fuel efficiency and airspace management measures, 4% from zero emission aircraft and 17% from SAF. Residual emissions requiring GHG removal would be 19 MtCO₂e in 2050, i.e. 37% of the unabated total. The Jet Zero in-sector carbon trajectory is based on this scenario.

4.2 Luton Airport responsible business targets

4.2.1 In December 2019, LLAOL published its responsible business strategy for the period 2020 – 2025⁴⁸ which includes a wide range of key performance indicators (KPIs). Those most relevant to carbon are listed in Table 4.1, along with the annual reporting provided in LLAOL's sustainability reports for 2020 and 2021.

4.2.2 LLAOL reports where KPIs have been completed, are on track, are behind target or are paused. The following KPIs are highlighted from Table 4.1:

- a. Level 3 (Optimisation) certification with the Airport Carbon Accreditation scheme was achieved in May 2021.
- b. The Carbon Reduction Strategy referred to in paragraph 1.3.3 of my evidence is identified and being tracked.
- c. 100% of electricity is sourced from renewables.
- d. Climate change risks have been identified and addressed.

4.2.3 The open reporting of responsible business KPIs by LLAOL provides an existing framework for ensuring the Carbon Reduction Strategy referred to in paragraph 1.3.3 of my evidence can be implemented and progress reported in a robust manner.

⁴⁸ CD11.63

TABLE 4.1 : Carbon related Responsible Business Targets

Target	Theme	Objective	2020 Progress Update	2021 Progress Update
1.1	Carbon accreditation	Achieve the 'Mapping' level of certification within the Airport Carbon Accreditation Scheme by end of 2020 and the 'Reduction' level of certification by end of 2022	ON TRACK Level 1 (Mapping) was achieved in December 2019 and on track to achieve level 2 (Reduction) by the end of 2022. <i>Note: Luton Airport became a member of Sustainable Aviation in 2016.</i>	ON TRACK Level 3 (Optimisation) achieved in May 2021.
1.2	Carbon accreditation	Develop a Carbon Management Strategy with ambitious emission reduction target by the end of 2020	BEHIND TARGET Targets already set on 2040 Net Zero and 2026 carbon neutrality. Carbon Reduction Strategy to be published by the end of 2022. <i>Note: in 2019, Alberto Martin (CEO) signed the aviation sector pledge to achieve net zero emissions before 2050.</i>	BEHIND TARGET Committed to achieving neutrality by 2026 or sooner and Net Zero by 2040. We have developed an outline carbon reduction plan with a detailed Net Zero roadmap being developed in 2022.
1.3	Energy	Source 100% of electricity from renewable sources by end of 2021	ON TRACK Luton Airport will purchase 100% of electricity from renewable sources for 2021 onwards, using REGOs or green tariff electricity in the first instance.	COMPLETED Completed April 2021
1.4	Energy	At least 25% of the energy we use to come from on-site renewables by end of 2026	ON TRACK A programme to investigate the feasibility for ground and roof mounted solar will commence in 2021.	IN PROGRESS Enabling works commenced in 2021
1.5	Energy	Reduce operational electricity demand (excluding vehicles) to less than 2.0 kWh/pax by end of 2023	PAUSED COVID reduced passenger numbers and increased the electricity use per passenger to 4.8kWh/pax in 2020 <i>Note: achieved ISO 50001 (energy) certification in 2014, recertified 2021.</i>	IN PROGRESS 5.8 kWh/pax achieved in 2021 due to continued significant reduction in pax numbers. Site-wide energy audit planned for 2022 to identify further energy reduction/efficiency measures. <i>Notes: In 2021, upgraded escalators in the terminal building to improve energy efficiency, reducing electricity demand by 100 MWh per annum. In 2021, upgraded lighting systems and ventilation systems, reducing electricity demand by 250 MWh per annum.</i>

