Response to Department for Transport Consultation on the Future of UK Aviation

Stop Stansted Expansion ('SSE') was established in 2002 in response to Government proposals for major expansion at Stansted Airport. We have some 7,500 members and registered online supporters including 150 parish and town councils and local residents' groups and national and local environmental organisations. Our objective is to contain the development of Stansted Airport within tight limits that are truly sustainable and, in this way, to protect the quality of life of residents over wide areas of Cambridgeshire, Essex, Hertfordshire and Suffolk, to preserve our heritage and to protect the natural environment.

Stop Stansted Expansion
June 2019
www.stopstanstedexpansion.com

1. Introduction

1.1 This document is the response from Stop Stansted Expansion ('SSE') to the Department for Transport ('DfT') consultation: *'Aviation 2050 The Future of UK Aviation'* ('Green Paper'). An introduction to SSE is included on the front page of this response.

1.2 SSE welcomes initiatives to improve UK aviation which increase the efficiency for users and at the same time reduce the environmental harms and adverse health impacts for people living around airports and under flight paths.

1.3 In October 2017 SSE responded to DfT's Call for Evidence for the UK Aviation Strategy and we would draw your attention to paragraph 4 in our response concerning '*Strategy Aims and Objectives'* where we said we wished to see the stated Aim to be expanded to include an explicit environmental aim, as follows:

> *"To achieve a safe, secure and sustainable aviation sector that meets the needs of the consumers and of a global, outward facing Britain* ***and where its adverse environmental impacts are progressively reduced."*** [our emphasis]

1.4 At that time we advised that we were content with the wording of all of the stated Objectives except for the fifth Objective: "*to support growth while tackling environmental impacts"* where the wording plainly subordinates environmental objectives to growth objectives. This fifth objective conflates an assumed 'growth' benefit with the disbenefits of environmental harms without making any attempt to define how an equitable balance should be achieved.

1.5 Our October 2017 response called for a clear aviation strategy objective to reduce environmental harms and pointed out that it was wholly inadequate to use imprecise language such as "tackling", "giving due consideration to" and "addressing environmental impacts". It is meaningless to refer to *"the need to minimise impacts and respect environmental limits"* without any quantification or clarity as to what this actually means in practice. We asked for the fifth objective to be re-worded to "*support aviation growth while reducing its adverse environmental impacts".*

1.6 The extant 2013 Aviation Policy Framework ('APF') states:

> *"The Government recognises that noise is the primary concern of local communities near airports and we take its impact seriously. As a general principle, the Government therefore expects that future growth in aviation should ensure that benefits are shared between the aviation industry and local communities. This means that the industry* ***must continue to reduce and mitigate noise as airport capacity grows****"*[1]*.* [our emphasis]

1.7 Noise is generally defined as unwanted sound that is loud or unpleasant or that causes disturbance. Aircraft are inherently noisy machines. A jet aircraft 50 metres away emits 140dB of noise which is twice as loud as the threshold of pain. This 140dB level of aircraft noise is about 130 times louder than a busy office or a loud radio (around a 70dB level). Aircraft noise is not only loud; it also has a large low frequency content. Low frequency noise encounters less absorption than higher frequencies as it travels through the air, so it persists for longer distances.

[1] *Aviation Policy Framework'*, DfT, March 2013, Executive Summary, para 16.

1.8 Additionally, the amount of noise transmitted from the outside to the inside of buildings is greater at lower frequencies than at higher frequencies. Furthermore, modern high ratio bypass turbofan aircraft engines are characterised by a tonal (whine) feature which increases the likelihood of annoyance.

1.9 It is therefore disappointing to find that the Green Paper, merely proposes *"setting a new objective to limit, and where possible, reduce total adverse effects on health and quality of life from aviation noise"*.[2] This appears to be a dilution of the policy set down in the APF and is therefore a retrograde step.

1.10 There must be a far more rigorous and more clearly defined policy objective to continuously reduce the total adverse effects on health and quality of life from aviation noise. Our detailed response to the consultation questions below is directed at Chapter 3: 'Ensure aviation can grow sustainably' and focuses upon the environmental and community issues as well as commenting on the Green Paper's claimed benefits of aviation.

2. Response to Chapter 3

Chapter 3, Question 1: How could the policy proposals be improved to maximise their impact and effectiveness in addressing the issues that have been identified?

2.1 Clear, balanced government policies are a critical foundation for proper regulation of the industry's noise and other impacts and for broader constructive dialogue between the industry, communities, policy makers and the regulator.

2.2 However, the government's proposed new noise objective "*to limit, and where possible, reduce total adverse effects on health and quality of life from aviation noise"* does not provide the "clearer framework" the government says that it wants. The draft objective is neither clear nor is it balanced. It is open to multiple interpretations and is not readily capable of enforcement by an independent regulator or oversight body. Furthermore, it offers less protection than required by the EU's Environmental Noise Directive, namely, *"to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise".*

2.3 Depending on its interpretation, the new noise objective also appears to ignore communities where impacts are not currently judged by DfT methodologies to have an adverse impact on health and quality of life at approximately 51dB LAeq. Many communities will feel the new objective ignores their interests and will fail to ensure the industry acts to address noise impacts in their areas.

