Airports Commission: Aviation and Climate Change - Consultation response from Friends of the Earth

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"The previous government's 2003 White Paper, *The Future of Air Transport*, is fundamentally out of date, because it fails to give sufficient weight to the challenge of climate change. In maintaining its support for new runways .. in the face of .. mounting evidence of aviation's growing contribution towards climate change, the previous government got the balance wrong. It failed to adapt its policies to the fact that climate change has become one of the gravest threats we face."

Philip Hammond, Secretary of State for Transport, March 2011
Foreword to 'Developing a sustainable framework for UK aviation'

Friends of the Earth believe that these words, delivered at the start of this government's reappraisal of aviation policy, are prescient for the work of the Airports Commission. They note that the 2003 policy framework, in which the previous government had invested so much, had nonetheless had to be withdrawn after only seven years, with almost nothing achieved. They repeatedly refer to the potential for 'failure', the outcome of so many previous grand plans to dramatically expand airports capacity in the South East, which the Commission will be well aware is a possible fate for their own work. And they allocate the responsibility for the collapse of the 2003 framework to the failure to give proper attention and balance to aviation's climate change consequences.

Key Conclusions & Recommendations

a) The relationship between aviation emissions and new or existing airport capacity is a or even the critical determinant of the Commission's work. Its analysis and findings on capacity over the long term to 2050 must be consistent with and subordinate to the approach to the UK's national carbon budget set by the Climate Change Act 2008 (CCA) and the Committee on Climate Change (CCC).

b) The Commission should not uncritically accept that: the aviation industry's emissions be accorded an extraordinarily privileged and quite disproportionate treatment compared to all other UK economic and social sectors, who consequently will have additional costs imposed on them across the period to 2050; and that aviation emissions can increase first by Kyoto 1990 baseline **+122%** to 2005, and then again to **+178%** by 2050 whilst all other sectors are being required to contribute to 1990 **minus 80%.** Instead **aviation emissions must be constrained, including by resisting insistent pressures for capacity expansion.** The Commission will need a methodology that recognises and incorporates the additional economic cost that increased aviation emissions will create for all other sectors within the UK carbon budget.

c) In terms of its overall policy task the Commission must ensure first that the airport capacity 'envelope' is interacted with the aviation emissions 'envelope', and second that the former is appropriately constrained by the latter. It was the failure of the 2003 White Paper process to accept or undertake these two tasks that led to its collapse - *para.4*

d) The CCC and Government policy statements in 2012-13 leave the climate change 'principles which the Commission will take into account' *APF* essentially as structured and framed in the CCC 2009 report, notwithstanding deferral of the decision on carbon budget inclusion and a national emissions target. The CCC 2012 report identifies the size of the aviation emissions envelope that should not be exceeded, which consequently should set a upper limit to airport capacity. The APF provides no guidance that contradicts the government's general support for the methodological framework developed by CCC 2009. Its approach is also supported by the aviation industry - *para.13-15, 24, 31*

e) The approach of the Commission's *Aviation & Climate Change* consultation document (CD) is undermined by a fundamental uncertainty as to the methodology the Commission will be using to analyse and determine the relationship between emissions and capacity. This is not stated. By contrast the methodology of the CCC 2009 report is admirably clear in creating a structural framework that has been able to derive a policy outcome that sets quantified values to that relationship. The Commission must resolve this methodological uncertainty by addressing the questions we have posed in *para.35*

f) The Commission should clarify that its policy objective is to reduce ***UK*** aviation emissions and not global aviation emissions. The former approach is consistent with CCA clause 30 and CCC; the latter cannot provide a meaningful framework for constraining UK capacity - *para.39*

g) Subsequently the Commission's preferred and proposed methodology should be published for further consultation and discussion. Its quality benchmark should be 'CCC 2009 or better'. It is suggested that CCC should be commissioned by the Airports Commission to revisit its methodology and suggest any improvements - *para.37*

h) The Commission should: (i) use the CCC 2012 planning assumption (flatlining aviation emissions after 2010 at 31 MtCO2e/annum) to provide a trajectory to limit ATM capacity to; but (ii) also develop a methodology and conduct sensitivity tests to assess an emissions scenario significantly below that planning assumption. The Commission should undertake new modelling, incorporating sensitivity tests for lower emissions thresholds - *para.19*

i) Contrary to the assertions of the Mayor of London and Policy Exchange that their proposals for a new 150 mppa airport are consistent with CCC 2009, there is little scope for an expanding existing/new UK hub to make a pre-emptive grab of the ATM/emissions headroom identified in that report. To make a decision now (i.e 2015) that the existing/new UK hub on its own should be sanctioned to take possession of almost all the remaining headroom for the 2030-50 period would be premature - *para.25-29*

j) Friends of the Earth doesn't accept the consultation document's 'emissions leakage' analysis – *para.40-41*

k) We welcome the fact that the separate Sift Criteria document has identified an obligation on airport developers to assess the climate change impacts of their proposals but the Commission needs to establish a template methodology so that this work can be done on a consistent and therefore accessible basis – *para.51*

l) There is an apparent and fundamental conflict between the anticipated growth of *existing* airports (including with already consented capacity) and possible *new* provision; the DfT 2050 forecast for ATMs at the former – that is, without ***any new*** provision – already exceeds the CCC emissions-compatible threshold by 11%. The Commission will need a methodology that resolves and manages this conflict, and responds to the vacuum in the planning framework that will permit a disorderly process of 'first come, first approved' planning applications – *para.44-49*

(A) UK aviation emissions – the critical numbers

1. We need to start an examination of the relationship between aviation emissions and airport capacity by restating some basic facts and numbers. It is, we maintain, quite clear that aviation emissions are included within the Kyoto Protocol framework. Article 2/2 simply identifies ICAO as the mechanism through which countries 'shall pursue limitation or reduction of emissions of greenhouse gases not controlled by the Montreal Protocol from aviation and marine bunker fuels'; whilst Article 3/1 sets the baseline year for *all* the Protocol reductions as 1990. The 2008 Climate Change Act (CCA) then identified the general level of reduction which the UK would seek to achieve as 'at least 80% lower than the 1990 baseline' (with of course the particular treatment of international aviation and shipping (IAS) emissions in clause 30). The implementation framework for the Act developed by the Committee on Climate Change (CCC) has allocated one quarter of the total available UK carbon budget in 2050 to IAS emissions, and the majority of that (currently ¾) to aviation.

2. There is no overwhelming rationale of which we are aware why the aviation industry should be permanently granted a grossly privileged and quite disproportionate treatment under the Act compared to all other UK economic and social sectors[1]. Yet whereas the latter are being required to contribute to **minus 80+%** reductions from 1990, the aviation sector - as can easily be seen in the Commission's consultation document *CD figures 2.2 & 4.2* - has apparently already been accorded an enhanced 2005 baseline of **1990 +122%** (16.9 MtCO2 1990 to 37.5 2005), and is then as per the DfT 2013 Forecasts heading towards an increase of **1990 +178%** in 2050 (47.0 MtCO2) in its Constrained scenario.

3. Furthermore if you set the 2050 emissions forecasts against the emissions threshold of 37.5 MtCO2 set by CCC in 2009 even the CCC modelling then demonstrated that without policy measures to restrain demand beyond its central projected carbon price – to include *inter alia* "limits to further airport expansion" and "restrictions on the allocation of take-off and landing slots even where airports have the theoretical capacity available" – its own threshold would be substantially exceeded.[2] As noted, the DfT 2013 forecast exceeds the CCC threshold by 25%, as does the Commission's own analysis *figure 5.2* [3]

4. So the decisions recommended by the Commission, which will determine the provision and use of airport capacity through to 2050, will either uphold or alternatively breach the framework of UK carbon budgets established by the Climate Change Act 2008; and will either impose additional carbon costs on every other sector of UK activity or alternatively recognise that the aviation industry should be treated with no more than equality. These are high stakes and justify the importance that aviation occupies within Friends of the Earth's wider climate change analysis.

Our core proposition to the Commission is that (to use some jargon) the airport capacity 'envelope' **has to be** interacted with the aviation emissions 'envelope', and that the former **has to be** appropriately constrained by the latter. This, after all, is what both CCC and Secretary of State Hammond have also recommended.

