

## Night flying restrictions at Heathrow, Gatwick and Stansted: Stage 1 consultation



*Response from the Aviation Environment Federation, 22<sup>nd</sup> April 2013*

The Aviation Environment Federation (AEF) is the principal UK NGO concerned exclusively with the environmental impacts 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 international, EU and UK policy discussions. In 2011 we acted as the sole community and environmental representative on the Government's South East Airports Taskforce. At the UN we are the lead representative of the environmental umbrella organisation ICSA, which is actively engaged in the current talks aimed at agreeing global climate measures for aviation.

We welcome the opportunity to respond to this consultation insofar as we are able.

### Policy and legal landscape

Q1: Are there any other matters that you think we should cover in the second stage consultation?

No. The current consultation is long, detailed and highly technical. We would hope that the second stage consultation will be more accessible to community groups and the general public and partly for this reason would not wish to add to the list of issues to be taken into account.

Q3: Do you have any views on how these objectives should change in the next night noise regime?

AEF considers that noise policy should be determined by evidence of community impacts. The current noise objectives do not appear to refer to any evidence base or be designed to deliver any clearly defined outcome in terms of levels of community annoyance or incidence of health impacts.

Our recommendation is that the policy should aim to limit noise to within the maximum levels recommended by the World Health Organization. In the past, the Government has set out long term commitments to pursue achievement of these recommendations. We are extremely disappointed that there is no such commitment has been restated in recent years, and yet that no alternative evidence-based noise aims have been proposed.

As you will be aware, the 1999 WHO community guidelines<sup>1</sup> proposed a night noise limit of 45 dB Leq 8 hour outside bedrooms (and 60 dBA L<sub>Amax</sub>,FAST ) based on assessment of available evidence, in order to protect public health from unacceptable disturbance. In 2009, WHO Europe published

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<sup>1</sup> WHO 1999 *Guidelines for Community Noise* <http://www.who.int/docstore/peh/noise/guidelines2.html>

updated guidance<sup>2</sup> recommending a maximum of 40 dB Leq 8 hour at night. Recognising that such target would be challenging to deliver in Europe, an interim target (IT) of 55 dB Leq 8 hour was recommended, with the caveat that “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.” Around 500 references are cited in support of this recommendation. The study rejected basing the guidelines on the no adverse effect level (NOAEL) which is used in drug toxicology studies as the data available could not reliably indicate such a level, instead basing their recommendations on the low adverse effect level (LOAEL), above which it can be demonstrated that the health effects increase with increasing levels of noise.

The night noise objectives should, we argue, make direct reference to achievement of the WHO recommendations over a specified timeframe. In practice, without very significant improvements in the noise performance of aircraft operating in future, achievement of this aim is likely to require a ban on night flights, except in cases of emergency. As many of our members are keenly aware, a single night flight can cause awakening, and thus result in sleep deprivation, which, when it occurs over a sustained period, is a recognised health issue.

More generally, as acknowledged in the Aviation Policy Framework (APF), section 3.14 (and considered in more meaningful detail in the draft framework), evidence suggests that “people’s sensitivity to aircraft noise appears to have increased in recent years”. Numerous research studies of which DfT is well aware indicate such a conclusion, not least the Government’s own 2007 study into Attitudes to Noise from Aviation Sources in England. It seems likely that the noise objectives specified in Table 6 should be updated to reflect this trend, though without any evidence base provided to justify the current levels it is very difficult to recommend specific changes.

## **Structure of the Current Night Noise Regime**

Q4: Do you have any views on whether noise quotas and movement limits should apply only to the existing night quota period or to a different time period?

The 6.5 hour night quota period lacks any credibility in terms of preventing harm from night noise and appears to have been adopted only out of practical convenience, and retained as a result of historical precedent.

WHO Europe’s 2009 report on night noise<sup>3</sup> recommends use of an 8 hour noise period, while recognising that because there are wide variations in both sleeping time and the beginning and end times of sleep, an 8-hour period appears to be adequate to protect the full sleeping time of only half of the population. (A period of 10 hours would be needed to protect 80 per cent.) In terms of existing noise metrics, the 16 hr Leq which forms the basis of much UK policy implies an 8 hour night, and EU noise mapping requirements assume an 8 hour night for both Lden and Lnight calculations.

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<sup>2</sup> WHO Europe 2009 *Night Noise Guidelines for Europe* <http://www.euro.who.int/en/what-we-publish/abstracts/night-noise-guidelines-for-europe>

<sup>3</sup> Ibid

We note that in the current regime, the 'shoulder' periods can be among the busiest in terms of aircraft movements. Some of our members consider that as the beginning and end of the night are the periods in which people are likely to be sleeping more lightly, they are more liable to being woken during these periods. There is a clear need for Government to identify or undertake research on this question, as if true, the validity of a 6.5 hour quota period would be further undermined.