2.4 Similar statements in previous policy documents have contributed to an environment in which complaints have increased. As a consequence, many new aviation noise campaign groups have been created and trust between the industry (together with government and the CAA) and impacted communities, has been eroded. The government's aviation policy objectives with regard to the control of aircraft noise should be capable of clear interpretation by a court or an independent regulator. They should include unambiguous, enforceable, airport-specific noise reduction targets against which progress can be measured and reported.

[2] *'Aviation 2050 The Future of UK Aviation'*, DfT, Dec 2018, Chapter 3, para 3.115.

2.5 We support the proposals contained in the Green Paper[3] to develop *"a new national indicator to track the long term performance of the sector in reducing noise"* and setting noise caps both for day and night. However, the LAeq metric (the A-weighted equivalent continuous sound level in decibels measured over a stated period of time) has a number of drawbacks when used as the sole measure of aircraft noise. People hear aircraft noise as a discrete number of noisy events with associated noise levels, durations and noise characteristics as well as the frequency of occurrence of these noisy events compared to the background or ambient noise levels. People do not perceive aircraft noise as equivalent average noise levels over 16 hours in the day and 8 hours at night.

2.6 In Appendix A we provide two examples of the inadequacy of the sole use of the LAeq metric to assess the impacts of aircraft noise. A suite of noise metrics must be developed that can be used on an airport-specific basis when setting noise reduction targets. These metrics must have quantified guidance levels and limits which include, inter alia, the measurement of aircraft noise levels, spectral content, time duration and frequency of occurrence and that can also be chosen on the principle that "one size doesn't fit all".

2.7 We are encouraged to note that the *"The government is considering the recent new environmental noise guidelines for the European region published by the World Health Organisation ('WHO')"*[4]. We are also encouraged that the government *"agrees with the ambition to reduce noise and minimise adverse health effects"* but this should not just be an ambition; it should be a fundamental policy objective.

2.8 The WHO guidelines make source-specific recommendations for aviation noise and include new lower thresholds reflecting the growing body of evidence about the harmful effects of noise on health. The WHO 2018 report concludes that government policy and noise targets are inadequate and out of date, and it strongly recommends that new targets are established and incorporated into national policies. The WHO report also emphasises that communities potentially affected by any change in aviation noise exposure should be informed and involved in plans.

2.9 The WHO report recommends threshold aircraft noise limits of 45dB Lden during the day and 40dB Lnight at night compared with the previous levels of 55dB and 45dB respectively. We wish to see these more stringent noise targets introduced as quickly as possible to reduce total adverse effects on health and quality of life from aviation noise, as described in a recent article in the British Medical Journal[5].

2.10 We would remind the DfT of its longstanding commitment in relation to the WHO noise guidelines, as follows:

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[3] Ibid.

[4] Environmental Noise Guidelines for the European Region (2018). http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/environmental-noise-guidelines-for-the-european-region-2018.

[5] '*The harms to health caused by aviation noise require urgent action', BMJ, 18 Jun 2019* https://blogs.bmj.com/bmj/2019/06/18/the-harms-to-health-caused-by-aviation-noise-require-urgent-action/

> *"The guideline values are very low. It would be very difficult, if not impossible, to achieve them in the short to medium term without draconian measures – but that is not what the WHO proposed. The recommendation was that the Guidelines for Community Noise should be adopted as long term targets for improving human health. ...The UK Government is committed to take account of this. In respect of aircraft noise at night, the 30 year time horizon of the White Paper, provides a suitable time parameter for 'longer term'."*[6]

2.11 The above DfT commitment, which dates back to 2004, set an implementation time horizon of 2030, which at that time was a long way into the future. However, it is now only 11 years away. The DfT should now set out a clear plan, with interim targets and milestones, for honouring that longstanding commitment.

Noise Regulation

2.12 The current regulatory vacuum should be replaced with robust, statutory regulation of aircraft noise by an empowered regulator that is independent and expert. The regulator's purposes should be:

- to ensure all reasonably practical measures to reduce noise emissions, exposure and impacts are expeditiously implemented.
- to achieve an equitable balance between the interests of the industry and people adversely affected by its operations including that growth is proportionately balanced by reductions in noise and other environmental impacts or, in any circumstances where that is not possible, by the provision of alternative compensatory noise and other benefits, taking account of local circumstances. The tests for "reasonably practical" in this context should be the same as those applied in aviation safety regulation matters.

2.13 These aims could potentially be achieved if the noise caps and plans proposed in para 3.115 of the Green Paper were respectively determined or approved by an independent, expert regulator who had appropriate statutory duties and enforcement powers. A single national regulator should discharge these roles at all airports whose operations have significant impacts on local communities, perhaps based on a threshold level of ATMs per annum.

Industry Externalities

2.14 The government should confirm that aviation will be required to pay all the external costs that its activities impose on society at large, including air and noise pollution, the loss of property value and other detrimental impacts, in all circumstances so that the price of air travel reflects its full environmental and social impacts. It should also set out mechanisms through which this policy will be comprehensively and promptly delivered.

Consumer Awareness

2.15 Consistent with government policy on transparency, prospective passengers should be provided, prior to booking, with health warnings on the industry's environmental, health and other adverse impacts. Industry advertising and

[6] *'Night Flying Restrictions at Heathrow, Gatwick and Stansted: Stage 1 of Consultation on Restrictions to apply from 30 October 2005'*, DfT, July 2004, para 3.12.

promotional material should contain similar health warnings. The content of health warnings should be determined independently taking account of behavioural change advice. We believe this could be achieved using the additional CAA duties proposed in the Green Paper[7].