Target	Theme	Objective	2020 Progress Update	2021 Progress Update
				<i>In 2021, upgraded gas boilers, reducing annual gas consumption by 16%.</i>
1.6	Water	Reduce total water consumption to less than 6.98 litres/pax by end of 2023, representing a 10% reduction from the 2018 baseline	PAUSED COVID reduced passenger numbers and increased the water use per passenger to 9.63l/pax in 2020	BEHIND TARGET 10.32 litres per passenger in 2021 (significant reduction in passenger numbers due to COVID).
1.7	Water	Identify and quantify operations that currently use potable water but could be served by non-potable water by end of 2021	PAUSED This project has been delayed due to re- source constraints related to COVID. Contract will be retendered in 2022 and take into account this requirement.	BEHIND TARGET Due to reduced passenger number due to COVID.
1.8	Waste	Recycle at least 70% of non-hazardous operational waste (excluding aircraft waste) by end of 2022	BEHIND TARGET COVID impacted operations on site meaning that recycling rate reduced to 49%	BEHIND TARGET Due to reduced passenger number due to COVID. Currently 62%.
1.9	Waste	Reduce operational waste (excluding aircraft waste) to 0.12 kg per passenger by end of 2023.	COVID reduced passenger numbers and increased waste generated per passenger to 0.159kg/pax	IN PROGRESS 0.131kg per passenger, heading in the right direction for 2022.
1.10	Waste	Achieve the Carbon Trust Standard for Zero Waste to Landfill accreditation by end of 2020	PAUSED Accreditation delayed due to COVID, however the new waste supplier contract which commenced in 2021 includes a requirement for zero operational waste being sent directly to landfill	PAUSED No change from 2020.
1.18	Sustainable travel	Reduce single occupancy vehicle travel to the airport for customers and employees (employees: 2022 – 64%; customers: 2022 – 47%)	PAUSED Reporting data not available during 2020 due to COVID	BEHIND TARGET In 2021, due to COVID-19 75% of employees and 57% of customers travelled to the airport via single-occupancy vehicle.
1.19	Sustainable travel	Greater than 28% of employees and 33% of customers travelling to and from the airport using sustainable modes of transport by 20223	PAUSED Reporting data not available during 2020 due to COVID	IN PROGRESS 28% of employees and 36% of customers travelled to and from the airport using sustainable modes of transport in 2022.
1.20	Sustainable travel	Promote and monitor sustainable travel at the airport. Secure 12% participation in the staff travel survey by 2020 and increase the number of organisations attending the	PAUSED Travel surveys paused due to move to working from home for many team members and resource restrictions due to COVID	COMPLETED Based on LLA staff, secured a response rate of 24%, exceeding the 12% target.

Target	Theme	Objective	2020 Progress Update	2021 Progress Update
		airport travel forum (2022: 12)		
1.21	Sustainable travel	Establish a plan for low-carbon airside and landside vehicles by mid-2021	PAUSED Work on developing a low-carbon strategy has been delayed due to resource restrictions as a result of COVID	IN PROGRESS A number of initiatives are ongoing, including decarbonisation of taxi fleets; and an airside and landside vehicle review being run by the sustainability team. Upcoming tenders will include operator low-carbon initiatives.
1.25	Climate change risk	Identify climate change risks and develop a resilience plan and integrate it into business risk assessment process by the end of 2022	ON TRACK Climate change adaptation report in progress due to be completed in 2021. Carbon Reduction Strategy to be published by the end of 2022. <i>Note: main focus in 2022 will be building on the climate change adaptation work and furthering the understanding of climate change risks by carrying out further climate change assessments in line with the Task-Force on Climate Related Financial disclosures framework.</i>	COMPLETED Complete change adaptation report completed.
6.2	Sustainability in contracts	75% of supplier contracts by spend to include sustainability objectives by December 2020	ACHIEVED All contracts with a value over £25k include sustainability objectives	PAUSED Due to COVID. significantly reduced the number of new contracts made.
6.3	Supplier capacity building	Sustainable supply chain toolkit for suppliers in place by December 2022	ON TRACK Luton Airport conducted a review of supply chain climate related risks and impacts in 2020	ON TRACK Currently working on a toolkit for suppliers.
6.6	Climate change risk	Identify strategic suppliers and assess the climate change risks for these suppliers by the end of 2021	ON TRACK Luton Airport conducted a review of climate change impacts in the supply chain during 2020 and will be publishing a supply chain charter by 2022	COMPLETED Worked with LSE to produce a review of supply chain impacts and develop a list of Recommendations.
6.7	Climate change risk	Develop a supplier climate change resilience plan by 2023	ON TRACK Work due to start in 2021	BEHIND TARGET To start in Q4 2022.

