

## **Response Guide to DfT Night Flights Consultation Part 2**

[Part 2](#) looks at national night flights policy and restrictions beyond 2024/5, including dispensations and airport designation arrangements.

You can send your responses by email to [night.flights@dft.gov.uk](mailto:night.flights@dft.gov.uk) or complete the online form here: <https://www.smartsurvey.co.uk/s/6MJQIF/>

Deadline for submissions is **Friday 3<sup>rd</sup> September 2021**

Questions 1 - 6 ask for information about you and/or your organisation.

Headings for each theme are highlighted in red.

### **Night flight dispensation review**

#### ***7. What are your views on the:***

- ***findings of the night flight dispensation review?***
- ***proposals for the night flight dispensation review?***

The experience of many communities around Heathrow is that late flights are permitted for reasons that have nothing to do with the listed dispensations.

All too often the congestion at the airport caused by the desire to squeeze in as many planes as possible mean that later running becomes inevitable.

The definitions of flights qualifying for dispensations are inadequate, as is the accountability of those who grant dispensations. Events that should be included within normal planning are being claimed as dispensations, to the cost of local communities.

It remains inappropriate that Heathrow get to approve their own dispensations. The lack of independent oversight results in a system open to abuse and one that is not fit for purpose.

### **Revising our night flight dispensation guidance**

#### ***8. Should disruption due to local weather qualify for dispensations? Provide evidence to support your view.***

No. The local weather at Heathrow is well known, is not exceptional and should be included in routine operational planning. Weather events should be guided by the Met Office and not the airport operator.

***9. Should disruption due to en-route weather qualify for dispensations? Provide evidence to support your view.***

No, this should be accommodated in routine planning. An exception should only be made in the case of limited and specific safety issues.

***10. Should disruption due to foreign airport weather qualify for dispensations? Provide evidence to support your view.***

No.

***11. Should disruption caused by ATC industrial action qualify for dispensations? Provide evidence to support your view.***

No. Disruption caused by an industrial dispute is a consequence of a breakdown in worker relations that should not be borne by local communities.

***12. Should disruption caused by industrial action by airport staff qualify for dispensations? Provide evidence to support your view.***

No. As above for Q11.

***13. Should disruption caused by industrial action by airline staff qualify for dispensations? Provide evidence to support your view.***

No. As above for Q11.

***14. Should network capacity delays qualify for dispensations? Provide evidence to support your view.***

No. This is an issue for the industry and the capacity constraints are well known. The failure to adequately plan should not result in unacceptable impacts on local communities.

***15. Should delays caused by serious criminal or terrorist activity that affect multiple flights qualify for dispensations? Provide evidence to support your view.***

Yes, but any major incident must be declared by a public authority and not by the airport operator.

**16. Should cumulative delays qualify for dispensations? Provide evidence to support your view.**

No. Rather than seeking to pack more flights than their capacity can support, airports should plan robust levels of resilience to cope with delays.

**17. Should, in your opinion, dispensations be permitted for flights delayed to the NQP due to a medical emergency that has passed? Provide evidence to support your view.**

No. Airports like Heathrow should be able to accommodate such delays within their overall night flight allowances. The consultation documents state that there is evidence of medical emergencies or disruptive passengers on the ground result in delays but does not provide links to that evidence or further details about the number of instances that would potentially require dispensation.

**18. Should, in your opinion, dispensations be permitted for flights delayed to the NQP due to a police emergency (for example a disruptive passenger) that has passed? Provide evidence to support your view.**

No. If sufficient operational resilience is built into airports standard procedures than this would be able to accommodate such occasional delays. How many such delays have occurred at Heathrow in the past decade?

**19. Should, in your opinion, dispensations be permitted for the repositioning of emergency service (including medical transplant) aircraft? Provide evidence to support your view.**

No. The number of these flights is likely to be very small compared to the total number of night flights and should be accommodated within existing allowances.