2.16 The government should commit to allowing no further increase in capacity at UK airports until the measures described in paragraphs 2.5 to 2.15 above have been fully implemented and their effect on demand assessed. The National Infrastructure Commission's proposed work on a "*needs case for further runways*"[8] should similarly not proceed until these measures have been fully implemented and their effect on demand assessed.

2.17 In other areas, the government needs to be clear as to what it regards as "proportionate" investment in community funds[9]. The benefits of recent growth have accrued almost exclusively to airports and the wider aviation industry rather than to those communities adversely impacted.

2.18 Additionally, the costs of noise mitigation measures should be fully borne by airports. The provision of "*assistance*" is inconsistent with the 'polluter pays' principle and discriminates against those less able to afford insulation or legal representation.

Chapter 3, Question 2 How should the proposals described be prioritised, based on their importance and urgency?

2.19 The government should prioritise delivery of our proposals for Noise Regulation, Noise Indicators (Metrics), Industry Externalities and Consumer Awareness in our answer to Question 1 above. Furthermore, until the government's proposals are strengthened in those areas, and there is proper independent monitoring, approval for any further increase of capacity at UK airports should be withheld.

Chapter 3, Question 3: Are you aware of any relevant additional evidence that should be taken into account?

2.20 Further research is needed into the effects of concentration on communities living under Performance Based Navigation ('PBN') flight paths. This should study measured and modelled impacts with options and sensitivity analyses with the overall aim of reducing adverse noise impacts wherever possible. Research should cover the following topics:

- Measurement methods, criteria and thresholds for noise;
- Measurement methods for numbers of aircraft and numbers of people affected;
- Modelling tools to assist the forecasting of the effects of airspace changes for PBN routes on communities underneath flight paths;
- Comparison methods for single, alternative and multiple routes; and
- Sensitivity analysis methods including options appraisal.

[7] *'Aviation 2050 The Future of UK Aviation'*, DfT, Dec 2018, Chapter 3, para 3.119.
[8] Ibid, para 3.13.
[9] Ibid, para 3.72.

2.21 The assessment of overflight noise impacts should consist of three basic parameters namely: intensity, duration and frequency – i.e. what people actually perceive. However, to this assessment must be added background noise levels for adequate comparisons in rural areas. The key outcomes for the study should be:

- The development of a PBN overflight assessment and population count tool to enable optimal PBN routes to be designed and consulted upon with communities;
- To recommend overflight noise metrics, guidance levels and limits for both the daytime and night time. This should include a suite of noise metrics with quantitative limit values which include, inter alia, the measurement of aircraft noise levels, spectral content, time duration and frequency of occurrence;
- To assess the adverse effects of aviation PBN routes on health and well-being. This should include the effects of recently accumulated evidence of damage to the cardiovascular system;
- To explore how the WebTAG tool could be utilised to provide monetised health impact costs under PBN routes; and
- To evaluate the impact of PBN routes on property asset values and recommend appropriate compensation measures.

2.22 Policy should also be clear regarding the making of changes to established flightpaths under the Airspace Change Process CAP 1616. In particular, this should deal with how "grandfather rights" of not being overflown are taken into account. Stability of flight path patterns is an important factor in long term land use planning and will have influenced personal decisions on location, soundproofing etc and will have an impact on property prices.

Chapter 3, Question 4: What implementation issues need to be considered and how should these be approached?

2.23 A recurring implementation issue for communities is the lack of expeditious timescales by aviation operators and authorities in delivering community benefits, mitigation and compensatory measures. A consequence of long delays in implementation is loss of trust and leads to the perception that the aviation industry does not take its responsibilities to local communities seriously. Two recent examples at Stansted are:

- **Performance Based Navigation ('PBN')** – While SSE supports the introduction of PBN as a key technology change to achieve the aims of airspace modernisation, it must enable communities to share in the benefits of improved airspace efficiency. To this end implementation must be undertaken in a timely fashion. Following a change in the Noise Abatement Departure Procedure by the low-cost airlines – the dominant operators at Stansted – the airport undertook in 2009 to introduce two replicated Standard Instrument Departure routes using PBN to avoid overflying village centres close to the runway. However, it took nearly eight years to trial and implement this minor improvement.
- **Homeowner Compensation –** This long running saga – some would say scandal – dates back to 1985 when the government decided that Stansted should be London's third airport. There was an initial permission – 'Phase 1'

– for expansion to 8 million passengers per annum ('mppa') to be followed by 'Phase 2' allowing growth to 15mppa. Phase 1 was completed in March 1991 and, in accordance with its obligations under the Land Compensation Act 1973, Stansted Airport Limited (STAL) agreed to pay compensation to local residents for the relative devaluation of their properties arising from Phase 1. It then took up to six years for claims to be settled.

In 1999, Stansted was given consent for Phase 2. Within three months it had exceeded the 8mppa threshold and within three years it exceeded the 15mppa Phase 2 threshold. Stansted has continued to handle over 15mppa every year since 2002. It now handles almost twice that throughput.

When Stansted reached its permitted Phase 2 throughput of 15mppa in 2002, local residents expected this to trigger the second round of compensation payments, but that was not to be. From 2002 until 2016 STAL repeatedly and consistently told potential claimants that no compensation claims would be entertained until 12 months after all the relevant physical construction works associated the Phase 2 development were completed

STAL firstly said that Phase 2 would be completed in 2002 but one element of Phase 2, namely, the Echo taxiway, was left unfinished. This became known as 'the golden rivet' and, in March 2016, STAL advised the Lands Tribunal that it did not expect the Echo development to be completed "until the mid-2020s" i.e. more than 20 years later than originally planned and more than 20 years after the airport reached 15mppa.

