



APPLICATION BY LONDON LUTON AIRPORT OPERATIONS LTD

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

VARIATION OF CONDITIONS RELATING TO EXTENSIONS AND

ALTERATIONS TO THE AIRPORT

LONDON LUTON AIRPORT, AIRPORT WAY, LUTON

Proof of evidence of Cait Hewitt

on behalf of LADACAN:

Climate change impacts arising from additional aviation activity

30th August 2022

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1. Introduction

- 1.1 I am the Policy Director for the Aviation Environment Federation (AEF), a not-for-profit organisation campaigning on aviation's impacts for people and the environment. I have worked at AEF for fifteen years and have led the organisation's policy work for over a decade. AEF calls for effective Government action to address the environmental impacts of aviation, including climate change. We have a seat on the Jet Zero Council and we represent the global NGO coalition ICSA at the International Civil Aviation Organisation of the UN, where we advocate for strong international policy on aviation emissions. AEF's membership includes community and amenity organisations, and locally elected bodies. LADACAN is an AEF member.
- 1.2 I hold an MA with Distinction in environmental philosophy from Lancaster University. I have given expert evidence on the subject of aviation and emissions policy to the Transport Committee and the Environmental Audit Committee in Parliament, to the Airports Commission (which examined the case for additional South East runway capacity) and to the London Assembly Transport Committee.
- 1.3 The Proposal is likely to increase emissions compared to a 'no expansion' case as a result of activity:
- a. on the ground, including from staff or passenger access to the airport and increased activity at the airport, and
 - b. in the air, from increased flight emissions.
- 1.4 These carbon and climate impacts are all material considerations for this inquiry. Given my own expertise and the scope of work undertaken by AEF, however, my evidence addresses

only the second category, namely the additional emissions from aircraft that would be generated by the proposed development. These are sometimes described as 'scope 3 emissions', those that are associated with the airport's activity but over which it has limited control. Airports rely to a large extent on government policy, together with commercial decision-making by third parties (in this case, by airlines), to limit these emissions. Surface access emissions from cars and other vehicles travelling to and from the airport fall into the same category.

1.5 My argument can be summarised as follows:

- a) Climate change represents an existential threat such that any development causing an increase in CO2 emissions would need to prove a very strong case for proceeding.
- b) The climate change impacts of airport development must be assessed on a case-by-case basis.
- c) The Government has acknowledged that its approach to national policy on aviation and climate change is high risk. It is also incomplete. Both these factors mean it cannot be relied on to mitigate all the aviation emissions arising from the proposed development.
- d) London Luton Airport Operations Limited's (LLAOL's) test of 'material impact' on climate change is outdated in some respects, and underestimates the impact of the proposal.
- e) The emissions increase from aviation associated with the application should have been assessed against Luton Borough Council's commitment to achieve net zero by 2040.

Climate change represents an existential threat to life on this planet

- 1.6 Given the body of evidence that has now been provided by the Intergovernmental Panel on Climate Change (IPCC), the widely-acknowledged state of emergency represented by the threat of climate change and the need for radical and urgent cuts to greenhouse gas emissions, any development that results in an increase in CO2 emissions should be tested against a very high bar in terms of social and economic need in order to proceed.

The climate change impacts of airport development must be assessed on a case-by-case basis

- 1.7 The applicant's Statement of Case, section 2.16.1 states that "the implications of emissions from flights in terms of climate change and greenhouse gas emissions is a matter to be addressed at a national level."
- 1.8 Government policy on airport development has consistently indicated, however, that planning decisions should be reached on a case-by-case basis, with environmental impacts weighed in the balance alongside other potential benefits and disbenefits of the development at the local level. This is discussed in section 3 of this proof. Notwithstanding the Government's statements of support for airport expansion, such support is never unqualified. Decision-makers, whether the Local Planning Authority or the Planning Inspectorate, need to make their own appraisal of likely climate impacts and of whether or not policies are in place to mitigate these emissions effectively.

Current policy on aviation and climate change is high risk and incomplete.

1.9 The Government's recently-published Jet Zero strategy (its aviation emissions strategy) is both high risk (in terms of its likelihood of delivering the intended emissions goal) and incomplete (because it does not set out how it will ensure that the key measures it assumes to be in place to cut emissions – notably carbon pricing and carbon removals – will in fact be delivered, and does not include measures to address the non-CO2 impact of aviation). As argued in section 4 of this proof, the Jet Zero Strategy should not therefore be relied upon to ensure delivery, on its own, of either (i) the UK's legally binding climate commitment to achieve net zero emissions or (ii) the temperature goals of the Paris Agreement to which the UK is a signatory. It should be a cause for concern that the Net Zero Strategy – under which the aviation strategy sits – was recently ruled to be unlawful.

1.10 The Government's approach on aviation has faced strong criticism from its statutory advisers, the Climate Change Committee, as discussed in section 4, under the subheading '*View of the CCC on the need for aviation demand limits*'. The rejection in the Jet Zero Strategy of the CCC's advice to adopt policy that limits aviation demand increases the risk of the net zero target not being met, as it places a very heavy reliance on the delivery of uncertain measures such as carbon pricing, and an increased rate of new technology and Sustainable Aviation Fuel rollout. The highly optimistic stance the Government takes in relation to the scale and timing of delivering Sustainable Aviation Fuels and new technologies is considered in section 4.16 of this proof, its failure to tackle non-CO2 impacts in sections 4.31-4.36, the absence of measures to deliver greenhouse gas removals in sections 4.29-4.30, and its reliance on carbon pricing by way of CORSIA for all non-EEA and domestic departures to deliver both low-carbon technology and fuels, and demand reduction is covered in sections 4.21-4.28 . Given these flaws and gaps, (a) a significant

proportion of the emissions generated by the development will not, or may not, be effectively mitigated and (b) any increase in aviation emissions from the proposed development could have a material impact on the ability of Government to meet its carbon reduction targets.

The applicant's test of 'material impact' on climate change is outdated in some respects, and underestimates the impact of the proposal.

1.11 LLAOL acknowledges that the development will increase aviation emissions compared with a 'no development' baseline. It argues that this impact is not significant, however, on the basis of two tests: (i) the extent to which the scheme materially affects the ability of the UK to meet the aviation 'planning assumption' of 37.5 MtCO₂ and (ii) whether it will affect the UK's ability to meet targets and budgets.

