Planning application UTT/18/0460/FUL

Applicant: Manchester Airports Group (MAG)

Submission to Uttlesford District Council by Stop Stansted Expansion

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14 Carbon Emissions and Climate Change

14.1 Introduction

14.1.1 We do not take issue with the Applicant's Baseline assessment of CO_2 emissions. In fact, this is remarkably similar to our own estimates of Stansted's CO_2 emissions, which are published on the SSE website and updated each year[202] except for the fact that SSE also provides an estimate which incorporates the radiative forcing ('RF')[203] effect of aviation CO_2 emissions. Leaving aside RF for now, the increase in CO_2 emissions arising from the proposed development would be as follows.

Table 14.1: Increase in CO_2 (from the additional flights alone)

Scenario	Increase in CO_2 emissions (tonnes per annum)
Compared to 2016 Baseline[204]	-
Compared to Base Case (35mppa)	+714.000
Compared to Development Case (43mppa)	+944.000
Development case compared to Base Case	+230.000
Development case compared to DfT provision	+904.000

Source: ES1, Table 12.13 and UK Aviation Forecasts, DfT, Oct 2017, Table 38, p110.

14.1.2 Whilst we may broadly agree with the Applicant's arithmetic, we profoundly disagree with the Applicant's assertion that the additional carbon emissions arising under the 43mppa development case are insignificant and therefore acceptable. They are neither insignificant nor acceptable when considered in the context of UK Government policy, which is driven by the wider international challenge of tackling climate change. This is further explained below.

14.1.3 It is also unsatisfactory for CO_2 emissions projections only to have been provided to **2028**. Both the UK statutory framework and the Government's policy framework for controlling carbon emissions cover the period to **2050**. Whether this application is to be determined locally or nationally, the Applicant should be required to extend the estimates of carbon emissions for the 35mppa case and the 43mppa case from **2028** to **2050**.

14.2 Statutory and policy framework

14.2.1 The Climate Change Act 2008 committed the UK to reduce greenhouse gas emissions by 80% by 2050, compared to a 1990 Baseline. Emissions from domestic aviation are already included in the UK's carbon budgets but international aviation is not (yet) specifically included in the budgets for the period to 2027. However, the Climate Change Act states that they need to be taken into account.

[202] http://stopstanstedexpansion.com/documents/Stansted_CO2_Emissions_2018.pdf.
[203] The UN Intergovernmental Panel on Climate Change ('IPCC') recommends that aircraft CO_2 emissions should be multiplied by a factor of between 2.0 and 4.0, with a suggested midpoint of 2.7. to reflect the greater climate change impact of CO_2 emissions at high altitude and the impact of non-CO_2 emissions from aircraft engines. These effects are described as radiative forcing ('RF').
[204] 1.56 million tonnes as per ES1, Table 12.10.

14.2.2 With a view to introducing some control over aviation emissions, the Climate Change Committee ('CCC') was asked by the Secretary of State for Transport in 2009 to make recommendations for ensuring that total UK aviation carbon emissions should be no higher in 2050 than in 2005[205]. This translated into a cap of 37.5 million tonnes of carbon dioxide. Following extensive analysis, the CCC finally recommended that to achieve this goal, Air Transport Movements ('ATMs') should only be allowed to increase by 55%, and passenger numbers by 60%, between 2005 and 2050[206].

14.2.3 The Airports Commission later calculated that the permitted increases should be 33% for ATMs and 66% for passengers[207], rightly taking the view that the CCC had not made adequate allowance for the increase in aircraft size and passenger load factors.

14.2.4 At the time of the Stansted G1 Public Inquiry (2007) it was argued on behalf of the Applicant that the increase in CO_2 emissions arising from the additional flights was not a material consideration because there was no Government policy for tackling aviation CO_2 emissions. Today, there is a 37.5Mt CO_2 cap but this was a commitment given by a previous Government and, whilst it has not been rescinded, it is not certain that it will continue to be the principal policy tool for dealing with aviation CO_2 emissions.