**Q5: Do you have any new evidence to suggest we should amend or move away from the current QC classification system?**

No, with the exception that we consider that the minus 9 EPndB adjustment for approaching aircraft should be reviewed and if necessary revised accordingly.

**Q6: Do you have any views on the optimum length of the next regime and how this should align with the work of the Airports Commission?**

We support the suggestion of a 5 year interval. The interim report of the Airports Commission at the end of 2013 will recommend measures during next 5 years, so until 2018. Clearly it will be important for DfT to communicate with the Commission about its intentions, with the caveat that these will be subject to public consultation.

DfT should, however, develop the night noise regime on the basis of evidence rather than political considerations and should not feel in any way bound to avoid limiting the options under consideration by the Commission (which in any case would require Government approval before being implemented). Any recommendations in the Commission's interim report should be dependent on their compatibility with the forthcoming night noise regime.

The night flight regime should, in other words, supplement the APF in setting out the parameters within which the Airports Commission conducts its work and within which any recommendations from the Commission should be considered.

**Q7: Do you have any views on how dispensations have been used?**

In general, we consider that the principles of overrun and carry-over should allow sufficient flexibility within the system such that dispensations are not required. We understand that in contrast to carry-over and over-run rules, which allow airports flexibility while still ensuring that flights are accounted for, dispensations exempt flights taking place during the night period both from movement and quota count limits, and from any of the night time restrictions that would otherwise apply.

We are particularly concerned about the high numbers of dispensations at Heathrow in response to delays. The decision to operate at near capacity is one made by Heathrow to maximise its profits. Communities should not suffer the effect of such decision through the airport being permitted, on a regular basis, to operate flights at night without these being subject to any of the usual restrictions.

Dispensations should be permissible, we believe, only in the most exceptional of circumstances. Their apparently routine use at Heathrow significantly undermines the credibility of the night noise regime.

Q9: Would you favour adding greater contingency to the seasonal movement limits (within any overall movement cap for the airport) in order to avoid large numbers of dispensations?

As indicated above, our preference is for all flights to be accounted for; we would therefore prefer that flights be included in seasonal movement limits through increased contingency than exempted through dispensations.

Rather than simply shifting the category of breach, however, our overall preference would be for the dispensation rules to be applied more rigorously such that if delays become routine, as appears to have become the case at Heathrow, the airport in question should be responsible for identifying what operational problems are leading to this situation and should make changes accordingly.

Q10: Do you consider there is still a need to retain the principles of carry-over and overrun? If so, please give reasons why.

As indicated above, while we would prefer the use of carry-over and overrun to be minimal, we regard these options as preferable to dispensations.

### **Exploration of Options for the Next Night Noise Regime**

Q14: Please set out how you expect local land use planning policies to impact upon the numbers of people exposed to night noise in the next regime. Please give details of any housing developments planned to take place within the current night noise contours (see Annex B).

AEF is not aware of any specific proposals but we note that the abolition of Planning Policy Guidance 24, at a time of significant housing pressures in the South East, makes it likely that increasing numbers of housing developments within the noise contours will be approved. Unless new planning guidance is to be published discouraging this trend, we consider a tightening of the night noise regime to be required if the Government's aim of limiting and where possible reducing the numbers of people significantly affected by aircraft noise is to be met.

Q15: Please provide any information on the feasibility of increasing the angle of descent into Heathrow, Gatwick or Stansted, particularly within the next seven years.

In March 2010, AEF conducted research for HACAN on options for tackling approach noise at Heathrow<sup>4</sup>, which considered the feasibility of steeper approaches. The international standard approach at airports is an angle of 3 degrees. Aircraft manufacturers, when designing new aircraft types, ensure that aircraft are capable of flying such an approach at different landing speeds and weights. There is always, however, a margin of tolerance built in, and steeper approaches are possible and utilised at airports such as London City where the glideslope is 5.5 degrees.

While an angle of 5.5 degrees may be challenging for some of today's aircraft types without significant modifications, there is some potential for aircraft to operate up to 4.5 degrees without big changes in the way they are currently built and certificated. The theoretical benefit of a steeper approach, achieved by increasing the glide path angle of the Instrument Landing System (ILS), is that it keeps aircraft higher, reducing the noise for those communities under the approach path. Potential trade-offs with emissions, safety and operational performance have limited the assessment of steeper approaches to date, but the International Civil Aviation organisation (ICAO) tasked a working group of its Committee on Aviation Environmental Protection (CAEP) to look at the issue in more detail. Its findings, reported to CAEP in February 2010, show that steeper approaches deserve further consideration while noting that the above trade-offs may present some limitations.