(B) Background

5. This paper will be a principal submission by Friends of the Earth into the work of the Commission. It does not contain new evidence on its topic (although as para.8 indicates we have previously undertaken significant research) not just because NGOs are not necessarily in a position to do so but also, on process grounds, our submission is that it is now the Commission's responsibility to satisfy itself that its modelling of the climate change impacts of aviation are sufficiently robust for ***it*** to then reach robust conclusions about the ability of any capacity expansion proposals to be compatible with UK and wider policy frameworks.

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[1] The CD only acknowledges an extended version of this point: "… a significant overshoot of 2005 aviation emissions levels in 2050 would suggest more challenging reductions in other sectors." *3.20* But even attaining the 2005 levels will require disproportionate impacts elsewhere.

[2] *Meeting the UK aviation target – options for reducing emissions to 2050* Figure 7.12 and page 148pdf. Henceforward referred to as CCC 2009

[3] *UK Aviation Forecasts* January 2013 Annex G1 central forecast

6. Friends of the Earth made a full and constructive engagement in the process leading up to the publication of the 2003 Air Transport White Paper. Its focus was the necessary role for demand management (the submission itself was entitled 'Sustainable Aviation = Demand Management') in striking a balance between positive and negative aspects of aviation's forecast continuing growth; a concept which had however been completely omitted from the DoT's analytical and policy framework. What we had also noted was that, whilst there had been some examination of aviation' climate change impacts, these had cleverly ***not*** been integrated with the proposals for capacity expansion which the White Paper was actually promoting; instead they had been kept separate - deliberately or accidentally is not the point - resulting in a critical question never even being asked: 'Is capacity expansion compatible with aviation's future climate change responsibilities?' After all, a requirement to reduce the latter had been specifically identified in the Kyoto Protocol in 1997, 6 years beforehand.

7. This sleight of hand was to prove very costly in policy terms, because it was the failure to interact airport capacity proposals with climate change policy that the Secretary of State for Transport was to point to just seven years later as the principal cause for the collapse of the entire 2003 policy framework. We would suggest that the Commission must make absolutely sure that it does not repeat that same mistake - what we have termed in recent submissions to DfT a failure 'to interact the capacity and emissions envelopes' - and this in turn will require great clarity, transparency and effectiveness of process and methodology, that can command the confidence of all stakeholders. We are satisfied that the Commission has amongst its members and advisers persons of sufficient expertise and independence to guide that work; to these we would add the work of the government's own advisers on climate change, the Committee on Climate Change, who have devoted great attention to this topic. It cannot be argued that the issue has not, by 2013, been adequately understood or methodologically unpacked.

8. At the start of 2004 Friends of the Earth reviewed the future direction of its work on aviation in the light of the hugely unfavourable (because one-sided) White Paper. We concluded that its principal focus should henceforth be that potential contradiction between capacity and emissions. To establish a firm analytical foundation for our activity we commissioned the Tyndall Centre for Climate Change Research to undertake two pieces of research *Growth Scenarios for EU & UK Aviation: contradictions with climate policy* (2005) and *Aviation in a low carbon EU* (2007) which we believe have stood the test of time and proved influential in, for example, shaping the research direction of the CCC. The analysis Tyndall presented was that, if aviation emissions continued to increase at forecast rates, whilst overall national carbon budgets were required to reduce, then they would take up an increasing and unacceptable proportion of the total, with additional costs being imposed on all other sectors. In 2009 CCC concluded (on the basis of the CONSAVE scenarios) that: "Global CO2 emissions from aviation at around these levels would, in 2050, account for 15-20% of all CO2 emissions permitted under the CCC preferred global emissions reduction scenarios." *Box 1.1 page 35pdf* The CCC's initial recommendations on aviation were set out in its December 2008 report *page 323*, which were then comprehensively enlarged in its December 2009 report. Most recently it has reconfirmed its approach and recommendations in the *Scope of carbon budgets* report of April 2012 *box 1 p.12*

9. On the basis of the Tyndall research we then campaigned on two aspects of UK and EU policy affecting aviation emissions: we lobbied for the inclusion of clauses relating to international aviation and shipping (IAS) emissions in the 2008 Climate Change Act (the overall concept for which Friends of the Earth also devised), which we managed with difficulty to secure; and for the inclusion of aviation within the EU ETS.

10. CCC 2009 was produced in the context of the then government's decision to set its '2005-50 aviation emissions target', but which was not derived not from independent research (see para.16). Its '2005 baseline' is of course also related to that for EU ETS inclusion. It is not necessary for us to describe at length the systematic methodology devised by CCC for its analysis [4] but its recommendations need to be set out in full, and we have highlighted some important statements or wording.

[4] see CD 4.10

Committee on Climate Change conclusions about the relationship between emissions and capacity - 2009

"The key messages in this chapter are:
• In our Likely scenario, we assume fleet efficiency improvement of 0.8% annually and biofuels penetration of 10% in 2050. Together these would allow meeting the target with demand growth of around 60% in the period to 2050 (e.g. compared to unconstrained demand growth of over 200%).
• Demand growth based on planned capacity expansion, with demand response to the carbon price and opportunities for modal shift could be around 115%. Explicit constraints on demand growth in addition to the carbon price would therefore be required to meet the 2050 target. ….
• There are no clear implications of our analysis for specific airports (e.g. Heathrow). The key implication for aviation expansion is that whatever the pattern of capacity development, this should be consistent with constraining demand growth in 2050 to around 60% on 2005 levels if the target is to be achieved." *p.138pdf*

"Meeting the 2050 target that CO2 emissions are no higher than 37.5 MtCO2 is therefore likely to require policy measures to restrain demand which go beyond our central projected carbon price. The policy instruments which could achieve this restraint include a carbon tax on top of the forecast carbon price, limits to further airport expansion, and restrictions on the allocation of take-off and landing slots even where airports have the theoretical capacity available. *p.148*

"The prudent assumption on which to base policy today is therefore that reductions in the carbon intensity of air travel will be limited to the reduction of around 35% achieved in the Likely scenario, implying a maximum allowable increase in ATMs of around 55% and a maximum demand increase of around 60%. If faster technology progress is in fact achieved this can be reflected in adjustments in policy over time. *p.150*

"The key implication from our analysis is that future airport policy should be designed to be in line with the assumption that total ATMs should not increase by more than about 55% between 2005 and 2050, i.e. from today's level of 2.2 million to no more than around 3.4 million in 2050. This constraint could be consistent with a range of policies as regards capacity expansion at specific airports. *p.151*

"This [ATM] restriction could be achieved through a range of different policies relating to taxes, capacity expansion or slot allocation at specific airports. Optimal decisions on specific airport capacity do not therefore mechanically follow from national aggregate demand, but need to reflect a wide range of other factors such as customer preference, alternatives to air travel, local environmental impact, competition between UK airports and continental hubs, and economic impacts both local and national.
It is not the Committee's role to assess these factors. The Committee's clear conclusion is, however, that the combination of future aviation policies (combining tax, capacity expansion and slot allocation decisions) should be designed to be compatible with a maximum increase in ATMs of about 55% between now and 2050, and that this should continue to be the policy approach until and unless technological developments suggest that any higher figure would be compatible with the emission target." *p.152*

11. In our response to the current government's Sustainable Aviation Framework (SAF) consultation in October 2011 we set out our position on the 2005-50 'target' and associated issues for aviation emissions, as follows:

Policy Principles: the SAF needed to be driven by principles: "***Principle 1*** - There needs to be **certainty** in the delivery of its objectives, of which the dominant one is emissions reduction. This is intended to be helpful to all SAF stakeholders and particularly the industry itself. ***Principle 2*** - The air transport industry should be treated with **equality**, 'neither privileged nor demonised'. *Implication:* That, matching the inclusion of aviation alongside other sectors within the tradeable sector of the EU ETS, aviation emissions should also be formally included within the UK Carbon Budget as already recommended by the Committee on Climate Change. **Principle 3** - The framework should be appropriately **constraining** since that is the necessary policy response to both historic and forecast high growth, and to the direction of the industry's business model, when also set against the steep downward trajectory required for all other emissions within the UKCB. *Implication:* In terms of impementation this would mean that aviation emissions across each UK carbon budget period should seek to reduce."