1.12 37.5 MtCO₂ no longer serves as a suitable benchmark for aviation emissions even in the short term, however, as the 'planning assumption' for aviation is now net zero, and the Government has set a new emissions trajectory for achieving that level by 2050. Meanwhile in the absence of effective Government measures for aviation emissions any increase in emissions is significant, particularly when combined with increases from other airport developments.

The emissions increase from aviation associated with the application should have been assessed against Luton Borough Council's commitment to achieve net zero by 2040.

1.13 The need for urgent and far-reaching local-level action on climate change has been recognised by Luton Borough Council by way of its climate emergency declaration, and its

support for ADEPT implies a recognition of the shortcomings in Government policy relating to planning and climate change. While Luton Borough Council implies in its statement of case that emissions from aircraft in flight are not covered by its commitment to achieve net zero by 2040, this is at odds with LLAOL's characterisation of that commitment, namely that it is ambiguous on this point. In this context, the impact of aviation emissions associated with the proposed development on LBC's net zero commitment should have been assessed.

2. Significance and relevance of climate impacts

2.1 In opening the COP26 World Leaders Summit in November 2021 the Prime Minister made a comparison to James Bond attempting to deactivate a doomsday device. He said “We are in roughly the same position, my fellow global leaders, as James Bond today except that the tragedy is that this is not a movie, and the doomsday device is real and the clock is ticking to the furious rhythm of hundreds of billions of pistons and turbines and furnaces and engines with which we are pumping carbon into the air faster and faster – record outputs”. He continued “the longer we fail to act the worse it gets and the higher the price when we are eventually forced by catastrophe to act because humanity has long since run down the clock on climate change. It’s one minute to midnight on that doomsday clock and we need to act now.”¹

2.2 Against such a backdrop, the social and economic case for any development that results in an increase in the CO₂ being released into the air should be very carefully assessed. The proof of evidence of Dr Alex Chapman estimates that annual average emissions (including an estimate for non-CO₂ impacts as considered later in this proof) associated with the proposed development would be equivalent to the total annual average emissions of over 30,000 UK citizens – roughly the population of a small town such as Hertford. Such an impact should not, in my view, be described as ‘not significant’ (section 7.11.34 of CD 1.09). In any event, any increase in carbon emissions should be properly justified before the development is permitted to proceed.

¹ See endnote 1 and Appendix A

3. Policy on airport expansion and climate change

3.1 The Government's policy on airports does not provide an automatic green light for consideration of the climate change impacts of airport development proposals. Instead, policy has consistently indicated that planning decisions should be reached on a case-by-case basis, with environmental impacts weighed in the balance alongside other potential benefits and disbenefits of the development. The key policy documents on airport development – Flightpath to the Future, the Jet Zero Strategy, The Airports National Policy Statement and Making Best Use of Existing Runways – all make clear that the Government's support for airport expansion rests on tests of environmental sustainability, as explored in this section.

3.2 Flightpath to the Future (CD 11.15) was published in May 2022. It sets out “a medium-term strategic framework for the UK aviation sector” and updates the Aviation Policy Framework. It includes the following statements on climate change:

“Climate change is one of the greatest and most pressing threats facing the modern world, and decarbonising aviation will be an essential aspect of developing a sustainable future for the sector.

We continue to be supportive of airport growth *where it is justified* and our existing policy frameworks for airport planning provide a robust and balanced framework for airports to grow sustainably within our strict environmental criteria. They continue to have full effect, as a material consideration in decision-taking on applications for planning permission. *The Government is clear that the expansion of any airport must meet its climate change obligations to be able to proceed.* [my emphasis],...”

3.3 A footnote states that:

‘Beyond the horizon – The future of UK aviation: Making best use of existing runways’ (2018) and ‘Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England’ (2018) are the most up-to-date policy on planning for airport development.

- 3.4 The Jet Zero Strategy (CD 11.19) was published soon afterwards. It summarises the Government’s position on airport expansion as follows:

We will continue to support sustainable airport growth. Through both our consultations, we received a high volume of responses about the desire for demand management measures to reduce aviation emissions. Our approach for decarbonising aviation will focus on the rapid development of technologies: on operational improvements in the near term, use of SAF, adoption of ZEF in the longer term and continued use of markets and removal measures. Our analysis shows that the sector can achieve Jet Zero without the Government needing to intervene directly to limit aviation growth, with knock-on economic and social benefits.

...

The [Flightpath to the Future] framework is clear that we continue to be supportive of airport growth where it is justified, and our existing policy frameworks for airport planning provide a robust and balanced framework for airports to grow sustainably within our strict environmental criteria. We have also been clear expansion of any airport in England must meet our climate change obligations to be able to proceed.

...

Our approach to sustainable growth is supported by our analysis (set out in the supporting analytical document) which shows that we can achieve Jet Zero without the Government needing to intervene directly to limit aviation growth. The analysis uses

updated airport capacity assumptions consistent with the latest known expansion plans at airports in the UK. The analysis indicates that it is possible for the potential carbon emissions resulting from these expansion schemes to be accommodated within the planned trajectory for achieving net zero emissions by 2050, and consequently that our planning policy frameworks remain compatible with the UK's climate change obligations.

3.5 It is important to note that at this stage that while the Government considers it is *possible* for any additional emissions associated with expansion to be accommodated within its planned CO2 trajectory, at no point does it indicate whether or not this is *likely*. Relevant to this consideration, the Government wrote to North Somerset Council on the 13th August 2021² to confirm that an “impact assessment was not deemed appropriate or possible at this stage given that the consultation is on a broad strategy for achieving net zero aviation rather than setting out detailed policy proposals.” Since then, to my knowledge, the Government has yet to produce a formal impact assessment of the Jet Zero strategy and, therefore, the modelling and analysis on which it rests should be regarded as illustrative only. Any detailed policy plans from the Government will need to be subject to further assessment.

