



Developing a sustainable framework for UK aviation: scoping document

Consultation response from the Aviation Environment Federation

20th October 2011

The Aviation Environment Federation (AEF) is the principal UK NGO concerned exclusively with the environmental effects of aviation. Supported by individuals and community groups affected by the UK's airports and airfields or concerned about aviation and climate change, we promote a sustainable future for aviation which fully recognises and takes account of all its environmental and amenity affects. As well as supporting our members with local issues, we have regular input into national policy discussions and recently acted as the sole environmental and community representative on the South East Airports Taskforce, which considered how improvements could be made to the passenger experience at Heathrow, Gatwick and Stansted airports without expanding capacity. We also work with European and international policymakers, and, as part of the International Coalition for Sustainable Aviation, have observer status at the UN's International Civil Aviation Organisation.

AEF believes that to be environmentally sustainable, aviation must operate within clearly defined limits with respect to climate change, noise, air pollution and public safety and we consider that the level of growth in aviation provided for in the 2003 Air Transport White Paper was not sustainable. We very much welcome moves towards this approach at a policy level, for example the proposed introduction of 'noise envelopes' for UK airports. Similarly, we welcome the recognition by the Secretary of State in the foreword to this consultation that the 2003 policy did not respond adequately to the challenge of climate change.

We recognise, however, that aviation must also be economically sustainable. While AEF is an environmental organisation and our expertise is primarily in relation to environmental impacts, we have concerns about the way in which the economic impacts of aviation have historically been assessed. While the consultation appears to conceive of a sustainable aviation sector as one in which the economic and social benefits of the sector are simply weighed against its environmental disbenefits, we believe that there are a number of economic and social costs arising from the way aviation currently operates in the UK which need to be both considered and, where possible, quantified, before any new policy is determined. We believe that the Government is currently in a good position in policy terms to adopt a dispassionate,

evidence-based approach to considering both benefits and disbenefits on all three counts – social, environmental and economic.

In responding to this consultation we have answered only those questions that we feel are most relevant for us. Given our focus on environmental impacts, our views on aviation's role in the UK economy are set out only briefly, with further analysis provided in an appendix.

Summary of recommendations

Throughout our response, our key recommendations are highlighted in bold italic. AEF recommends that the new aviation policy should:

- Contain no unsubstantiated claims about aviation's role in generating economic growth
- Avoid relying on evidence concerning aviation's economic impact that has been produced or funded by interested parties, except in cases where this has been critically examined, and take into account the concerns of environmental organisations in relation to the Government's own approach to cost benefit analysis
- Show the economic impact of outbound as well as inbound tourism
- Consider the current level of aviation tax and assess how changes in tax levels and structures might affect the UK economy as a whole
- Include estimates of the additional costs likely to be borne by consumers of goods and services already covered by climate policies as a result of aviation being given preferential treatment
- Count social and environmental progress among its primary goals, and not assume that either will be delivered as inevitable consequences of economic growth
- In relation to General Aviation noise
 - Recognise that GA and helicopter operations can give rise to considerable noise disturbance and outline a framework for noise management, including reviewing the recommendations from the research into helicopter noise commissioned by Defra
 - Clarify the circumstances in which the Government is prepared to intervene in disputes and use its noise control powers under the Civil Aviation Act, namely specification under section 5 or designation under sections 78 and 79
 - Provide a commitment to investigate ways of encouraging the fitting of noise reduction technologies such as multi-bladed propellers and silencers to light aircraft, including how the recertification cost and timescale can be reduced

- State precisely the environmental conditions within which the industry may operate or, if this is not possible, state unambiguously the process and timetable for determining them.
- Consider connectivity more widely than simply in the context of direct connections by air, following the lead of many large UK businesses
- Rule out the provision of any new airport capacity for the duration of the policy
- In relation to climate change:
 - Avoid making any unqualified reference to aviation's non-CO2 Kyoto emissions, as these are irrelevant
 - Make clear that while scientists are still working on the best metric to account for aviation's non-CO2 impacts in climate policy, there is good evidence to suggest that aviation's warming impact is approximately double that indicated by its CO2 emissions
 - Recommend that aviation's non-CO2 emissions should be modelled using the most up to date scientific data in all emissions forecasts for the sector, or related policy documents
 - Clarify how the UK plans to ensure that, in the absence of effective international climate policy for aviation which includes consideration of non-CO2 impacts, the EC fulfills its commitment to regulate NOx emissions at the European level
- Acknowledge that relying on EU ETS to effectively constrain UK aviation emissions is inadequate, and should include a commitment to a non-tradeable cap on UK aviation emissions which is at least as demanding at the stabilisation goal announced previously
- Adopt a cautious approach to aviation biofuels that sets out clear sustainability criteria and avoids any unrealistic modelling assumptions about their emissions abatement potential
- Make a commitment to address noise levels below 57 Leq in all policy decisions, and to adopt supplementary policy indices to reflect increased sensitivity to the number of noise events. 54 Leq should be a minimum requirement for the short term when considering averaged noise.
- Commit to working in the longer term towards ensuring that no-one in the UK is exposed to night noise levels that exceed WHO Europe's health-based limits.
- Consider a new approach to noise policy that explicitly takes into account flight numbers as well as average noise contours.
- Commit to exploring how new regulatory measures could increase the take-up of cleaner, quieter aircraft.
- Commit to considering new policy approaches in relation to aviation, planning and climate change.

THE AVIATION SECTOR

5.1 How does the aviation sector as a whole benefit the UK? Please consider the whole range of aviation activities including, for example, air freight, General Aviation and aerospace.

5.2 What do you consider to be the aviation sector's most important contributions to economic growth and social well-being?

Almost all UK policy documents on aviation begin with a series of platitudes about the sector's significant value to society (section 1.2 of the scoping document is a good example). These opening questions (5.1 and 5.2) imply that aviation 'as a whole' has a net benefit for the UK and contributes significantly to both economic growth and social wellbeing – even before any evidence on benefits and disbenefits has been considered. Similarly, paragraphs 1.1 and 1.2 of the scoping document make a simplistic link between growth in aviation being good for the economy, while chapter 2 gives a selection of facts and figure as well as assertions about economic benefits of air travel. Aviation often provokes strong feelings both among the industry and among communities affected by airport expansion, and AEF believes it is essential for Government to take this opportunity to assess dispassionately the true impacts of the sector – environmental, social, and economic. This is particularly important when considering the economic impacts because there is a history of large economic benefits from aviation being claimed without good evidence.

AEF believes that in the presentation of information about aviation's economic impacts there is systematic bias, and that the scoping document continues this trend. It is important, not just in the context of aviation, to demonstrate good governance and restore trust in the political system that any bias is eliminated from government communications. To illustrate the point, it is worth noting that not all areas of government policy are approached using this framework. The Government's policy on alcohol, for example, is not routinely prefaced with a preamble about the social benefits enjoyed by drinkers, how many jobs the industry generates for the UK, and the extent to which drinking facilitates trade.

In 2008, the Sustainable Development Commission – the Government's then adviser on sustainability issues – published two reports on aviation policy – 'Breaking the Holding Pattern' and 'Contested Evidence'¹. Both reports argued that evidence in relation to the costs and benefits of UK aviation was hotly contested among aviation industry, businesses, government departments, academics, NGOs and citizens' groups, not least in the area of economic impacts. A greater degree of consensus was, however, attainable, argued SDC, but would require an independent review of

¹ <http://www.sd-commission.org.uk/presslist.php?id=82>

current evidence across the range of economic and environmental impacts. AEF very much hopes that the current review of aviation policy will provide the opportunity for evidence to be critically examined, and considers that if no account is taken of the criticisms of the current approach to the economic evaluation of UK aviation from think tanks, NGOs, local campaigners and others, intense conflict over aviation policy and airport developments will persist.

Aviation and the UK economy

Aviation services are an integral part of a modern society and economy. Few people doubt this, so there is no need to argue the case in these paragraphs or to make these issues part of a White Paper. Their only relevance is if it can be shown that having more and more aviation will stimulate the economy. The goal of 'returning the UK economy to sustainable growth' (p.6, opening statement) is not, however, one that is unambiguously aided by the growth of the aviation sector. Similarly, the opening statement of chapter 2 begins "Aviation makes a significant contribution, both directly and indirectly, to the UK economy. We want to maximise this contribution in the future and explore how aviation growth can occur .." But no evidence demonstrating that growth in aviation generates growth in the wider economy is presented.

The new aviation policy should avoid making any unsubstantiated claims about aviation's role in generating economic growth.

AEF views aviation as primarily a service industry. The industry itself operates on small margins and its historic impressive growth rates have been achieved at least partly as a result of the economic advantages with respect to tax breaks and lenient market based measures. In a carbon-constrained world, a Government looking for growth industries would find better candidates, we believe, than aviation. Attempts to put a value on how much aviation is 'worth' to the UK economy inevitably therefore, rely on assessment of its contribution to other sectors. Quickly, however, this approach runs into difficulties.

First, the conclusions drawn will depend heavily on what counterfactuals are considered. Paragraph 2.3 of the scoping document states 'the sector directly generated around £9 billion of economic output.' This statement in isolation, however, has little meaning; it is not the case, for instance, that £9 billion is added to the economy such that the economy would be £9 billion smaller without it. Paragraph 2.3 says '[The aviation sector] provides about 150,000 jobs in the UK and supports many more indirectly.' We cannot conclude, however, that without the aviation industry there would 150,000 fewer jobs and 150,000 more people unemployed. If there were no aviation industry, the majority of resources and jobs would simply be employed in other sectors.

Second, economic analysis is not always good at indicating causality in an observed relationship. Our response to question 5.13 on connectivity, for example, questions whether evidence of an observed relationship between trade with emerging markets and frequency of flights demonstrates that these flights initiate trade or whether they are simply a response to demand where strong trade links have been established or are emerging.

Third, it is easy to pick out what appears to be an economic benefit in one sector without setting it in the wider context of the UK economy. Paragraph 2.21 of the scoping document suggests that in 2009 earnings from inbound overseas visits from people traveling by air were £13.8 billion. However, in 2009, as in previous years, there was in fact a substantial trade deficit in international tourism: £13.2 billion².

In preparing the new aviation policy, the Government should critically examine evidence on aviation's economic impact that has been produced or funded by interested parties, taking into account whether all relevant information has been taken into account, and how the results might vary with different assumptions. It should also take into account the concerns of environmental organisations in relation to the New Approach to Transport Appraisal and the Government's approach to cost benefit analysis more generally, and should acknowledge that alternative approaches can generate very different conclusions.