It was only when, in 2016, a resident took his complaint to the Lands Tribunal that STAL was forced to act. In the course of the hearing STAL changed its position and conceded that it should have begun to consider compensation claims almost ten years earlier, in March 2007. STAL then had the audacity to cite the Limitation Act – i .e. the standard six-year time limit for any claim.

On this basis, STAL told the Tribunal that claims were now time barred. This prompted the presiding judge, Martin Rodgers QC to remark:

"So, after years of telling people you can't claim until the works are complete, you're now saying 'tee-hee - you're too late'?"

SSE subsequently stepped up legal preparations for a formal challenge and arranged a press conference to announce this, to be followed by meetings with MPs and local councillors. At the eleventh hour STAL finally agreed to begin dealing with compensation claims. However, three years on it is clear that STAL has made it as difficult as possible for local residents to claim compensation and even where a claim is considered valid, the amounts offered by STAL are derisory, in the knowledge that claimants invariably do not have the financial resources to mount a legal challenge. In short, this has been a shameful saga from start to finish which does nothing for the corporate reputation of STAL or its owners, the Manchester Airports Group.

Chapter 3, Question 5: What burdens, both financial and regulatory, are likely to need to be managed and how might those be addressed?

2.24 The proposals made in our answer to Question 1 above would result in additional costs both through the application of the 'polluter pays' principle to the aviation industry and as a result of additional regulation. These costs should be fully borne by the aviation industry and could be absorbed by operators and/or passed on to passengers and freight handlers.

2.25 The aviation industry enjoys tax advantages relative to other transport modes and sectors of the economy despite being one of the fastest growing sources of greenhouse gas emissions. The government should review the tax arrangements for airline tickets as one option for ensuring demand is kept within sustainable limits. The tax advantages enjoyed by the aviation industry results in artificially inflated demand. In 2017, the value of fuel duty and VAT exemptions to UK Aviation was £11.6bn[10] whereas the HMRC income from Air Passenger Duty was only £3.4bn showing a shortfall to the Exchequer of £8.2bn. Air Passenger Duty would need to be 3.4 times its current level to reach tax parity with road users.

Chapter 3, Question 6: **Are there any options or policy approaches that have not been included in this chapter that should be considered for inclusion in the Aviation Strategy?**

2.26 The lack of an appeal function in the Airspace Change Process CAP 1616 is, in our view, contrary to natural justice. It provides no avenue for local communities to seek legal recourse other than the extremely expensive route of Judicial Review. It is perceived as the CAA acting as both judge and jury. An appeal process, with the assistance of the Independent Commission on Civil Aviation Noise ('ICCAN'), should be instituted and the DfT Guidance to the CAA on Environmental Objectives relating to the Exercise of its Air Navigation Functions ('The Guidance') should be amended accordingly.

Chapter 3, Question 7: Looking ahead to 2050, are there any long term challenges which need to be addressed?

2.27 Total transport emissions[11] already exceed 35% of the UK carbon budget and are set to continue to rise as a proportion of that budget. The May 2019 *'Net Zero'* report by the Committee on Climate Change ('CCC') includes a number of recommendations in relation to aviation, with further advice to be set out in the coming weeks by way of a letter to the DfT. Whilst both the government and Parliament have yet to reach a view on the CCC's 'net zero' advice, the Aviation Strategy must take into account the likely implications of a shift to higher climate change ambition for UK Aviation. Aviation growth as envisaged in the Green Paper cannot in this context be justified. We therefore call on the government to:

- Accept the CCC recommendation that international aviation (and shipping) emissions should be part of the Net Zero target, and should in future be formally included within the UK carbon budget. We condemn the peremptory and unsubstantiated ignoring of this CCC recommendation in the government's Net Zero draft statutory instrument[12] published on 12 June 2019;
- Develop, commit to and implement the aviation carbon reduction policy framework that will consequently be required as an integral part of a wider reduction framework for UK transport as a whole;

[10] Aviation turbine fuel consumption of 14.8 billion litres x (57.95+20.5) pence per litre = £11.6 billion.
[11] *'Net Zero – The UK's contribution to stopping global warming'*, CCC, May 2019, Technical Report, Chapter 5 (Transport) and Chapter 6 (Aviation and Shipping).
[12] The Climate Change Act 2008 (2050 Target Amendment) Order 2019.

- Accept that aviation must make a fair contribution to reductions in actual UK carbon emissions, without recourse to offsets. Aviation emissions in 2017 were at a level of 36.5MtCO_2 (1.5MtCO_2 for domestic plus 35MtCO_2 for international flights departing the UK)[13]. Firstly they should be capped at the 2018 level, which is likely be around 37MtCO_2. Subsequently they should be reduced along an established emissions reduction pathway, noting that the CCC has suggested that this could be achieved at a negative abatement cost. The CCC has modelled scenarios which indicate that emissions from UK aviation can be reduced towards 21MtCO_2 or lower;
- Undertake a detailed study of all aspects of how demand management can be applied to UK air travel as part of the carbon reduction policy framework, in accordance with various scenarios including holding demand at its existing level of around 300mppa;
- Identify, as part of that demand management regime (and in conjunction with the Treasury), the opportunities for the taxation of aviation; and
- Re-evaluate policy support for airport expansion, and growth in demand generally, until this is shown to be compatible with the established aviation carbon reduction pathway and an acceptable distribution of flight opportunities amongst UK airports.