3.6 The Jet Zero Strategy indicates a view that it will not be necessary for the Government to intervene directly to limit aviation growth. The Government’s plans, as will be considered below, do however rely on a considerable level of indirect modification of growth levels by way of assumptions around carbon pricing, which may or may not be effectively delivered. In the absence of effective carbon pricing, growth in aviation demand may generate a higher level of emissions than is currently accounted for under the Government’s approach.

² See endnote 2 and Appendix B

3.7 The Airports National Policy Statement (ANPS) (CD 10.15) was published in June 2018 and provided “the primary basis for decision making on development consent applications for a Northwest Runway at Heathrow Airport”. It was described also as being “an important and relevant consideration in respect of applications for new runway capacity and other airport infrastructure in London and the South East of England.” On climate change, the ANPS stated that the Government’s view that one new runway could be constructed within the obligations of the Climate Change Act. “Any increase in carbon emissions alone is not a reason to refuse development consent”, states the ANPS, “unless the increase in carbon emissions resulting from the project is so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets, including carbon budgets.” The ANPS does not, however, provide guidance on what constitutes a ‘significant’ impact in this context, leaving it as a judgement to be reached by planning decision-makers. A relatively small increase in emissions could be considered significant if, together with other airport developments, it represented the passing of a threshold of maximum aviation emissions.

3.8 Also in June 2018, the Government published its ‘Making Best Use of Existing Runways’ (“MBU”) (CD 10.13). This document set out support for airports other than Heathrow to make best use of their capacity subject to the particular merits of any individual application, while recognising that this could lead to increased air traffic which could in turn increase carbon emissions. The policy set out an approach for limiting aviation emissions either through carbon trading alone or – with additional measures – to the level of the recommended ‘planning assumption’ at the time of 37.5 Mt.

3.9 The concluding statement in MBU is as follows:

“Therefore the government is supportive of airports beyond Heathrow making best use of their existing runways. However, we recognise that the development of airports can have negative as well as positive local impacts, including on noise levels. We therefore consider that any proposals should be judged by the relevant planning authority, taking careful account of all relevant considerations, particularly economic and environmental impacts and proposed mitigations. This policy statement does not prejudge the decision of those authorities who will be required to give proper consideration to such applications. It instead leaves it up to local, rather than national government, to consider each case on its merits.”

3.10 Both policies were drawn up at a time when (i) the Climate Change Act had the less ambitious whole-economy goal of an 80% emissions reduction by 2050. (ii) international aviation emissions were not formally included in the target or carbon budgets of the Act, but were allowed for by way of an assumed ‘headroom’ in the 2050 target and in carbon budgets. Under the current policy situation, as set out below, there is both a stronger legal requirement for aviation emissions not to exceed the level estimated in setting carbon budgets, and a higher level of climate ambition at a UK-level and in the Government and CCC proposed levels of aviation emissions.

3.11 Both Flightpath for the Future and the Jet Zero policy state that the ANPS and MBU continue to have full effect. The Government had said, in September 2021, that “the question of whether or not to review the ANPS should be considered again after the Government’s Jet Zero Strategy (“JZS”) has been finalised”. To my knowledge, the Government has yet to confirm whether it will undertake a review of these policies following publication of the strategy this year.

3.12 In my opinion, Government policy on airport expansion should be urgently reviewed and updated given: the new policy situation on climate change compared with 2018; the advice of the Climate Change Committee (as considered below); the responses the Government received to its recent consultation on the Jet Zero Policy; and its own evidence on climate change. A continuation by the Government to characterise ANPS and MBU as appropriate guidance for planning decisions suggests a failure to properly and impartially review the best approach to climate mitigation.

3.13 It is important to note however that the set of policies considered in this section of my proof, read together already:

(a) allow for local decision-making based on a balance of environmental impacts (implicitly including climate change impacts), and

(b) introduce qualifications for the appropriateness of the development such as whether the proposed expansion is 'sustainable', whether it has been shown to be justified and whether it will materially impact the ability of the UK to meet its carbon targets and budgets.

3.14 It is notable that the Government's latest modelling simultaneously includes an increase in the amount of passenger growth assumed by 2050 compared with the level derived from the Government's 2017 passenger forecasts adjusted for MBU policy (482 mppa by 2050 in the Jet Zero Further Technical consultation dataset compared with 444 mppa by 2050 in the MBU Table 1 with a third Heathrow runway) but also a decrease in the modelled CO₂ emissions associated with this growth (just 19.3 Mt annually in the Jet Zero Strategy versus 40.8 Mt CO₂ annually in MBU with a third Heathrow runway). This is due to changes in the modelling assumptions that now anticipate higher levels of sustainable aviation fuel, faster fuel efficiency improvements than were previously modelled, and the impact of higher

carbon pricing assumptions. There is little in the way of corresponding new policy measures, however, that would lend confidence to these new, more optimistic assumptions. It seems more likely therefore that the Government's political support for airport expansion was treated as a fixed input to the model than a carefully considered output based on the likely trend in new aviation fuel and technologies.

3.15 Luton Borough Council's statement of case notes in 7.13 that "In the Stansted Airport High Court appeal decision the following was held (Mrs Justice Lang in October 2017) that "It was correct to find that carbon emissions policies are addressed at a national level, in the MBU, and are not a matter for local planning decision-makers." It also, in 7.14, makes reference to the court's ruling in relation to Bristol Airport.

3.16 However:

- (a) The claim that carbon emissions are not a matter for local planning decision-makers does not, to my knowledge, appear in Government policy
- (b) The Luton application is not being determined by the local planning authority but by a national authority at the request of the Secretary of State who needs to consider the extent to which the proposed development is consistent with Government policies for meeting the challenge of climate change, flooding and coastal change (consistent with Chapter 14 of the NPPF)
- (c) In relation to the DCO application to reopen Manston Airport as an air freight hub, the Examining Authority argued in its 2020 recommendations to the Secretary of State that the additional CO₂ anticipated to be generated by the development "will have a material impact on the ability of Government to meet its carbon reduction targets, including carbon budgets" and that "this weighs against the granting of development consent." (6.5.71). The Secretary of State has since determined that the Manston

development should be given permission to proceed, with the decision stating that he “does not accept 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.” (CD 11.56)

However, this argument rests on the assumption that Government policies provide effective mitigation for aviation emissions associated with new developments – an assumption that I do not accept, as set out in the following section of my proof.