CAEP's assessment looked at the benefits of approaches between 3.25 and 4 degrees for both short and long-haul aircraft (the 737-800, the A340-600 and the 777-200). These aircraft are capable of landing above 3 degrees once they have decelerated to the right speed. However, it was not possible to decelerate at the same time as flying the steeper approach angle, requiring an aircraft to have achieved the right speed and deployed its flaps for landing beforehand. CAEP therefore suggested a two-tier approach where the initial descent is undertaken at 2 degrees and then the final descent at between 3-4 degrees. This was designed to maximise the height above the ground and minimise the thrust, giving the greatest potential to reduce noise. Preliminary findings suggested that noise can be reduced by approximately 1-4 dBA, or 0.5 dBA for every 0.25 degree increase in the glideslope. A glideslope of 4 degrees could therefore reduce noise by 2 dBA. More importantly it could reduce the area of the noise footprint for an individual aircraft by 21-35%. The largest benefits were at 2,500 feet (corresponding to a distance of 5 nautical miles from the airport).

One disadvantage noted by CAEP was the possible reduction in the ability to use low power and flap settings, and low drag techniques, originally introduced to minimise noise. Any consideration of steeper approaches therefore requires careful examination of the benefits in each locality before introduction.

**Q16: What are your views on the analysis and conclusions in annex H? Would you favour changing the current pattern of alternation in favour of an easterly preference during the night quota period?**

It is difficult to make a judgement on whether or not such a change would be preferable based only on the information presented. A decision on the merits or otherwise of such a change would require account to be taken not only of the numbers exposed to noise but the amount of disturbance experienced. Comparative data could include, for example, include for both options numbers of

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<sup>4</sup> AEF 2010 *Approach Noise at Heathrow: concentrating the problem* <http://www.aef.org.uk/?p=1029>

people likely to be exposed to noise in different Leq bands, numbers of people who would be exposed to different numbers of noise events at noise levels liable to cause disturbance (down to at least 60 LA Max based on the WHO 1999 *Guidelines for Community Noise*<sup>5</sup> for noise outside bedrooms at night), and the number of people likely exposed to such noise for the first time. Presenting this information in a way that is comprehensible for the general public, in order to allow informed comment, will be an important challenge for the second stage consultation.

Q17: Do you have any views on the costs and benefits of a night-time runway direction preference scheme at Gatwick or Stansted?

Without details such as those described in our answer to Q16, we don't find it possible to comment.

Q18: Please provide any information about the feasibility of using displaced landing thresholds in the next seven years for arrivals from the east at Heathrow and from the north east at Stansted.

As indicated in our report for HACAN mentioned under Q15, we support in principle the use of displaced landing thresholds, but we are unable to comment on their feasibility.

Q20: Do you have any comments to make on the figures relating to movement limits and usage?

We note that there is significant headroom in the limits for both Gatwick and Stansted. As the noise levels at both airports exceed WHO recommended limits, we would suggest an increase in stringency such that as a minimum, the environmental benefit of this slack will be protected in future.

Q21. In the absence of any new restrictions, how do you expect demand for movements in the night quota period over the course of the next regime to change?

We do not have access to forecasts of demand specifically affecting the night quota period.

AEF considers that the best available forecasts of passenger demand are those generated periodically by DfT, which use an econometric model with income, size of the economy and ticket prices as key factors. Nevertheless we would urge some caution in using these forecasts as the basis of predictions about night flights, as we have previously set out in some detail why we consider the forecasts – despite having been downgraded each time they have been revised since 2000 (the latest revision having been published early this year) – to be too high. In a recent submission to the Airports Commission, we wrote:

In June 2012 AEF published a detailed commentary on the August 2011 forecasts<sup>6</sup>. In it, we argued that alternative, but far from extreme, assumptions in relation to economic growth, oil

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<sup>5</sup> <http://www.who.int/docstore/peh/noise/guidelines2.html>

<sup>6</sup> <http://www.aef.org.uk/?p=1423>

prices and taxation could result in big differences to the passenger forecasts, noting that the economic growth assumptions seemed unrealistically high and oil prices unrealistically low. Both these factors had been revised in the direction we advocated by the time of the 2013 forecasts with the result that the demand figures were lower, though the revisions were more modest than those we had advocated.

In our 2012 analysis we estimated that:

- a reduction of 1% per annum growth of GDP compared with the 2% forecast would have reduced the 2030 forecast by 19% from the central estimate (well below the 'low' estimate)
- the central forecast would be reduced by 10% if oil prices were 67% higher than in the central case (the same figure was generated by DfT for a 'highhigh' scenario following an AEF request)
- if fuel were taxed at the same rate as petrol (or APD were increased to a level at which it represented a proxy for such taxation), the forecasts may be reduced by as much as 25%.

We have not yet completed a similarly detailed analysis of how the 2013 forecasts may differ with alternative assumptions. We can, however, make the following observations.

Given the ongoing challenges posed by peak oil, climate change and land shortage among other issues, we consider that the economic growth forecast may still be too high. The range used for sensitivity testing has increased since the previous forecasts, following our criticism, but we consider that +/- 0.5% is still inadequate.