**20. Should dispensations on the basis of reducing carbon emission be permitted? Provide evidence to support your view.**

No. There appears to be no evidence fine that additional dispensations for night flights would help to reduce emissions. Conversely, a report by ACI Europe entitled “A Route to Net Zero European Aviation”<sup>1</sup> highlighted that, “improved ATM and other operations” would only generate a nominal improvement in decarbonisation, a 6% maximum in 2030 and 2050 across the aviation system.

**21. Should pre-emptive dispensations be permitted? Provide evidence to support your view.**

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<sup>1</sup> [https://www.destination2050.eu/wp-content/uploads/2021/02/Destination2050\\_Report.pdf](https://www.destination2050.eu/wp-content/uploads/2021/02/Destination2050_Report.pdf)

No. Pre-emptive dispensations should not be given. Heathrow should manage their operations, so this is not necessary, or continue to be granted these dispensations, as is current practice.

***22. Should dispensations be granted for information technology failures? Provide evidence to support your view.***

No. The failure to manage its IT properly should be borne by the industry not by communities near airports.

***23. If you have further views or evidence on the guidance allowing airport operators to grant dispensations, provide it here?***

Airports appear to have sought ever more creative reasons for granting dispensations as they have made fuller use of their night flight movement limits. The effect of this has been to expose local communities to more flights and greater night noise.

There should be process established where each dispensation can be reviewed thoroughly and independently which should also provide an opportunity for stakeholders to dispute dispensations, and consequences for granting dispensations incorrectly.

***24. What are your views on government dispensations overall? Provide evidence to support your view.***

They should continue to be granted rarely, in truly exceptional circumstances. A review by Government of the criteria for any dispensations should take place frequently, every three to four years. This is so that where grey areas have occurred (as referred to multiple times in Annex E), new guidance can be introduced. Overall, the Government should seek to provide as few dispensations as possible.

**The structure of the night flight restrictions at the designated airports beyond 2024**

***25. What length should the night flight regime beyond 2024 be? Provide evidence to support your position.***

Night flights, other than emergencies and humanitarian flights, should be banned at all UK airports as soon as possible. There is ample evidence to show that depriving people of sleep can cause very serious health deterioration. The night flight regime should be reviewed every five years.

***26. How do you think the length of regime will affect you? Provide evidence to support your view.***

Many residents are affected by night flights at Heathrow, which have a very serious impact upon their lives. It is essential that airports ensure that airlines are using the recommended ICAO procedure for departures.

A length of around five years ensures that the regime can be amended to reflect changes in academic evidence and operational best practice.

***27. Do you think that QC is the best system for limiting noise at the designated airports?***

The best way to limit noise at Heathrow would be to introduce a night flight ban of 8 hours.

If night flights continue then airports should utilise a combination of movement limits, quota limits and reductions in flying in the periods that cause the greatest noise disturbance.

The data (CAA, ERCD 1901) shows that between 2006 and 2018 there has been a significant rise in the number of disturbing night-time noise events at Heathrow. In 2006, the N60 figure of 10 or more affected 837,000 people, but by 2018 this had risen to 974,000 (a 16% increase).

This suggests that the QC system alone is insufficient to reduce the impact of noise on local communities. Consequently, the QC system should include targets for reductions in noise quotas over the next regulatory period. It is also important that airlines are incentivised to operate the quietest aircraft with significant fines imposed on those who fail to comply.

***28. What do you think are the:***

- ***advantages of changing to a new system?***
- ***disadvantages of changing to a new system?***

A new system that utilised monitors to ensure that airlines are incentivised to reduce the noise on the ground could help to deliver improvements for local communities.

***29. Do you have evidence of other noise management regimes being used elsewhere and how they compare with the current system? Provide evidence to support your view.***

Despite the eventual publication of the SoNA Sleep, there remains significant gaps in the available evidence that limits the responses that community groups can provide.

For example, the Peer Review of SoNA Sleep highlights several issues relating to the sample size, the absence of specific questions dealing with sleep disturbance, the timing of questionnaire, the conclusions drawn N>60 analysis and in particular the importance of single mode analysis.