4. Policy and commitments on climate change

- 4.1 The UK's policy and legislative approach on climate change is governed by the Climate Change Act 2008, its Nationally Determined Contribution under the Paris Agreement, and a range of supporting policies.
- 4.2 As a Party to the United Nations Framework Convention on Climate Change (UNFCCC), the UK is a signatory to the Paris Agreement, which is a legally binding international treaty on climate change. It was adopted by 196 Parties at the COP 21 in Paris on 12th December 2015, and entered into force on 4th November 2016. Its goal is to limit global warming to well below 2 degrees Celsius, aiming for warming of not more than 1.5 degrees Celsius, compared to pre-industrial levels. The Agreement requires states to prepare Nationally Determined Contributions (NDCs) towards delivering the aims of the Agreement by way of domestic policy.
- 4.3 While the Paris Agreement does not require states to include policies on international aviation and shipping in their NDCs, its temperature-based goals are applicable to aviation insofar as they will only be achieved if emissions from all sectors are accounted for. The UK's most recent NDC, published in 2020, does not include international aviation emissions but does make allowance for these emissions. It commits the UK to reducing economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels, following CCC advice in a letter from CCC Chair Lord Deben to Alok Sharma, the Secretary of State for BEIS. The letter³ states:

³ See endnote 3 and Appendix C

“While these emissions are treated separately by the UN, they must be addressed if the temperature goal of the Paris Agreement is to be met. The UK’s NDC should include clear commitments to act on emissions from international aviation and shipping, including both long-term and interim targets.”

- 4.4 The temperature goal of the Paris Agreement has relevance for the need for aviation on aviation’s non-CO2 impacts, which are considered elsewhere in this proof.
- 4.5 The key UK legal commitment on climate change is the Climate Change Act (CD 11.01), which became law in 2008 with such strong cross-party support that only 5 MPs voted against it. The Act originally required an 80% reduction in UK emissions by 2050 compared with the level in 1990. To deliver this the Government was required to legislate for a series of carbon budgets out to 2050 which place a restriction on the total amount of greenhouse gases the UK can emit in each five-year period. The Act also established the Climate Change Committee (formerly the Committee on Climate Change) as an independent, statutory body to advise the UK and devolved governments on emissions targets and to report to Parliament on progress made in reducing greenhouse gas emissions and in preparing for and adapting to the impacts of climate change.
- 4.6 Following the IPCC’s 2018 special report on the need for net zero emissions by around 2050 in order to have a reasonable probability of keeping global temperature rises at or below 1.5°C, the Climate Change Committee (CCC) published ‘Net Zero: the UK’s contribution to stopping global warming’ (May 2019) (CD 11.05). This report responded to a request from the governments of the UK, Wales and Scotland, asking the Committee to reassess the UK’s long-term emissions targets. CCC’s report recommended a new emissions target: that the UK should achieve net zero greenhouse gases by 2050. The report noted that a “net-zero

GHG target for 2050 will deliver on the commitment that the UK made by signing the Paris Agreement. However, this is only possible if clear, stable and well-designed policies to reduce emissions further are introduced across the economy without delay. Current policy is insufficient for even the existing targets.”

4.7 In June 2019 the Government legislated to amend the Climate Change Act such as to require a net emissions reduction of at least 100% by 2050. (CD 11.03)

4.8 Under the original provisions of the Act, emissions from international aviation and shipping (IAS) were not included in the 2050 target or carbon budgets, although it was recognised that they may be included in future. The Climate Change Committee recommended an approach that allowed ‘headroom’ for these emissions, such that budgets for other sectors were adjusted downwards to allow for an assumed level of IAS emissions in line with a whole-economy target of 80% emissions reduction. The Government has always accepted this advice when legislating for carbon budgets. In addition, the CCC recommended a ‘planning assumption’ that aviation emissions would be no higher than 37.5Mt Mt by 2050.

4.9 In September 2019, CCC chair Lord Deben wrote to the Secretary of State for Transport setting out the implications of the net zero target for international aviation and shipping (IAS) emissions⁴ (CD 11.44). The letter stressed that the Committee’s advice for the UK to achieve net zero by 2050 was based on an assumption that IAS emissions would be included within the target, and that without this, a more ambitious target would be likely to be required. The letter further argued that addressing IAS emissions was strategically important as aviation is likely to be the largest emitting sector in the UK by 2050, even with strong progress on technology and limiting demand. Formal inclusion of IAS emissions would help

⁴ See endnote 4 and Appendix D

to guide long-term policy approaches and infrastructure investment decisions, CCC argued. This recommendation to legislate for the inclusion of IAS was repeated in December 2020 (CD 11.07) when the CCC advised that emissions from these sectors should be included formally when setting the level of the sixth carbon budget running from 2033 to 2037.

- 4.10 On 20th April 2021, the Government announced its plans for the sixth carbon budget including a binding climate change target to reduce emissions by 78% by 2035 compared to 1990 (CD 11.44). A Statutory Instrument, the Carbon Budget Order 2021 (CD 11.10), was subsequently laid before Parliament. Importantly, the Government announced that the sixth carbon budget would incorporate emissions from international aviation and shipping for the first time. From the sixth carbon budget, therefore, a legal limit will be imposed on aviation emissions, and the Secretary of State must ensure adherence to this limit.
- 4.11 The Transport Decarbonisation plan (CD 11.11), which committed to ‘decarbonising all forms of transport’, and the Jet Zero Strategy (CD 11.19) both make clear the Government’s intention to bring UK aviation emissions to net zero by 2050. The Jet Zero Strategy sets out the Government’s current approach to aviation emissions including a trajectory for aviation emissions that can act as a future benchmark. The strategy focuses on aviation emissions reductions being achieved by way of new technologies, ‘sustainable aviation fuel’ and carbon removals, each of which it anticipates being accelerated sufficiently to allow for growth in aviation demand without compromising either the 2035 or the 2050 targets.
- 4.12 Many experts take a different view however, most significantly the Climate Change Committee, as considered below. Given the reliance by the applicant on effective Government policy to address the additional aviation emissions that would be generated by the proposal, the soundness or otherwise of this policy is critical. Overall the strategy takes a

highly optimistic stance in relation to the scale and timing of delivering Sustainable Aviation Fuels and new technologies.