14.2.5 The 2013 Aviation Policy Framework ('APF') which replaced the 2003 ATWP and remains the Government's extant aviation policy to this day, states as follows:

> ***"Our objective is to ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions."*** [208]
> [original (bold type) emphasis]

14.2.6 However, the APF did not add much clarity as to how the Government intended to manage aviation's carbon emissions because in 2013 the Government was still clinging to the hope that an effective EU ETS might soon be in place and would apply to all flights departing from or arriving in the EU. That was the context in which the Government expressed its position in the APF, as follows:

> *"Therefore, before making a decision on whether the UK should retain a national emissions target for aviation, the Government believes that it is important to have greater certainty over the future scope of the EU ETS and await the outcome of the ICAO negotiations towards a global deal on aviation emissions."* [209]

14.2.7 Today, five years on, there is still a lack of clarity as regards the Government's policy for bringing aviation's CO_2 emissions under control. This somehow needs to happen if the statutory target laid down in the Climate Change Act 2008 of cutting the UK's carbon emissions by 80% by 2050 is to be met.

14.2.8 The Government is now consulting on a new Aviation White Paper. This goes under the strapline: *'Beyond the horizon. The future of UK aviation.'* The new White Paper is expected to be published early next year and will replace the APF. The preliminary *'Beyond the horizon … Call for evidence'* paper published last summer noted that:

[205] Commons Hansard, 15 Jan 2009, Columns 358-360.
[206] *'Meeting the UK aviation target – options for reducing emissions to 2050'*, CCC, Dec 2009.
[207] Airports Commission, Interim Report, Dec 2013, Appendix 3, Section 5.
[208] *'Aviation Policy Framework'*, Mar 2013, Executive Summary, para 12.

> *"… the UK's carbon budgets have been set at a level that accounts for international aviation and shipping emissions"* [210]

14.2.9 The recently published *'Beyond the horizon'* consultation document (April 2008), notes:

> *"Respondents to the call for evidence ranked the objective of supporting growth while tackling environmental impacts as second only to safety and security in their order of priority for the strategy. The top six issues mentioned by respondents all related to the challenges of delivering future capacity utilising current capacity and addressing the concerns that people have in respect to aviation's contribution to noise, air quality and carbon levels.* ***The interdependencies of these issues has confirmed the government's view that they should all be addressed together as part of a single objective in the aviation strategy****.* [our emphasis]
>
> *At a global level, the government will consider our overarching framework for tackling UK aviation's carbon emissions to 2050 and how this can ensure that aviation contributes its fair share to action on climate change".* [211]
>
> *"While the government is not recommending a particular approach, it is interested to hear views on how this could be taken forward.* ***In parallel the government will consider what the carbon and wider environmental framework should be to inform the final policy on sustainable growth. This will include setting a national carbon policy for aviation*** *…"* [212]

The Paris Agreement

14.2.10 The aim of the Paris Agreement is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2^0C and pursue efforts to limit the temperature increase even further to 1.5^0C. This goes further than any previous international agreement aimed at tackling climate change and, as at April 2018, 196 countries, including the UK, have signed the Paris Agreement.[213]

14.2.11 The Climate Change Act 2008, which sets a target of reducing UK carbon emissions by 80% (from a 1990 Baseline) by 2050, was based on supporting the international objective of capping global warming to within **a 2^0C temperature rise**. However, to comply with the Paris Agreement, which has the aim of capping global warming to within **a 1.5^0C temperature rise**, will need a more ambitious target. It should also be noted that the Climate Change Act requires emissions from the UK's international aviation activities to be included in the UK carbon budgets "as soon as possible".[214]

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[209] Ibid, para 2.35.
[210] *'Beyond the horizon. The future of UK aviation. Call for evidence',* DfT, Jul 2017, para 7.16.
[211] *'Beyond the horizon. Next steps towards an aviation strategy',* DfT, Apr 2018, para 6.6.
[212] Ibid, para 6.9.
[213] https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement.
[214] Carbon emissions from domestic aviation are already included in budgets but this is only c. 7% of the total emissions from UK aviation.

14.2.12 As a first step towards implementing the Paris Agreement, the UK Government Minister with the responsibility for climate change policy matters, Clare Perry, announced that the Government would call on the CCC to lay out a route for **tighter carbon controls**.[215]

> *"After the IPCC* [216] *report later this year, we will be seeking the advice of the UK's independent advisors, the Committee on Climate Change, on the implications of the Paris Agreement for the UK's long-term emissions reduction targets."*

14.2.13 In view of the above, it seems reasonable to predict that any hopes that the UK aviation industry may have for a relaxation of the 37.5 $MtCO_2$ cap are unlikely to be realised. Indeed, it may be that in the light of the Paris Agreement the cap has to be reduced.

