

## **New Evidence Shows that Government Suppressed Expert Advice to Lower Wind Turbine Noise Limits Intended to Protect Residents**

### **Summary**

New evidence released by the Dept. of Energy and Climate Change under a Freedom of Information request shows that Government suppressed a recommendation by its own acoustics consultants to tighten current noise regulations on wind turbines in order to protect local residents from night time noise. This does little credit to the Department, and must be corrected immediately.

### **Introduction**

In 2006 the Government published a crucial report on wind turbine noise and its effects on nearby residents by Hayes McKenzie Partnership (HMP)<sup>1</sup>. This study has been used to support the view that there is no reason to revise existing Government wind farm noise guidelines, nor that there are any health ramifications of turbine noise at neighbouring dwellings.

Mr Mike Hulme of the Den Brook Judicial Review Group, a group of local residents opposing a wind turbine development close to their houses in Devon, submitted a Freedom of Information (FOI) request asking to see all draft versions of this study.

The Government, that is the Department of Energy and Climate Change (DECC), refused the request, claiming that it was not in the public interest for these to be released.

Mr Hulme appealed against this decision, and the appeal was upheld by the Information Commissioner<sup>2</sup>. Consequently the Government has been obliged to release earlier drafts of the HMP report.

The drafts reveal that the final published report silently removed earlier recommendations that:

1. the night time wind turbine noise limit should be reduced from 43dB to 38dB, and,
2. in the event that the turbine noise has a discernible beating character, the limit should be further reduced to 33dB.

The Department of Energy and Climate Change (DECC) had sought to suppress the drafts, claiming that it was not in the public interest for these to be released. However, the Information Commissioner overruled DECC. The Commissioner's report says:

the Commissioner is conscious that climate change and the need to seek safe and viable alternatives to fossil fuels are major political issues. Therefore, the Commissioner believes that disclosure of this information could be used to feed into the debate with regard to what role wind farms should have in seeking to reduce the UK's carbon emissions and how that should be balanced with regard to the

potential effect that wind farms could have on people's health.<sup>3</sup>

### **Revised Noise Recommendation Dropped**

The HMP study involved taking noise measurements at houses neighbouring three different wind farms (Askam, Bears Down and Blaen Bowi). The study revealed that complaints were due to the presence of aerodynamic modulation (the beating swish-swish signature noise of turbines), greater than originally foreseen by the authors of the existing noise guidelines (ETSU-R-97), which date from 1996. Aerodynamic modulation is particularly important at night since it can result in wind farm noise levels that are audible inside neighbouring houses and can cause complaints of sleep disturbance.

The drafts obtained under the FOI request show that the report recommendations originally included the following paragraph, which was removed in the final version:

To reduce the potential for such situations with future wind turbines, it is recommended that consideration be given to a revision of the night-time absolute noise criterion proposed within ETSU-R-97 and the development of an assessment methodology to take account of periods when high levels of aerodynamic modulation are found at a neighbouring receptor location.

The third draft includes some comments by an official whose name has been redacted in the released version. The anonymous official's response to this paragraph was:

What will the impact of this be? Are we saying that this is the situation for all wind farms, just these [ie. the three wind farms in the HMP study], a % only for people with sensitive hearing, a problem with older turbines – I think we need a sense of the scale of this and the impact.

It is difficult to avoid the conclusion that the official was avoiding the commonsense interpretation of the HMP recommendation, namely that there was sufficient ground for a blanket recommendation to prevent any future wind turbines from causing noise disturbance, and seeking specious reasons for removing this measure.

### **Suggestion of 5dB Penalty for AM character removed**

The draft report also recommends that if the characteristic beating noise of turbines is particularly intrusive at night times then it may be appropriate to lower the permitted noise limit by 5dB. This is described as adding a 5dB penalty to the limit. The quantification of this penalty was also removed in the final version of the report.

The following section was included in the draft report:

However, during the night-time periods when high levels of modulation have been measured, it may be appropriate to apply a 5 dB penalty to the incident noise from the wind farms. This would bring the assessed rated noise levels associated with the three wind farms at which measurements have been made to lie between 41.2 – 44.8 dB LA90. For Sites 1 & 2, the assessed level of wind farm noise, even with the application of this penalty, would result in the wind farm noise meeting the requirements for night-time operation outlined with ETSU-R-97. It is clear from the occupants of the dwellings at Sites 1 & 2 that such a situation would still be considered unacceptable.

The final report replaced this entire section with:

However during the night-time periods when high levels of modulation have been measured, it may be appropriate to apply a penalty to the incident noise from the wind farms.