A) What should be the government's attitude to the previous 2005-50 target? ***FOE conclusion:*** Consistent with all three of our principles, the emissions mechanism within the SAF has to pressurise absolute reductions in aviation emissions in relation to a 1990 baseline. The previous 2005-50 target does not do this, cannot be considered sufficiently ambitious, so needs to be replaced.

B) Should aviation emissions be included within the UK carbon budget? And related to that: **Does there still need to be a specific aviation emissions target as well?** ***FOE conclusion:*** Again consistent with all three principles, inclusion of aviation emissions (including the non-CO2 effects) within UKCB would work alongside the parallel inclusion in the ETS already put in place. The unjustified and privileging treatment of the industry would be removed, ensuring efficient allocation of resources. But if an additional aviation-specific target (or intermediate targets) could provide increased certainty to a range of actors this could be debated."

C) Can an emissions reduction approach based around marginal abatement curves be effective? ***FOE conclusion:*** Consistent with our 1st and 3rd Principles, a MAC approach shows promise in identifying to the industry and policy makers alike the types of cost effective action they can take to deliver essential emissions reductions, as long as it can be deployed with sufficient longterm certainty and without inappropriate subsidy, and include all available mechanisms including taxation and capacity constraint. Formally an optimum MAC basket needs to be presented as a 2050 emissions reduction trajectory to be used by government for the purposes of delivery and monitoring."

FOE overall conclusions on climate change issues: The MAC exercise has demonstrated that absolute reductions of aviation emissions compared to a baseline can be achieved, and that policy levers to achieve such reductions are readily available (to which fiscal levers should be added). Inclusion of aviation within both the EU ETS and UK carbon budget will accord the industry equal treatment alongside all other sectors. A trajectory for declining aviation emissions to 2050 should also be adopted to replace the previous Government's 2005-2050 target."

Non-CO2 emissions [On the advice of the Tyndall Centre reports, Friends of the Earth have not taken account of these emissions in our policy responses] "…on the basis that: 'There is high scientific confidence that the total climate warming effect of aviation is more than that from CO2 emissions alone.' *CCC 2009*… We think it is no longer credible for the government to continue with an overall UK climate change approach which has as its consequence (using 2009 fig. 6.3 b as an illustration …) that 2050 emissions from all other sectors should have to be reduced [still further] from 159 to 85 MtCO2E to allow for aviation emissions (including non-CO2 effects) of 74 MtCO2E - that is taking up 47% of the available UK carbon budget." Therefore the government should "now set what may even be an indicative value for the radiative forcing effect, rather than continuing with the 'wait-and-see' position of the scoping document … But because considerable scientific uncertainty still remains … "Following correspondence with Professor Piers Forster, which has identified the potential for perverse incentives if an RF factor is set too high – e.g an airline could stop making contrails by flying lower and burning more fuel, emitting more CO2 - it might be better if in the first instance a lower RF value such as 1.2 rather than 2 were to be used. This would also assist in making the more important policy step of incorporating the non-CO2 effects in the UK carbon budget."

12. In terms of developments since that response in 2011, the principal of these are the CCC report of April 2012, providing statutory advice on the scope of the UK carbon budgets; the government response to this of December; and finally the published Aviation Policy Framework (APF) of March 2013. In the meeting with environmental NGOs in October 2012 the DfT confirmed that the Commission, in undertaking its remit, would need to work within the environmental framework set by government policy, and this was indeed confirmed in APF: "The Aviation Policy Framework is an important piece in the jigsaw, setting out the principles which the Commission will take into account in working up its recommendations as it reports later this year and in 2015." *Foreword*

13. The Commission therefore needs to have identified what the government policy framework has determined as of now concerning the two components that will define the size of any 'emissions envelope' which total UK airports capacity must not breach: (i) the status of the allowance for aviation emissions within the total UK carbon budget to 2050 and (ii) the existence of a quantified emissions target, or alternatively planning assumption, for 2050 and intermediary stages; together with any statements about meeting capacity requirements. Proceeding in reverse order:

- **APF March 2013:** This delegates the review of capacity to the Commission[5], and confirms in practice the overall approach to treating aviation emissions devised by CCC 2009: "The Government does not intend to alter the way in which international aviation and international shipping emissions have been taken into account in carbon budgets 1 to 4" *2.32*, whilst deferring 'making a decision on whether the UK should retain a national emissions target for aviation' to await ICAO/ETS developments *2.35*

- Response to CCC Dec 2012: (Having decided to defer a decision on formal inclusion of aviation emissions within the overall UK carbon budget) "Whilst we will revisit the issue of whether the net carbon account will be revised to include international aviation and shipping when we come to set the fifth carbon budget, Government reaffirms its overall commitment to the 2050 target and recognises that emissions from international aviation and shipping should be treated the same as emissions from all other sectors, in order to reach our long-term climate goals."

- CCC April 2012: reaffirmed the approach of CCC 2009, and recommended that including IAS 'in carbon budgets and the 2050 target would provide the most flexible means for meeting the climate objective' (which can be met 'based on currently identified measures and at a cost previously accepted by Parliament'); and that "… As for other key sectors, there should be planning assumptions for longer-term emissions from aviation and shipping. These should be to keep aviation emissions in 2050 broadly at 2005 levels and for shipping emissions around a third below current levels in 2050. The key driver of emissions reductions will be EU or global policies, and should not be UK unilateral approaches ..." *Box 1*

14. The CCC methodology distinguishes between targets ("Inclusion of IAS emissions in the 2050 target does not require that the UK should set unilateral emissions targets for these sectors, and indeed the CCA does not provide for this" *p.56*), and planning assumptions which 'are required under the Act' and which *inter alia* "are additional factors which should be considered in the context of infrastructure investment (e.g. airport capacity development and possible expansion). *p.57* On the timing of inclusion it states "Emissions from international aviation and shipping should be included *now* to provide a clear basis for design of the fifth carbon budget **and supporting policies**" *our emphasis in bold*. In terms of the quantity of aviation emissions that it is assuming: "International aviation emissions should be added at 31 MtCO2e annually (i.e. 155 MtCO2e per five-year budget period), on the basis of the UK's share of emissions from all departing flights under the EU ETS cap for aviation"; table 1 records aviation emissions at 16MtCO2e in 1990, 32MtCO2e in 2010, and then flatlined at 31MtCO2e p.a through to 2027.

[5] "In the medium and long term beyond 2020 we recognise that there will be a capacity challenge at all of the biggest airports in the South East of England. There is broad consensus on the importance of maintaining the UK's excellent connectivity over the long term, but currently no consensus on how best to do this. A robust and generally agreed evidence base is needed before a decision can be made on the scale and timing of any requirement for additional capacity to maintain the UK's position as Europe's most important aviation hub. This is why Government established the Airports Commission in 2012." *para.11*

15. To summarise: these three documents leave the climate change 'principles which the Commission will take into account' essentially as structured and framed in CCC 2009, notwithstanding that the decision on carbon budget inclusion and a national emissions target has been deferred. CCC 2012 identifies the size of the aviation emissions envelope that should not be exceeded - certainly to 2027, and the logic surely is not after either – which consequently must set a upper limit to airport capacity.

16. There is however one critical qualification that we would make to Friends of the Earth's general support for the CCC methodology and recommendations. CCC did not derive the 2005-50 emissions baseline/target itself but received it already established from DfT; nor did DfT create it using independent research but simply by translating across some projections taken from the aviation industry's 'sustainable aviation' roadmap, relabelled as a 'target', and with the qualifications attached to those projections also omitted. The wording of the brief given by DfT to the CCC meant that this 'target' was not then subject to critical re-examination to test its validity and, almost by definition, there cannot be a justification from first principles why the level of emissions in 2050 should be exactly the same as at a 2005 baseline. Why not, for example, +/−10%, 20%, 30% or whatever? CCC's 2005-50 emissions planning assumption is in essence a policy device without external justification. We can fully understand why CCC has decided to maintain its support for the assumption through to its 2012 report because it is but one component of its overall UK carbon budget methodology developed from 2008 onwards; there will be overwhelming advantages from its perspective to settling for constraining aviation's 2050 emissions at the same level as 2005.