14.3 Attempts at international aviation agreements

14.3.1 International aviation was excluded from the December 1997 Kyoto Protocol on Climate Change and, in the 20 years that have passed since then, all attempts to obtain international agreement on tackling aviation emissions have failed.

14.3.2 At the time of the G1 Inquiry (2007) the Applicant presented the forthcoming inclusion of aviation in the EU Emissions Trading Scheme ('EU ETS') as the solution towards tackling aviation CO_2 emissions. Despite the rosy picture painted by the Applicant in ES paras 12.13-12.16, the EU ETS has proved to be almost entirely ineffective so far as aviation emissions are concerned, and we do not recognise the claims made by the Applicant in ES para 12.14. We should however make clear that the failure of the EU ETS in regard to the aviation emissions is through no fault of the UK aviation industry and is despite the best endeavours of the UK Government.

14.3.3 The principal reason for the failure of the EU ETS to live up to its promise was its outright rejection by major economies including the USA, India and China. This resulted in a "stop the clock" measure being implemented in 2012 which meant that only short-haul intra-EU flights (and not long-haul flights departing from or arriving in the EU) could be included in the ETS. The "clock" has never been restarted and so only a small fraction of aviation CO_2 emissions are subject to the ETS. This, coupled with a derisory carbon trading price, has meant that the EU ETS has been almost entirely ineffective in constraining aviation emissions. The EU carbon price has strengthened in recent months but as at time of writing it is still only €12.89 (£11.30) per tonne of CO_2.[217]

14.3.4 After 20 years of fruitless discussions and expectations falsely raised by the International Civil Aviation Organisation ('ICAO'), we are again being told that there is the prospect of a worldwide agreement for controlling aviation emissions. The latest ICAO proposal is for a global market offsetting arrangement, known as the 'Carbon Offsetting and Reduction System for International Aviation ('CORSIA').

14.3.5 As the Applicant acknowledges[218] many of the details of the proposed CORSIA scheme still need to be agreed but it is planned to come into effect on a voluntary basis in 2021 and to be mandatory by 2027. Some 73 countries have reportedly expressed support

[215] Announcement by Clare Perry, Minister for Energy and Clean Growth, at Commonwealth Heads of Government Meeting, 17 April 2018.
[216] Intergovernmental Panel on Climate Change.
[217] As at 23 April 2018.
[218] ES1, paras 12.9-12.10.

but it remains to be seen how many will sign up when the details are made known. Brazil has already indicated that it will not join; Russia and India have not expressed any firm opinions; whilst the USA (under the previous administration) and China have simply said that they "expect to be early participants".

14.3.6 It cannot yet be said whether CORSIA will be another false dawn. However, some of the early signs are not encouraging. CORSIA will use a 2020 Baseline for emissions levels, rather than the 2005 baseline adopted by the UK Government and the similar 2004-2006 Baseline adopted when bringing the EU aviation sector into the ETS for intra-EU flights. And CORSIA will only apply to about 80% of emissions growth above the 2020 Baseline.

14.3.7 Given that CORSIA is not intended to become mandatory until 2027 and is very unlikely to have any significant impact in the short term, we assume that the Applicant's assessment of CO_2 emissions takes no account of any effect that CORSIA, if implemented, might have. That would be the correct approach.

14.3.8 MAG states that it has based its emissions projections on the *'CO_2 Roadmaps'* produced by *'Sustainable Aviation',* an industry-sponsored organisation which has produced three of these so-called *Roadmaps* over the past ten years and has a record of wildly optimistic projections, for example:

- The December 2008 *Roadmap* forecast that UK gross aviation emissions would start to fall in **2020**. No mention was made of net emissions.
- The March 2012 *Roadmap* pushed forward the date for gross emissions starting to fall to **2035** – 15 years later than previously announced - but it claimed that net emissions (after offsets) would start to fall in **2015**.
- The latest (December 2016) *Roadmap* still shows gross emissions not starting to fall until 2035 but the fall in net emissions has now also been delayed to **2035**, 20 years later than previously announced.