4.3 Carbon Reduction Strategy

4.3.1 The content and structure of the Carbon Reduction Strategy is to be agreed between LLAOL and LBC. From experience preparing similar documents, my expectation is that the strategy will include five key elements:

- a. A description of the airport, identifying all associated sources of emissions, classified as either Scope 1, 2 or 3.
- b. A statement on what sources will be monitored, reported and verified.
- c. A schedule of measures to be implemented by LLAOL to reduce emissions from sources under their direct control or influence.
- d. A statement on how LLAOL will work with partners to reduce emissions from sources not under their direct control.
- e. A statement on how the Strategy will be periodically reviewed and updated.

4.3.2 In terms of monitoring, reporting and verification of emissions, it is important to note there are existing mechanisms in place:

- a. Emissions from flights will need to be reported by the airline operators in accordance with existing Regulations and subject to external verification.
- b. Emissions from all sources associated with the airport, including flight emissions, will be reported by LLAOL to the ACA every year to maintain certification.
- c. Emissions from all sources associated with the airport will be included within LLAOL's annual sustainability report and subject to external verification.

4.3.3 The Carbon Reduction Strategy itself may generate specific KPIs that relate to specific actions to reduce emissions. Some of these are already identified within the airport's responsible business targets.

5. Rule 6 and other parties

5.1 Council for the Protection of Rural England

- 5.1.1 In this section of my evidence, I respond to statements made by Rule 6 parties in their Statements of Case which are relevant to carbon and climate change. In this Application, this is limited to the Council for the Protection of Rural England (CPRE Hertfordshire) only. The statement by CPRE Hertfordshire refers, in paragraphs 12-14, to the climate change emergency. I have reproduced each of these paragraphs below along with my response.

Paragraph 12

“CPRE Herts is concerned that an increase in capacity for Luton Airport is inappropriate in terms of the increasing debate on the future of air travel, and its continued expansion. Notwithstanding the technical advances with regard to noise and fuel economy, these will not be sufficient to ameliorate the damage caused by short-term planned increases in air travel.”

- 5.1.2 As described in Section 2 of my evidence, the Government position is that the UK aviation sector will achieve carbon net zero by 2050 and, in doing so, will support the economy and deliver innovation.

Paragraph 13

“Climate change targets for all kinds of economic and social activity are now enshrined in legislation and these are stringent and will not be easy to achieve. Short-term increases in airport capacity should not be permitted to act as an encouragement to explore alternative provision which takes account of climate change objectives.”

- 5.1.3 As described in Section 3 of my evidence, the Proposed Scheme would not impede the Government in meeting successive carbon budgets or reaching carbon net zero by 2050.

Paragraph 14

“It is clear from the recent public consultation from Luton Rising that a further very substantial increase in passenger throughput for Luton Airport, from 19 million to 32 million ppa is being actively planned for. Together with proposals for Heathrow, Gatwick and Stansted airports, there is a cumulative impact which requires urgent consideration for London and the south east and eastern regions. Continued planning for airport expansion in south east England as a whole is wholly inappropriate in the climate change emergency, as declared by Luton Borough Council and many other local authorities throughout the United Kingdom.”

- 5.1.4 As described in Section 2 of my evidence, the Government’s Jet Zero Strategy for the UK aviation sector is predicated on the cumulative growth of UK airports, noting that London Luton Airport has plans to reach 32 mppa by 2030. This application for an additional 1mppa is not related to those proposals for an increase to 32mppa. There is therefore no need for this application to include a cumulative assessment with any such DCO proposal.