These issues seem fundamental in terms of formulating policy options. Consequently, a full and robust study of the impacts of aircraft noise at night must be undertaken to inform the regime from 2025.

**30. Should we introduce an additional QC category for quieter aircraft in the longer-term. Provide evidence to support your view.**

No. Such a category should only be introduced if accompanied by appropriate operational regulations, incentives and fines to ensure that aircraft are flown in a manner that causes the least disturbance.

**31. Should the government reintroduce an exempt category?**

No. An exempt category would undermine the purpose of operational restrictions at night. This would increase the harmful impacts of noise on local communities.

**32. Provide evidence to support your position.**

WHO (2018) Environmental Noise Guidelines for the European Region  
[https://www.euro.who.int/\\_data/assets/pdf\\_file/0008/383921/noise-guidelines-eng.pdf](https://www.euro.who.int/_data/assets/pdf_file/0008/383921/noise-guidelines-eng.pdf)

**33. Do you think we should re-baseline the night quota system in the longer-term? Provide evidence to support your view.**

We have no strong view providing any re-baselining does not increase the number of aircraft permitted to operate at night.

**34. What factors should we consider when anticipating how to best future proof a re-baselined QC system?**

As above to Q33.

**35. What costs, if any, would you anticipate in re-baselining the QC system?**

As Q33.

**36. Would you be impacted if the NQP was extended to 23:00 to 07:00?**

Yes, many of our supporters would benefit from a ban on aircraft operations at Heathrow for an 8-hour period as recommended by the WHO. This would help protect their right to a decent night's sleep. Please see information on the benefit on undisturbed sleep in the link to the WHO guidelines above.

**37. Provide evidence to support your position.**

As above.

**38. Do you think night flights in certain hours of the NQP have a greater impact on local communities than other times of the NQP?**

All hours of the NQP impact local communities. For instance, someone woken by an aircraft movement at 1.00am has their sleep disturbed in much the same way that someone woken by an early morning arrival at 4.30am also has their sleep disturbed. It doesn't matter what hour of the NQP it is, the impact still means a night-time disturbance.

Night time aircraft noise is most disturbing at start and end of the NQP (from 0400). Many of our supporters struggle to get to sleep when they are disturbed by later arrivals and departures or are awoken by the first arrivals.

Similarly, there is significant disturbance caused to members by flights in the 0430 - 0600 period. Once you have been woken up by aircraft noise it is very difficult for many to get back to sleep. Many communities further from Heathrow experience night-time disturbance from aircraft noise, before 0430, and as early as 0400 in some parts of south, southeast, and east London. 0430 is counted as the arrival time at Heathrow but disturbances should be counted the time planes enter London airspace.

Residents closer to Heathrow have also experienced aircraft noise disturbance during the NQP due to the testing of aircraft engines and other associated ground noise from night flights. Light pollution can be an issue but is not discussed here.

**39. Provide evidence to support your view.**

The increase in the number of people impacted by noise at night as evidenced in CAA, ERCD Report 1901 – Heathrow Airport 2018 Summer Noise Contours and Noise Action Plan Contours.

[https://www.heathrow.com/content/dam/heathrow/web/common/documents/comp-any/local-community/noise/reports-and-statistics/reports/noise-action-plan-contours/Heathrow Airport 2018 Summer Noise Contours and Noise Action Plan Contours.pdf](https://www.heathrow.com/content/dam/heathrow/web/common/documents/comp-any/local-community/noise/reports-and-statistics/reports/noise-action-plan-contours/Heathrow_Airport_2018_Summer_Noise_Contours_and_Noise_Action_Plan_Contours.pdf)

**40. Would a mechanism that disincentivises aircraft movements in periods of the night that are more sensitive for communities impact you?**

There should be a complete ban on night flights from 23.00-07.00 so that communities have an uninterrupted 8-hour period in which to sleep.