As noted above, given the lack of DECC figures for oil prices beyond 2030, the forecast continues to assume a flatlining of oil price from 2030 to 2050. This seems extremely unlikely, given continually increasing demand for oil and the exhaustion of easily won supplies.

Finally, we continue to consider that there is little justification for tax exemptions enjoyed by aviation in relation to fuel and VAT. Although the 2013 forecasts indicated that the latest increase to APD had a minimal effect on passenger demand, if aviation taxation were to be increased to the level of parity with road vehicle fuel tax, passenger demand would be very substantially reduced, even if the tax were to operate as a replacement for the carbon costs currently assumed. We note that changes to APD (or comparable changes to ticket prices through taxation or other measures) could substantially alter patterns of passenger demand, as illustrated by the recent paper published by HMRC *Modelling the effects of price differentials at UK airports*<sup>7</sup>.

**Q22: Do you have any comments to make on the figures relating to noise quota limits and usage?**

Please see above, in particular our answer to question 20.

**Q23: Do you agree with our initial assessment of the scope for reducing the noise quota in the next regime without imposing additional costs?**

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<sup>7</sup> October 2012 <http://www.hmrc.gov.uk/research/report188.pdf>

We agree that the proposed approach would help to minimise any costs for airlines. In fact it implies no cost to airlines as it merely reflects the noise performance that they have already been achieving for some time. It proposes, therefore, noise controls that by definition have no impact. Since there is no evidence presented to suggest that at current noise levels communities are effectively protected from adverse impacts (and since the levels experienced far exceed WHO recommendations and are widely known to result in very significant annoyance) we do not regard this approach as sufficient to meet community needs.

**Q24: Do you have any views on the relative disturbance caused by the noise of an individual aircraft movement against the overall number of movements in the night quota period?**

As mentioned elsewhere in our response (see our response to Q16), WHO recommendations include both Leq and LA max levels, and a growing body of evidence now suggests that Leq cannot be used in isolation as a reliable indicator for noise disturbance. For this reason, the APF in section 3.19 states “the Government recognises that people do not experience noise in an averaged manner and that the value of the LAeq indicator does not necessarily reflect all aspects of the perception of aircraft noise. For this reason we recommend that average noise contours should not be the only measure used when airports seek to explain how locations under flight paths are affected by aircraft noise.” Guidance, prepared either by the DfT or CAA and based on the research undertaken in preparing the APF and stage 1 night noise consultation, would be extremely valuable in ensuring that this recommendation is effectively carried out.

The Leq metric allows for the number of noisy aircraft movements to increase even as the Leq level stabilises or even reduces, through the introduction to the operational fleet of aircraft that are only marginally quieter than the aircraft they replace. Our members have for many years told us that under these conditions, noise disturbance and annoyance can increase. This may help to explain the evidence from across Europe indicating that for a given Leq level, annoyance from aircraft noise has been increasing over time.

Previous studies have looked at night noise and awakenings but it appears that there is less data available on how noise can affect people getting to sleep or getting back to sleep. A single aircraft movement, if noisy enough to cause awakening, could be significant in this context. Without such information, but with the awareness that people do not respond in a straightforward way to noise averages, it is difficult to judge questions such as the acceptability of increased noise for some together with reduced noise for others, as indicated in our response to Q16.

**Q25: What are your views on the feasibility of a QC/8 and QC/16 operational ban in the night period? Please set out the likely implications of such a ban and the associated costs and benefits.**

The evidence presented here suggests that the costs, if any, of such a ban would be insignificant, given the low numbers involved. Similarly, as so few of these flights are predicted to take place in

future with or without a ban, the benefits of a ban are likely to be very small. Nevertheless we would support it.

**Q27: What are your views on the feasibility of a QC/4 operational ban in the night quota period at any or all of the three airports? Please set out the likely implications of such a ban and the associated costs and benefits.**

We are concerned that overall the consultation gives the impression that rather than focussing on how to protect communities around airports from unacceptable noise measures (through limiting and where possible reducing noise), DfT wishes to avoid implementation of any measures that would inconvenience the aviation industry.

The consultation jumps, here, from noting that a significant number of QC/4 flights currently take place at night (89 at Heathrow during the last year) to a conclusion that banning them is unlikely to be economically justifiable. Such a conclusion should not, however, be assumed without evidence, as should a ban be in place, it may well be possible for airlines to operate alternative aircraft at night without incurring large costs. We hope that evidence on actual economic impacts can be gathered for the second stage consultation. Evidence of how people are impacted by QC/4 operations, such as the percentage of night noise arising from these flights, would also be helpful.

**Q28: Are there more cost-effective alternative measures (such as penalties) to reduce the number of unscheduled QC/4 operations during the night quota period?**

We would support research into whether penalties or other economic measures could effectively limit the number of unscheduled QC/4 flights and whether this would result in a meaningful noise improvement, but do not have evidence on this issue.