4.13 The BEIS minister himself has acknowledged the high level of risk inherent in the Government's approach. During an oral evidence session for the Environmental Audit Committee's inquiry on net zero aviation and shipping, the Minister, Lee Rowley MP, was asked a question about why the Government was "putting so much faith in technologies that are as yet unproven in terms of speed and scale, rather than bringing in an element of demand management and demand reduction". In responding, he said "I accept there is a high level of risk."⁵ In paragraph 4.4 of the Jet Zero technical consultation (CD 11.17), the Government states similarly:

"There is significant uncertainty surrounding the abatement potential, uptake and costs of the measures described in this document and therefore these scenarios present illustrative pathways rather than forecasts."

View of the CCC on the need for aviation demand limits

4.14 The CCC is obliged by statute to provide advice to the Government both on the appropriate level of the 2050 carbon target and of the levels of the carbon budgets. The Government has so far always implemented this advice. CCC is also obliged by the Climate Change Act (CD 11.03) to provide annual reports on:

- the progress that has been made towards meeting the carbon budgets that have been set under Part 1 and the target in section 1 (the target for 2050),
- the further progress that is needed to meet those budgets and that target, and

⁵ See endnote 5 and Appendix E

- whether those budgets and that target are likely to be met.

- 4.15 The Committee has consistently taken the view that limits on aviation demand will be required in order to manage the sector’s emissions in a way that aligns with the Climate Change Act. Its most recent progress report (CD 11.40) was particularly strident in its criticism of the Government’s approach to aviation. The Net Zero Strategy overall, said CCC, “will not deliver Net Zero.” While the UK may be leading the world in targets, it is failing in implementation, the report argued. Aviation was identified as one of only two sectors, however – agriculture being the other – in which overall the Government’s policies are deemed so weak as to be ‘insufficient’, with the lack of measures to mitigate consumer demand identified as particularly problematic.
- 4.16 “The Government’s pathway for aviation relies heavily on very nascent technology scaling up quickly for commercial use. There is no policy framework ready to mitigate demand growth if these technologies cannot be deployed as planned”, argues CCC. Projections in terms of both new technology and Sustainable Aviation Fuel (SAF) rollout differ significantly in the Government’s modelling compared with CCC’s. While the Jet Zero Strategy (CD 11.19) assumes 50% SAF use by 2050 in its recommended High Ambition scenario, the CCC, in its Balanced Pathway⁶ anticipates only 25%; and while DfT assumes a 2% per annum annual efficiency improvement being delivered, the CCC anticipates only a 1.4% annual improvement. The CCC progress report (on page 350) therefore calls on the Government to “implement a policy to manage aviation demand as soon as possible so the mechanisms are in place in the likely event that low emission technology are not commercially viable to meet

⁶ See endnote 18 and Appendix M

the Government aviation pathway. The demand strategy should include a commitment to prevent any net airport expansion.”

- 4.17 The assumed trend of continual efficiency improvement is also called into question. “Fossil fuel use per passenger-km increased substantially in 2020 (72% increase on 2019 levels) after two decades of progress to improve fuel efficiency, with an annual average change of - 3% from 2010-2019 (Figure 9.4).
- 4.18 The CCC recommends a number of policy measures to help limit aviation demand and capacity, including no net increase in airport capacity, changes to ticket prices to reflect the principle that “prices of air travel ought to be more expensive than lower emission modes to reflect the higher emissions of air travel relative to alternatives”, and measures to disincentivise business flying.
- 4.19 It remains to be seen whether any legal challenges will be brought specifically to the Jet Zero Strategy before the mid-October deadline, but it is worth noting the recent judgment on the economy-wide Net Zero Strategy, which found in favour of the claimants on more than one ground, including that the strategy as approved by the Secretary of State had failed to provide “a numeric explanation for the defendant’s conclusion that his policies will enable the carbon budgets to be met and a numeric explanation of the extent to which those policies individually and in combination are expected to achieve that objective.” (CD 15.02) The characterisation by Mr Justice Holgate in his full judgment of the weight that should be attached to the views of the CCC in relation to Government policy has relevance, I would argue, to this proposal, given the position the Committee has taken towards aviation.

“The role of the CCC is to give advice as an expert body rather than to opine on questions of law. But nonetheless the court should give considerable weight to their advice in December 2020 on the setting of CB6 that the Government’s net zero plans should include a “quantified set of policy proposals” and their criticism in October 2021 of the NZS for failing to quantify the effect of each policy and proposal on emissions reductions ([65]-[67] and [152] above).”

- 4.20 In summary, the Government’s claim that its climate commitments can be met without any demand limits being imposed on the aviation sector should not be relied upon for determining whether or not the increased demand associated with airport development is compatible with the achievement of national climate change law.

The role of carbon pricing in the Government’s strategy

- 4.21 As referred to in section 3 of this proof, while the Jet Zero Strategy (CD 11.19) avoids any proposals for direct interventions to manage aviation demand, its proposed pathway for aviation emissions relies heavily on indirect demand constraint measures. The Government’s preferred ‘high ambition’ scenario sees the demand impact in response to carbon pricing associated with the UK ETS and CORSIA delivering a larger proportion of the ‘in sector’ aviation emission reductions than any other measure (namely fuel efficiency improvements, zero carbon aircraft and sustainable aviation fuels). If these mechanisms fail to have the anticipated impact on aviation demand, then emissions from the sector will be higher than the Government predicts. Any airport development that results in increased emissions, such as the proposal from Luton Airport, will increase the risk that the UK’s climate obligations will not be met in this situation.