14.3.9 In view of this track record very limited weight should be placed on predictions made by Sustainable Aviation. Reliance should instead be placed on the emissions projections provided in the latest DfT forecasts for UK aviation, published in October 2017.[219]

14.3.10 The DfT forecasts for UK aviation recognise that demand needs to be constrained if carbon emissions are to be kept at or below 37.5Mt CO_2 by 2050. The results of DfT's modelling show that to be (just) achievable with a carbon price of £221 per tonne.[220] Although that may seem punitive, the view of the Airports Commission was that a carbon price of £334 per tonne would be needed, and even so the Commission's modelling could only get carbon emissions down to 41.0Mt CO_2 by 2050. The Commission then had to rely upon some creative new initiatives to close the remaining gap of 3.5Mt CO_2.[221]

[219] *'UK Aviation Forecasts'*, DfT, Oct 2017, Chapter 8.
[220] Ibid, para 5.16 confirms that the DfT assumes that carbon prices will grow in line with the Government's official CO_2 appraisal values published by the Department for Business, Energy & Industrial Strategy ('BEIS') in March 2017. In 2016 they were £4/tCO_2 and they rise to £77/tCO_2 in 2030 and £221/tCO_2 in 2050 (all in 2016 prices).
[221] For example (i) assume increase biofuel uptake from the 2.5% of aviation fuel by 2050 anticipated by the DfT to 5.6% and achieve this by requiring mandatory usage by airlines (ii) using electric power for airport taxiing; (iii) reduction in contingency fuel carried by airlines for safety reasons; and (iv) 'Cruise control' – enforcing lower cruising speeds on aircraft to save fuel and thereby reduce CO_2 emissions.

14.3.11 The Government's working assumption of a carbon price of £221 per tonne in 2050, has potentially serious repercussions for the aviation industry, particularly the low fares carriers. The UK carbon floor price is currently capped at a maximum of £18 per tonne and – as referred to in para 14.3.3 above – the current EU ETS traded carbon price is just £11.30 tonne.

14.3.12 The DfT's central case, assuming a new northwest runway at Heathrow, projected an emissions total of 39.9Mt CO_2 in 2050. As was the case with the modelling carried out by the Airports Commission, the DfT assumed that Stansted would remain capped at 35mppa[222], at which level of throughput Stansted would generate 1.6Mt CO_2 in 2030, and 1.5Mt CO_2 in both 2040 and 2050 – about 4.0% of the UK total.[223]

14.3.13 MAG projects that Stansted's 2016 Baseline CO_2 emissions – for flights alone – of 1.56Mt would increase to 2.50Mt in 2028 if the application were to be approved (the development case) and to 2.27Mt if the application were to be refused (the base case).[224] We are content that MAG's Baseline figure is broadly correct but MAG has understated the base case and the development case.

14.3.14 The understatement arises for the same reason that we explained in paras 12.3.3 to 12.3.5 above of our Air Quality Chapter above, namely, that MAG has:

- made absurdly optimistic assumptions about the speed with which new 'cleaner' aircraft will replace current aircraft types handled by Stansted;
- not taken full account of the anticipated large increase in long haul traffic to the US, China, India and the Gulf (which is stated by MAG be the driving force behind this application); and
- not taken full account of the projected 58% increase in CATMs, a large proportion of which will be long haul.

14.3.15 MAG has not provided the information we would need in order to re-assess the projected carbon emissions for the base case and the development case, and only a limited amount of the information can be obtained, or confidently estimated from other sources. Our provisional view is that the projected carbon emissions (but not the Baseline) have been underestimated by about 15-20%.

14.3.16 However, even taking MAG's projections, it is clear that these are significantly above what has been allowed for by the DfT and what was allowed for by the Airports Commission. Both assumed that Stansted was capped at 35mppa and this equated to CO_2 emissions of about 1.6Mt in 2030, falling slightly to 1.5Mt by 2050. It is not unreasonable to look upon these figures as budgets because they form part of the overall UK budget – or *planning assumption* – for UK aviation carbon emissions to be limited to 37.5Mt CO_2 by 2050

14.3.17 By comparison, MAG projects emissions of 2.5Mt CO_2 by 2028. MAG hasn't provided any projections for 2030, 2040 or 2050 but it is reasonable to assume that the 2030 figure will be similar to 2028, i.e. about 2.5Mt. This would be 0.9Mt (56%) more than the DfT has forecast – or allowed for in its overall planning and modelling. Would this mean that expansion had to be curtailed elsewhere, thus giving rise to an opportunity cost for

[222] Ibid, Table 65, p141.
[223] Ibid, Table 38, p109.
[224] ES1, Table 12.11.

the proposed Stansted development? MAG gives no indication as to how it would seek to mitigate the excess carbon emissions.