**Q29: What are your views on the feasibility of an operational ban of QC/4 aircraft at any or all of the three airports during the shoulder periods? Please set out the likely implications of such a ban and the associated costs and benefits.**

Again, no quantified evidence is presented on either the costs (for example of airlines operating quieter aircraft) or benefits (in terms of numbers of people protected from sleep disturbance) of such a change. Our view, however, is that communities should not pay the price for Heathrow's decision to operate at such high levels that delays are commonplace forcing noisy aircraft into the evening shoulder period. We would welcome an operational ban at all three airports.

**Q30: What is the rationale for operating services at precise times during the night quota period (as they do now)?**

We are not aware of this system providing any benefit to communities. While predictability is helpful during the day insofar as it allows activities to be planned around noisier and quieter periods, there is, for the majority of people, no parallel benefit at night.

**Q31: What is the scope for introducing a respite period at Gatwick or Stansted? Please set out the associated costs and benefits.**

It is unclear whether or not this would provide benefit if it resulted in more flights being concentrated at the beginning or end of the night period. As indicated above, research may be needed into whether people are more highly sensitive to noise during these times. Similarly, more research would be likely to be required on whether light sleepers benefit from respite arrangements whereby, for example, there are no movements before 6 a.m. on one week but many on the next. Any trial of such a scheme relying only on complaints data would not provide a robust answer.

**Q33: If you favour a guaranteed respite period, what would be the minimum period which you would consider to be worthwhile?**

We are not aware of any relevant evidence on this point. As noted above, the WHO recommends that an 8 hour night period appears to be adequate to protect the full sleeping time of only half of the population. A period of 10 hours would be needed to protect 80 per cent.

**Q35: What are your views on the possibility of fewer unscheduled night flights arising from an increase in daytime arrivals 'out of alternation' or vice versa?**

We await the results of the current trial before coming to a view on the value to communities of this scheme.

**Q36: What value do you place on day time respite compared with relief from noise in the night quota period?**

If there is a possibility to move night flights into the daytime, it is probably beneficial to do so, though we await the results of the operational freedoms trial in indicating whether loss of daytime respite is a price worth paying for fewer unscheduled night flights.

**Q37: Do you have any views on the extent to which landing fees can be used to incentivise the use of quieter aircraft during the night period?**

It is very common for airports around the world to apply differential charges on the basis of the noise certification of aircraft. Since the end of the Chapter 2 phaseout, we are not aware of this approach being effectively deployed at Heathrow, however. Similarly, we note that paragraph 5.79

of this consultation suggests that differential charging at Heathrow based on arrival time is used as a tool for noise management less now than in the past.

We would prefer airport charges to reflect environmental costs, which are, in the case of noise, higher at night. It is unclear whether airports subject to price capping by the CAA will feel motivated to graduate charges in this way without regulation being in force.

Q39. Do you have any suggestions for changes to current compensation schemes or for new compensation schemes that might be introduced to help offset the impact of night noise on those exposed to it? For new schemes, please explain the parameters that you would suggest for the scheme and the rationale for choosing those parameters

#### *Relevance of noise standards*

There are a number of ways in which aircraft noise impacts can be managed. One option is to reduce the noise itself (for example through use of fewer or quieter aircraft), and our focus as an organisation has always been on this approach. Alternatives include reducing the impact of noise (for example through home insulation) or paying compensation to those affected.

In many areas of public policy, the approach is to set a stringent standard based on minimising risk and to pay compensation only in cases where either the standard was inappropriately applied, or where harm was incurred despite appropriate implementation of the standard. Examples include the following:

- *Aircraft safety*: Authorities such as the CAA impose high standards and regulate accordingly. When the Dreamliner was grounded by the FAA because of its overheating lithium batteries, there was no debate about the economic cost of grounding the fleet. Airlines were not given the option of risking flights and paying compensation to passengers if the aircraft crashed.
- *Road safety*: vehicles must meet high standards and roads must be engineered to high standards. The standards are absolute – they are not traded off against economic benefits or set aside in favour of compensation to those killed or injured.
- *Environmental standards*, such as air and water pollution are also absolute. They are determined by what is damaging to human or ecosystem health, not traded off against economic benefits or set aside in favour of compensation.
- *Human rights and civil liberties* are likewise absolute – neither are they subject to assessment of economic cost before they are invoked.

We see no reason why an exception to these well-established principles and practice should be made in the case of aircraft noise. Sleep and health are fundamental human rights and aircraft noise threatens both.

#### *Role of compensation*

It would obviously not be possible to eliminate all noise that caused annoyance without severely compromising air travel. In practice, limits must be established below which noise levels are

allowed. This is exactly analogous to other areas of public life noted above, where some maximum level of risk or damage is tolerated. As we have indicated above, AEF's recommendation is that the best available standards are those that have been developed by the World Health Organization. Compensation for noise nuisance should be deployed only as a last resort. The primary aim should be to reduce or mitigate noise by means of regulation and, where appropriate, economic instruments.