**41. Provide evidence to support your view.**

N/A

**42. What would be the impact on you if QC4 rated aircraft movements were banned between 23:00 and 07:00 after October 2024?**

The impact would be minimal given that QC4 aircraft constitute only 0.34% of night movements at Heathrow.

**43. What would be the impact on you if a scheduling ban was placed on QC2 rated aircraft movements between 23:30 and 06:00 after October 2024?**

Government regulation and action should lead the industry and incentivise it to improve its performance. Consequently, there should be a ban on operating QC2 rated aircraft for a full eight-hour period each night from 2022, especially as approximately only 3% of night quota period flights in summer 2019 were operated by QC2 rated aircraft, therefore having minimal, if any, tangible impact on the industry.

**44. What would be the impact on you if a scheduling ban was placed on QC2 rated aircraft movements between 23:00 and 07:00 after October 2024?**

See Q43.

**45. If bans are introduced, in your opinion, should the implementation be staged?**

No, the ban should be introduced immediately, at the very earliest opportunity.

**46. Provide evidence to support your position.**

There remains a significant gap in the available evidence that limits the responses that community groups can provide.

It is vital that DfT commission a comprehensive and robust study that examines the impact of aircraft noise at night.

**47. In a future regime how should we manage the number of aircraft movements (detailing the airport or airports relevant to your view)?**

All night flights, other than emergencies and humanitarian flights, should be banned at all UK airports from 2022. If night flights continue to be permitted, they should be limited to those that are genuinely essential and their impacts should be tightly regulated. Targets should be set to drive down the number of aircraft movements.

At Heathrow there is regular late running of aircraft with insufficient evidence provided as to why this was necessary – if indeed it can be justified. Greater transparency on the reasons for late running should be provided with significant financial penalties for regular breaches of the night time peace.

**48. In a future regime, how should we manage an airports' noise allowances (detailing the airport or airports relevant to your view)?**

Noise allowances should be based on the genuine noise level at the ground to ensure it reflects the experience of local communities.

Heathrow should provide funding for noise monitors across several communities including those 10, 20 and 30 miles from the airport to ensure that all communities impacted by night operations are able to evidence the disturbance they endure.

**49. Should we remove the movement limit and manage night flights through a QC limit only?**

No. This would undermine the restrictions entirely and increase the number of communities exposed to the harmful impacts of aircraft noise.

**50. Provide evidence to support your view.**

See Q49.

**51. Should we introduce a ring-fencing mechanism to ensure night slots are available for:**

- **commercial passengers**
- **dedicated freight**
- **business general aviation**

It appears that there is insufficient evidence on which to make a judgement on this issue.

**52. Provide evidence to support your view.**

As Q51.

**53. Should an airline be able to use unused allowances later in the season?**

No.

**54. If the government decided that unused allowances should be returned to the airport's pool, what would be the impacts on:**

- **communities**
- **airports**
- **airport users**
- **airlines**

- ***business in and around airports***

Communities may have become accustomed to lower levels of traffic, therefore, to allow Heathrow to increase traffic from unused allowances will cause unnecessary negative noise impacts, affecting health and mental health.

***55. Do you agree or disagree that the current carry-over process benefits you?***

Disagree as the carry over process disadvantages local communities around airports, particularly those who shift their winter quota to increase their summer limit.

***56. Provide evidence to support your view.***

See Q55.

***57. What changes, if any, would you like to see to the carry-over process and how would this impact you?***

All night flights, other than emergencies and humanitarian flights, should be banned at all UK airports from 2022.

The carry-over process should be abolished as they currently leave the quota limits in winter irrelevant.

**Our national night flight policy**

***58. How fair a balance between health and economic objectives do you think our current night flight approach is? Provide evidence to support your view.***

The current approach to night flights does not provide an appropriate balance between the health on overflowed communities and wider national economic objectives.

There has been no meaningful attempt in the past 15 years to carry out a proper evaluation of the health costs and purported economic benefits of night flights. This is despite the growing evidence that exposure to aviation noise at night has adverse effects on health.