Chapter 3, Question 8: To what extent does the proposed partnership for sustainable growth balance realising the benefits of aviation with addressing environmental and community impacts?

2.28 The Green Paper makes the following claims[14]:

- *"Aviation contributes over £22bn to UK economy and over 230,000 jobs";*
- *"Passenger traffic could soar from 284m last year to 435 million by 2050";*
- *"Clearly this growth benefits the UK";*
- *"A thriving aviation sector is tangible evidence of economic confidence, growing tourism, increased trade, and business investment";* and
- *"Our regional airports and the connections, jobs and investment they provide spread these benefits across the country".*

2.29 Policy must be evidence-based and there is a considerable body of evidence which calls into question the above assertions as to the importance of aviation to the UK economy particularly since this sector is purely civil air transport. The Green Paper overstates aviation's contribution to the UK economy and employment.

[13] Final UK greenhouse gas emissions national statistics: 1990-2017. https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2017.

[14] *'The Future of UK Aviation'*, DfT, Dec 2018, Foreword.

Contribution to the Economy

2.30 Para 8.44 of the Green Paper claims that *"The aviation sector provides at least £22 billion to the economy each year with around £14 billion contributed from the air transport sector and £8 billion from the aerospace sector."* A footnote gives the source as "DfT analysis of ONS GDP low level aggregates", based on 2017 data but the actual ONS data for 2017[15] is as shown in the following table:

GDP outputs for UK air transport and aerospace in 2017 (ONS data)

SECTOR	GDP £billion
Air Transport	8.6
Air and spacecraft and related machinery*	7.8
TOTAL	**16.4**

**includes military as well as civil air/spacecraft and engines.*

2.31 It is not clear how the DfT has arrived at a figure of £22 billion when the referenced ONS data indicates £16.4 billion. It may be that a further £4.5 billion has been attributed to ancillary air services but the DfT makes no mention of this. Even so, this still falls short of £22 billion.

2.32 More fundamentally, what is the rationale for combining aircraft and spacecraft manufacturing – military as well as civil – including aircraft and spacecraft engines – with air transport? These activities now seem to be included in DfT's definition of the aviation sector whereas this was not previously the case. Would it be considered reasonable to use the economic value of the UK car/vehicle manufacturing industry to help justify the building of new roads?

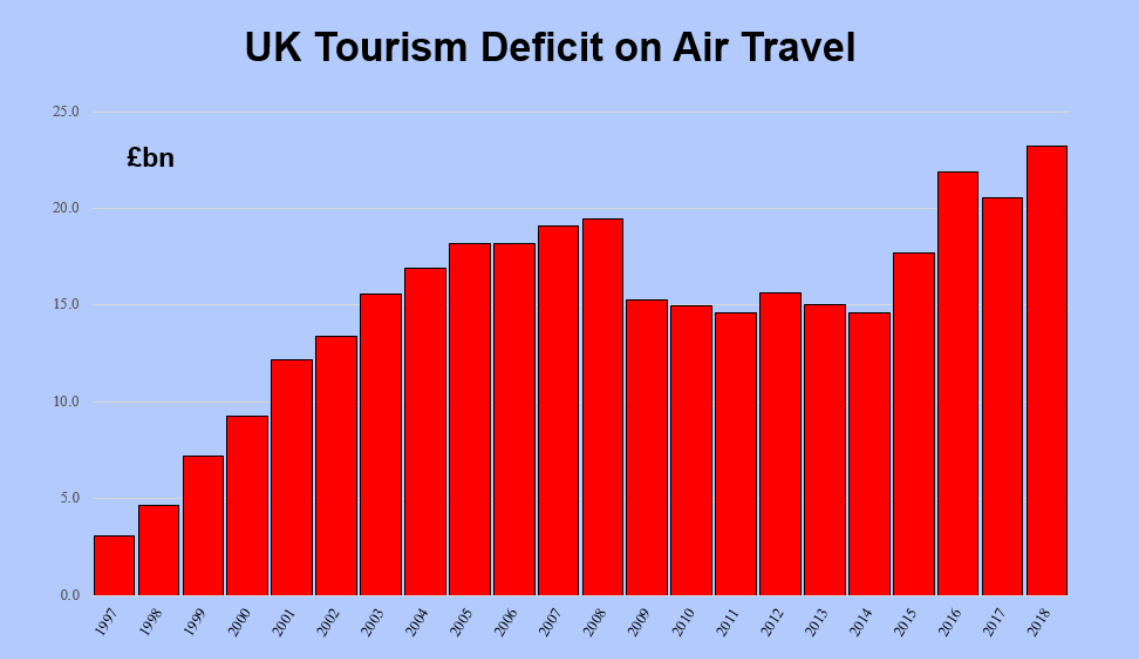
Tourism Deficit

2.33 The Green Paper sets out a one-sided view of the impact of the aviation industry on UK tourism by repeatedly emphasising the benefits of inbound air tourism (which we acknowledge) whilst being almost silent on outbound air tourism, which is twice the size of inbound air tourism in both numerical terms and financial terms.