#### **Reference to WHO Guidelines and Reducing ETSU-R-97 Limit Removed**

Also removed from the final report was the suggestion that the ETSU-R-97 limits be reduced to accord with World Health Organisation sleep disturbance limits.<sup>4</sup> Similarly, a discussion that points out that the existing ETSU-R-97 night time turbine noise limits can result in indoor night-time noise levels significantly higher than those in the absence of a wind farm has also been dropped from the final report.<sup>5</sup>

#### **All suggestions present in the drafts that the existing ETSU-R-97 limits should be revised were removed from the final report.<sup>6</sup>**

Furthermore, the Government issued a statement following the publication of the HMP report instructing local authorities to continue to follow the ETSU-R-97 guidelines.<sup>7</sup> DECC have reiterated this position as recently as 1 October 2009 in their response to a call by Environment Protection UK to revise ETSU-R-97.<sup>8</sup>

#### **Health Comment Removed**

Although the original purpose of the study was to examine the potential health effects of wind farm noise, the Information Commissioner's report notes that it is not a statutory duty of DECC (or its predecessor departments, BERR and the DTI) to set noise policy or noise limits.<sup>9</sup> This responsibility resides with DEFRA.<sup>10</sup> However, DECC is charged with removing barriers to the expansion of wind farms in the UK and takes upon itself responsibility to ensure that the wind farm noise guidance known as ETSU-R-97 is up-to-date and robust.<sup>11</sup>

DECC stated that HMP, an independent acoustics consultancy, albeit with no expertise in the area of public health, was commissioned to carry out the study into the potential health effects of wind farm noise because there were no DTI staff with relevant expertise to do this work.<sup>12</sup>

Mr Hulme, in arguing that the drafts should be released, quoted the then Minister for Energy in a House of Commons debate of 5 July 2007, in which he relied on the findings of the HMP report to support his statement that there is 'no evidence of adverse health effects from wind turbines'. Mr Hulme argued that the public were entitled to know on what basis the Minister for Energy could make such a confident assertion.<sup>13</sup>

The Information Commissioner accepted Mr Hulme's point and added that disclosure of the report drafts would increase public confidence if it was revealed a careful drafting and review process had occurred or alternatively if it was revealed that the drafts were not subjected to adequate scrutiny then it could be argued that it would be in the public interest to disclose the drafts in order to reveal these failures.<sup>14</sup>

None of the released information includes evidence that scrutiny by health experts was carried out, nor does it provide comments indicating a peer review process. Indeed, the only input appears to be the anonymous official's comments on the released draft, which are particularly negative about a reference to health effects. The HMP study noted that audible wind turbine noise within a bedroom resulted in the occupants finding it difficult to return to sleep if woken during the night. The draft report observed:

A difficulty in returning to sleep will result in tiredness the next day and all the associated descriptions of ill-health which might be associated with a lack of sleep.

This remark was removed, after the following response from the anonymous official:

This sentence is dangerous and could be read that wind farms cause ill-health which is not the intention. We need the report to stick to the facts that LFN is below the guidelines but that once woken by a car there may be problems getting back to sleep for those with sensitive hearing as result of the windfarm – something like that.

This is a remarkable statement and demonstrates the conflict of the roles adopted within the DTI, and now DECC, of promoting wind farm development while also having responsibility for the wind farm noise guidance policy intended to protect local residents.

### **Government Emails Deleted**

The Government contract with HMP required three drafts of the report to be produced. No reason is available as to why three drafts were required: a reasonable assumption would be that Government officials wished to comment on and have the chance to ensure the content was appropriate and clear.

In addition to the FOI request for sight of the draft reports, Mr Hulme's FOI request also asked for copies of correspondence relating to revisions of the report. Although this request was originally refused in August

2007, DECC released 8 emails in January 2009 which it stated represented the complete set of relevant emails available at that time.

DECC officials informed the Information Commissioner that it is not Government policy to keep a record of all emails that are created or received. Because of changes in Government department structures in recent years, three different departments have been involved in this FOI request. The three departments - DTI, BERR and DECC – all automatically delete emails over 12 months old, on a rolling basis, unless the official writing or receiving the emails considers the content is of value, in which case he or she must manually save the email to a separate electronic filing system. Because of this policy, DECC informed the Information Commissioner's that further correspondence in relation to revisions of the report may have existed at the time of the project but had not been saved.<sup>15</sup>

None of the eight released emails contains any comments by the DTI on the content of the drafts or requests for revisions.

### **Importance of the Released Information**

The recommendation that the indicative Government wind farm night time noise limits should be reduced substantially was made to the DTI in 2006. It is striking, and reprehensible, that this recommendation has only come to light more than three years later, and after a contested FOI request.

In this time, further consents for wind farms have been granted, with the night time noise limits set at levels which Government's own appointed acoustic experts had clearly stated would not protect the sleep amenity of nearby neighbours.

Furthermore, much time at public inquiries has been devoted to debating noise conditions to prevent nuisance from amplitude modulation noise. Had the information removed from the draft reports submitted to the DTI in 2006 been available to these Inquiries different outcomes would have resulted, and public amenity been more adequately protected.