Indeed, the WHO European Noise Guidelines (2018) strongly recommended reducing noise levels below 40dB Lnight during the night time, compared to 45dB in the day. Yet, this consultation contains no proposals to deliver that reduction.

The government should urgently carry out such an assessment. The failure to do so before this consultation demonstrates the lack of balance between health and economy.

SoNA Sleep seems to show that night time measures of LAeq and N>60dB have a very similar correlation with annoyance. Indeed, N>60dB appears to demonstrate that

respondents were more sensitive at lower levels of noise. Consequently, policy should ensure that both metrics carry equal weight to properly manage night noise

Further, the delay in publication of SoNA Sleep reflects a recurring issue with the length of time it takes for evidence and research to translate into meaningful policy.

There remains a lack of clarity in existing policy as to how best to reduce the harmful effects of aircraft noise at night. This is exacerbated by existing gaps in research that need to be addressed in a systematic and robust manner. It is not clear what the DfT consider to be a successful outcome in terms of its noise objective or how progress might be measured against it.

The DfT need to set out a research programme that seeks to ensure existing knowledge gaps are filled. This could include protecting sensitive time periods, respite, noise insulation and the effectiveness of mitigation interventions.

***59. What are your views on the health impacts of aviation noise at night (including potential impacts on different groups in society)? Provide evidence to support your view.***

Numerous studies have found a link between night flight noise, annoyance, stress and ill-health.

Some more recent academic evidence can be found here:

- Baumert et al (2021) <https://academic.oup.com/eurheartj/advance-article/doi/10.1093/eurheartj/ehab151/6239256>
- Munzel et al (2020) <https://academic.oup.com/eurheartj/article/42/8/844/6046141>
- Saucy et al (2020) <https://www.mdpi.com/1660-4601/17/9/3011>
- Brown and Van Kamp (2017) <https://www.mdpi.com/1660-4601/14/8/873>

The World Health Organisation (WHO) Environmental Noise Guidelines for the European Region (2018) strongly recommended reducing noise levels by a difference of 5 decibels at night, demonstrating that large numbers of people are affected by lower levels of noise at night. 40dB Lden is the figure deemed the maximum for “safe” levels of night time aircraft noise; higher levels than this are considered to have an adverse effect on sleep and a host of other negative health impacts.

The WHO, as well as other sources referenced above, note that these negative impacts to physical health can occur from exposure levels as low as 33dB Lnight. Conditions include:

- Cardiovascular disease
- Cognitive impairment
- Hearing impairments and tinnitus
- Quality of life
- Mental wellbeing

- High blood pressure (including in children)
- Reading skills and comprehension in children
- Prevalence of a highly annoyed population

**60. What are your views on the economic value of night flights (including the potential value on different businesses and aviation sectors)? Provide evidence to support your view**

The economic value of night flights at Heathrow are minimal, benefitting the airlines and the airport but delivering little or no economic value to local communities or the wider economy.

A study by CE Delft<sup>2</sup> which assessed the economic benefits and disbenefits of night flights at Heathrow, found that:

*A ban on night flights at Heathrow is likely to be beneficial to the economy as the economic costs of the ban will be outweighed by the savings made by the reduced health costs of the sleep disturbance and stress caused by the noise of the night flights.*

CE Delft estimate that night flights sustain 1,330 jobs, but that it is false to assume that 1,330 jobs would be lost in case of a night flight ban. They argue that:

*A loss would only occur if all current night time passengers stopped travelling to Heathrow once a night flight ban was introduced. That however is highly unlikely.*

In terms of passengers, CE Delft state that the most likely scenario is that a proportion of passengers will continue to use Heathrow, albeit during the daytime period.

Therefore, a night flight ban would bring economic benefits to the overall economy due to a significant decrease in the costs associated with sleep disturbance, as well as a smaller decrease in the costs of air pollution from aircraft and local traffic. If the loss of productivity caused by sleep disturbance and the climate costs of the flights was factored into the cost benefit analysis, then it seems likely that night flights would actually have a negative economic value to the country.