The new aviation policy should show the economic impact of outbound as well as inbound tourism, and should differentiate clearly between the different sectors of the aviation industry in any economic analysis.

Finally, as referred to above, we believe that aviation currently enjoys a number of economic advantages and that if these were to be removed the sector's economic performance would look quite different. Its benefits as a result of lenient fiscal treatment are such that a DfT document from 2008 estimates that "were the UK to charge a fuel duty and VAT on tickets, this could result in revenues of around £10 billion"³ (a figure similarly acknowledged by HM Treasury in response to parliamentary questions). Despite this, aviation has been allocated an emissions cap under the EU ETS that is extremely generous compared with other sectors, and in the UK, the Committee on Climate Change has advised that if emissions from both international aviation and shipping have been returned to 2005 levels by 2050 but are no lower than that, and if, as is likely, agricultural and other non-CO2 emissions are reduced by only 70% by 2050 (relative to 1990), then emissions of CO2 in other sectors of the economy will have to fall by around 90% in order to meet the overall 80% target. If aviation were subject to the same demands as other sectors, in both cases, its economic output would be likely to fall.

² ONS 2010, *Travel Trends* <http://www.ons.gov.uk/ons/rel/ott/travel-trends/2010/index.html>

³ DfT 2008, *Summary of responses to the Government's consultation on the aviation emissions cost assessment*

The new aviation policy should consider the current level of aviation tax and assess how changes in tax levels and structures might affect the UK economy as a whole. Analyses of the economic impact of aviation should include estimates of the additional costs likely to be borne by consumers of goods and services already covered by climate policies as a result of aviation being given preferential treatment.

For more detailed evidence and analysis relating to aviation's economic impacts, please see our appendix on this subject.

Aviation and social wellbeing

Acknowledgment of the fact that economic growth and social wellbeing are not always perfectly correlated is now part of Government policy. David Cameron last year said that it was “high time” to recognise that GDP was an “incomplete way” of measuring the country's progress⁴ and has tasked the ONS with developing alternative measures of social wellbeing. Our progress as a country, he has said, should be measured “not just by how our economy is growing, but by how our lives are improving; not just by our standard of living, but by our quality of life”. Civil aviation has, ever since the 1950s, been nurtured by Government with a range of tax breaks and other advantages, justified on the basis, initially, of its potential contribution to economic growth and, more latterly, also on the basis of social wellbeing and the democratisation of air travel. We believe that the Government needs to look critically at how aviation's growth relates to both economic and social welfare.

With metrics of social wellbeing still relatively undeveloped, we are not aware of any research studies assessing the impacts in wellbeing associated with increased air travel, taking account both of impacts for travellers and for people on the ground. As it is important to consider appropriate counterfactuals, any such study should also address whether constraints on the growth of air travel could also bring social benefits. Evidence relating to how propensity to fly correlates with earnings is provided in our aviation and economy appendix.

Aviation policy, in order to meet Government objectives in other areas, needs to count social and environmental progress among its primary goals, and not assume that either will be delivered as inevitable consequences of economic growth. In considering the impact of constraints on air travel, for example through taxation or planning restrictions, it should be remembered that the main beneficiaries of air travel are those on higher incomes.

⁴ <http://www.guardian.co.uk/politics/2010/nov/25/david-cameron-defends-wellbeing-index>

5.3 Are some sub-sectors of aviation more important than others? If so, which and why?

AEF believes that it is the role of Government to come to a view about how best to manage the competing demands of different sectors of the industry, and we envisage that many respondents to this consultation will be keen to argue the case for their own significance, particularly in terms of benefits for the economy. Our response to this question focuses on the noise impact from one sub-sector that is often overlooked by policy-makers, namely General Aviation (GA). While the environmental impacts from air transport are, rightly, at the centre of policy-making decisions, Government policy in respect of GA is not clearly defined.

Noise from general aviation activities is a widespread problem for many communities. There are some 370 civil aerodromes in the UK, of which only 22 are large enough to have been required to draw up noise action plans under EU Directive 2002/49. At the remainder, the only constraints in terms of noise are those imposed by the planning process, and many developments either take place through incremental growth or fall below the 28-day planning threshold; in practice there are many aerodromes at which no protection exist for local residents in relation to noise. Among the particular characteristics of GA noise are the following:

- As activity generally takes place in rural locations, background noise levels are often low, making aircraft noise particularly intrusive.
- In the case of flying training (which can now take place at any UK aerodrome irrespective of whether it is licensed by the CAA) or of aerobatics, both of which can involve long periods of circuit flying or other repetitive activity, the numbers of people affected may be small compared to large airports, but those who *are* affected can experience high levels of disturbance for long periods, particularly at weekends and particularly in summer, when many want to spend time outdoors.
- Helicopters generate a unique set of noise problems – often flying at low altitudes, causing annoyance at lower average noise levels than fixed wing aircraft⁵, and operating out of heliports, where little if any provision is made for community consultation and engagement.
- ICAO noise certification requirements for light aircraft currently lag behind the technologies that are available. While countries such as Germany have introduced more stringent noise certification requirements, ensuring that technologies such as multi-bladed propellers and silencers are widely available for most aircraft types, certification requirements for use in the UK are currently prohibitive, resulting in low levels of market penetration.

⁵ See, for example, Defra 2008 *NANR 235 - Research into the improvement of the Management of Helicopter Noise*
<http://archive.defra.gov.uk/environment/quality/noise/research/documents/nanr235-project-report.pdf>

While AEF supports in principle the idea that problems be resolved at a local level, there are cases (quite frequently in our experience) where parties are unable to engage effectively or find appropriate solutions. Given the extent of aviation's legal protection against noise nuisance claims, many residents feel powerless to take any action. We welcome the acknowledgment by Secretary of State Theresa Villiers in December last year that at Wycombe Air Park, residents' interests are being so poorly addressed by the operator that it may be necessary to make use of her powers to specify the aerodrome under Section 5 of the Civil Aviation Act 1982 which would require the CAA to take environmental issues into account when issuing a licence for the aerodrome.

A 2008 report by Defra made a number of recommendations based on research it commissioned into helicopter noise, namely that:

- 1) Academic research is required to better understand the human response to helicopter noise. In defining new approaches, the low incidence rate of most helicopter operations and the non-acoustic factors, also known as 'virtual noise', which encompasses community attitudes and fears towards the operations, should be considered.
- 2) Complaints should be collected and logged in a central database. This should embrace all sources including the CAA, the MOD, local authorities, operators and airfield managers. Attention should be paid to methods utilised in Australia where monthly reports on complaint statistics are provided to stakeholders.
- 3) Pilots should be made more aware of helicopter noise, perhaps during training for the Private Pilots Licence (PPL) or Basic Flying Training for the military pilot. Such a scheme, the HAI's 'Fly neighbourly' program, is successfully operated in the US, Germany and other countries. This can be part of the best practical means of minimising noise complaints.
- 4) Applied research is required so that land use planning guidance, such as PPG24 in England, can be revised. Specific land use planning guidance needs to be developed for the assessment of noise from helicopter operations.
- 5) Developers need to be encouraged to enhance sound insulation in new / change-of-use builds near helicopter bases.
- 6) For accurate prediction of environmental noise from helicopter operations, and for noise maps, data on the source noise of civil helicopters needs to be obtained.

To our knowledge, however, this work has not been taken forward.

We recommend that the new aviation policy should:

- ***Recognise that GA and helicopter operations can give rise to considerable noise disturbance and outline a framework for noise***

management, including reviewing the recommendations from the research into helicopter noise commissioned by Defra.

- *Clarify the circumstances in which the Government is prepared to intervene in disputes and use its noise control powers under the Civil Aviation Act, namely specification under section 5 or designation under sections 78 and 79.*
- *Provide a commitment to investigate ways of encouraging the fitting of noise reduction technologies such as multi-bladed propellers and silencers to light aircraft, including how the recertification cost and timescale can be reduced.*

5.5 How, and within what constraints, can aviation growth occur as technological developments and improved operating procedures reduce CO₂, pollutant emissions and noise impacts?

In order for aviation to play its part in tackling climate change and contributing to improved quality of life, it is essential for Government both to quantify and to enforce the environmental limits within which airlines and airports can operate. We therefore very much welcome the approach to policy making that this question indicates, namely that a framework of environmental limits should be in place within which the industry can compete and adapt. We do not, accept the question's implicit assumption that any improvements in terms of environmental performance from today's levels should necessarily be regarded as headroom within which the industry can grow. Today's noise exposure levels are associated with significant annoyance, for example and night noise in residential areas greatly exceeds the maximum levels recommended by WHO Europe (see our response to question 5.40). However, with the right targets in place, we agree that the industry should be challenged to earn its growth. Its performance against targets should be monitored and reviewed, with the CAA, Environment Agency and CCC all potentially having roles to play.

While we understand the Government's desire to cut unnecessary regulation, we also note its commitment to sustainable development, and – in 2010 – to being the 'greenest government ever'. The only way we can see to give business the certainty it needs in terms of environmental expectations is through standard setting by central Government. Further, for these standards to be credible and long-lasting, we believe that appropriate limits for emissions, noise and air pollution must be determined *before* the new policy on aviation is decided. If the Government believes that insufficient evidence is currently available to set these limits, the policy should suspend further aviation expansion pending their resolution, and should set out a timetable for any necessary research or consultation.

We note that in response to suggestions that the Government may wish to dismantle or weaken the terms of the 2008 Climate Act, Rhian Kelly, director of business environment at the CBI, is reported to have said "What business wants above all else is certainty and anything that adds to uncertainty is unwelcome. The CBI has

always argued that the climate change debate is about a market failure, so for Osborne to imply that environmental regulations are holding business back is not the whole truth.”⁶ Progressive businesses recognise that environmental problems fall into the category of ‘externalities’ in terms of economic decision-making, and therefore can only be tackled effectively through Government intervention.

AEF recommends that the new aviation policy should clearly state the environmental conditions within which the industry may operate. If there remains uncertainty over where appropriate environmental limits lie, the policy should state unambiguously the process and timetable for determining them.

5.6 How should decision-makers address trade-offs or competing interests, where these occur both (a) between different aviation objectives, e.g. CO2 emissions versus local noise reduction, and (b) between aviation and other sectors, e.g. airspace use versus renewable energy objectives, or the use of land for maintaining a viable network of smaller airfields versus housing development?