2.34 In 2018, UK residents made 60 million overseas visits by air compared to 29 million visits to the UK by foreign residents. UK residents spent £39.9 billion on overseas visits by air, compared to £19.7 billion spent by foreign tourists visiting the UK, resulting in a UK tourism trade deficit of £20.2 billion[16]. Additionally, UK residents spend around £10 billion a year on air tickets purchased from foreign airlines compared to around £7 billion a year spent by foreign residents on purchasing air tickets from UK airlines, resulting in a negative trade balance of £3 billion.[17]

2.35 Accordingly, the total UK trade deficit in 2018 was £31 billion of which some £23 billion (74%) was attributable to the deficit on air travel and tourism.

[15] Office of National Statistics ('ONS') Dataset for GDP output approach – low-level aggregates: https://www.ons.gov.uk/economy/grossdomesticproductgdp/datasets/ukgdpolowlevelaggregates.
[16] '*Travel Trends 2018*', ONS, Tables 2.07, 2.09, 3.07 and 3.09.
[17] '*The UK Balance of Payments*', 2018, ('*The Pink Book*'), ONS, Table 3.2.



Regional Disparity

2.36 The overall UK figures for inbound and outbound tourism mask a major disparity between London and the rest of the UK. In 2017 London accounted for over half of all visits to the UK by overseas residents, and the south east for over 60%. By comparison, Greater Manchester accounted for just 1.6%, the West Midlands for 1.5%, Merseyside for 0.9%. Scotland accounted for 8%, Wales for 3% and Northern Ireland, just 1.0%.[18]

2.37 The disparity is also reflected in the airport statistics provided in the annual 'Departing Passenger Survey'(s) published by the CAA[19]. In 2017, some 45% of Heathrow's terminating passengers were international visitors, whereas the comparable figures for regional airports were Manchester 18%; Newcastle 14%; and East Midlands just 8%. In other words, excluding domestic flights, 11 out of every 12 passengers using East Midlands Airport in 2017 was a UK resident taking a flight overseas.

2.38 It is far from clear that the growth in international air travel brings economic benefits to the less affluent regions of the UK. Indeed, the available evidence suggests that it has the opposite effect. Whenever consumer spending switches from the domestic UK economy to spending overseas, jobs and investment are also exported overseas. The DfT should commission research to examine the impacts of the growth in international leisure air travel upon the regional economies of the UK – both positive and negative.

Business Travel

2.39 It is also significant to note that UK residents took fewer business flights in 2018 (5.4m) than in 1997 (6.1m) with the result that business travel accounts for just 9% of UK residents' overseas visit compared to 18% in 1997. UK outbound leisure trips have increased by 160% over the same period (from 19.2m to 49.8m)[16].

[18] International Passenger Survey, ONS, 2018.
[19] Departing Passenger Survey 2017, CAA, Table 3.3.

Contribution to Jobs

2.40 Para 1.8 of the Green Paper claims that "Aviation is estimated to directly provide over 230,000 jobs … especially in aircraft manufacture, aircraft maintenance and air freight". A footnote gives the source as "DfT analysis of ONS Annual Business Survey (2017)". However, the relevant ONS data for 2017 is as follows[20]:

Employment in the UK aviation and aerospace sectors 2017 (ONS data).

SIC*	SECTOR	EMPLOYMENT '000
51	Air transport (passenger + freight)	81
52.23	Service activities incidental to air transportation	49
30.30	Manufacture of air/spacecraft & related machinery	87
	TOTAL	**217**

* = *Standard Industrial Classification.*

2.41 The DfT previously calculated the number of jobs in the aviation sector as the combination of SICs 51 and 52.23. On this basis there were 130,000 jobs in 2017, not 217,000 as presented in the Green Paper. It is also important to note that, on a like-for-like basis, the 130,000 aviation jobs in 2017 compares to 143,000 jobs in 2008[21] and some 200,000 jobs in 2002.[22]

2.42 It is not clear why the DfT has widened its definition of aviation so that it now incorporates aerospace manufacturing, including employment in the manufacture of military aircraft and spacecraft. We cannot see the rationale for this and we note that the effect is to inflate the jobs (and GDP) contribution of the aviation sector to the UK economy and to hide the underlying decline in employment in the sector since 2002.

The Proposed Partnership

2.43 Turning to the proposed partnership described in Chapter 3, many terms used to describe it are opaque, undefined and capable of widely differing interpretations. Without substantially more detail it is difficult to evaluate the partnership's likely effectiveness. However, based on the information currently provided and the government's track record in regulating aviation noise it is unlikely that the partnership will achieve a fair balance between realising the benefits of aviation and addressing environmental and community impacts. As currently articulated the partnership concept fails to provide convincing answers to the question posed in the Executive Summary*: "How can we manage the impact of growth on the environment – particularly carbon emissions, air quality and noise?*"

[20] Annual Business Survey 2017 ('ABS'), ONS, Section 3: Manufacturing (SIC 30.3) & Section H: Transportation & Storage (SICs 51 & 52.23): https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/datasets/uknonfinancialbusinesseconomyannualbusinesssurveysectionsas.

[21] Ibid, ABS 2008.

[22] *'The Future of Air Transport'* White Paper, DfT, Dec 2003, para 2.6.