17. However Friends of the Earth is not bound by the same calculations. We have set out above the emissions figures illustrating the privileged status that has been accorded to aviation: all UK other economic and social UK sectors = **minus 80+%** reductions from 1990, compared to the aviation sector = a 2005 baseline of **1990 +122%** and a 2050 forecast of **1990 +178%**. Furthermore the deferral by Government of the 'inclusion in UK carbon budget' and 'UK aviation target' decisions means that at the moment the sector is still able to lawfully plan to increase its emissions, adding to the cumulative emissions burden every year; whilst the CCC planning assumption will require all other sectors, having achieved the Herculean task of a -80% reduction as it approaches 2050, to undertake a further halving of their emissions in order to accommodate aviation emissions that have soared from in 1990 baseline rather than descended.

18. But opportunities to reduce aviation emissions have been demonstrated. The factors incorporated within the DfT 2013 Low emissions scenario were able to generate an emissions reduction against the Central scenario of 26% (from 47 to 34.7 MtCO2), whilst the CD *5.20 onwards* has noted the effectiveness of the 2011 MAC options, including capacity constraints (3rd in terms of cost effectiveness) which resulted in further substantial potential reductions (see the **appendix** for our detailed comments at that time on the MAC report, pointing out that important financial demand management measures were also excluded from the exercise). Finally CCC has acknowledged the possibility that "… if progress in reducing aviation emissions were to be better than expected, this would allow lower effort and reduced costs in other sectors." CCC *2012 Box 1*

19. For all these reasons we believe the Commission should: (i) **use the CCC planning assumption set out in *2012 table 1* (flatlining emissions after 2010) to provide a trajectory to limit ATM capacity to**; but (ii) also **develop a methodology and conduct sensitivity tests to assess an emissions scenario significantly below that planning assumption** on the grounds that, as CCC has identified, that this will 'allow lower effort and reduced costs in other sectors'. Adopting the quantified CCC trajectory (or its equivalent if the Commission develops a preferred methodology) maintains continuity across to the CCC overall UK carbon budget framework, and would have the effect of ensuring that ATMs/passenger volumes do not grow faster than deployed fuel efficiency improvements can allow. The lower emissions scenario would enable the Commission to demonstrate that it has at least developed and considered this option so that all those other sectors are able to make an *informed* response to scenarios that constrain aviation demand/capacity but provide significant economic benefits elsewhere.

20. There is one more development in recent years to identify which is great significance: the breakup of BAA monopoly over the major SE airports, and the moving of Gatwick and Stansted into different ownerships, which has resulted for the first time in very determined competition between them for the more effective use of their existing assets; which has been joined by other airport operators such as Luton and Birmingham. To this operational competition has then been added the political competition reflected most visibly in the explicit and public opposition of the Mayor of London (but also of party manifestos, MPs and local authorities) to Heathrow expansion. What this has done is to introduce a level of complexity into the geometry of the analysis as to 'what additional capacity where?' which ATWP 2003 never had to cope with. What the Commission will have to engage with is the actuality that, whilst there may well be a concerted view in favour of airport expansion *somewhere* in the SE, there will henceforward ***never*** be an uncontested view ***amongst the major airport operators themselves*** as to the merits, scale and detailed analysis of where that expansion should be.[6] This is a wholly new set of circumstances compared to pre/post 2003. This ought to increase the importance of the 'Do-Minimum' optioneering which the Commission has agreed to undertake.

(C) Should the Commission fit airport capacity within an emissions constraint?

21. The first and so far most important answer to this question is from CCC, with an emphatic - Yes. But, as we have already noted, the CCC emissions 'constraint' is in fact a very generous expansion. The Commission should not be lulled into the pervasive but false 'framing' that an emissions threshold is in some way unfair to the industry because unduly restrictive; in fact it's just the opposite. But at least CCC does set an upper limit to aviation's otherwise unrestrictedly expansionist ambitions.

22. And of course we have noted at the start the views of Secretary of State Philip Hammond that capacity requirements or aspirations had to be brought into balance with climate change exigencies. What now does the government's newly published Aviation Policy Framework say about fitting capacity within an emissions constraint? At *para.2.1* whilst it notes that "Aviation is … likely to make up an increasing proportion of the UK's total greenhouse gas emissions, while other sectors decarbonise more quickly over time" it does not reference any quantified emissions levels which the Commission could adopt, such as CCC *2012 table 1*. Its stated climate change objective is "to ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions" *2.4*, which is unhelpfully ambiguous in that the remit of UK government policy cannot encompass the reduction of *global* emissions; it can only effectively operate firstly on the UK emissions and then (via ETS) on those associated with the EU. Paragraph 2.8 is also deceptive because whilst it might be the case that "Action at a global level" might be "the preferred and most effective means by which to reduce emissions", it certainly hasn't proved to be the 'most effective means' upon which the Commission can rely.

Similarly the comment that "Taking action only at a national or regional [i.e EU] level has the potential to create the risk of carbon leakage with passengers travelling via other countries and increasing emissions elsewhere" is only valid if global level action is likely to be significantly effective within the timespan of the Commission's deliberations. We would suggest that this is not likely (as Sir Howard himself noted at the NGO meeting) [7]. Finally the section on 'Policy measures: action at a national level' provides no guidance about relating capacity to emissions.

23. APF represented the government's opportunity to provide specific guidance to the Commission about how to approach the capacity/emissions relationship. Because it has **not** done so in either direction our conclusion is that APF provides no guidance that contradicts the government's and the DfT's general support for the methodological framework developed by CCC 2009. The one qualification to this might be a preference for international over national level action, with its invocation of the potential of carbon leakage, and we will return to that point in our comments on the CD's discussion of that issue.

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[6] Reflecting this stalemate the FT has commented: "Expanding Heathrow is the worst solution, except for all the others" 14th May 2013; and the Economist "Britain has many options for providing the extra airport capacity its capital is going to need. Each has drawbacks" 30th March 2013

[7] 'UN faces uphill battle to reduce global airline emissions' Reuters 16th May 2013

24. For all the other policy actors the basic choice is between acknowledging the climate change issue [8], and then – maybe – responding to it in some way; or simply ignoring it. So of the 'super airport' proposals, whereas Foster & Partners make no mention of an obligation to work within an emissions framework [9] it is heartening that both the Mayor of London and Policy Exchange accept this precondition but both also assert that their proposals are consistent with it:

Mayor of London: "The Mayor wishes to reaffirm his support for the recommendations made by the independent body that advises the government on climate change. The committee on climate change (CCC) states that 'Given prudent assumptions on likely improvements in fleet fuel efficiency and biofuels penetration, demand growth of around 60% would be compatible with keeping CO2 emissions in 2050 now higher than in 2005" *para 3.1* … "The central case put forward by the committee was that UK-wide our airports can accommodate in the region of 150 million more passengers per annum by 2050 over current levels - whilst still adhering to our emissions commitments. This is compatible with development of a new hub airport" *p.67* [10]

Policy Exchange: "The government's Committee on Climate Change has said that aviation can expand by 60% to 2050. The CAA report that 2011 saw around 2.2m passenger movements at UK airports. A 60%* rise means a further 1.3m* movements are permissible – far above the additional 370,000 slots that we are providing here. Indeed, if this is the only expansion of runways in the South East, then the South East will take less than its "fair share" of the climate permissible rise in flights. … Total UK aviation growth may need to be controlled, but refusing to build additional runway capacity in the South East – as opposed to say auctioning carbon use economy wide – would be a socially sub-optimal approach to necessary environmental protection." *p.68-69* [11]

**In fact Policy Exchange have used the wrong denominator in this calculation. CCC recommended that ATMs could increase by 55% (not 60%) and therefore the permitted ATM increase is 1.2m (not 1.3m).*

25. Policy Exchange has the more detailed justification so we need to examine its analysis. At first glance its proposition appears reasonable: having noted that the CCC 2009 analysis allowed for a substantial increase (not a *decrease*) in ATMs it advocates that best use would be obtained by allocating less than one third of this headroom to a/the UK hub. The reference sources are the DfT 2013 forecasts, annexes F1-3 which provide ATM 'maximum use' forecasts constrained to the existing runways listed in F3. The 2040 and 2050 columns of annex F3 do indeed indicate that, towards the end of the forecast period, the DfT model is producing unrealistic outputs for the more distant regional airports - e.g Doncaster at 60ATMs rather than 6 at present, Newquay 33 rather than 7, and so on - after the SE runways reach capacity. It is not likely that demand principally arising in the SE will be met in the SW or North.