6. Conclusions

6.1.1 In my proof I have shown, by reference to relevant legislation and policy, and to ESA2 and ESA4, that:

- a. Aviation emissions are regulated at a national level, with reductions being driven by Government policies, incentives and participation in the UK ETS and CORSIA.
- b. Government aviation policy is to embrace innovation for a sustainable future, realising benefits for the UK.
- c. Government projections of how the UK aviation sector may reach carbon net zero includes growth in passenger numbers, at London Luton and other airports.
- d. Reductions in surface transport emissions are being driven by national and local transport planning.
- e. A Carbon Reduction Strategy will be agreed with LBC, detailing how the airport will monitor and report all emissions associated with the airport, set targets and continue to reduce emissions from airport buildings and ground operations, in addition to supporting measures to reduce aviation and surface access emissions.
- f. Using several tests of impact significance, the increase in airport capacity from 18mppa to 19mppa would not materially increase carbon emissions and would not impede Government policy to achieve carbon net zero.
- g. In terms of non-CO₂ impacts, the Government position remains one of monitoring the science although inclusion of aviation emissions of NO_x within the UK ETS is being considered.
- h. A Climate Change Adaptation plan to Government addresses risk with heavy rainfall to be addressed by the continued maintenance of I and considers in the longer term

the effects of increasing temperatures impacting take off weights and passenger comfort.

- i. Objections raised by Rule 6 parties are addressed by national policy.

6.1.2 Overall, my clear conclusion is that the carbon and climate change impacts of the Proposed Scheme are not proper grounds for refusing the application and the proposal complies with all relevant parts of local and national policy.

Annex A : Jet Zero Data

The screenshot below is taken from the 'Airport_Capacities' tab of the Jet Zero Strategy Dataset

(https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1091868/jet-zero-strategy-dataset.ods)

Air transport movement (ATM) and terminal passenger capacity assumptions by airport, 000s								
Airport	Runway ATMs (000s)				Terminal passengers (000s)			
	2019	2030	2040	2050	2019	2030	2040	2050
Gatwick	291	346	383	386	0	0	0	0
Heathrow	480	505	740	740	0	0	0	0
London City	111	151	151	151	6500	11000	11000	11000
Luton	160	210	210	210	18000	32000	32000	32000
Stansted	259	259	259	259	35000	43000	43000	43000
Southampton	150	150	150	150	2500	3000	3000	3000
Southend	53	53	53	53	0	0	0	0
Bournemouth	150	150	150	150	0	0	0	0
Bristol	150	150	150	150	10000	12000	12000	12000
Exeter	150	150	150	150	0	0	0	0
Newquay	75	75	75	75	0	0	0	0
Cardiff	105	150	150	150	0	0	0	0
Norwich	175	175	175	175	0	0	0	0
Birmingham	206	206	206	206	0	0	0	0
East Midlands	264	264	264	264	0	0	0	0
Doncaster Sheffield	57	57	57	57	0	0	0	0
Humberside	150	150	150	150	0	0	0	0
Leeds-Bradford	150	150	150	150	5000	7000	7000	7000
Liverpool	213	213	213	213	0	0	0	0
Manchester	324	400	500	500	0	0	0	0
Newcastle	213	226	226	226	0	0	0	0
Teeside	150	150	150	150	0	0	0	0
Aberdeen	175	225	225	225	0	0	0	0
Edinburgh	150	225	230	261	0	0	0	0
Glasgow	226	226	226	226	0	0	0	0
Inverness	150	150	150	150	0	0	0	0
Prestwick	150	150	150	150	0	0	0	0
Belfast City	48	48	48	48	0	0	0	0
Belfast International	260	260	260	260	0	0	0	0

Note: All scenarios presented in the Accompanying analytical document to the Jet Zero Strategy use the same airport capacity assumptions, as set out above. These assumptions do not represent any proposal for limits on future capacity growth at specific airports, nor do they indicate maximum appropriate levels of capacity growth at specific airports for the purpose of planning decision-making. These figures do not represent expected passenger numbers, just the upper limit assumed for each airport as an input to the modelling process.

Susteer AB
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