While manufacturers may be forced to make choices for new technology that maximise the improvements for a given environmental issue while potentially leading to a sub-optimal outcome for another, such choices are not available to policy-makers. While technology trade-offs do occur, the policy-maker has a range of regulatory tools to achieve environmental goals and targets that can compensate in areas where technology alone cannot achieve the policy objective. In other words, policy-makers should not compromise efforts to reduce one impact in favour of another but must deploy a variety of measures to ensure that reductions are made across all impacts simultaneously.

Generally, each environmental issue has a different audience and is regulated by different entities. For example, compliance with local air quality limit values is a concern for local authorities while communities engage with airport operators to agree noise amelioration measures, and Government sets the framework for delivering CO2 reductions. Progress must be made in limiting all these effects – with appropriate controls set for each – to avoid ongoing challenges to the industry’s future development.

⁶ The Guardian 6th October 2011, D Carrington and A Stratton, *What happened to the Conservatives’ green agenda?* <http://www.guardian.co.uk/environment/2011/oct/06/david-cameron-green-agenda-fades?newsfeed=true>

5.7 Should some aspects of UK aviation be considered to be of strategic national interest (e.g. certain airports, air traffic control)? If so, based on what criteria?

The purpose of defining aspects of UK aviation to be of strategic national importance implies that they should be treated favourably compared to the rest of the industry and that their status may afford some leniency when considering environmental impacts if these would otherwise act as a constraint. We do not see a case for special treatment, and believe that appropriate, evidence-based environmental limits should be set at a national level for all UK airports and airfields with scope at the local level to decide on how best to implement any controls.

5.8 How might the cost of regulation to the aviation sector be reduced, while achieving the Government's objectives of promoting sustainable aviation, improving the passenger experience at airports, and maintaining high standards of safety and security for passengers and freight?

This question was addressed in some detail in relation to Heathrow, Gatwick and Stansted by the South East Airports Taskforce, of which AEF was a member. We support the recommendations in the SEAT report, a number of which could, we believe, have applicability elsewhere in the UK.

INTERNATIONAL CONNECTIVITY AND HUB AIRPORTS

5.9 How important are air transport connections – both international and domestic – to the UK at both national and regional levels?

Any business engaged in global trade will clearly feel the need for good connectivity. But pressure from investors to improve carbon accountability as well as the need to cut costs during the recent recession have prompted many leading businesses to look actively at their approach to air travel. Evidence suggests that while flying has traditionally carried prestige among business travelers, many UK businesses are finding that alternatives can be more efficient in terms of time and cost as well as environmental impact, causing what seems to be a genuine shift in travel behaviour.

In 2008 WWF-UK interviewed a sample of 100 FTSE 350 companies about their travel practices⁷. They found that:

⁷ WWF, *Travelling Light: why the UK's biggest companies are seeking alternatives to flying*
http://www.wwf.org.uk/what_we_do/campaigning/one_planet_mobility/new_report__travelling_light/

- Over 70% of companies either had or were developing a corporate policy which encourages green business travel, i.e. use of lower carbon travel choices and alternatives.
- 62% of businesses said they were already reducing the carbon footprint of their business travel
- 89% of companies surveyed expected to want to fly less over the next 10 years
- 89% of companies believed that videoconferencing could improve their productivity
- 77% of companies expected to increase their rail travel.

A follow-up report in 2011⁸ looked at changes to business travel and meeting practices within large UK companies during the UK's recession. It found that:

- 47% of respondents had reduced the number of business flights they had taken in the last two years.
- 63% of companies either had a policy in place to reduce business flights or were intending to implement one.
- Of those companies that had cut their flying, 85% did not intend to return to 'business as usual' levels of flying.
- 91% agreed with the statement 'Reduced flying and greater use of alternatives are now important parts of our corporate responsibility agenda.'

A separate scheme, Project ICARUS⁹ (started by the Institute of Travel and Meetings but now operated under the Global Business Travel Association) invites companies to pledge to reduce their carbon emissions from corporate travel in absolute terms, even if they plan to increase their global business. A number of leading multinational companies have already made this commitment and are developing different business models to achieve carbon emissions, including greater use of videoconferencing and examining how they interact with clients.

5.11 Are direct connections from the UK to some international destinations more important than others? If so, which and why?

The important question is whether connectivity to some destinations is more important than others and if so, how that can be achieved most efficiently, given the availability of alternatives to air travel. In making these decisions, it is important to consider the relative environmental impact, in particular the climate change impact, of long haul as opposed to short haul flights. A policy, for example, of giving

⁸ WWF, 2011 *Moving on: why flying less means more for business*

http://www.wwf.org.uk/how_you_can_help/get_your_business_involved/one_in_five_challenge/

⁹ <http://www.icarus.itm.org.uk/>

precedence to long-haul rather than short-haul routes on the basis that short-haul journeys can more easily be replaced by lower-carbon alternatives such as rail, could in fact result in higher emissions levels if it makes holiday-makers more likely to choose more distant destinations.

The new aviation policy should, like many large UK businesses, consider connectivity more widely than simply in the context of direct connections by air.

5.13 What are the benefits of maintaining a hub airport in the UK?

Heathrow Airport has been campaigning publicly in the course of this consultation period on the critical importance of a hub airport to the UK's connectivity, backed by a report it has commissioned from Frontier Economics to make this argument. Growth at Heathrow airport, suggests the report, is critical to ensuring that the UK does not lose out on access to Emerging Market destinations, as "UK businesses trade 20 times as much with Emerging Market countries that have a direct daily flight to the UK as they do with those countries that do not." It is not clear, however, whether these flights initiate trade or are offered in response to demand where strong trade links have already been established or are emerging.

There is a need, we believe, to assess the UK's connectivity generally rather than to focus only on the role of a hub airport. Where it is proven that direct routes can be supported only by a hubbing operation, route prioritization and a detailed analysis of how alternative modes can relieve the pressure on existing slots and deliver passengers efficiently to the airport should be considered. Specifically in respect of Heathrow, our July 2011 analysis of airport capacity for WWF-UK (see our response to question 5.22) demonstrates that there is still scope for Heathrow to grow within its existing limits and remain a successful hub airport.

REGIONAL CONNECTIVITY AND REGIONAL AIRPORTS

5.17 Can regional airports absorb some of the demand pressures from constrained airports in the south-east? What conditions would facilitate this?

AEF believes, based on our recent report for WWF-UK on airport capacity (see our response to 5.22) that sufficient terminal and runway capacity already exists, or will exist within planning permissions already granted, in most UK regions to accommodate the maximum increase in demand that would be permissible under a 2005/2050 emissions target for CO₂. Further, the report suggests that the need for passenger journeys originating in the South East to use regional airports will be minimal.

We understand that one of the differences in modeling between the work undertaken by the Committee on Climate Change in preparation for their 2009 aviation report, and the work underpinning the DfT's latest set of demand forecasts is that DfT have assumed a larger proportion of demand switching from one airport to another as capacity pressures begin to bite. It is important to ensure, however, that the environmental impacts of any such shift in demand are assessed on a case by case basis as even without providing any new airport capacity any increase in flight numbers at regional airports will bring with it additional environmental challenges.

5.18 What more can be done – and by whom – to encourage a switch from domestic air travel to rail?

The WWF-UK report *Moving on: why flying less means more for business* (see footnote 13) interviewed 158 respondents representing a sample from among the UK's largest companies. From a list of possible obstacles to changing travel practices in favour of less flying and greater use of alternatives, 40% of respondents indicated the high cost of rail travel and 37% the inconvenience of rail as significant. 81% of respondents said that 'improvements to the existing rail network' would help their company achieve greener business travel.

5.19 How could the benefits from any future high speed rail network be maximised for aviation?

If some domestic operations were replaced by rail journeys pressure on slots could be reduced, though this would be unlikely to bring any benefits for aviation until the second stage of HS2 was operational (extending the line beyond Birmingham). As some passengers utilising these domestic services will be transferring to other flights, links from the high speed line to major airports would be essential.

AEF notes, however, that the Appraisal of Sustainability published together with the Government's HS2 proposals concludes that there is no guarantee that implementing high speed railways will ultimately reduce carbon emissions¹⁰. We note also that the Committee on Climate Change in their 2009 report on aviation and climate change¹¹ found that only 5% of UK aviation emissions are from journeys of under 500 km.

¹⁰ Booz & Co and Temple Group, February 2011m HS2 London to the West Midlands Appraisal of Sustainability, Main Report, volume 1, page 79
<http://highspeedrail.dft.gov.uk/library/documents/appraisal-sustainability>

¹¹ CCC, December 2009, Meeting the UK aviation target: options for reducing emissions to 2050
<http://www.theccc.org.uk/reports/aviation-report>

MAKING BETTER USE OF EXISTING CAPACITY

5.21 To what extent do UK airports meet the needs of their customers? How might those needs be more effectively met within existing capacity? What is the right balance between competition and regulation?

AEF was pleased to have been part of the South East Airports Taskforce, set up in 2010 to consider how the major South East Airports could operate more effectively without the construction of new runways, and the group made a series of recommendations in its final report on how the needs of customers might be better met. A similar review of the UK's regional airports may well prove instructive.

5.22 Can we extract more capacity out of the UK's existing airport infrastructure? Can we do this in a way which is environmentally acceptable? To what extent might demand management measures help achieve this?

To better understand the implications for airport capacity of compliance with the target that aviation CO₂ emissions should be no higher in 2050 than they were in 2005, WWF-UK asked AEF to assess the maximum terminal and runway capacity at UK airports, including both existing capacity and that for which planning permission (or permitted development rights) had already been granted. Based on an airport-by-airport review of all the airports identified in the 2003 Air Transport White Paper as requiring a master plan, and a national aggregation of these figures, AEF's initial work suggested that sufficient airport runway capacity exists today to accommodate the maximum level of growth considered possible by the Committee on Climate Change (see footnote 11) at both a national and regional level. A copy of the report is appended.

Given the Government's policy not to build additional runways at Heathrow, Gatwick or Stansted, it is likely that the industry will respond to a lack of available slots by deploying larger aircraft on some routes, especially those originating in the South East. This will have the effect of reducing the number of ATMs that would be consistent with the need to keep emissions from the UK aviation sector at or below 37.5MtCO₂ by 2050. In these circumstances, it is plausible to suggest that available runway and terminal capacity (either in place today, or for which planning permission has been granted or is available under permitted development rights) exists in the majority of cases, with the exception of terminal capacity in Scotland and the North of England.