26. But on closer examination there are at least two weaknesses in the Policy Exchange argument, based on the fact that it is seeking to reallocate now the headroom as it would be at 2050 rather than at an intermediary stage, at say 2030. In the latter situation the DfT forecast for the ATM split between the London airports (only defined as Heathrow, Gatwick, Stansted, Luton, London city) and regional airports is as follows:

	2010 ATMs	2010 share %	2030 ATMs	2030 share %	Increase 2010-30
London	1.014m	51%	1.266m	47%	0.252m +24.9%
Regional	0.975m	49%	1.413m	53%	0.438m +44.9%
Total	1.989m		2.679m		0.690m +34.7%

Source: DfT 2013 forecasts, annexes F2

[8] For example the Economist does : "The commission is busying itself looking at various issues, such as the overall economic case for expansion and ways of expanding air traffic without too great a greenhouse-gas burden." *op. cit.*

[9] *Thames Hub vision* p.20

[10] *Mayor's response to the draft Aviation Policy Framework* 2012

[11] *Bigger and Quieter* Policy Exchange 2012

(i) But of the 0.25m ATM increase for the London airports, 100% is at the four airports other than Heathrow, who have already indicated their intention to take market share from Heathrow and therefore will not concede any reallocation to Heathrow.

(ii) Similarly it seems highly likely that the major regional airports (i.e Birmingham, Bristol, East Midlands, Leeds/Bradford, Liverpool, Manchester, Newcastle), the principal Welsh and Scottish airports, and thirdly airports in the Greater SE such as Bournemouth, will equally be unwilling to concede a reallocation of ATM headroom to London airports generally; nor could such a reallocation proposal be justified up to 2030. Instead arguments of 'best use of existing regional assets' [12] and 'rebalancing the UK economy' would prevail, including over claims that London is being deprived its 'fair share' of the growth!

28. So at least up to a 2030 horizon - by which time 0.7m of the 1.2m ATM headroom (or nearly 60%) identified by CCC 2009 will have been 'claimed' by the forecast growth of airports other than an existing or new London hub - there seems little to no scope for an expanding existing/new UK hub to make a pre-emptive grab for the ATM/emissions headroom available to that point. All those other airports would most vigorously contest that attempted pre-emption. After 2030, and particularly after 2040, the argument for the more remote regional airports that they would be able to make to make effective use of the ATM/emissions headroom suggested by the DfT forecasts becomes less convincing, but to make a decision now (the 2015 decision point) that the existing/new UK hub on its own should be sanctioned to take possession of almost all the remaining headroom for the 2030-50 period would surely be premature.

29. Our **conclusion** is that the Mayor of London and Policy Exchange were right to locate their airport expansion proposals ***within*** an emissions envelope, and were right also to accept a CCC 2009 type assessment framework; but that they have not made a robust claim (certainly up until 2030, and probably beyond) on the emissions headroom that CCC also identified. Other 'super airport' proponents such as Foster, who have just ignored this issue, must carry even less weight.

30. Looking at the same issue from another perspective, that of the '*future capacity challenge'* as APF terms it, and which it defines as (i) 'Our major airports face a medium- and longer-term capacity and connectivity challenge which the Government must tackle' and (ii) 'Heathrow is operating to its capacity today. Gatwick is forecast to be full in the 2020s and Stansted, which today has considerable spare capacity, is forecast to be full by the early 2030s' *page 7*, the Friends of the Earth's response has to be the same: that the high 'propensity to fly' that is exhibited in London and the SE [13] – with the UK propensity in turn being towards the top of the global league table - has to be accommodated within emissions constraints. To achieve a new balance between supply and demand, and demand and emissions, will require the application of both supply and demand management, particularly by price, and best use of existing assets within environmental limits.

31. Going beyond particular capacity proposals, there are again variations within the 'pro-expansion' camp as to their acceptance of the CCC approach. The supportive position of Birmingham Airport for example illustrates the importance of the Commission utilising a comprehensive analysis framework, encompassing future load factors etc (as SSE have previously spotlighted):

"Birmingham Airport supports the target established by the UK Committee on Climate Change (CCC) to restrict aviation emissions to 50% of their 2005 levels by 2050. *[FOE: this has misquoted the CCC numbers; the figure should be 100%]* The UK CCC estimates that the UK could cater for an additional 60% increase in Air Traffic Movements (ATMs) without surpassing its CO2 emissions target. This does not represent a passenger number, which would depend on issues such as the load factor on each ATM. The next generation of aircraft, the Airbus 350/380 and Boeing Dreamliner 787, demonstrate that technological improvements are advancing sufficiently quickly to suggest that a 60% increase would allow the UK to remain internationally

[12] "The Government wants to see the best use of existing airport capacity." APF *1.24*
[13] CAA *UK Airports Market - General Context* 2011 para.8.7 "It appears that London□s higher overall propensity to fly is mainly explained by a much higher propensity to fly for VFR purposes, and by a higher propensity to fly for business."

competitive." [14]

32. On the other hand the recently published Transport Committee report on Aviation Strategy is an object lesson, this time from a policy commentator, in how ***not*** to relate the capacity and climate change issues to each other:

- *Climate Change:* Despite having identified the right starting point (the CCC 2009 conclusion cited above) *TC report para.37* the Committee have not then been prepared to follow and confront its logic – and they also chose not to take evidence from CCC – and therefore have in practice been required to ignore it. Instead they have substituted a 'diversionary' line of enquiry which suggested that failure to provide additional capacity in the UK might result in increased emissions arising from the use of foreign hubs. Despite being reminded by Friends of the Earth in our evidence session *TC 38 and Q217* that they would need to model and quantify this possible effect in order to stand up that proposition, the Committee have failed to do so. Finally their 'non-conclusion' on climate change *TC 40* ("… We therefore consider that an increase in capacity will be necessary to accommodate sustainable aviation growth. We recommend that any future plans for increased aviation capacity take into account progress on global initiatives to deal with emissions.") attempts to marginalise and defer what ought have been a/the critical determinant for their assessment. Their recommendation supporting reduction or abolition of APD *TC 105* would result in actual increase to particularly longhaul emissions.

Capacity: Thus released from any constraint to relate emissions to capacity the Committee resumed their established 'pro-expansion' stance with general support for options at Gatwick *para.72*, Stansted and Luton *74*, a two hub system *75*, but above all Heathrow – either 3 or 4 runway scenarios *73, 76-77* By following the flawed approach that developed ATWP 2003 the Committee has unsurprisingly reinvented its conclusion as well: in favour of Heathrow, but also more general SE expansion. They at least have not learnt the 'Hammond' lesson.

33. **Conclusion:** There is wide ranging support even with the aviation industry for the CCC 2009 framework. The methodology to relate capacity to emissions established by CCC 2009 is we judge the only contender for the Commission to take as its starting point, and has not been contested by Govt who in fact support its outputs; unless that is the Commission wishes to propose an alternative approach. So does the consultation document do this?

(D) Comments on the Commission's consultation document

34. At the meeting between Sir Howard Davies and environmental NGOs on April Friends of the Earth suggested that the approach of the CD is undermined by **a fundamental uncertainty – at present – as to the methodology that the Commission will be using to analyse the relationship between emissions and capacity**, and we asked a number of questions seeking an explanation, and which need to be addressed to overcome that uncertainty. By contrast we commented that the methodology of CCC 2009 is admirably clear in creating a structural framework that has been able to derive results for a policy outcome that sets a quantified value to that relationship.