Insufficient data exists to support claims of the economic benefits of night flights. Government should commit to undertaking a comprehensive review of the economic, social, environmental and health impacts of night flights.

**61. What are your views on changes to aircraft noise at night as result of the COVID-19 pandemic? Provide evidence to support your view**

Our members have enjoyed the reduction in air traffic at night during the pandemic and many are anxious about return to pre-pandemic levels.

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<sup>2</sup> [https://cedelft.eu/wp-content/uploads/sites/2/2021/04/7307\\_finalreportJF.pdf](https://cedelft.eu/wp-content/uploads/sites/2/2021/04/7307_finalreportJF.pdf)

The COVID-19 pandemic further weakens the case for any night flights as traffic volumes will remain below pre-pandemic levels for many years, thus increasing the operational resilience of airports to accommodate all flights during the day.

***62. In your opinion, what are the advantages or disadvantages that the emergence of new technology will have in relation to night noise from aircraft within the next 10 years? Provide evidence to support your view.***

2019 analysis on noise forecasts from the CAA (CAP 1731) anticipates that by 2050 the geographical area exposed to noise around all UK airports may shrink but that the total number of people exposed to aircraft noise will increase.<sup>3</sup>

Flights at Heathrow have also tended to become more concentrated over the last decade or so both on landing and departure. These days it tends to be the sheer volume of aircraft passing overhead which most disturbs people – not something that can be solved by a slightly quieter aircraft.

The Sustainable Aviation Noise roadmap reveals that any further improvement delivered by UK aerospace manufacturing will be incremental. The report estimates (based on historical trends) that the rate of noise reduction will be around 0.1 decibels per annum.<sup>4</sup>

Thus, technological improvements will only produce a 1dB decrease in noise over the next 10 years, which is insufficient to reduce the harm imposed upon local communities. This means that operational restrictions or improved procedures such as better departure and arrivals and dispersal of flights can actually deliver any reduction in noise.

Further, the focus of both Government and industry is on emissions reductions with noise appearing to be less of a priority. There is also an engineering balance to be obtained between emissions and noise reduction; it is not possible to significantly reduce both without a radical alteration in the body design of aircraft. This is something that is not yet being fully explored and certainly won't be delivered in the next 10 years, if ever.

***63. Should we include a reference to night noise when we publish a revised aviation noise objective?***

Any revised aviation noise objective should include a reference to night noise. The objective should include a clear and robust mandate for night noise to be reduced.

The current objective and proposal in the consultation for 'balance' would benefit from greater clarity and specificity. Noise abatement objectives need clear targets and enforcement rules to ensure that best practice is followed, in reality.

***64. What factors relating to night noise should we include if we do introduce a noise reference in our revised aviation noise objective?***

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<sup>3</sup> [https://publicapps.caa.co.uk/docs/33/CAP1731AviationStrategyNoiseForecastandAnalyses\\_v2.pdf](https://publicapps.caa.co.uk/docs/33/CAP1731AviationStrategyNoiseForecastandAnalyses_v2.pdf)

<sup>4</sup> <https://www.sustainableaviation.co.uk/wp-content/uploads/2018/06/SA-Noise-Road-Map-Report.pdf>

A reduction in night noise, using a range of noise metrics for assessments including the number of noise events. It is also crucial that the health impact of night noise is included.

## **Airport designation**

### ***65. Should the government set criteria for airport designation?***

Yes, however we believe that the regulation of night flights at Heathrow is inconsistent with the ICAO balanced approach and that strengthened regulation is required to rectify this.

### ***66. What do you think are the:***

- ***advantages to the government setting criteria for airport designation?***
- ***disadvantages to the government setting criteria for airport designation?***

Current regulation of aircraft noise is ineffective with multiple bodies involved but little accountability. Designation offers a solution, if it is accompanied by the development of robust, effective arrangements for the regulation of aircraft noise. It is vital that Government commit to a sustained reduction in aircraft noise and its associated health impacts.