It also suggests that the Government is right to pursue its 'better not bigger' agenda in the South East, that a new Thames Estuary airport is not justified on capacity grounds, and that a cautious approach is required to development at regional airports (especially if the aviation target is subsequently tightened to take account of non-CO₂ effects). Although AEF would recommend a detailed assessment of

regional demand under the CCC’s ‘likely’ scenario, the results of this analysis show that on climate change grounds alone very few additional airport developments can be justified.

The most recent aviation forecasts published by DfT dramatically reduced the figures for passenger numbers compared with the previous forecast. This in fact continues a long trend. The table below shows the forecast for unconstrained demand, with the previous forecasts (January 2009 and November 2007) for comparison:

Year	Passengers in millions Aug 2011 forecast	Passengers (millions) Jan 09 forecast	Passengers (millions) Nov 07 forecast
2005		228	228
2010	211	260	270
2015	240	315	335
2020	275	365	385
2025	310	410	440
2030	345	465	495 (501 in 2003 Air Transport White Paper)
2035	380		
2040	425	589	
2045	475		
2050	520	737	

As a result of the lower demand forecasts in the August 2011 document, the difference between constrained (with no additional capacity) and unconstrained demand up to 2030 is just 3%. Given the significant environmental problems associated with any airport expansion, AEF believes this lends weight to the argument that no additional airport capacity should be permitted in the short term.

Taking account of the evidence in analysis by AEF for WWF, along with the recent, lower, passenger demand forecasts, the new aviation policy should rule out the provision of any new airport capacity for the duration of the policy.

5.23 How can we support Heathrow’s hub status within the constraints of its existing capacity? Can we do this in a way which is environmentally acceptable?

It is widely forecast that the current trend towards larger passenger aircraft will continue. In 2007 the Government published a consultation document on adding capacity at Heathrow airport¹². Table 5 on page 62 provides air passenger forecasts for three scenarios: with the airport limited to current permissions, with mixed mode, and with a third runway. Even within current permissions, in other words with a cap

¹² DfT 2007 *Adding Capacity at Heathrow Airport: consultation document* [no longer available online]

of 480,000 ATMs per year, non-transfer air passengers were forecast to increase from 43.6 million in 2004 to 74.1 million by 2030. Even within current constraints, therefore, significant growth at Heathrow in terms of passenger numbers will be possible.

The report of the South East Airports Taskforce (see our response to 5.21) made a series of recommendations about how Heathrow, Gatwick and Stansted airports could be improved without increasing capacity, including a commitment to trial a policy of increased 'operational freedoms' at Heathrow which 'could include, for example, temporary departure routes and occasional desegregation of runway operation; but would be subject to safeguards to confine their use to certain defined and limited situations, and an assessment of their environmental impact'¹³. One of the central assumptions in the consideration of granting operational freedoms was that it would provide a net environmental benefit. The trial will undoubtedly concern those in the community who benefit from runway alternation, but equally it may help reduce night flights that have a widespread community impact. Defining the limited circumstances in which these freedoms can be applied and accurately assessing the impact on communities of the trials (not only in terms of measurement but perception) will be critical to a decision.

5.26 Could existing airport capacity be more efficiently used by changing the slot allocation process, for example, if the European Commission were to alter grandfather rights? If so, what process of slot allocation should replace it?

We support the UK's longstanding preference for slot auctioning, but recognise that a change in the rules from the current arrangement would require assent from other EU member states.

5.29 What is the role of airspace design and air traffic management in making better use of existing capacity?

AEF very much welcomes the Government's focus on improving aviation services without expanding capacity. In launching the South East Airports Taskforce, for example, the then Transport Secretary Phillip Hammond said: "Our vision is for better not bigger airports, with new investment targeting improvements in reliability and passenger experience."¹⁴

¹³ DfT 2011 *South East Airports Taskforce: report*, page 7
<http://www.dft.gov.uk/publications/south-east-airports-taskforce>
DfT press release 15th June 2010 *Better not bigger: Hammond creates South East Airports Taskforce* <http://www.dft.gov.uk/news/press-releases/dft-press-20100615b>

AEF believes that a policy of 'making better use of existing capacity' should not be taken as referring to a narrow goal of increasing the throughput of freight and passengers but can and should include better performance in terms of environmental impacts. We welcome, in this context, the statement in the ministerial foreword to the scoping document that '... the aviation industry needs to do more, not just on emissions but also in terms of its other environmental impacts, particularly noise. The current pace of technological change is not fast enough to reconcile growth on the scale of recent years with meeting our climate change targets or, in relation to some airports, our aspirations on local environmental impacts.'

Earlier this year, the CAA consulted on its Future Airspace Strategy. AEF took part in a series of high-level meetings on the draft document, and responded to the subsequent consultation. The strategy currently remains at a high level but AEF broadly welcomes its approach to considering how airspace can be best managed to maximise efficiency while minimising environmental impacts. The views expressed in our consultation response can be summarised as follows:

- Aircraft noise can significantly affect people outside traditional 'noise contours', including those living directly underneath flight paths; to ensure that these communities are not overlooked in the policy making process, noise should be¹ assessed with a range of different metrics. We welcome the suggestion that stacking can be reduced.
- A simple policy of minimising the number of people affected by aircraft noise has led to some flight paths being concentrated over very specific routes, with people living on those routes having little respite; it is time to consider alternative policies, such as a move to temporal dispersion (using different flight paths at different times of day or days of the week).
- The focus on trade-offs between noise and climate considerations (routing traffic away from densely populated areas but thereby increasing total fuel usage, for example) is misleading; in many cases benefits can be achieved on both counts, such as the removal of aircraft 'stacks'.
- More work is needed to develop appropriate means of assessing and comparing the 'costs' of noise and emissions impacts.
- The CAA needs to include community and environmental representatives as 'key stakeholders' in developing its strategy; its current approach favours industry representation.

CLIMATE CHANGE IMPACTS

5.30 What do you consider to be the most significant impacts of aviation, including its non-CO₂ emissions, on climate change? How can these impacts best be addressed?

Aviation's impact on climate change is not confined to its carbon emissions. In its 1999 Aviation and the Global Atmosphere¹⁵ the IPCC listed all known impacts of aviation on the atmosphere, and stated their effects to date in terms of warming or cooling by ranking them in a Radiative Forcing Index. Subsequent scientific work for the IPCC has led to updates in some of these values. Chapter 5 of the Working Group III section of the Fourth Assessment of 2007 report contains the following summary:

Aviation has a larger impact on radiative forcing than that from its CO₂ forcing alone. This was estimated for 1992 and a range of 2050 scenarios by IPCC (1999) and updated for 2000 by Sausen et al. (2005) using more recent scientific knowledge and data. Aviation emissions impact radiative forcing in positive (warming) and negative (cooling) ways as follows: CO₂ (+25.3 mW/m²); O₃ production from NO_x emissions (+21.9 mW/m²); ambient CH₄ reduction as a result of NO_x emissions (-10.4 mW/m²); H₂O (+2.0 mW/m²); sulphate particles (-3.5 mW/m²); soot particles (+2.5 mW/m²); contrails (+10.0 mW/m²); cirrus cloud enhancement (10–80 mW/m²). These effects result in a total aviation radiative forcing for 2000 of 47.8 mW/m², excluding cirrus cloud enhancement, for which no best estimate could be made, as was the case for IPCC (1999).¹⁶

Summing all non-CO₂ values and comparing them against the impact of CO₂ indicates a total aviation RFI of around 1.9, indicating that the total historic impact of aviation on atmospheric warming has been around twice that of CO₂ alone. However, atmospheric scientists believe that use of RFI as a forward-looking policy tool is not strictly accurate, as the different atmospheric impacts of aviation have very different durations.

AEF is very concerned that debate over the most appropriate way of predicting aviation's non-CO₂ impact based on its emissions of CO₂ is current providing a convenient policy excuse for ignoring CO₂ impacts. Section 3.7 of the consultation document, for example, begins 'Carbon dioxide makes up about 99 percent of the aviation sector's Kyoto GHG emissions', a statement that is almost entirely irrelevant as the Kyoto Protocol did not include aviation so did not set targets for aviation's non-CO₂ impacts. While section 3.25 acknowledges aviation's non-CO₂ impacts, section 3.26 goes on to claim that 'considerable scientific uncertainty still remains' in relation to these impacts. With the exception of cirrus cloud effects, however, the majority of aviation's impacts in terms of the behaviour of individual gases are now quite well understood, and earlier this year, German scientists published findings on cirrus cloud formation which have improved scientific understanding considerably¹⁷. The remaining uncertainty, as we understand it, lies not so much in the science itself, but in how the science should be best translated into policy terms.

¹⁵ <http://www.ipcc.ch/ipccreports/sres/aviation/index.htm>

¹⁶ Section 5.2.1, http://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch5s5-2.html

¹⁷ Reported to UK Stakeholders at the COSIC Workshop on Aviation-Cloud-Climate Effects held in London, June 2011

The recent focus for scientists working in this area has been on developing the use of an alternative metric, Global Warming Potential, for aviation. As noted in the DfT's UK Aviation Forecasts for 2011:

The last major international assessment of [aviation's non-CO₂] impacts was made by the Intergovernmental Panel on Climate Change (IPCC) in 1999. A comprehensive updated assessment of aviation emissions was undertaken by Lee et al in 2009. CCC (2009) summarises the findings of Lee et al (2009), including its estimates of the different climate effects of aviation. For example, the estimated 100-year Global Warming Potentials from Lee et al (2009) indicate that, once the non-CO₂ climate effects of aviation are taken into account, aviation's overall climate effects could be up to double the climate effect of its CO₂ emissions.

Whether coincidentally or not, in other words, the value to which current scientific research is currently pointing is almost precisely the value that has so far had prominence in policy analyses, if not in policy itself, concerning aviation's non-CO₂ impacts. When the terms for aviation's inclusion in the EU Emissions Trading System were being debated, for example, the European Parliament proposed that as a proxy for the sector's non-CO₂ impacts a multiplier of 2 should be applied to CO₂ values – a policy opposed by the Council of Ministers. The compromise reached was that while the ETS would cover only aviation's CO₂ emissions, separate legislation would be proposed to tackle nitrogen oxides (NO_x), the most significant of the sector's non-CO₂ emissions. In the text entered into the Official Journal of the European Union on 13th January 2009, recital 19 of Directive 2008/101/EC¹⁸ states that "Emissions of nitrogen oxides will be addressed in other legislation to be proposed by the by the Commission in 2008". The EC has failed to fulfilled this commitment. No UK measures are currently proposed to fill the gap.