35. The questions we asked in order to understand what the Commission's proposed methodology might be were:

i) Does the Commission accept that UK emissions ceilings/targets will need to constrain airport capacity expansion, at some quantified level? *Context for the question: the CD is silent on the requirement to define the emissions/capacity relationship, at a quantified level.*

ii) What is the identified object of the Commission's analysis: a reduction in UK or alternatively global emissions? *Context: the CD appears to have responded to the ambiguity in APF about a preference for international over national level action, so needs to clarify its UK-oriented policy emissions objective.*

iii) Are you following the established CCC 2009 methodology (relating an aviation emissions

[14] *Wider growth, Wider connectivity Birmingham Airport's response to the Department for Transport's Draft Aviation Policy Framework* para.3.2

ceiling to capacity) or another one? *Context: the CD is silent about both the CCC 2009 and its own proposed methodology.*

iv) Will the Commission's methodology be demonstrably compatible with the Climate Change Act 2008 and the CCC approach to carbon budgets? *Context: the Commission needs to define at the outset whether it accepts these starting points, from which CCC subsequently proceeded to develop its own methodology.*

v) Is it clear what is the 2050 emissions target for aviation, and a 2013-50 emissions trajectory, that the Commission is working within? *Context: the CD is silent on its approach to these two critical quantities*.

vi) Do you intend to undertake further modelling relating to emissions and airports capacity? *Context: Once the Commission has defined its methodology, or alternatively if it chooses to follow that of CCC 2009, it will require very significant modelling activity to the same level as allowed CCC to set the quantified relationship between capacity/ATMs and emissions levels.*

36. By formulating these questions we are not assuming that there are particular 'given' answers to them. As just one example, in paragraphs 5.4 onwards the CD appears to want to test the argument that capacity constraints in the UK might possibly cause global (NB not UK) emissions to actually increase. In theory that is a legitimate line of inquiry (but see paragraph 40 below). We are simply requesting the Commission to ensure that the methodology it adopts leaves no doubt as to the answer to these questions, and is at least as effective as that of CCC 2009.

37. In response it was indicated at the meeting that it was not the intention of the CD to set out its intended methodology - but was rather raising a range of issues for discussion - and that this will be set out at a next stage (presumably not long delayed?). So we do know that this critical task remains to be undertaken; and our entire submission is intended to assist in that process. The implication must be that once the Commission's emissions/capacity methodology has been identified then it will be subject to further consultation or discussion. We accept this sequential approach as long as clear answers about methodology are provided sooner rather than later, and that there is a further opportunity to comment on the intended approach.

38. This methodological uncertainty is the reason why at the NGO meeting we suggested that the CD is the weakest so far of the Commission's consultation documents. Whilst summarising the CCC methodology (*4.10* onwards) and noting that "Under the 'likely' scenario, a 60% increase in passengers by 2050, relative to the 2005 baseline, would be compatible with the aviation sector emissions target" there is no reference to or discussion of the consequent ATM/capacity limits and what those might represent for future capacity provision. It should have referenced the CCC methodology and recommendations but it does not.[15] However *4.15* does 'highlight the need for the Commission to build an understanding how the DfT and CCC carbon constrained forecasts relate to each other'.

39. Chapter 5 implies by its title 'aviation emissions and airport capacity constraints' that it will be addressing this relationship but in fact it does not. And - maybe picking up the lead from APF *2.8* it mis-states the test to be analysed - "… it has been suggested that capacity constraints might either have no effect on **global** emissions…" *5.1 our emphasis* - because the primary locus and objective for UK policy is UK emissions, not global emissions. The CCC framework is applied to the former, not the latter, and so should the Commission's. A policy objective focussed on changes to global emissions would not be consistent with the Climate Change Act clause 30.

40. Indicating an apparent direction of travel that same sentence continues: "… or could even be counterproductive, if constraints at UK airports cause flights and their associated emissions

[15] *CD 4.9 states* "The [CCC] model has not been updated since and as a consequence the assumptions used (for example around economic growth and oil prices) are now out of date. This means that the results are not directly comparable to the latest DfT forecasts, but the methodology is discussed here as a useful comparator to the DfT approach". This still leaves the Commission's attitude to the CCC methodology unclear – we would suggest that CCC be commissioned to revisit its methodology and suggest any improvements – but its need for new modelling is underlined.

to be displaced to overseas airports (so-called emissions 'leakage')", and the substantive and new analysis presented in this section of the CD elaborates an emissions leakage argument *paragraphs 5.4 onwards* We believe this to be an analytical diversion for the following reasons:

(i) Generally, if leakage arguments had been used by other industries, or economies in general, then the Kyoto Protocol itself would not have proceeded. The Kyoto framework does not encompass leakage impacts of global emissions as a whole, or as they affect national accounts; rather it requires countries to act upon their own sectoral emissions.

(ii) the Commission's leakage hypothesis is stated at 5.4 in only a partial form: "Emissions savings from UK aviation, whether due to capacity constraints or other factors, would contribute towards a UK-specific aviation emissions reduction target. Where this results from the displacement of flights to overseas airports, it could potentially be at the expense of emissions 'leakage' to other countries." Firstly rather than formally stating a hypothesis, it is instead merely implied (along with figure 5.2) that *therefore* increasing UK capacity could reduce global emissions (i.e not UK emissions). By not openly setting out the full hypothesis its apparent paradox is not confronted, or its contradiction with a *UK* emissions reduction objective revealed.

Secondly, in the situation where, say, both UK and the Netherlands were controlling their 'country-specific aviation emissions reduction target' then displacement could take place in either direction. If leakage occurred in the direction Netherlands > UK then the UK would apply appropriate constraints; and vice versa if it was in the opposite direction. So the proper policy response, even in this case of emissions displaceable across national boundaries, remains that of the Kyoto: managed national accounts/budgets.

(iii) the potential of identifying the wrong policy objective (as above) to misdirect the analysis become clear in CD *5.6*: "… so we will need to understand the potential implications of UK airport capacity for global aviation emissions under a range of scenarios" – and see also *5.10, 5.16*. The Commission should be testing capacity scenarios against **UK** emissions outcomes **not** global ones.

(iv) Whilst it is the case that CCC 2012 itself expresses concerns about the potential for 'perverse outcomes or leakage' [16] we have to remember that this is CCC contrasting alternative approaches for *reducing emissions*, not for setting *capacity policy* (let alone taking an approach that might justify more capacity). This indeed would be the sort of perverse outcome they are warning against.

(v) Once CCC introduce ETS into the equation the problem has in essence been dealt with ("risk of leakage associated with EU ETS is very limited"), and their hubbing analysis is consequently also at the EU level ("Although there is the possibility that EU hubbing between America and Asia could be displaced, this relates only to about 1% of total EU traffic …"). The CD acknowledges this point at 5.5.

(vi) The Commission's own analysis does not substantiate a 'leakage' case because whilst 5.14 states*:* "Note that, in 2030, total 'leakage' exceeds the apparent carbon saving, implying that at this point capacity constraints are actually acting to increase global emissions" this is only at the 2030 'snapshot' ('..for a period around 2030 ..'): not before in 2020, or after in 2040 or 2050, or indeed after 2050 either *5.16* There would also need to be a graph presentation of claimed leakage (rather than the snapshot table presentation of 5.1) so that the cumulative area 'under the graph' could be assessed, whilst the nett position between the total UK aviation emissions and leaked emissions should to be presented. As we said in para.32 about the Transport Committee's attempt to float the same argument - that 'they would need to model and quantify this possible effect in order to stand up that proposition [but] the Committee have failed to do so' – the CD does at least recognise the need to substantiate this scenario with a nett emissions calculation; so far however this doesn't support its validity.

[16] CCC Statutory Advice of April 2012 "We were very clear in our 2008 report on carbon budgets and the 2050 target that the appropriate approaches to reducing international aviation and shipping emissions are at the global, or possibly EU, level rather than unilateral at the UK level. A UK unilateral approach would have limited impact reducing emissions and could result in perverse outcomes or leakage, given the specific characteristics of these sectors" *page 55*

41. So we believe that the CD has misappropriated and then inverted the 'leakage' argument, and also applied the wrong emissions objective (global rather than UK) with a potential perverse consequence; that a CCC analysis prepared for the purposes of constraining emissions could be misused to justify increased UK capacity and consequently emissions. We understand that there are further discussions about to be had with AEF on this topic; if anything further emerges we will comment thereon.

42. There is another example of this inverted approach in the subheading on page 28: surely 'Other potential carbon implications of capacity constraints' ought really to read 'Other potential **capacity** implications of **carbon** constraints'. There is in fact no substantive treatment of the latter concept anywhere in the CD.

43. As further comments on the detail of chapter 5, and on some other points elsewhere in the CD:

(i) figure 5.2 the CD shows constrained emissions in 2050 at 47MtCO2, and unconstrained emissions at 49; clearly hugely in excess of the CCC 2012 annual carbon budget inclusion of 31MtCO2e *table 1*. The latter is a nett emissions allowance so could be exceeded by purchasing allowances; but the CCC view about the advisability of this is very clear: "over-reliance on credits should be avoided in the long term, as these are likely only to be available at very high cost." *2012, page 39* For the purposes of its long-term planning of capacity the Commission should not rely on catering for emissions levels so much in excess of the CCC carbon budget assumption, yet that's the implication of this figure.