A key role of compensation is to recompense people who suffer adverse impacts of some activity that is allowable (in legal or regulatory terms) but nonetheless has adverse impact. For example it may be legal for a planning authority to knock down a person's property using compulsory purchase powers if the owner is paid compensation.

It is our view that night noise should be constrained to below the WHO recommended 'low adverse effect level'. Compensation would then only be applicable at lower levels down to the 'no adverse effect level'. If Government decides that the WHO standards will not be imposed, then compensation should be tapered according to the noise level, down to the WHO 'no adverse effect level'. Paying compensation only at very high noise levels, as is the current arrangement, is unsatisfactory.

#### *Level and administration of compensation*

Methodologies for assessing the economic damage cost of night noise already exist and could be used to inform compensation levels. The actual mechanism for compensating people would need careful consideration but one approach would be for local authorities to receive compensation in bulk and then distribute in the form of council tax rebate according to noise contours.

**Q40. Do you have any proposals for new or improved economic incentives that could be deployed to incentivise the use of quieter aircraft during the night period?**

High landing charges for noisier aircraft would ensure that if there was a genuine economic benefit in landing such planes at night, it would be worth the airline paying to do so. If there was no significant benefit, the airline would make alternative arrangements, such as using a quieter plane, to avoid paying the fee. High landing charges for noisier aircraft, reflecting the full cost of cost and sleep disturbance, are consistent with the 'polluter pays principle' and will tend to maximise societal welfare. Other scheme are possible, such as a flat-rate charge for night flight or a higher rate of APD, but these do not have the social and economic advantages of a scheme where charges are directly related to noise impacts. AEF has previously given support to Government proposals to replace APD with a duty payable per plane, and we have proposed that this duty be designed to reflect the noise performance of different aircraft.

If higher landing charges are invoked, it is important that these are not retained as 'windfall profits' by the airport, which would be both socially and economically unacceptable. Money raised from excess landing charges should instead be used to provide compensation for those affected by night noise, in accordance with the 'polluter pays principle', and allowing recipients the freedom to determine how best to spend it, whether for noise mitigation measures or other purposes.

## Night flights Evidence Review

Q41: Is there any other evidence we should consider in assessing the response of airlines and air transport users to changes in the night flights regime?

AEF has for many years sought to highlight the ‘external’ costs of aviation and we very much welcome the fact that the Government has begun looking at how to take these into account. We are also pleased that DfT is giving careful consideration to the work of CE Delft, which has produced a number of critical responses to the work of Oxford Economics, a consultancy regularly used by the aviation industry to help demonstrate their economic importance.

We have a number of general comments to make about the analysis and approach taken in this section of the consultation:

- 1) The Government cannot expect NGOs and community groups, let alone members of the public, to provide reliably detailed comment and critique on the various noise costing methodologies presented here. While we welcome the opportunity to see at this stage some of the thinking behind the figures that we anticipate being presented in the stage 2 consultation, we consider that these should be subject to detailed peer review by at least one independent body, whose findings should be similarly open to scrutiny. It is currently not entirely clear to us what use will be made of the methodology being presented, but we are aware that in any case whatever use is intended for it by Government, it – and more particularly the numbers it will generate – will doubtless be used by others for their own purposes, and we feel nervous, therefore, about the potential importance of these figures being truly robust.

We are not aware of any publicly available critique of the Government’s Aviation Appraisal Guidance in particular, but we note that in 2009 the Green Alliance published an update<sup>8</sup> to its previous analysis of NATA – the New Approach to Transport Appraisal developed as part of WebTAG – which concludes that the model is not fit for purpose and in many cases “is in direct conflict with the government’s own objectives, which include reducing transport related carbon emissions and promoting travel modes beneficial to health.” The report (page 2) argued that despite some improvements over time, a number of problems with NATA persisted:

- the appraisal model is still not reflecting national objectives, as it does not take proper account of carbon reduction targets and exaggerates the value of small time savings;
- the decision-making process is far from transparent and lacks co-ordination across regions;
- there is an absence of reliable data and a lack of co-ordination in the decision-making process;
- insufficient attention is given to alternative schemes that could offer better value for money;
- individual schemes are implemented in isolation without proper consideration being given to demand management and multimodal approaches that may be significantly more cost effective.