In Mr Hulme's case, the Public Inquiry into the proposed wind farm at Den Brook closed on 26th October 2009, just one day before being notified this information was to be released to him. This extended delay prevented him from using the information at the inquiry into the wind farm, noise from which is expected to erode the existing tranquillity of his property.

### **Recommendations**

It is a matter of urgency that Government should re-commission a wholly independent review of the noise guidelines for wind turbines, taking into account those matters raised in the drafts of the HMP study, with the aim of replacing ETSU-R-97, which is now discredited.

Government is responsible for a number of inadequate noise conditions in wind turbine planning consents, and these consents are arguably unsound, and should be re-determined.

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## Footnotes

<sup>1</sup> The Hayes McKenzie report published by the DTI can be found at <http://www.berr.gov.uk/energy/sources/renewables/explained/wind/onshore-offshore/page31267.html>

<sup>2</sup> The Information Commissioners decision can be read at [http://www.ico.gov.uk/upload/documents/decisionnotices/2009/fer\\_0184885.pdf](http://www.ico.gov.uk/upload/documents/decisionnotices/2009/fer_0184885.pdf)

<sup>3</sup> Paragraph 87

<sup>4</sup> The text relating to the WHO guidance in the drafts which is not in the final report is :

'If one takes the guidance within the WHO for the protection against sleep disturbance of 30dB LAeq, and apply a 5 dB correction for the presence of high levels of [aerodynamic] modulation within the incident noise, then this gives rise to an internal noise criterion of 25dB LAeq. Based upon the measured building attenuation performances at Site 1 & 2, then an external level between 35 – 40dB LAeq (33-38 dB LA90) would provide sufficient protection to neighbouring occupants to minimise the risk of disturbance from the modulation of aerodynamic noise.'

<sup>5</sup> The text relating to the ETSU-R-97 night time limit in the drafts which is not in the final report is :

Furthermore, the basis of the ETSU-R-97 external night-time guidelines is to protect the processes of sleep with an internal noise level limit not to exceed 35 dB LAeq. Such an internal noise level could be anywhere between 5 – 10 dB higher than the existing internal noise environment within an occupied bedroom at night, i.e. clearly audible to the average listener who is awake.

The measured external noise levels during the high modulation conditions ranged between 36 – 40 dB LA90. If an incident noise is not subject to high levels of amplitude modulation, then internal noise levels will range between 20 – 30 dB LA90, (for a 10 – 15 dB insertion loss from outside to inside). However, if the noise does contain a high level of modulation, then the "rated" internal level will range between 25 – 35 dB LA90,r, equivalent to 27 – 37 dB LAeq, r. In the worst case a reduction in the external criterion level by 7 dB would ensure that 30 dB LAeq,r is not exceeded with windows open.

The current ETSU-R-97 Night-time Absolute Noise Criterion is a level of 43 dB LA90, equivalent to 45 dB LAeq. A reduction of 7 dB(A), to 38 dB LAeq (36 dB LA90) will, on the basis of the measurements, give rise to an internal noise environment of less than 30 dB LAeq, with windows open and with a 5 dB acoustic feature correction for high levels of aerodynamic modulation. Actual internal noise levels will range up to 25 dB LAeq, which is close to the unoccupied internal noise levels within the dwellings. Even so, with windows open and during periods of high aerodynamic modulation, there is still the potential for this noise to be heard but at a greatly reduced level. With windows closed, it should be expected that wind farm noise is likely to be reduced to close to inaudibility for a majority of the time.

<sup>6</sup> An example of text, related to revision downwards of the ETSU-R-97 night time limit, which was removed from the final report is : 'The analysis

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of the external and internal noise levels indicates that it may be appropriate to re-visit the issue of the absolute night-time noise criterion specified within ETSU-R-97. To provide protection to wind farm neighbours, it would seem appropriate to reduce the absolute noise criterion for periods when background noise levels are low. In the absence of high levels of modulation, then a level of 38 dB LA90 (40 dB LAeq) will reduce levels to an internal noise level which lies around or below 30 dB LAeq with windows open for ventilation. In the presence of high levels of aerodynamic modulation of the incident noise, then a correction for the presence of the noise should be considered. `

<sup>7</sup> <http://www.berr.gov.uk/files/file35592.pdf>

<sup>8</sup> <http://www.environmental-protection.org.uk/news/detail/?id=2300>

<sup>9</sup> Paragraph 69 Information Commissioner's decision

<sup>10</sup> Paragraph 62 Information Commissioner's decision

<sup>11</sup> Paragraph 62 Information Commissioner's decision

<sup>12</sup> Paragraph 58 Information Commissioner's decision

<sup>13</sup> Paragraph 84 Information Commissioner's decision

<sup>14</sup> Paragraph 85 Information Commissioner's decision

<sup>15</sup> Paragraph 45 Information Commissioners decision