(ii) Non-CO2 emissions *4.18*: as mentioned earlier Friends of the Earth themselves sought some advice from Professor Forster on this issue and his presence as a Commission adviser will ensure it takes the most expert and appropriate approach.

(iii) Future carbon price *4.20*: the intended sensitivity tests are welcomed because we are aware of the industry view (via York Aviation) that 'assuming that the EU Emissions Trading Scheme will lead to an increasing level of carbon costs is highly contestable.' [17] This tends to be supported by the DfT view of the minimal restraint that is applied by future carbon costs and even the recent substantial increases to longhaul APD [18] We can't anticipate the outcome of the tests but the lower the anticipated future cost, the greater the emissions and/or capacity constraint that will need to be applied.

(iv) *CD 2.7* only quantifies the proportion of aviation emissions within the UK GHG budget today, and not at future dates/2050; the same is the case for global emissions in *2.12*. By contrast CCC ensures that it is the (ever-increasing) proportion at future dates that is the focus of its analysis. Seeing that the airport infrastructure the Commission will be reviewing will have a longterm impact even beyond 2050 it needs to make it apparent that its primary concern is future emissions levels.

(v) Whilst the CD does reference the CCC conclusions as to the level of demand that can be accommodated within carbon budgets ("Analysis undertaken by the CCC … suggested that demand growth of around 60% between 2005 and 2050 was compatible with that target …" *3.17*) it doesn't even mention let alone encompass the parallel conclusion as to ATM – and therefore capacity - limits, despite having a chapter devoted to 'airport capacity constraints'. This is an oversight that we're afraid might inspire suspicions, and is just one of the reasons why Chapter 5 is in fact a considerable disappointment.

44. Also omitted is a discussion of how the Commission will treat and incorporate the rising future emissions that will be generated as *already* consented capacity is progressively more utilised (an issue we have already alluded to in paras.27-28). The significance of this issue can be illustrated with reference to the DfT 2050 ATM forecasts, which project total movements at 3.768m, thus already exceeding the CCC 2009 threshold of 3.4m by 11% [19]. But the DfT

[17] *Birmingham Airport submission to Commission on forecasting* 3.2.2
[18] DfT 2013 forecasts *figure 8.2* and footnote: 'Effects attributed to changes in APD and airline costs are negligible.'
[19] "The maximum increase in ATMs compatible with the emissions target is around 3.4 million per year in 2050 compared to around 2.2 million per year in 2005." *CCC 2009* p.12pdf

forecast is for 'Modelled results from s02 scenario (**maximum use of existing runways**)' [20] (*our emphasis* those runways being listed in Annex F3), implying that at the macro level - and assuming that the Commission *does* accept the CCC +55% ATMs threshold - then the 2013 forecasts **would not be compatible with the provision of *any* additional capacity/ runways.**

45. The consultation document should have presented this analysis and commented on it, but it doesn't. There is an apparent fundamental conflict between (the growing use of) existing airports and new capacity/entrants. Even if – as we noted above *para.25* – the DfT model allocations start to lose credibility around 2040, at that date it's still projecting ATMs at 3.146m or 93% of the CCC threshold (and 2.679m and 79% in 2030).

46. So the Commission will need in its methodology to identify:

- how it intends to deal with emissions arising from increased use of existing and already consented airport/runway capacity. Unlike an entirely new airport, no planning permissions will be required if there is already substantial vacant runway capacity (e.g. as at Stansted or Manchester, and at most other regional airports), or alternatively where a new terminal - which will require permission - cannot necessarily be rejected determination on grounds of its impact on ATMs or passenger levels. The Commission will somehow have to quantify the amount of available existing capacity that is likely to come into use over the future period, and

- the mechanisms by which government can manage the increment from existing capacity so that total capacity (existing + new) remains within an emissions threshold. We're not aware of any policy discussion as to how that would be done. Examples could be: any new slots are only released into use at a rate that ensures total aviation emissions stay flat or drop; or flanking measures are used to prevent perverse increases in emissions e.g. short haul slots becoming long haul ones, these flanking measures to be directly linked to passenger-kms or emissions; and so on.

47. Since the APF envisages some role for the Commission in shaping the planning framework as it relates to airports [21] we should provide some comments on that, because of its connection and interaction with capacity increments.

The ATWP 2003 framework was locationally specific, and was intended to be used by airport developers to require that expansion proposals of a particular size be supported by a local planning authority. No total national upper limit on additional capacity was set, and the implication was that proposals will be brought forward on a 'first come, first approved' basis until such time as either the policy framework or market indicated that no further capacity additions were required. The 2013 Aviation Policy Framework on the other hand is deliberately non-locationally specific, which we must assume[22] means in practice that individual airport operators are at liberty to bring forward planning applications of any description or size, at any time, and within whatever are relevant criteria in the APF.

48. Although APF does not state this explicitly, it is now the responsibility of local planning authorities, presumably in ***or*** adjacent to every conceivable location where an existing airport might be expanded, an existing non-civil use runway converted, or a new airport proposed (for example the LPAs covering the area of the possible new airports at White Waltham in Berkshire, near Maidenhead/Bracknell, or at Haddenham in Aylesbury Vale, Buckinghamshire that are apparently identified in *Heathrow 2025, Masterplan Options & Indicative Layouts* - see *Evening Standard* 3rd May 2013) to include in their local plans policies relating to such provision. Presumably any proposal for increased capacity – including terminals, or 'military to civil use' conversion (the last of these was Doncaster Finningley) - could be brought forward on a 'first come, first approved' basis, creating the possibility of a competitive 'race to be first' to secure

[20] Note 3 to Annex F3, *2013 Forecasts*
[21] "The Government has asked the Airports Commission to produce materials to support the Government in preparing a National Policy Statement to accelerate the resolution of any future planning application(s)." *5.5*
[22] We have drawn the DfT's attention on a number of occasions to the need to provide a range of guidance including to LPAs on the change from a locationally specific to a non-specific planning framework but they have chosen not to do so, leaving it to the vague and inadequate 70 words of APF *5.6*

additional capacity for the benefit of a particular operator/location, especially if there was recognised to be some type of emissions ceiling which had to be complied with.

49. It is not at all clear to Friends of the Earth how –either at a national or local level – this represents an ordered framework capable of being deployed as part of the Commission's eventual framework – to control the relationship between capacity and emissions, or anything else. We suggest that the Commission should take expert advice on this area.

(E) Questions for the Commission itself to consider and/or apply to capacity proposals

50. On 3rd May the Commission published its *Guidance Document 02:Long Term Capacity Options: Sift Criteria.* It is relevant to this submission because ***if*** it is the case that the Commission intends to constrain the amount of additional capacity to be provided then:

(i) individual submitted proposals ought to be required to identify in some way what are the emissions consequences of their additional capacity, and what are the implications of their proposal for a total national emissions threshold or target? Alternatively it might be argued that it is methodologically too difficult to do this (because of e.g the distinction between theoretical/maximum capacity and actual use) so the Commission would instead undertake such an analysis itself, but this has the weakness of allowing proposers particularly of the larger projects to avoid having to address this issue – which can't be acceptable; and then

(ii) the Commission will in turn need a methodology that is able to evaluate each proposal according an 'emissions threshold' sifting criteria and calculate the nett additional emissions impact of a particular proposal, on top of an existing capacity baseline - which however also allows for spare existing capacity to come into use at future dates and in some particular geographical configuration - and then to assess whether that proposal is compatible or not with remaining within the set emissions threshold.

51. Of the sift criteria already contained in the other CD the following have a relationship to climate change/emissions:

Table 1.1 long-term options sift criteria
- '***Strategic fit*** … does the proposal support the government's wider objectives and legal requirements (for example … alignment with national climate change commitments and global targets?' And then see paragraph 3.6: "Given the importance attached to consideration of climate change issues in submissions to the Commission on sift criteria, we invite those developing proposals for enhanced capacity to also set out their assessments of how the growth in aviation enabled by their proposals can be accommodated within the national and international frameworks for reducing greenhouse gas emissions. This might also include setting out how they consider long-term reductions in carbon emissions can be delivered over time." *FOE emphasis.*

Comment: We welcome firstly the reference to '**national** climate change commitments as well as global targets' in view of our comments above about miss-stated objectives; and then the inclusion of the highlighted 'invitation' - which will fulfill (i) above - but suggest that the Commission, in order to achieve consistency in its own evaluation, will need to identify a template and methodology which developers can apply in drawing up their climate change impact assessments. Particularly: how should the aviation emissions associated with the new capacity be calculated? And then: the emissions outputs of air traffic from a new piece of capacity will build up over time, and cumulate across the entire assessment period, which therefore needs to be specified. The Commission will need to state whether this requirement applies to runways etc or also terminals and surface access proposals which can also raise capacity. Environmental stakeholders will also want to be able to compare proposals, and their relationships with national thresholds, on an accessible and consistent basis.