AEF believes that the longer policy makers wait for scientific consensus around the ideal way of measuring the non-CO₂ impacts of aviation, the longer aviation's non-CO₂ impacts – which are undoubtedly damaging the climate – will go entirely unregulated, and the harder it will be for aviation's impacts to be effectively brought within national, EU and, eventually, global limits. As a first step, all modeling and forecasts for aviation emissions should include an estimate of non-CO₂ impacts based on the latest available science. We suggest that this means a doubling of any figures for CO₂. The CCC's 2009 aviation report¹⁹ illustrates graphically how significant the effect on UK climate policy could be if aviation's non-CO₂ impacts were accounted for in this way. We are very concerned that in DfT's latest CO₂ forecasts for aviation, in contrast both to the CCC's approach and to previous DfT forecasts, non-CO₂ impacts have not been modelled. A highly inaccurate picture of the scale of the challenge with respect to aviation and climate change is thereby created.

¹⁸ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008L0101:en:NOT>

¹⁹ See footnote 15; pages 129-132

An alternative, though more bureaucratic, approach to the adoption of a ‘multiplier’ for aviation’s non-CO2 effects would be to develop a suite of policies to tackle each impact separately. We accept that some operational and policy responses to climate do require an understanding of how impacts relate to each other. For example, it is clear that some measures – such as flying longer or lower to avoid contrail formation – should only be considered if the associated contrail/cirrus avoidance outweighs the extra carbon/fuel burn. Policy measures that could reduce NOx emissions, however, (such as economic instruments or standards) have fewer trade-off consequences.

AEF recommends that the new aviation policy should:

- ***Avoid making any unqualified reference to aviation’s non-CO2 Kyoto emissions, as these are irrelevant***
- ***Make clear that while scientists are still working on the best metric to account for aviation’s non-CO2 impacts in climate policy, there is good evidence to suggest that aviation’s warming impact is approximately double that indicated by its CO2 emissions***
- ***Recommend that aviation’s non-CO2 emissions should be modelled using the most up to date scientific data in all emissions forecasts for the sector, or related policy documents***
- ***Clarify how the UK plans to ensure that, in the absence of effective international climate policy for aviation which includes consideration of non-CO2 impacts, the EC fulfills its commitment to regulate NOx emissions at the European level***

5.31 What role should aviation play relative to other sectors of the economy in reducing greenhouse gas emissions in the medium and long term?

Aviation has a history of exemptions from environmental policies and financial instruments common to other sectors; already exempt from noise nuisance legislation, fuel duty and VAT, international aviation was excluded from the Kyoto Protocol and is not yet fully covered by the Climate Change Act (see below). The number of people disturbed by aircraft noise, meanwhile, has been increasing globally, and between 1990 and 2009 – a period including the 09/11 terrorist attack and the 2003 SARS epidemic, emissions from the European aviation grew by 93.5% - more than any other sector in the EU²⁰. Finally, as described in our response to question 5.2, aviation is an activity enjoyed primarily by people on higher incomes, with around half the population in any year taking no flights.

It is hard, in this context, to stomach the argument that because emissions from aviation remain stubbornly hard to abate without constraining the sector itself it

²⁰ European Environment Agency greenhouse gas data viewer
<http://dataservice.eea.europa.eu/PivotApp/pivot.aspx?pivotid=475>

should continue to enjoy a light touch with respect to climate legislation and policy. The terms of aviation's inclusion in the EU ETS are very favourable compared with other sectors, and the policy commitment from the last Government that UK aviation emissions would, by 2050, be no higher than they were in 2005 would allow the sector to increase its emissions by 120% as against 1990 levels, while the economy as a whole is committed to an 80% reduction.

Nevertheless, against a backdrop of a sector whose emissions have never so far been constrained as a result of climate policies, we recognise that the EU has acted boldly in terms of international politics by agreeing to include aviation in the ETS, and we very much welcomed the 2005/2050 stabilisation goal for the sector as a clear and non-tradeable limit within which the UK sector would be required to operate. Only by including aviation in sectoral and economy-wide targets out to 2050 can the role and contribution of aviation and other sectors be properly assessed.

5.32 How effective do you believe the EU ETS will be in addressing the climate impacts of aviation? Should the UK consider unilateral measures in addition to the EU ETS? If so, what?

Aviation and EU ETS

AEF supports the introduction of aviation into the EU ETS as a first step towards ensuring that the industry plays its part in tackling climate change although, as outlined below, we have a number of concerns about its effectiveness.

The question asks specifically about the climate impacts *of aviation*. It is widely acknowledged that EU ETS will generate a very small reduction in emissions from airlines, at least in the short term²¹. In the longer term, if EU ETS survives, the availability of cheap credits from other sectors either in Europe or beyond it is very likely to decrease, pushing up the cost of the permits that airlines must surrender and therefore making real, in-sector emissions reductions essential. If the UK government agrees that this is the case, UK policy, for example in relation to airport capacity, should reflect the fact that aviation demand may, by 2050, be heavily constrained. For the time being, it is argued (for example in the Government's recent response to the Committee on Climate Change report on reducing CO2 emissions from aviation)²² that regardless of its impact on aviation emissions, the EU ETS will ensure that emissions from airlines will correspond to a reduction elsewhere in Europe, such that net emissions will not increase but in fact be reduced.

²¹ A 2007 report from Ernst and Young commissioned by the aviation industry suggested that even in the toughest scenario envisaged, by 2020 emissions would grow by 83% rather than 86% in a business-as-usual situation; York Aviation, *Analysis of the EC proposal to include aviation activities in the emissions trading scheme*

²² August 2011, <http://www.dft.gov.uk/publications/reducing-co2-emissions>

For a number of reasons, however, we do not believe that the UK can rely on the EU ETS to effectively constrain aviation emissions:

- In the short term, as described above, aviation's inclusion is forecast to have only marginal impacts on ticket prices, with permits being cheaply available either from other sectors within the ETS, or from offset credits (CDM or JI). A number of studies suggest that it may even generate significant windfall profits for airlines as a result of their passing on costs to customers at a rate that would allow for all permits needing to be purchased, whereas in fact the majority will be available for free²³. But even by 2030 the central traded price for carbon stipulated by DECC for use in policy appraisals will grow from £13/tCO₂e in 2011 to £74/tCO₂e, states the October 2011 DECC document setting out these updated values. One of the changes to the modelling compared with previous carbon price values is described as follows:

...the modelling now accounts for some market myopia. Previously the modelling has assumed that the market has perfect foresight of abatement, prices and effort until 2020 and acts in a way, through undertaking abatement and banking of allowances that minimizes the costs over the period). In reality the evidence suggests that the market does not exhibit behaviour consistent with perfect foresight. In order to improve our modelling, informational asymmetries have been modelled to better mimic the behaviour of market prices. This has resulted in a lower carbon price in earlier years and a higher carbon price in later years²⁴.

The problem is that if the wrong market signals are given now, leading to the development of aviation infrastructure and employment, it will be very hard to resist calls to abandon or water down the ETS when the cost of permits really begins to bite. The current level of pressure on the EU to scrap its legislation on the inclusion of airlines despite the very low fare increases it will initially engender should serve as a warning on this.

- The ETS already covers a number of sectors on which the large majority of the UK's population depends, such as electricity and gas. Aviation, by contrast, is, as noted in the economics appendix to this response, enjoyed predominantly by those on higher incomes. The inclusion of aviation in the EU ETS, if it pushes up the price of EUAs, will lead to higher prices on products and services such as domestic heating in a way that is entirely unjust. Controls on emissions from aviation itself would help to counter this trend.

²³ See, for example, Carbon Trust 2009, *Fasten your seatbelt: airlines and cap and trade* <http://www.carbontrust.co.uk/Publications/pages/publicationdetail.aspx?id=CTC764>; Retallack and Gibbs 2006, *Trading up: Reforming the European Union's Emissions Trading Scheme*, ippr <http://www.ippr.org/publications/55/1551/trading-up-reforming-the-european-unions-emissions-trading-scheme>

²⁴ DECC, *Update short term traded carbon values for UK policy appraisal*, page 3 <http://www.decc.gov.uk/en/content/cms/emissions/valuation/valuation.aspx>

- As noted above, the EU ETS will address only CO2 from aviation. Other policies are needed, either at national or EU level, to address the sector's non-CO2 impacts.
- The EU ETS currently records biofuel as producing no emissions on the basis that any emissions arising from its production are captured elsewhere in the system. There are two fundamental problems with this approach, however. First is the failure of current sustainability criteria to take into account emissions arising from Indirect Land Use Change (ILUC), by which emissions increase as a result of uncultivated, sometimes forested, land being used for agriculture because of the additional land pressures imposed by growing biofuel. On 26th September 2011 a coalition of 8 NGOs representing both environmental and development interests wrote to the EC president highlighting the need for the EC to respond to evidence that in some cases, ILUC could be contributing to an overall increase in CO2 emissions. The letter states:

The main obstacle preventing the development of truly carbon-neutral biofuels is a protracted discussion within the Commission about how to resolve the issue of indirect land use change (ILUC). When the Renewable Energy Directive was agreed in 2008, the Commission was tasked with resolving this issue by the end of 2010, taking account of the best available science.

Since then, the Commission has sponsored a substantial research effort – no less than five world-class studies into the indirect impacts of land-using biofuels. All those studies concur that the indirect impacts of these biofuels are significant, and could not only negate the expected carbon savings, but even lead to an increase in emissions and exacerbate environmental and social problems around the world. Large-scale land acquisitions and increased food insecurity in developing countries are of particular concern.²⁵

Secondly, on 15th September 2011 the European Environment Agency issued an opinion accusing the EC of a 'serious accounting error' in that it does not subtract from the calculation of biofuel savings emissions that would have been absorbed anyway by existing forests and plants²⁶.

- Finally, there is an issue around credibility. The UK public recognises that aviation is a highly polluting activity and want solutions to come from Government and industry. A situation in which the sector's principal response to the challenge of climate change is to pay other people to reduce emissions so its own emissions can continue to grow is likely to leave a bad taste for many.