14.3.18 The increase in carbon emissions compared to the base case is also significant. It is 230,000 tonnes per annum, which is just over 10%. As an indication of its significance, the DfT's modelling assumption is a carbon price of £77/tCO_2 in 2030, rising to £221/tCO_2 in 2050. The arithmetic is not difficult: 230,000 tonnes @ £71 per tonne = £17.7m per annum in 2030 rising to £50.8m in 2050, which by any measure is significant.

14.3.19 If this application were to be approved, the increase in carbon emissions compared to the base case would amount to about 6Mt of CO_2 over the 32-year period to 2050. This is not far short of the emissions that would have been generated over the lifespan of the proposed open-cast mining operation at Highthorn in Northumberland. Significantly the Secretary of State rejected that application, overturning the decision of the Planning Inspector, principally on the grounds of its effect on greenhouse gas emissions and the need to combat climate change. His decision letter of 22 March 2018 states as follows:

> *"The Secretary of State has given careful consideration to the Inspector's analysis at IRC112-C115. For the reasons given he agrees that Green House Gas (GHG) emissions from the proposed development would adversely impact upon measures to limit climate change. He further agrees that most of the GHG emissions would be emitted in the short term, resulting in an adverse effect of substantial significance, reducing to minor significance in the medium term; and that Green House Gas emissions in the long term would be negligible, but that* ***the effects of carbon in the atmosphere would have a cumulative effect in the long term*** *(IR115). Given that cumulative effect, and the importance to which the Government affords combatting climate change, he concludes that overall the scheme would have an adverse effect on Green House Gas emissions and climate change of very substantial significance, which he gives very considerable weight in the planning balance."* [our emphasis]

14.3.20 Clearly the policy context has changed since the Stansted G1 Inquiry when the Planning Inspector attached no weight to SSE's representations on carbon emissions and climate change. It is also significant to note the Secretary of State's recognition, above, that *"the effects of carbon in the atmosphere would have a cumulative effect in the long term".*

14.3.21 The IPCC has estimated that CO_2 stays in the atmosphere for between 50 and 200 years.[225] In either event, the cumulative impacts of CO_2 emitted into the atmospheres convert what may appear to be relatively small annual amounts with limited impact into much larger amounts with significant impacts. Unsurprisingly, the Applicant disregards these cumulative impacts.

14.3.22 The revised Draft ANPS states:

> *"Any increase in carbon emissions* ***alone*** *is not a reason to refuse development consent, unless the increase in carbon emissions resulting from the project* ***is so significant that it would have a material impact on***

the ability of the Government to meet its carbon reduction targets, including carbon budgets" [226] [our emphasis]

14.3.23 We believe that we have demonstrated above that the current Stansted Airport planning application to increase passenger numbers to 43mppa meets the above test in that it "…*is so significant that it would have a material impact on the ability of the Government to meet its carbon reduction targets, including carbon budgets."* Moreover, it would not be the only reason for refusing this application,

14.3.24 The forecasts by the Airports Commission and the DfT both indicate that it will be very challenging for the Government to contain emissions from aviation in 2050 to 37.5Mt CO_2. The proposed development, if approved, would make that objective even more challenging and, quite possibly, unachievable.

14.3.25 Finally, the Applicant has taken no account of the Radiative Forcing ('RF') effect of aviation emissions. The IPCC's 1999 report recommended that aircraft CO_2 emissions should be multiplied by a factor of between 2.0 and 4.0 to reflect the greater climate warming impact of CO_2 emissions at high altitude and the impact of aviation's other greenhouse gas ('GHG') emissions. More recent estimates put the RF 'multiplier' at towards the lower end of the IPCC's range.

[225] The IPCC 1990 Report included in its *'Policymaker Summary'* a table showing the properties of various greenhouse gases, including an atmospheric lifetime of CO_2 listed as 50 to 200 years, with a footnote caveat *that "the way in which CO2 is absorbed in the ocean and biosphere is not simple and a single value cannot be given*...".

[226] Revised Draft ANPS, Oct 2017, para 5.81.