### ***67. What factors, if any, do you think we should consider when setting criteria for designation?***

Factors should include:

- the size of the airport in ATM and passenger number terms,
- the population affected, and
- the level of greenhouse gas emissions produced by of aircraft using the airport.

### ***68. How should any criteria for designation be agreed?***

The Department should develop a draft set of criteria for designation and discuss them informally with stakeholders through its normal engagement channels, before consulting formally on them.

### ***69. What impact, if any, do you think the designation of an airport would have on:***

- ***communities***
- ***airports***
- ***airport users***
- ***airlines***
- ***business in and around airports***

Designation offers a solution, if it is accompanied by the development of robust, effective arrangements for the regulation of aircraft noise.

**70. What impact, if any, do you think the de-designation of an already designated airport (Heathrow, Gatwick, Stansted) would have on:**

- **communities**
- **airports**
- **airport users**
- **airlines**
- **business in and around airports**

The impact on local communities of the de-designation of Heathrow would potentially be very negative as no arrangements for the regulation of aircraft noise currently exist. De-designation would allow the airport to increase night flights as it saw fit, with little regard for the community impact.

Government should produce clear guidelines on best operational practice, sound insulation, night flights, general noise reduction and community engagement.

**71. Any other comments?**

The noise contours in Appendix G of the consultation do not adequately represent the numbers of people affected by night flights. Thousands of people outside the 48dB LAeq contour are impacted by these flights. It should measure night noise down to WHO guideline levels and take account of these impacts in a full cost benefit analysis.

The peer review of the SoNA Sleep report states that:

*“The data analysis regarding the impact on sleep disturbance could be no more than exploratory and great care is needed when drawing any conclusions from that analysis.”<sup>5</sup>*

Given that there must have been an awareness of the limitations of the data, why did the Department commission this analysis? Instead, it should have sought to commission a bespoke night survey that would have produced more relevant and robust results that could be used to inform policy.

Despite the conclusion of SoNA Sleep that LAeq remains the best metric to use, metrics themselves only capture part of the problem when seeking to measure noise annoyance.

Indeed, Bartels et al., (2015) found that consideration of noise metrics related to the number of fly-overs and individual adjustment of noise metrics through the inclusion of non-acoustic factors can improve the prediction of short-term annoyance compared to models using equivalent outdoor levels only.<sup>6</sup>

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<sup>5</sup>[http://publicapps.caa.co.uk/docs/33/SoNA%202014%20Aircraft%20Noise%20and%20Sleep%20Disturbance%20-%20Peer%20Review%20\(CAP%202161a\).pdf](http://publicapps.caa.co.uk/docs/33/SoNA%202014%20Aircraft%20Noise%20and%20Sleep%20Disturbance%20-%20Peer%20Review%20(CAP%202161a).pdf)

<sup>6</sup> Bartels, S., Marki, F. & Muller, U. (2015) The influence of acoustical and non-acoustical factors on short-term annoyance due to aircraft noise in the field – *The COSMA study. Science of The Total Environment*, Volume 538, pp. 834-843 <https://doi.org/10.1016/j.scitotenv.2015.08.064>

It is vital that non-acoustic factors are properly understood when making policy choices that inform the night flight regime from 2025.

The peer review of the updated SoNA (2014) recommends that the DfT and CAA,

*“Investigate the uncertainty associated with the logarithmic average of SEL(A) and LAmax metrics to define vertical profiles for each aircraft model type, monitor and runway combination.”*

The review appears to suggest that small uncertainties exist in the calculations produced by the ANCON model when assessing the noise dose of aircraft. They also recommend that noise monitors are placed at a wider range of distances from the start of roll (SOR) departures and thresholds on arrivals.

This raises a couple of key questions:

- 1) Do we have accurate contours as a starting point for an analysis?
- 2) Is the CAA conclusion that LAeq should be the primary basis for assessment statistically sound?

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<sup>7</sup><https://publicapps.caa.co.uk/docs/33/CAP1506d%20SoNA%202014%20technical%20peer%20review.pdf>