²⁵ *Letter to Barroso on the urgent need to address the Iluc issue*
<http://www.transportenvironment.org/Pages/Low-Carbon-Fuels/>

²⁶ *SC opinion on greenhouse gas accounting in relation to bioenergy*
<http://www.eea.europa.eu/about-us/governance/scientific-committee/sc-opinions/opinions-on-scientific-issues/sc-opinion-on-greenhouse-gas/view>

Aviation and the Climate Act

The UK is legally bound to reduce emissions of greenhouse gases by 80% of 1990 levels by 2050. Emissions from international aviation are not explicitly included in this target. However, under the act:

1) In setting carbon budgets, the Government is required to 'take into account' estimated emissions from international aviation and shipping, and this is reflected in the advice of the CCC – accepted by Government – on the third and fourth carbon budgets. The recommended budgets do not include international aviation and shipping, but have been set so as to be compatible with meeting a 2050 total emissions target of 160 MtCO₂e with these emissions included, with aviation emissions assumed to be stabilised at 2005 levels. The CCC's view is that it is 'essential' that gross 2050 aviation emissions do not exceed 2005 levels²⁷. Assuming a stabilisation target for aviation, and assuming that agricultural and other non-CO₂ emissions are reduced by only 70% by 2050 (relative to 1990), emissions of CO₂ in other sectors of the economy will have to fall by around 90% in order to meet the overall 80% target.

2) Emissions from international aviation and shipping are required to be included in the budgets from 2012 or, if this is not achieved, the Government must explain to parliament why not. The CCC recommends direct inclusion of aviation and shipping in the 80% target²⁸ and will publish advice on how this should be achieved in Spring 2012.

AEF very much welcomes these moves towards direct inclusion of aviation emissions in the UK carbon target and budgets. We note, however, that assuming the inclusion of aviation in the EU ETS is successful, the level of aviation emissions in the context of the UK's carbon budget will, as we understand it, remain constant each year at the level of the EU ETS cap, since emissions will be recorded net of any purchase of credits in the EU ETS. Many of our concerns as listed above in relation to the EU ETS would therefore still apply. In addition, in the same way that prices for other commodities in the ETS would be pushed up as a result of aviation's inclusion, possibly with undesirable social consequences, abatement demands from other UK sectors would be increased by aviation's inclusion in the Climate Act. And as the Climate Act refers only to the Kyoto gases, it will not easily be able to account for aviation's non-CO₂ impacts unless amended.

²⁷ Committee on Climate Change December 2010, *the Fourth Carbon Budget*, p 17
<http://www.theccc.org.uk/reports/fourth-carbon-budget>

²⁸ See, for example, the 4th budget report p11; also CCC June 2011 *Meeting carbon budgets: third progress report to Parliament*, box 4.5, p 153

An emissions cap for UK aviation

AEF believes that aviation's inclusion in the EU ETS, and its proposed inclusion in the UK's Climate Act and carbon budgets, should be supported by a UK-wide gross emissions cap for the sector. This could:

- Provide a back-up policy if aviation's inclusion in EU ETS should fail
- Guarantee meaningful in-sector reductions compared with a business as usual scenario
- Provide certainty for the market

As mentioned repeatedly in this document, the last Government made a commitment that by 2050 aviation CO₂ emissions would be no higher than they were in 2005. The setting of the level for this target may have been influenced by:

- The CO₂ 'roadmap' published by industry body *Sustainable Aviation* in 2008, which argued that after an initial peak, emissions from UK aviation could be brought back to 2005 levels by 2050 through a combination of operational and airframe improvements, together with the use of aviation biofuels.
- The aviation cap under EU ETS – a few percentage points below average levels between 2004 and 2006
- The first report from the Committee on Climate Change, which calculated for modelling purposes that if aviation emissions were to remain at the level of the EU ETS cap, with shipping following the same pattern and non-CO₂ gases being cut by 70% of their 1990 levels, 'CO₂ emissions in non aviation would have to be cut by 89% against 1990 levels in order to achieve an overall GHG cut of 80%'; CCC therefore modeled both 80% and 90% cuts in CO₂ emissions from energy and industrial processes. As far as we are aware, the CCC has never been asked for its view on the correct level at which an aviation cap should be set but as noted above, CCC has stated that a target at least as stringent as the 2005/2050 target is essential. Their 2009 report on aviation and climate change (footnote 15) suggested that significant growth of the sector would be possible even within this cap.

AEF's preference would be for a genuine improvement in aviation's performance rather than the sector simply treading water with regard to emissions. We believe, however, that the best way for determining an appropriate emissions cap would be to seek the direct advice of the Committee on Climate Change. We believe that the cap should take account of non-CO₂ impacts; an alternative approach would be to draw up separate policies with clear timeframes indicating how they will be tackled.

The aviation policy should acknowledge that relying on EU ETS to effectively constrain UK aviation emissions is inadequate, and should include a commitment to a non-tradeable cap on UK aviation emissions which is at least as demanding at the stabilisation goal announced previously.

5.33 What is the best way to define and quantify the UK's share of the CO₂ emissions generated from international aviation?

We recommend adoption of the accounting methodology already used for reporting emissions from bunker fuels – aviation and shipping – to the UNFCCC (IPCC 2006 Reporting Guidelines).

5.34 What is the potential for increased use of sustainable biofuels in aviation and over what timeframe? What are the barriers to bringing this about?

AEF believes that it is essential for the new aviation policy to state clearly what is meant by the expression 'sustainable biofuel'. As outlined in our response to question 5.32, AEF does not believe that the EC sustainability criteria for biofuels are currently adequate as they fail to account for 'Indirect Land Use Change', and there is evidence of possible double counting in that emissions that would have been absorbed anyway by existing forests and plants may not have been appropriately subtracted from the figure for emissions absorbed through growing biofuels.

We welcome the fact that initiatives over recent years from the aviation industry to conduct test flights using biofuel blends, followed, after some delay, by the first commercial flight using biofuel earlier this month, have been careful to use fuels such as used cooking oil which appear to be genuinely sustainable. However, we have seen no serious assessment of the availability of such fuels in meaningful quantities.

AEF estimates that

- The global aviation industry would require at least 2810 million barrels by 2030 at current growth rates. At 42 gallons per barrel that's roughly 118,000 million gallons.
- Sourcing this much aviation fuel from a biomass-to-liquid route would require 254 million hectares of woody energy crops.
- Providing it all from jatropha would require 477 million hectares or 34% of the world's current arable land area.
- Algae production would need 31,000 production facilities of 1,000 hectares each or 2% of the world's current arable area.
- Ethanol production (converted to aviation fuel) from Brazilian-type sugar cane would need 185 million hectares, equivalent to 13% of current global arable land.

The CCC's report on aviation and climate change (see footnote 15) estimated in its likely scenario that biofuel could represent 10% of aviation fuel by 2050. In its

response, DfT has modelled up to 40% penetration of 'sustainable biofuels' but has provided neither criteria for assessing their sustainability nor evidence indicating how this quantity of biofuel, if sustainable, could possibly be produced affordably.

Finally, even if it became possible to generate sustainable, carbon neutral biofuel that was available in sufficient quantities to be affordable for use in aviation, the sector's non-CO2 impacts would still need redress.

AEF urges a cautious approach to aviation biofuels in the new aviation policy that sets out clear sustainability criteria and avoids any unrealistic modelling assumptions about their emissions abatement potential.

5.35 What mechanisms could the Government use to increase the rate of uptake of sustainable biofuels in the aviation sector? In particular, how can we accelerate the successful development of second generation biofuels?

The Government's response to the CCC aviation and climate report included MACC analysis that assessed two possible options for incentivising aviation biofuels: support for biofuels demonstration plants, and regulation to mandate biofuels uptake. Of these two, mandatory biofuels take up appears more effective and stands out from among the options assessed as delivering significant emissions reductions at relatively low cost. AEF believes, however, that:

- As biofuel volume targets at EU level have proved to be highly controversial, it would be unwise to apply them in the aviation context
- Providing public subsidy for this policy, as assumed in the MACC, would be unacceptable at a time when many sectors are competing for access to biofuels
- The assumption that biofuels result in zero emissions is unjustified, as considered above in relation to EU ETS

The question in the scoping document appears to assume that accelerating the rate of take up of biofuels in aviation is a good thing (provided they are sustainable – a condition always in parentheses). AEF genuinely welcomes technological progress in relation to aviation when it can deliver environmental benefits, but we are concerned that issues in relation to the cost effectiveness, long term availability, and sustainability of biofuels have yet to be resolved.

5.36 Which technologies (e.g. for aircraft and air traffic management) have the most potential to help reduce aviation’s CO₂ emissions (noting potential trade-offs with local environmental impacts)?

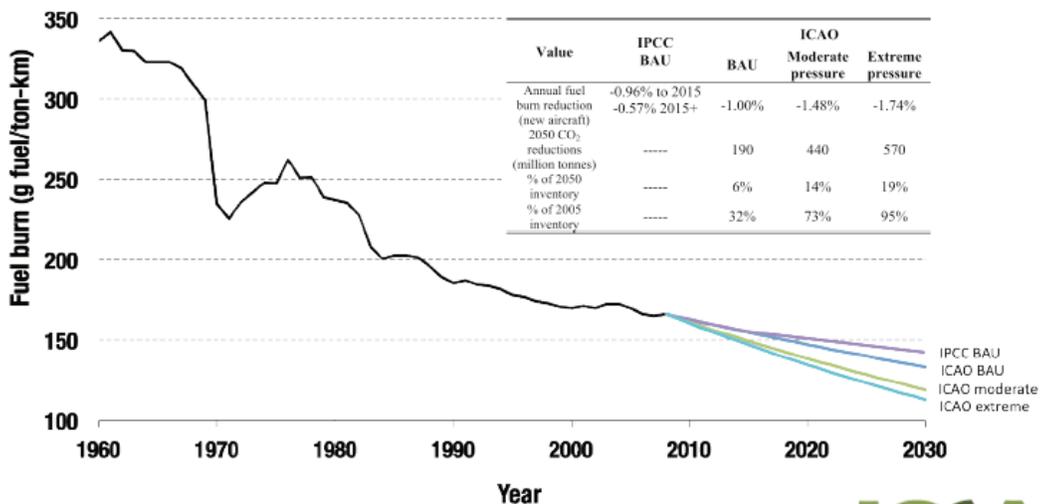
We believe that the CCC’s 2009 report provided an independent, robust assessment of the likely contribution of technology and should be used as the evidence base to underpin the new policy.

5.37 What more could be done to encourage the aviation industry to adopt new technology to reduce its climate change impacts?

AEF is, through our observer status to ICAO, currently pushing for an effective CO₂ standard for new aircraft. While the industry claims that the market is a sufficient driver of efficiency, ICAO’s Independent Expert Panel on Fuel Burn has highlighted the role that regulation could play in delivering further efficiency improvements as shown in the following graph, with the lower two of the four coloured lines indicating the possible improvements for the fuel burn of new aircraft under scenarios of ‘moderate’ or ‘extreme’ policy pressure, compared to business as usual projections shown in the upper two lines (one based on IPCC data and one relating to ICAO data).