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<sup>8</sup> Cary et al, November 2009 *The Right Route: improving transport decision making*, Green Alliance

- 2) Our understanding is that the proposed methodology may potentially have a role to play when weighing up the impact of a potential policy change compared with a 'business as usual' scenario reflecting the current situation. We can see how a system that allows the total environmental impact of a certain option in terms of actual likely outcomes for people (as opposed to simply Leq contours) could usefully help guide decision-making, as long as all appropriate variables were taken into account (see our response to Q16 for example). We would not, until feeling much more confident about the validity and reliability of the models and their ability to compare direct with indirect economic impacts, support their use in comparing the financial impacts of an airport development with the monetised impacts in environmental terms.
- 3) We note that within climate change policy, thinking has shifted away from estimation of damage costs towards the use of abatement or 'mitigation' costs, determined by reference to a predetermined environmental (in this case carbon-limitation) outcome. The reason for such a change has no doubt been influenced by the argument powerfully developed in 2006 by Sir Nicholas Stern that the cost of preventing climate change of greater than 2 degrees was significantly lower than the likely future cost of climate damage in the absence of preventive action. Such an approach is in fact described in this consultation as a possible means to capture the cost of air pollution. We consider that it would be valuable for DfT to consider what an abatement cost approach might look like for noise, based on the achievement of predefined noise objectives.
- 4) We consider that some decisions simply cannot be determined on the basis of cost benefit analysis. The setting of social and environmental objectives – without attempting to speak in monetary terms – is one example. The analysis presented notes that the impact of noise on children's learning has not yet been monetised, but that it may be possible to do this in future by considering the economic 'productivity' in adulthood of those who were affected as children. The common understanding of the value and purpose of children's education goes so much wider than the opportunity it can provide to secure future high earnings that this perhaps provides a useful reminder of the shortcomings of cost benefit analysis in valuing what matters.

Q45: Do you agree that the impacts on passengers who decide not to travel (or become able to travel) as a result of the change in night flights regime could be critical to the balance of costs and benefits?

Not if the model is effective. Those passengers who choose not to fly because of any night flights restrictions are those for whom the benefits of flying barely exceed the time and cost of doing so in the present regime.

Most of those will be leisure passengers. Some will be those for whom the journey is so unimportant they simply use their time and money elsewhere. Others will be leisure passengers

who still choose to travel but go by train rather than by plane. And others will be those who still choose to travel by plane but go to a different place or land at a different UK airport.

There will be very little effect on business travellers. It is inconceivable that a British business person, wanting to fly to China to negotiate a multi-million pound deal, or anyone else with important business to conduct, will not go there simply because he or she cannot take off or land at Heathrow, Gatwick or Stansted at night.

We are aware that an estimated loss of 'welfare' to people unable to travel as a result of environmental restrictions is sometimes factored in to policy making. We regard such estimates as having little credibility, however. The reality is that people readily adapt to changes in availability of a product such as night flights without overall impact on their wellbeing.

**Q54: Do you agree that the approach proposed by the Civil Aviation Authority (CAA) for estimating the cost of sleep disturbance from aircraft noise reflects the available evidence? If not, how do you think it should be changed?**

We are aware that small variations in the methodology could result in significant changes to the results. We note, for example, the observation made in the consultation that "Varying the noise threshold from 48 dBA  $L_{6.5, \text{hour}}$  to 45 dBA  $L_{6.5, \text{hour}}$  typically increases the population exposure by a factor of almost 2. Taking both together, monetary estimates of sleep disturbances will vary over a range of 5:1."

We are also aware that the noise impact evidence with which the CAA has had to work is based on the Leq metric, despite a growing body of researchers questioning the reliability of dose-response relationships between Leq figures for aircraft noise and impacts such as annoyance and sleep disturbance. We would therefore question whether the existing evidence base is strong enough to provide a robust methodology for monetisation at this time.

As noted above (in our answer to Q41), we have significant reservations about the concept of valuing the impact of aircraft noise on children's learning in terms of the productivity of the economy.

**Q56: Do you agree that we should ensure that the method used to assess air quality impacts should be proportionate to the proposals under consideration?**

We consider that the choice of methodology should not be determined by whether or not it generates big numbers, but by its reliability and validity. We recognise, however, that monitoring and administration requirements of a particular methodology may be considered excessive in areas where air pollution levels are likely to fall well below the legal limits.

We note the proposal to use abatement costs for assessing the impact of NO<sub>x</sub> emissions and would be interested to know the reason for the Department considering this approach as an alternative to damage costs. As stated above, we would be very interested in the possibility that such approach could also be used for noise.

**Q57: Is there any other evidence we should consider in assessing the air quality impacts of changes in the night flights regime?**

We hope that the stage 2 consultation will make clear the context of air pollution around Heathrow, which remains in breach of EU legal limits. We note that a group of campaigning lawyers, ClientEarth, is currently pursuing action on the UK Government through the Supreme Court for continued breaches of air pollution laws.

**Q58: Do you agree with our proposed approach? Is there any evidence on non-CO<sub>2</sub> climate change impacts we should consider?**

We disagree with the assertion that CO<sub>2</sub> emissions can be effectively discounted from the methodology.