- 4.22 The UK ETS covers all flights within the UK and international departures to EEA destinations, while CORSIA – the Carbon Offsetting and Reduction Scheme for International Aviation – covers flights to the rest of the world. The way in which the two schemes operate and the mitigation they are likely to deliver varies considerably however, with CORSIA delivering much weaker carbon pricing.
- 4.23 The UK ETS is a ‘cap and trade’ scheme designed to link with – and match the ambition of – the longstanding EU ETS following Brexit. Airlines operating flights covered by the scheme must secure sufficient allowances for all CO₂ generated by their flights. The number of allowances is capped in line with climate goals. CORSIA, meanwhile, addresses only those emissions above a baseline, currently set at the level of emissions in 2019. No emissions cap is in place; instead carbon offsets must be purchased for any CO₂ that exceeds the baseline level. Given the impact of the pandemic CORSIA imposed no offset obligations on airlines in 2021 and is unlikely to do so in 2022. The scheme is currently due to end in 2035.
- 4.24 The CCC’s view is that while the UK ETS plays an important role in delivering emissions reductions in a cost-effective way, CORSIA by contrast, will not in its current form provide effective mitigation. The CCC’s 2022 Progress Report argues that “The Government should commit to preventing operators using CORSIA credits as a substitute for a UK Emissions Trading Allowance, due to the insufficient quality and additionality of existing offsets. Their quality prevents them being an acceptable contribution to UK carbon budgets and should only qualify as part of the UK ETS once they can satisfy strict eligibility criteria (equivalence, additionality, permanence, sustainability).”
- 4.25 CORSIA has been a difficult policy to agree to date, with developing countries arguing against measures that could impact on the growth of their relatively new aviation industries, and calling on richer nations to take the lead. AEF’s direct experience of the international

negotiations does not give us confidence that it will be possible to agree a scheme that is robust enough to deliver anything like the level of carbon pricing assumed in the Jet Zero aviation model, which assumes a successor to CORSIA post-2035 will be in line with UK ETS price forecasts, reaching £378 per tonne by 2050.

- 4.26 The available evidence suggests that low- to mid- carbon prices may be insufficient to drive investment in technology and SAF at the pace assumed in the Jet Zero Strategy, underlining the ‘high risk’ nature of the assumptions in the strategy. Using the costs identified for removals in a report by Element Energy⁷ for BEIS, and taking the midpoint of the costs for SAF pathways calculated by McKinsey in its Clean Skies for Tomorrow report⁸, the CORSIA low price – which applies to the majority of UK aviation emissions in the modelling (72% according to EE) – is considerably less than the abatement cost – the cost of delivering these new fuels and technologies – throughout the period 2020 to 2050. This suggests that there would be little commercial incentive for airlines to invest in the new fuels and technologies assumed to be adopted in the Government’s strategy.
- 4.27 At present most aviation emissions attract no carbon price at all. A recent report from Element Energy for AEF⁹ estimates that only about 17% of total aviation emissions are currently priced within the ETS. To go from the present situation to one in which high carbon prices generated by the full convergence of global carbon markets are applied to flights may be considered far-fetched.
- 4.28 The Environmental Statement Addendum prepared by LLAOL indicates that under a central emissions scenario, emissions from ‘international’ flights from Luton Airport – those falling outside the scope of the UK ETS – would by 2032 be 181.6 ktCO₂/year with development

⁷ See endnote 6 and Appendix F

⁸ See endnote 7 and Appendix G

⁹ See endnote 8 and Appendix H

compared with 163.9 if the development did not proceed, and 136.7 ktCO₂/year by 2050 with development compared with 123.4 without it. If CORSIA fails to provide effective mitigation then these additional emissions would result in an increase in global warming compared with a 'no development' scenario. This should be relevant consideration in the determination of whether the scheme will have a material impact on climate change and on how the climate impacts of the scheme should be weighed against other factors.

Greenhouse gas removals

- 4.29 The CCC has now abandoned its recommended 'planning assumption' for aviation as expressed in actual emissions and has moved instead simply to a recommendation of 'net zero emissions' for aviation by 2050. Its modelling indicates that under the 'Balanced Net Zero Pathway' annual aviation emissions of 23 Mt by 2050 would need to be balanced by carbon removals. The Jet Zero Strategy makes a similar assumption, with 19.3 Mt annual emissions from aviation requiring removal.
- 4.30 Despite this heavy reliance on carbon removal technology in the modelling, however, the means for delivering it are not yet available. No carbon removal schemes exist in the UK, they are likely to be both expensive and difficult to deliver, and there is currently no strong business case for developing them. Creating such a business case by requiring airlines (which are projected to be one of the largest users of removal technologies) to invest in their deployment would be likely to impose significant new cost on the industry, thereby dampening the economic/demand case for aviation growth. At the moment there is considerable doubt among many experts about whether it will be possible to deliver carbon removal at the speed and scale required by the Government's plans. If removals are not delivered at the rate or scale hoped for in the Jet Zero Strategy then aviation emissions

including the additional emissions associated with the proposed development at Luton would not be effectively mitigated in line with net zero.

Non-CO2 impacts

- 4.31 In addition to carbon dioxide, aircraft have other net climate warming effects. For example, emissions of nitrogen oxides (NO_x) at high altitude (that react to increase atmospheric ozone concentrations and decrease methane) and the formation of contrail cirrus both generate additional warming of the atmosphere. The latest scientific evidence indicates that the aviation sector's total climate warming impact between 2000 and 2018 was three times that associated with its CO₂ emissions alone (based on the effective radiative forcing metric). In order to meet the requirements of the Paris Agreement on limiting temperature increases, aviation's non-CO₂ impacts will need to be addressed.
- 4.32 Nevertheless, these effects fall outside the scope of existing climate policies. The CCC has advised that a target should be set of no additional warming from non-CO₂ impacts after 2050. It states in its latest progress report that "The Government's announcements on aviation to date have not set any ambition to constrain aviation demand growth through policy, beyond vague proposals on carbon pricing, despite demand measures being one of the few interventions that lowers both CO₂ emissions and non-CO₂ effects from aviation."
- 4.33 The Jet Zero strategy commits only to "better understand the science and potential mitigations of non-CO₂ impacts from aviation" and to "support the consideration of appropriate international measures to address non-CO₂ impacts". A recent research paper considered the implications of moving to 'climate neutral' rather than simply carbon neutral aviation and highlighted the scale of the potential policy gap in relation to aviation's non-

CO₂ impacts. In a global context, the paper indicates, “[O]ffsetting via CO₂ removal all aviation CO₂ emissions that remain after demand reductions and technological improvements—mitigates up to only 20% (14–41%) of the warming due to the aviation sector”¹⁰.