ICAO report found that policy pressure can significantly reduce emissions

Average fuel burn for new jet aircraft, 1960-2030



ICCT (2009). "Efficiency Trends for New Commercial Jet Aircraft, 1960 to 2008."
 ICAO (2010). Fuel Burn Technology Goals Review



Slide 2

5.39 What scope is there to influence people and industry to make choices aimed at reducing aviation’s climate change impacts, e.g. modal shift, alternatives to travel, better information for passengers, fuller planes, airspace management (which can also help reduce local environmental impacts)?

In our response to question 5.9 we described two projects that are helping to encourage more sustainable travel choices among UK businesses. With respect to leisure passengers, we would welcome efforts by the Government to help provide better information to the public about the environmental impact of their travel, particularly in helping travellers gain a clearer perspective on the relative environmental impact of air travel as against other activities. We note that in the MACC modelling undertaken by DfT by way of response to the CCC’s climate report, provision of information to the public was identified as being a highly cost effective way to reduce a small proportion of emissions. Fuller planes could be incentivised through replacement of Air Passenger Duty with a per plane tax, and we are disappointed that the Government reneged so quickly on the commitment made in the Coalition Agreement to make this change, which could help to bring transfer passengers and freight within the scope of aviation taxation. We urge the Government to look again at this issue, which had the support not just of NGOs but of some parts of the industry.

In more general terms, AEF believes that both the cost of air travel and the provision of airport capacity have significant influence on passenger choices. We welcome the emphasis in the consultation document on making best use of existing airport capacity and suggest that the new aviation policy should state clearly that no new runways will be built in the UK for the duration of the policy.

LOCAL IMPACTS

5.40 What do you consider to be the most significant impacts – positive and negative – of aviation for local communities? Can more be done to enhance and / or mitigate those impacts? If so, what and by whom?

Noise thresholds

AEF was founded in the mid-1970s in response to aircraft noise concerns and it remains the most important issue today for communities living around airports and airfields, and under flightpaths. The response to aircraft noise has changed over that period, and while we welcome measures to tackle the reduction of noise at source (for example, from increases in noise certification stringency and the phase-out of Chapter 2 aircraft), there is clear evidence that as a result of increases in the frequency of noise events, people remain as annoyed by aircraft noise today, if not more so. Understanding current reactions to aircraft noise should be a high priority

for the Government. We are disappointed that no work has been undertaken to further the conclusions from the Attitudes to Noise from Aircraft Sources in England (ANASE). The findings of the ANASE study confirmed:

- that a greater percentage of people are highly annoyed by aircraft noise at any given level when compared to the previous study undertaken in 1982 (and published in 1985)²⁹. Whereas the Department for Transport currently takes noise into account above 57 Leq dBA, this threshold would appear to closer 50 dBA Leq based on an equivalent percentage of the population being highly annoyed today;
- that annoyance is strongly influenced by the number of noise events;
- that aircraft noise at night is more annoying.

The Government at the time accepted that people were more annoyed, but in deciding how to respond to this conclusion relied on a peer review critique that claimed that the study was not sufficiently robust to be used to inform policy. AEF was a member of the ANASE steering group. We agree that some of the CAA/BV criticisms of ANASE were technically valid, but they also applied (with greater force) to the earlier 1982 ANIS study on which current policy is still based. Having learned from international best practice and benefited from extensive steering group and internal peer review, the ANASE study was in many ways technically superior to the 1982 ANIS study. Recent European research³⁰ has confirmed the main findings of ANASE.

In addition to the evidence on annoyance, an increasing body of work has shown clear linkages between environmental noise and health. In 2009 the WHO Regional Office for Europe published extensive, peer-reviewed research³¹ on night noise exposure which lead them to conclude:

For the primary prevention of subclinical adverse health effects related to night noise in the population, it is recommended that the population should not be exposed to night noise levels greater than 40 dB of $L_{\text{night, outside}}$ during the part of the night when most people are in bed. The LOAEL [see (e) below] of night noise, 40 dB $L_{\text{night, outside}}$, can be considered a health-based limit value of the night noise guidelines (NNG) necessary to protect the public, including most of the vulnerable groups such as children, the chronically ill and the elderly, from the adverse health effects of night noise.

An interim target (IT) of 55 dB $L_{\text{night, outside}}$ is recommended in the situations where the achievement of NNG is not feasible in the short run for various

²⁹ In the 1982 study, 39% of respondents were annoyed at 57 Leq. This has increased to 53% today.

³⁰ These are summarised in *Good practice guide on noise exposure and potential health effects*, Technical report No 11/2010, European Environment Agency

³¹ WHO 2009 *Night noise guidelines for Europe* <http://www.euro.who.int/en/what-we-publish/abstracts/night-noise-guidelines-for-europe>

reasons. It should be emphasized that IT is not a health-based limit value by itself. Vulnerable groups cannot be protected at this level. Therefore, IT should be considered only as a feasibility-based intermediate target which can be temporarily considered by policy-makers for exceptional local situations.

The aviation policy should make a commitment to address noise levels below 57 Leq in all policy decisions, and to adopt supplementary policy indices to reflect increased sensitivity to the number of noise events. 54 Leq should be a minimum requirement for the short term when considering averaged noise. The policy should commit to working in the longer term towards ensuring that no-one in the UK is exposed to night noise levels that exceed WHO Europe's health-based limits.

Noise and children's learning

There is strong evidence on the deleterious effects of noise on children's development and learning. The 2003 Air Transport White Paper acknowledged this issue and in particular that even in cases where appropriate insulation is provided there can be a considerable loss of outdoor amenity, and we recommend that the wording in relation to noise and schools be retained in the new policy. Amongst a range of measures it suggested airport operators could fund trips away from noisy environments. AEF, together with its research and education charity the Airfields Environment Trust are currently undertaking a pilot project (funded by Awards for All) to take children from schools around Heathrow to a quiet outdoor learning environment. The results of this pilot should be available at the end of the year.

Air pollution

The UK must urgently comply with the EU air quality limits and we welcome the Government's decision not to proceed with a third runway at Heathrow given the challenges this would present for meeting the regulations. Although air quality has not been highlighted as a concern at many other UK airports, the last published evidence accompanied the 2003 Air Transport White Paper. Almost a decade on, we urge the Government to assess the current ambient concentrations around UK airports and highlight the general trends.

Third party risk

Our evidence on issues related to third party risk is appended. Given the important linkages with planning policy, AEF submitted the same paper as part of our response to the recent consultation on the National Planning Policy Framework. Air travel is a

relatively safe form of transport. Nevertheless, people living, working or travelling near the ends of airport runways face an increased risk of death or serious injury as the result of an aircraft crash compared with the general population. The Government's current policy for minimising this risk – Public Safety Zone policy – imposes planning restrictions in those areas where the risk is highest, in order to limit the number of people exposed.

AEF believes, however, that the policy is currently failing to provide an adequate level of protection. Ten years ago, the Institute for Public Policy Research made the following recommendations in its report *The Sky's the limit - policies for sustainable aviation*³²:

- Both passengers and the public should have the right to access to information about the environmental and safety implications of air transport growth.
- The Government should offer UK citizens a level of protection equivalent to that secured by Health and Safety Executive policy to industrial hazards.

AEF considers that while the aviation industry has been allowed to grow considerably since then, these basic requirements have not been met. We are also concerned that while PSZ policy can significantly restrict development in the area around an airport, it does not restrict development of the airport itself, giving airports an unjustified advantage in the planning system.

Our experience of involvement in this issue leads us to the following conclusions:

1) While PSZ policy is set out in a DfT Circular it interacts in many ways with the planning system so should also be a matter for consideration by DCLG. Public safety generally, and third party risk around airports in particular, should be listed in the National Planning Policy Framework as important considerations in the context of planning proposals.

2) LPAs and their technical consultants regularly mis-apply PSZ policy and in some cases the DfT itself has made recommendations that appear to undermine its own policy. We believe that PSZ policy as it currently stands is ineffective and that a new approach to risk management is needed.

3) A key weakness of the policy is the fact that it applies in only one direction - restricting development around airports but not restricting changes in airport operations, even though both may have the same impact in terms of increases to third party risk. We see this as a fundamental injustice. Either the same restrictions should apply in both directions, or a complementary policy is needed to prevent unacceptable increases in third party risk arising from changes in airport operations.

4) One possible solution would be for DfT to retain the policy in its current form but

³² <http://www.ippr.org/research-projects/44/7050/the-skys-the-limit-policies-for-sustainable-aviation>

- a. advocate its rigorous implementation (our evidence provides examples of cases in which we do not believe that DfT has provided the correct steer)
- b. clarify for LPAs and consultants the limitations of the policy (see point 6), and
- c. set out clearly what kind of supplementary risk analysis is necessary in cases where the policy does not apply.

For this analysis to take account of local circumstances it should be based on societal rather than individual risk. We believe, however, that the implementation of b. and c. would be likely show up the weaknesses of PSZ policy to such an extent that the policy would appear invalid as a standalone approach to risk.

5) Another solution, therefore, would be to scrap the PSZ policy altogether and replace it with a requirement for LPAs to undertake their own risk modelling (with Government setting out the criteria for the standards that must apply) when considering planning applications. However, given the current commitment to speeding up the planning process, and given that PSZ policy was introduced in order to obviate the need for risk assessment by LPAs in certain circumstances, this approach does not appear to us to achieve a good fit with other policies.

6) A third solution, and the one we favour, would be for DfT to advocate the rigorous implementation of current policy, including its guidance on transport infrastructure, and either to amend or supplement it with guidance on how both risk in areas adjacent to a PSZ, risk at airports without PSZs, risk arising from high density developments, and risk arising from changes in airport operations should be dealt with by LPAs. We suggest that this guidance should be prepared jointly by DfT and DCLG. In the longer term, we believe responsibility for risk management around airports should be transferred to the HSE.

7) The text of the Circular setting out PSZ policy, if this policy is to be retained (and supplemented) should be strengthened to:

- a. emphasise that, while policy is based on annual individual risk, the principle applied to transport infrastructure is that the potential for an equal number of casualties arising from an accident requires equivalent restrictions upon development (or removal of existing land uses);
- b. indicate clearly that the tolerability criteria inherent in the guidance is based on parameters appropriate to residential areas and that, as with transport infrastructure, other criteria should be considered for types of development which differ significantly in their use;
- c. make clear that the guidance does not apply to proposals for development which do not fall within PSZs and that land uses which may generate high occupancies which are close to PSZs should be considered carefully in respect of risk; and

- d. clarify that the approach specified in the Circular is not a sufficient basis for assessing risk for airport development proposals.
- 8) To facilitate the planning process, and to ensure transparency and effective policy implementation, PSZ risk models should be in the public domain.