- ***Climate change:*** How might the proposal compare, in terms of its impact on greenhouse gas emissions, with alternative options for providing a similar amount of additional capacity? What are the proposals plans for continuous improvement and reduction of carbon emissions over time? And then see paragraph 3.18

Comment: The Commission will need to ensure that capacity developers identify the airside as well as the landside emissions arising from their project. *The Commission will consider whether any proposal made could generate significantly greater or fewer emissions relative to other potential options* How does the Commission propose to deal with a capacity proposal which attempts or succeeds in attracting traffic and therefore emissions from another airport? The view that '*the climate change impact of a given number of flights is not expected to vary greatly due to the geographic location of the airport'* is not accepted. Whilst it contains a basic truth there is also a need to differentiate between short haul and long haul flights - adding a short haul flight will release around 10-20% of the emissions of adding long haul one. As specifically Heathrow has far more long haul than any other UK airport it is quite likely adding capacity there will add far more emissions than adding a few short haul flights at another airport. This approach also glosses over catchment. The Heathrow hub effectively has a catchment of the whole UK, with a concentration in London and the south; whereas e.g Manchester does not have this catchment so even though it could add long haul flights it might not be able to fill them - hence the emissions per passenger would be far higher and the incentive to use the most efficient new aircraft would be lower (as a trade-off between the start-up cost for the route and the costing of running it).

52. So, once again, we emphasise the need for a clear, consistent methodology and process, which will in this case attempt to make sense of the considerable complexity of developers' climate change assessments.

Document prepared by Anthony Rae
16th May 2013

Appendix – 2011 comments on MAC opportunities

Most of the DfT *CCC Response* to *CCC 2009* is given over to a presentation of the results of the first detailed application of marginal abatement curves (MACs) to aviation emissions; and see also the accompanying Technical Report ***[20]*** for the development of this technique). The Response properly identifies the limitations of this initial exercise – as does the Technical report in greater detail – but its overall conclusion is encouraging: "This would reduce the estimate of total UK aviation emissions in 2050 (in the absence of further government intervention) under our central baseline forecast to about 30 MtCO2 in 2050" *3.12* - that is **considerably below** the 37.5 MtCO2 2050 indicative ceiling identified in the CCC 2009 report.

Furthermore *Technical report* table (i) presents outputs for 'estimated 2050 UK aviation emissions after all levers implemented' for nine demand baseline/policy cases ranging between 15.9 and 37.9MtCO2, again almost all below the CCC ceiling.

Our comments on this exercise are as follows:

- The exercise has demonstrated a useful spectrum and spread of abatement opportunities tested, in terms of their relative emission savings (Technical report *table 29*), cost effectiveness *table 30*, and levels of confidence/uncertainty *table 36*.

- Paragraphs 3.8-10 of *CCC Response* are right to emphasise the limitations of this initial MAC exercise (which are also discussed in detail in the individual sections of the Technical Report). The fact that the MAC approach will always be 'work in progress' - with continuous refinement to an optimal basket of MAC measures, and varying progress in implementation year by year - needs therefore to be incorporated into the overall implementation mechanisms that the SAF will propose. As long as a 'demand management framework' is first of all provided - bearing in mind that DfT policymakers have so far refused to discuss or incorporate this component - and then implemented its specific content can be rebalanced as we go along.

- The choice of MAC oppotunities tested are merely a selection from within a much wider range of options, from which more variants could be developed in the future (e.g relating to behavioural change) and from which others have been omitted in this first exercise – principally fiscal measures. Further work will therefore be needed to develop a more optimal basket of MAC measures.

- The exclusion of taxation measures on the formal grounds that these are 'a matter for the Treasury' *CCC response 1.13* is not acceptable. The SAF CD will if necesary have to be a joint document with the Treasury in order that the contribution that taxation can make either to the MAC exercise or a discussion around demand management can be properly explored by consultees. Taxation would directly increase the cost of flying and cause a behavioural change (particularly in outbound leisure passengers, as shown by the different demand elasticities), so to exclude taxation is to deliberately withold a major lever for demand constraint.

- The exercise has usefully pointed policy makers and operators alike to a category of reduction opportunities - of which the most beneficial is 'operational incentives' (range of levers to reduce inefficiencies in air carrier operations) - that are already readily available and in fact constitute the single largest forecast tonnage reduction, and around 30% of potential emissions savings in the Central Mid scenario. This finding ought to reduce concerns frequently expressed that the industry will find it either too expensive or difficult to identify and implement lower cost carbon reduction interventions.

- The positive results for 'capacity contraints' ('Significant apparent savings, but in some cases moderately expensive') albeit in the specific configuration modelled, are interesting; we welcome these as an exploration of one component of an overarching demand management framework (see question 5.22). The discussion in the Technical Report *section 4.1* needs to be developed further in the Consultation Document to include some larger scale options (e.g the High scenario 'assumes that runway capacities are capped at 3% below the level in s00'. Presumably this means *maximum* capacities, including therefore the headroom up to maximum use), combined with an exploration of implementation mechanisms (see the discussion on page 47). Our understanding is that there is already more runway and terminal capacity permitted

than would be necessary to carry 550m passengers per year.

- The 'Behavioural Change' options modelled in section 6 are inadequate. 6.1 involves the provision of information only, and is not surprising that the response is negligible (indeed there are actual perverse effects *6.1.3*). The promotion of videoconferencing *6.2* has only a 'limited effect'. Behavioural change will only be successful when opportunities are driven by and aligned with more fundamental changes to prices/airfares e.g as a result of recent changes to APD which unfortunately have not been used as a basis for further modelling.

- In other categories – biofuels being the best example – the wider sustainability of the measure is taken as an assumption (and see particularly that 'Within this analysis, the use of biofuels by the aviation sector has therefore been allocated zero emissions' *p.64*), whereas the Friends of the Earth considered view based on the full range of evidence is that the sustainable sourcing of biofuels is not possible at present. See Qs5.34-35

- Throughout the report (and particularly in chapters 3 and 5) there are repeated references to the potential for possible measures to be subsidised or incentivised by government (and in terms of the means of implementation they will employ a whole range of public and private sector participants). Without setting too fixed an approach the further development of a MAC framework would need to be based on some clearly established principles, such as: (i) the minimum amount of subsidy, or none at all, so that the industry can operate on a level playing field with other sectors, and there can be necessary cost transfer to customers in the form of higher fares; and (ii) clarification of the respective and appropriate roles for the public regulator and regulated industry.

Importantly what is unclear is what will constitute the overall 'driver' that will pressurise or incentivise the implementation of an optimal MAC basket over the longterm and with certainty. In section B) above we suggested that some kind of indicative or intermediate target regime might contribute to fulfil this role. This could take the form of an **aviation emissions trajectory** for the period to 2050, setting out the varying contribution of the measures within the optimal MAC basket, of the sort that was demonstrated in the 2009 Low Carbon transition plans (e.g *Low Carbon Transport – a Greener Future* figure 6.1; *LCTaGF Impact Assessment* figure 4.1; *UK Low Carbon Transition Plan* chart 3, p.137. And see also the various modelling output visualisations of the EU transport GHG 2050 report ***[18]*** e.g figures 14-21) that could communicate and guide the implementation process and be used to monitor its progress. It would act as a more credible replacement for the previous government's 2005-50 target, now demonstrating progressive, continuing and absolute emissions reductions against its baseline.

So the SAF CD, if it wants to promote the MAC approach as the core of its emissions reduction framework, will need to include such a MAC 2050 reduction trajectory for the purposes of delivery, monitoring and direction; and demonstrating also how the aviation emissions reduction will be be integrated alongside other components including inclusion within UKCB and EU ETS.