4.34 LLAOL’s Environmental Statement (CD 1.09) states in 7.9.12:

The relevant expert body, the CCC, had advised that the appropriate approach at a domestic level was “not to assess or include the impact of non-CO₂ effects, given the significant scientific uncertainty surrounding their scale”.

This statement is not referenced however and it is unclear where it is derived from or what the wider context was. Given the CCC’s latest advice on the importance of Government policy being developed to address non-CO₂ impacts the inclusion by the applicant of this statement appears misleading.

4.35 Overall, it is clear that aviation’s non-CO₂ impacts are causing harm but that there is currently no policy in place to tackle them nor any mechanism to apply a price to them. Any development likely to increase these emissions, such as the proposal under consideration here, is therefore a cause for concern. While there is some uncertainty about the precise figure and metric to adopt when making an assessment, there is consensus that the net impact is one of warming.

4.36 In recognition of this, several areas of Government policy already acknowledge non-CO₂ impacts. Despite the remaining scientific uncertainty associated with quantifying aviation’s

¹⁰ See endnote 9 and Appendix I

non-CO2 effects, current Government advice on GHG reporting¹¹ for businesses is that 'Organisations should include the influence of radiative forcing RF in air travel emissions to capture the maximum climate impact of their travel habits'. The 'Green Book Supplementary Guidance: valuation of energy use and greenhouse gas emissions for appraisal' (CD 16.13) also advises that "where appropriate, proportionate and possible to identify the impact of the proposal on emissions overseas or that occur outside the target framework (e.g. radiative forcing from aviation), the change in emissions overseas should be valued at the Traded Price of Carbon over the 2010- 2030 period."

¹¹ See endnote 10 and Appendix J

5. Applicant's appraisal of 'material impact'

5.1 LLAOL's environmental statement makes clear that the proposal is likely to cause an increase in emissions compared with the 'no development' case. Nevertheless, it is claimed, the amount of additional emissions would be so small that they would not have a material climate change impact. The Environmental Statement from 2021 considers two tests for assessing the impact of aviation emissions (as set out in 7.9.18):

- The extent to which the scheme materially affects the ability of the UK to meet the aviation 'planning assumption'.
- The extent to which the scheme affects the ability of the UK to meet its target and budgets.

5.2 The addendum to the Environmental Assessment provides this summary of the appraisal:

In Chapter 7: Climate of the 2021 ES Addendum (2021 ESA), it was concluded to be unlikely that the Proposed Scheme will materially affect the ability of the UK to meet its carbon target for net zero by 2050, as legislated in the Climate Change Act 2008 (as amended). The Proposed Scheme was considered to have a low greenhouse gas (GHG) emissions magnitude. The overall effect of GHGs associated with the Proposed Scheme on the global climate was considered minor adverse and therefore not significant.

5.3 Based on the updated assessment (as at July 2022), it concludes:

"The updated assessment shows that the conclusions of the 2021 ES Addendum remain valid. The Proposed Scheme is considered to have a low GHG emissions magnitude and the overall effect of GHGs associated with the Proposed Scheme on the global climate is considered minor adverse, and therefore not significant in accordance with the IEMA guidance for defining significance."

- 5.4 These assertions are both problematic however. Under the first test, “The scale of change in international aviation GHG emissions is contextualised against the current UK ‘planning assumption’ for international aviation of 37.5 MtCO₂.” (3.6.4 of the July 2022 addendum). This ‘planning assumption’, which was used when the Climate Change Act was aiming for an 80% emissions reduction below 1990 levels rather than 100%, and which was designed as an alternative to formal inclusion of international aviation and shipping emissions in the Climate Change Act, no longer has any relevance, however. The CCC has indicated that the only relevant aviation planning assumption under the updated 100% target is that aviation emissions should be net zero by 2050.
- 5.5 As set out in the final Jet Zero Strategy, published on 19th July 2022, the Government plans to achieve this by way of a reduction in actual aviation emissions, to 19.3 Mt by 2050, together with greenhouse gas removals. Aviation emissions are likely to be higher in the intervening period, according to the Government’s plans but they should have fallen to 34.48 Mt by 2032 according to the Jet Zero Strategy dataset. (This is the ‘actual emissions’ estimate; the net emissions from aviation are estimated, for illustration, at between 20.98 and 27.35) (CD 11.54). The claim that “By 2032 international aviation GHG emissions associated with the Proposed Scheme are predicted to be 0.07 – 0.08% of the planning assumption.” is not correct as the benchmark of 37.5 Mt for aviation emissions is no longer relevant. Emissions associated with the development would be a larger proportion – albeit only marginally larger – of the Government’s new emissions benchmark for 2032.
- 5.6 The second test relates to “the extent to which the scheme affects the ability of the UK to meet its target and budgets” which was judged by LLAOL to be ‘minor adverse and therefore not significant’. The question of whether or not any increase in CO₂ emissions will affect the

UK's ability to meet its carbon budgets relates not only to its magnitude in terms of tonnes of CO₂, but also to the effectiveness of policies and measures to mitigate these emissions. As set out in some detail in this evidence, the Government's current strategy for tackling aviation emissions is incomplete and high risk. Any increase in emissions could therefore cause climate targets to be missed and could therefore be significant.

5.7 While LLAOL cites the (larger) anticipated aviation emissions increases from other airport developments as evidence of the small magnitude of emissions from the extra aviation related to this proposed development, this should serve only as a reminder that approval would add to the cumulative impact of additional, problematic aviation emissions from the numerous airport developments under consideration at this time.

5.8 Finally, the appraisal by LLAOL does not include an estimate of the non-CO₂ impacts that would be created as a result of the proposed development as considered above. Since these could have three times the warning impact of the CO₂ emissions created, non-CO₂ impacts should have been part of a consideration of the overall significance of the climate impacts of the scheme.