The new aviation policy should recognise third party risk as an environmental impact of aviation and should commit to working with DCLG to ensuring that it is appropriately managed.

5.41 Do you think that current arrangements for local engagement on aviation issues, e.g. through airport consultative committees and the development of airport master plans, are effective? Could more be done to improve community engagement on issues such as noise and air quality? If so, what and by whom?

The effectiveness of local consultation is variable. Consultative committees in particular receive mixed reviews but generally they are regarded as being of limited value. We welcome, therefore, the Department's announcement that it will review consultative arrangements.

Current arrangements place a statutory duty on designated airports under Section 35 of the Civil Aviation act 1982 to provide facilities for consultation. The form of consultation is not prescribed although the establishment of consultative committees is encouraged by the Department's guidelines. Historically, committees have exchanged information and discussed issues such as noise complaints and passenger issues. While capable of making recommendations to the airport management, the committees have no 'teeth' to enforce these recommendations: changes are entirely dependent on the goodwill of the airport operator.

Effectiveness is also related to the balance and composition of committees. In order to keep the size of a committee to a manageable number, many limit participation. Some community groups feel that they have no voice in these circumstances or that the community representatives do not represent their views accurately. To be more prescriptive in the guidance would be *ultra vires* with the legislation, although good practice does exist; some committees, for example, have a 30-minute public forum when non-members can take the floor and raise issues or concerns. As consultation can cover any issue relating to the aerodrome, the membership is broad including users and local government. It is unusual for the entire membership to have a common interest in any particular agenda item and while sub-groups can help focus the discussion, the voice of communities in plenary sessions is often diluted. Other issues relate to the independence of committee chairman and the provision of experts advice.

For these reasons, without improvement, we feel that consultative committees are unsuitable bodies to reach a view on airport issues such as noise action plans or master plans. Improvements could be made by creating two committees: one focusing on the environment and the other on operational issues. A dedicated environmental committee would allow greater participation by communities. Other improvements to the functioning of committees will require legislative change.

5.43 What are your views on the idea of setting a ‘noise envelope’ within which aviation growth would be possible, as technology and operations reduce noise impacts per plane? What do you consider to be the advantages and disadvantages of such an approach?

AEF is open to exploring new ideas to limit and reduce aircraft noise. The principles behind any noise framework must be create certainty for both communities and operators, and to reduce noise exposure over time in line with the objectives of the Noise Policy Statement for England (NPSE), especially avoiding significant adverse impacts on health and quality of life.

In theory, the concept of a noise envelope can achieve these objectives, although it is difficult to see how it can be defined in terms other than a binding average noise contour. A contour approach would reward airlines that invest in quieter technology or operations by creating headroom within the envelope that can be used by additional traffic. However, given that small changes to Leq and LDEN can mask large increases in movements, such an approach is inconsistent with our concerns regarding increased sensitivity to the number of noise events. On this basis, the envelope concept can only be acceptable if it is accompanied by some limit on the total number of permissible movements.

In response to the Government’s call to establish a collaborative approach to agreeing an evidence base, AEF has been working closely with BAA, HACAN, British Airways, and NATS to examine, in part, supplementary noise metrics. The conclusions are included in a joint submission to the Scoping consultation.

The aviation policy should consider a new approach to noise policy that explicitly takes into account flight numbers as well as average noise contours.

5.44 Is it better to minimise the total number of people affected by aircraft noise (e.g. through noise preferential routes) or to share the burden more evenly (e.g. through wider flight path dispersion) so that a greater number of people are affected by noise less frequently?

Noise policy in the UK has been built around the principle of minimising the number of people affected by aircraft noise. We continue to believe that this is the right

approach, although there are examples of dispersal producing positive results in some circumstances around the world. There are also areas of noise policy that may, on occasions, come into conflict with policies that apply the principle of minimising the number of people affected. For example, noise policy acknowledges the need to protect tranquil areas. For this reason, we recommend that noise policy is sufficiently flexible to allow for the assessment of alternative scenarios where there is a proven local need, and that any subsequent implementation has local support.

While communities expect policy to reduce noise exposure over time, they also demand predictability and respite from today's aircraft noise situation. Working with BAA, HACAN, NATS and British Airways, we have identified that there is potential to achieve both objectives on departures from Heathrow using precision navigation and departure route alternation. In designing the proposal, the alternating SIDs under consideration are all within the existing swathe of the current departure route, ensuring no further dispersal of the noise. This proposal is outlined in the joint submission to the Scoping document.

5.45 What is the best way to encourage aircraft manufacturers and airlines to continue to strive to achieve further reductions in noise and air pollutant emissions (notably particulate matter and NOx) through the implementation of new technology?

At present, airports do not have the right regulatory framework to introduce effective noise measures. While quieter aircraft are a high priority, there is little prospect that they can influence noise exposure levels in the next few years. In fact, both the UK and the European Commission recognise that noise exposure levels will increase at many airports over the next decade as technology fails to keep pace with growth. As industry cannot be guaranteed to meet its ambitious goals for a 50% improvement in the noise of new aircraft by 2020, regulators need to keep pressure on the existing fleet by introducing more stringent standards for new aircraft and looking at ways to accelerate the removal of the noisiest aircraft. Without doubt, one of the most significant impacts on noise exposure levels at airports came from the phase-out of Chapter 2 aircraft, but there has been little international appetite to extend this to Chapter 3 aircraft, and the agreement of a Chapter 4 standard in 2001 came with explicit recognition that it would not be used as the basis of operating restrictions.

We are concerned that the global focus on reducing GHG emissions from aircraft may lead to sub-optimal outcomes for noise and local air quality pollutants. For example, the options for the current ICAO CAEP assessment for Chapter 5 noise stringency were limited to avoid any adverse consequences for the development of open rotor technology. But while new technology remains part of the solution its introduction to the fleet is slow. It is notable that the biggest reductions in noise exposure came from phasing-out Chapter 2 rather than the introduction of Chapter 4. A combination of regulation and incentives is required to accelerate deployment today. We would welcome a further phase-out either globally or regionally within

Europe. We urge the Government to use the opportunity provided by the upcoming review of Directive 2002/30 to push for an increase in the “Chapter 3 marginally-compliant definition” and to encourage airports to use the power. In addition to phase-out, we encourage a review of noise- and NOx-related landing charges, and other measures that reward the use of quieter aircraft.

Some limited phase-out of aircraft is possible at the individual airport level, made possible by EU Directive 2002/30/EC. However, only one airport has applied the phase-out of marginally compliant aircraft since the Directive’s introduction in 2002. This highlights a serious deficiency in policy, namely the preference of successive governments to favour local solutions for local problems wherever possible, placing much responsibility in the hands of airport operators. Airport operators have no shortage of tools to manage noise, from powers to levy financial penalties and charges as well as operational restrictions where justified. While it may appear coherent to take action on an airport-by-airport basis by limiting action to airports with, or anticipating, a noise problem, the Directive sets no noise thresholds for taking action. Without thresholds, the Directive succeeds only in harmonising a process without requiring common and equivalent action for all airports. Since it came into force, few airports in competitive situations have, voluntarily, imposed operating restrictions. The response by airports to a European Commission survey provides evidence of this with both a low level of implementation and with some airports specifically citing competition as a reason for not proceeding.

Directive 2002/49/EC on noise mapping and action plans has similar shortfalls. Without specifying common thresholds for action, and making the airports the competent authorities for fulfilling the Directive’s requirements, it is unlikely that any airport will produce a Noise Action Plan that goes beyond existing noise arrangements.

The new policy should commit to exploring how new regulatory measures could increase the take-up of cleaner, quieter aircraft.

5.46 What are the economic benefits of night flights? How should the economic benefits be assessed against social and environmental costs?

5.47 How can the night flying regime be improved to deliver better outcomes for residents living close to airports and other stakeholders, including businesses that use night flights?

5.48 Should extended periods of respite from night noise be considered, even if this resulted in increased frequency of flights before or after those respite periods?

We have not seen a compelling economic argument for night flights. The benefits that do exist appear small and accrue largely to the airline rather than the national

economy, either defraying the cost of capital investment by allowing for an additional rotations or increased utilisation on long-haul, or access to cheaper landing slots. Unpopular with communities and passengers, there are, according to an ICAO analysis, very few routes that cannot be scheduled to avoid the core night period at both origin and destination.

Extending the period of respite at the designated London airports would be a positive move.

ANY OTHER COMMENTS

The regulation of aviation's environmental effects at airports and airfields often takes place through the planning system and the development control process. AEF recently responded to the National Planning Framework consultation highlighting, among other issues, the current gap between planning policy and climate policy with respect to airports. Common sense, we argued, suggests that in considering the role of airport planning and climate change it is inadequate to address only the emissions arising from surface access. In the minds of both the public and of politicians, airport developments and climate change are closely linked, and while in opposition, the Conservatives repeatedly stated that one of the reasons for their opposition to the expansion of Heathrow airport was the huge rise in emissions that would result from the increased air traffic associated with a third runway.

To ensure that an aviation policy that is cautious about or actively opposes the provision of new airport capacity is consistent with a planning policy based on a presumption of 'sustainable' development, there is an urgent need to close this policy gap, with possible approaches including, for example:

- The setting of airport-specific greenhouse gas targets, to include emissions from all departing flights as well as ground operations, by, for example, the Committee on Climate Change, the Civil Aviation Authority or the Environment Agency.
- The setting of regional caps for greenhouse gas emissions, in which aviation emissions are included. (The Tyndall Centre report *Aviation in the North West: emissions, economics and organizational flying*³³ proposed a methodology by which emissions could be allocated to an airport according to where passengers began their journey, which might be a fairer approach, assuming the availability of data, than a simple allocation in terms of flight departures.
- A presumption against airport development on climate grounds; permissions could, for example, be considered only in cases where it could be demonstrated that emissions and/or demand had been reduced elsewhere

³³ http://www.joulecentre.org/index.php?option=com_content&view=article&id=369&Itemid=79

- A requirement for all proposals for airport development to receive the approval of the Secretary of State for Energy and Climate Change
- Longer term, restrictions on slot usage to implement greenhouse gas constraints

Our full response to the NPPF consultation is appended.

The new aviation policy should recommend that in order to ensure a good fit with other policy areas, new policy approaches should be considered in relation to planning and climate change.