2.44 The partnership concept appears to be based on the premise that there is an "*artificial choice*"[23] to be made between growth and environmental protection. The government needs to appreciate and acknowledge that real choices have to be made. The Committee on Climate Change's 12 February 2019 letter to the Secretary of State recognises this when it says "*Achieving aviation emissions at or below 2005 levels in 2050 …will also require steps to limit growth in demand. In the absence of a true zero-carbon plane, demand cannot continue to grow unfettered over the long-term*".

2.45 The government should set out clearly the basis on which, and the processes through which, those real choices will be made. The Green Paper appears to evade the difficult issues it should be addressing.

2.46 The partnership concept and the government's current and proposed policies are built on unsound economic principles that artificially stimulate demand by ignoring the 'polluter pays' principle. The government should recognise that aviation is a classic market failure. The industry sells its products for less than their full cost. To enable it to make a return surplus costs are imposed either on local communities (noise and air quality) or future generations (carbon emissions).

2.47 There is no evidence that the government has recognised this economic context or considered an appropriate range of policy solutions. It appears instead to have taken the view that capacity should be provided for all currently forecast demand, ignoring basic economic principles as well as environmental and community issues. The government should ensure the industry is required to bear all costs it imposes on society (see answer to question 1) and consider a wide range of policy responses to influence excessive demand growth, including demand management techniques.

2.48 The proposed partnership appears to exclude community and environmental interests. They are key stakeholders and should be fully represented in all future stakeholder engagement.

2.49 The proposed partnership is not considered to be a "*comprehensive policy framework*" as it currently stands. It needs to be revised substantially. We suggest a number of ways in which this should be done in our response to Question 1 above.

Chapter 3, Question 9: How regularly should reviews of progress in implementing the partnership for sustainable growth take place? Are there any specific triggers (for example, new information or technological development) that should be taken into account?

2.50 A review process can only realistically be determined once a robust, clear, regulatory framework capable of achieving outcomes that equitably balance industry, environmental and community interests has been agreed. We suggest an initial two-year effectiveness review followed by five yearly delivery reviews.

[23] *'The Future of UK Aviation'*, DfT, Dec 2018, para 1.35.

3. Concluding Points

3.1 There is a longstanding and fundamental principle in government that **policy must be evidence-based**. It is disappointing that in relation to the current consultation on a new aviation strategy for the next 30+ years – which began almost two years ago[24] – policies continue to be advanced without evidential support.

3.2 Moreover, where the available evidence does not support a particular policy being advanced by the DfT, or supports an altogether different policy, it would appear that the DfT has chosen either to disregard that inconvenient evidence or attach minimal weight to it.

3.3 The evidence, analysis and recommendations provided by the CCC in their May 2019 'Net Zero' report must be taken forward by the DfT as a matter of urgency so that when the Aviation White Paper is published later this year (or early next year) it is entirely consistent with the recommendations set down by the CCC.

3.4 Another fundamental policy consideration must be the analysis and evidence published by the WHO. The DfT Green Paper states that: *"*[the government] *agrees with the ambition to reduce noise and to minimise adverse health effects, but it wants policy to be underpinned by the most robust evidence on these effects, including the total cost of action and recent UK specific evidence which the WHO report did not assess."*

3.5 The above reference is to the latest *'Environmental Noise Guidelines'*, published by the WHO in October 2018. However, we are still waiting for a clear government commitment to adopt the WHO Guidelines for Community Noise, published 20 years ago. There is now even clearer evidence of the damage to human health caused by aircraft noise. However, the DfT's response to the latest WHO recommendations is to identify the need for yet more evidence.

3.6 If the DfT is serious in this regard, it will by now have commissioned work aimed at obtaining the further evidence which it considers is needed. We expect that this will all be set out in the White Paper, alongside the WHO evidence and analysis so that there is a seen to be a robust evidential basis for the government's future strategy for reducing the health and quality of life impacts of aircraft noise.

3.7 Finally, there is a serious absence of independent evidence in regard to the impact of the aviation sector on the UK economy. It is understandable that the aviation industry should talk up the economic benefits and disregard the economic downsides but it is disturbing when the DfT does the same, often using dubious statistics and without providing any reliable independent evidence. It would be wholly unacceptable if the White Paper followed this same approach.