6. Significance of Luton Borough Council's position on climate change

- 6.1 In January 2020 Luton Borough Council (LBC) declared a climate emergency and made a commitment for Luton to become net zero by 2040. This would, strictly speaking, imply not just emissions were offset by way of emissions reductions elsewhere in the world but that any remaining emissions were balanced by carbon removal technologies or measures by that date. It is unclear from either the declaration or the plans that were subsequently drawn up whether emissions from the aircraft using Luton airport were at the time considered to be in or out of scope for this commitment (as noted in the 5.2.11 of the July 2022 Addendum to the applicant's environmental statement, CD 1.16) though a press quote from Tom Shaw, portfolio holder for the environment, indicates that "The airport has been told that by 2040 they've got to be carbon neutral and we expect them to come up with their own plan"¹².
- 6.2 LBC's Statement of Case claims, in 7.15, that its climate commitments "are of relevance to carbon emissions from the airport's building, ground operations and surface access, which comprise local policy concerns that were addressed within the content of the application." This implies a removal of liability for aviation emissions, though it is unclear whether this has ever been formally agreed by the council.
- 6.3 In fact LLAOL's Environmental Statement of January 2021 (CD 1.09) acknowledges the ambiguity in LBC's climate change plans about the approach to aviation emissions. Section 7.3.8 states:
- ... the Luton Borough Council Climate change action plan, published in 2019, sets out a commitment that Luton Borough will aim "for net zero carbon in advance of the national target in 2050". Luton Borough Council has an aim for the

¹² See endnote 11 and Appendix K

borough to be carbon neutral by 2040. This strategy does not specifically mention aviation although London Luton Airport (LLA) is described as partner in some of the targets.

6.4 The updated Environmental Statement (CD 1.16) notes similarly, in 5.2.11, that rather than aviation emissions being clearly excluded from the scope of LBC's climate changes plans, the carbon neutral strategy "does not specifically mention aviation". Emergency plans that excluded one of the most environmentally harmful activities that an individual can chose to undertake may of course have lacked public credibility, such that LBC chose not to exempt aviation from the plans when they were drawn up. Either LBC or the applicant or both should, in this circumstance, have presented the scale of the climate change impact of aviation resulting from the proposal against the local target of achieving net zero emissions by 2040.

6.5 The Environmental Statement indicates in 7.9.18 that as "the local objectives are not yet part of local planning policy, they are not given the same weight as the national Net Zero target and the associated budgets." However, local authority declarations of climate emergency have been seen to carry weight in determination of other planning decisions. In reaching his decision to approve, at appeal, the construction of a wind turbine in Bodham, Norfolk, the inspector, Paul Griffiths, appears to have given weight to the earlier declaration by North Norfolk County Council to declare a climate emergency, arguing that refusal of the application would in this context represent "something of a contradiction (para 89¹³).

6.6 Further, it is notable that LBC's climate change page prominently declares the council's support for ADEPT – the Association of Directors of Environment, Economy, Planning and

¹³ See endnote 12 and Appendix L

Transport. ADEPT takes a position on planning and net zero that would seem at odds, at least in spirit, with LBC's claim in the context of this application that climate change impacts associated with aviation emissions as a result of development at Luton Airport are effectively dealt with by way of Government policy.

6.7 The ADEPT submission to the Environmental Audit Committee's net zero inquiry in August 2021 (CD 11.37) is critical of gaps in the Government's policy and lack of clarity about the responsibilities of local authorities in delivering net-zero-aligned planning decisions. It states support for the finding of a report from the NAO that "central government has not yet developed with local authorities any overall expectations about their role in achieving the national net zero target.... government has not yet set out to local authorities how it will work with them to clarify responsibilities for net zero." And it argues that "Planning policy set out in the National Planning Policy Framework (NPPF) remains a barrier for LPAs to facilitate low carbon development." A document supported by ADEPT and the Local Government Association as members of the Blueprint Coalition (CD 11.36) meanwhile calls – under the heading of 'Decarbonising Transport' for "a requirement that all infrastructure investment demonstrably delivers carbon reductions".

6.8 In conclusion, Luton Borough Council's position, and the position of the ADEPT group whose work is promoted on the Council's website, appears at least equivocal on the issue of whether and how the climate change implications of the airport's development should be addressed and whether Government policy can be fully relied upon in this context. The application should therefore have been assessed against its impact on the achievability or otherwise of LBC's net zero commitment.

7. Concluding statement

- 7.1 Aviation will be one of the most difficult sectors to decarbonise. 2019 recorded the highest-ever level of CO₂ from UK civil aviation¹⁴ continuing a trend which had seen annual increases in most years since 2012, and halted only by the Covid pandemic.
- 7.2 The increased emissions associated with Luton's application may, for the reasons set out in this proof, have a material impact on the Government's ability to meet its greenhouse gas reduction targets, and as such is in my view incompatible with the UK's commitment to achieve net zero emissions across all sectors by 2050.
- 7.3 The climate change impact of the expansion should be carefully weighed the social and environmental impacts of the scheme. Having seen the proof of evidence of Dr Alex Chapman on this issue, my view is that the social and economic benefits of the scheme are unlikely to outweigh the climate change harm that it would create.
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¹⁴ See endnote 13 and Appendix M

Endnotes:

1. UK Parliament declares climate change emergency, BBC News, 1st May 2019
2. Letter from the Department for Transport to North Somerset Council, Department for Transport, 13th August 2021, Document INQ/042 at Bristol Airport inquiry 2021
3. Letter from the CCC providing advice on the UK's 2030 Nationally Determined Contribution, Climate Change Committee, 3rd December 2020
4. Letter from the CCC providing advice on international aviation and shipping and net zero, Climate Change Committee, 24th September 2019
5. Oral evidence transcript for net zero aviation and shipping inquiry, Environmental Audit Committee, 18th May 2022
6. Greenhouse gas removal methods and their potential UK deployment, Element energy for BEIS, October 2021
7. Sustainable aviation fuels as a pathway to net zero aviation, McKinsey for the World Economic Forum, November 2020
8. The role of aviation demand reduction in UK decarbonisation, Element Energy for AEF, April 2022
9. Definitions and implication of climate-neutral aviation, Brazzola et al, Nature, 25th July 2022
10. Greenhouse gas reporting: conversion factors 2020, BEIS, June 2020 (updated July 2020)
11. Luton Borough Council declare 'climate emergency', BBC News, 14th January 2020
12. Appeal decision letter APP/Y2620/W/16/3143028, Selbrigg Farm, Hempstead NR25 6NF, Planning Inspectorate, 3rd February 2020
13. The Sixth Carbon Budget: aviation, Climate Change Committee, December 2020