Emissions from international aviation (defined as flights departing the UK), while currently not formally included in carbon budgets, are nevertheless allowed for with a view to future inclusion of the sector under the Climate Act. Compliance with the Act imposes costs both for aviation itself and for other sectors. The CCC's recommendation is that Government should plan on the basis that aviation emissions will be no higher than 2005 levels in 2050 and it allows for aviation emissions at this level when setting carbon budgets. The recommendation ties in with an assumption that all international aviation is included in the EU ETS from this year. As a result of the 'stop the clock' legislation, however, the scheme has been suspended for one year for all but intra-EU flights. There is currently, therefore, no economic mechanism by which compliance with the requirements of the Climate Act can be met. DfT should therefore include an assessment of the likely abatement cost of aviation's compliance with the Climate Act in its cost benefit analysis.

It is also worth noting that even for those flights still covered by the EU ETS, the majority of permits have been made available for free. While in economists' terms, the means of allocation have little relevance, the reality is that airlines will be able to comply with the EU ETS at little or no cost despite the CO<sub>2</sub> impacts of flights.

We recognise that work has stalled on estimating the cost of non-CO<sub>2</sub> impacts from aviation. Research on this important area should be prioritised. Unless and until an alternative metric and quantification have been demonstrated, AEF regards the use of a 2X multiplier as generating less inaccuracy than the alternative proposed, which is to take no account of non-CO<sub>2</sub> impacts.

**Q62: Do you agree that the impact of any change in the night flights regime is unlikely to have a significant impact on employment, and therefore any impact on employment taxes will be minimal?**

There are very few flights at night and thus any impact on employment is likely to be very small. If, in the extreme case, night flights were banned and there were no rescheduling, employment

impacts would be small. If, in the less extreme case, there were some rescheduling (of flights or passengers or both), impacts would be even smaller.

**Q64: What are your views on our employing a similar approach to that employed by Oxford Economics and Optimal Economics in assessing the impact of a change in the regime on UK productivity? Do you agree that if we were to employ this approach there would need to make adjustments to avoid double counting the benefits to business passengers and freight service users?**

The evidence for a causal relationship between the total volume of air travel or the total volume of business travel and productivity is very weak. A forthcoming report from CE Delft<sup>9</sup> highlights this fact.

The evidence for a causal relationship between one tiny component of air travel, namely night flights from the London airports, is weaker still. As noted above, the common sense answer is that the existence or not of a few nights flights would be unlikely to have a perceptible impact on business activity or on the UK economy.

**Q65: Is there any further evidence we should consider in attempting to assess the impact of a change in the night flights regime on UK productivity?**

The evidence presented does not present a convincing case for the existence of a casual relationship between night flights and productivity. If such relationship existed, it would no doubt have been highlighted by Oxford Economics. As indicated in our response to Q64, the forthcoming CE Delft report addresses the question of whether aviation connectivity and aviation activity more generally generate economic benefit. It finds, in relation to connectivity, that among the various studies identifying a correlation between connectivity and economic activity, none provides convincing evidence on the direct of causation.

In relation to aviation activity and economic performance, the report finds that while there is evidence of a two-way causal relation between aviation activity and regional economic performance:

- (i) It is not clear whether there is an increase in total economic activity or whether regions with airports grow at the expense of surrounding regions without airports, and
- (ii) While in remote (or poorer) regions an increase in transport activity can act as a catalyst for economic activity, in 'core' regions such as London, where 'agglomeration effects' have already been exploited, economic activity appears to spur development of transport links rather than the other way round.

**Q68: Do you agree with our proposed approach to considering the potential impact of a change in the night flights regime on UK employment? If not, why not, and what would you suggest as an alternative?**

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<sup>9</sup> M Smit et al, 2013, *Aviation Policy Development Framework*, Delft; please contact us if necessary about accessing a copy

We agree with the DfT's assessment in 6.96 that "changes in night flights ... does not necessarily imply any impact on the level of employment across the UK as a whole". We question whether it would be worth even trying to evaluate any local impacts, bearing mind that airport-related activity is such a small part of the economy and that the South East of England, being the most vibrant part of the UK economy with the greatest labour shortages, would be well placed to absorb any impacts.

We note that in the short period between publication of the Government's aviation scoping document and of the draft aviation policy framework, the Government's estimate for the number of people directly employed by the aviation section in the UK appears to have gone down by 40,000, from 160,000 to 120,000, as reported by the two papers respectively. At the time of the 2003 Air Transport White Paper, 200,000 jobs had been reported. The clear trend for a gradual reduction in the number of jobs required per million passengers should be taken into account<sup>10</sup>.

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<sup>10</sup> Further evidence of such a trend was provided in AEF's 2009 publication *Airport Jobs: False Hopes, Cruel Hoax* [http://www.aef.org.uk/uploads/Airport\\_jobs\\_false\\_hopes\\_cruel\\_hoax.pdf](http://www.aef.org.uk/uploads/Airport_jobs_false_hopes_cruel_hoax.pdf)