Stop Stansted Expansion
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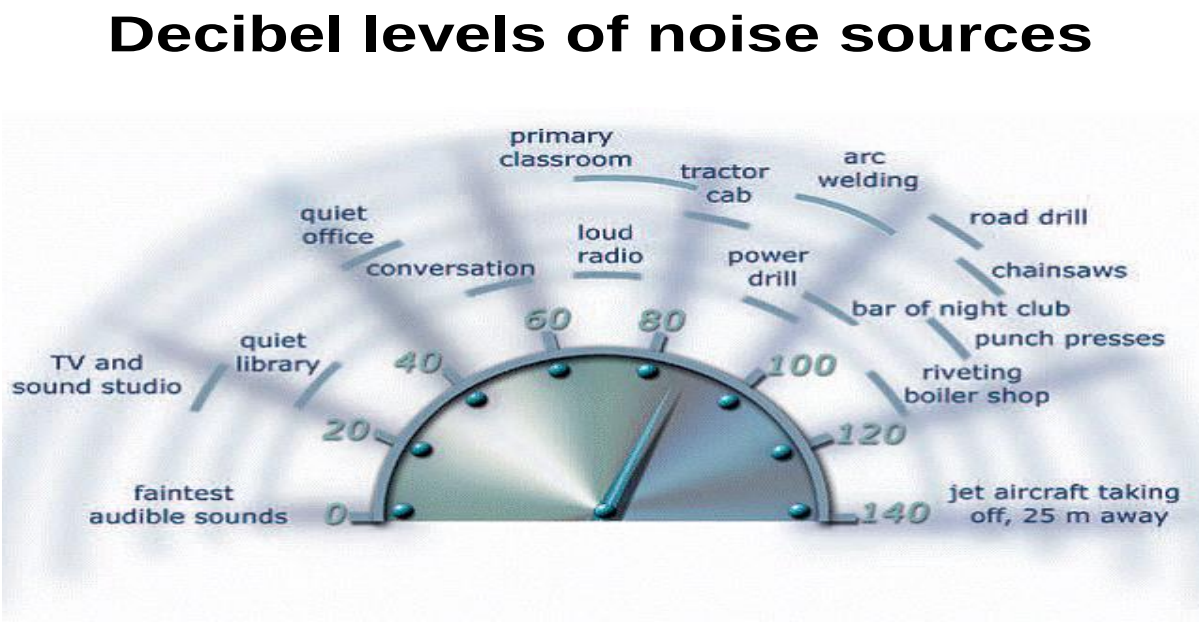
[24] *'Beyond the horizon. The future of UK aviation: a call for evidence on a new strategy',* DfT, Jul 2017.

APPENDIX A

THE USE OF THE LAeq METRIC

The aviation industry attempts to discount the adverse noise effects of aviation growth by claiming that future aircraft are expected to be quieter. However, all aircraft are inherently noisy machines and a jet aircraft 25 metres away on take-off emits a sound pressure level of 140dB which is twice as loud as the threshold of pain at 130dB. Exposure to this level of noise would cause permanent damage to the ears. Comparisons with other noise sources are given below and every 10dB increase is a doubling of loudness since the decibel scale is logarithmic. For instance, an aircraft taking off emitting 140dB is 64 times louder than a tractor cab at 80dB. And more than 250 times louder than normal conversation.



While modern turbofan engines have reduced their noise emissions compared with earlier turbojets in the 1970s, this improvement is now becoming asymptotic to zero for the latest high bypass ratio turbofan engines in terms of the actual reduction of noise intensity. Claims that *"new aircraft are expected to be 50% quieter"* refer to calculated pressure levels (noise energy) when aircraft are certified on manufacture. Whereas what the human ear hears is loudness (noise intensity). The two are quite different.

A 50% reduction in pressure level is 3dB and is the minimum change perceptible by the human ear. It would take a 10dB reduction in pressure level (noise energy) to achieve a 50% reduction in loudness (noise intensity). Furthermore, the way that aircraft noise is assessed as equivalent continuous noise levels (Leqs) over a period of time disguises the adverse impacts of increased numbers of flights and the noise of each aircraft. Aircraft noise calculations in Leqs are given over periods of a 16-hour day and an 8-hour night.

A doubling of like-for-like flights will increase the Leq calculation by only 3dB. If at the same time each aircraft was *"50% quieter"* in calculated pressure levels, not only would each aircraft be effectively imperceptibly less noisy but the Leq value over the 16-hour or 8-hour period would remain the same. However, a doubling of flights would be very noticeable.

Additionally, the A-weighted metric under-estimates the sound pressure level of noise with low frequency components. A-weighting, originally intended only for the measurement of lower amplitudes of sound, largely discounts frequencies below 200Hz. At lower amplitudes of sound this gives a reasonably accurate assessment of the way that sound is perceived. However, the noise spectrum of aircraft engines has a large proportion of total noise below 200Hz.

A-weighting measurements use filters to attenuate frequencies below 200Hz whereas C-weighting measurements, originally intended for high-level sounds, will give a more accurate assessment of aircraft noise. The WHO 1999 *Guidelines for Community Noise* stated *"The evidence on low-frequency noise is sufficiently strong to warrant immediate concern. Various industrial sources emit continuous low-frequency noise (compressors, pumps, diesel engines, fans, public works); and large aircraft, heavy-duty vehicles and railway traffic produce intermittent low-frequency noise. Low-frequency noise may also produce vibrations and rattles as secondary effects. Health effects due to low-frequency components in noise are estimated to be more severe than for community noises in general (Berglund et al. 1996). Since A-weighting underestimates the sound pressure level of noise with low-frequency components, a better assessment of health effects would be to use C-weighting".*

Low frequency noise encounters less absorption than higher frequencies as it travels through the air and it persists for longer distances. Additionally, the amount of sound transmitted from the outside to the inside of buildings is greater at lower than at higher frequencies. Furthermore, modern high ratio bypass turbofan engines are characterised by a tonal (whine) feature which increases the likelihood of complaints. As a general rule where C-weighted measurements exceed A-weighted measurements by more than 10 dB, there is a large content of low frequency sound present.

Noise measurements for A-weighted and C-weighted noise values were undertaken for the National Trust in 2007 close to Stansted Airport for a number of departing aircraft flying over Hatfield Forest (a Site of Special Scientific Interest and the UK's only remaining intact Royal Hunting Forest). They compared 1/3rd octave spectrum graphs of A-weighted and C-weighted average sound energy of over-flying aircraft after take-off.

The increase in values from A-weighted to C-weighted measurements of each aircraft on take-off was between 13dB and 14dB. That is a considerable increase is noise disturbance.