



Independent Noise Working Group

Informative – 5th October 2016

Wind Turbine Noise Amplitude Modulation (AM) and its Control:

Concerns have been raised with Members of Parliament including The Rt. Hon Greg Clark MP Secretary of State in the Department for Business Energy & Industrial Strategy regarding the recent report and recommendations produced for Government by WSP / Parsons Brinckerhoff (WSP/PB) on the subject of wind turbine noise amplitude modulation (AM) and its control.

In making their position absolutely clear, INWG recommends that Government do not implement either the IoA or the WSP/PB report recommendations.

Moreover, INWG believes that it is now essential for a suitably worded condition to properly protect residents from the impacts of EAM to be drafted and included in every new planning permission issued in the future. It can no longer be claimed that such would not meet the tests for a planning condition and so leave residents vulnerable to this common form of nuisance without any planning control. Although WSP/PB refer to a condition in their document, it remains unclear under which circumstances one should be imposed.

Background:

The contract for the AM study and report was awarded by the former DECC to WSP/PB during early summer 2015, shortly after the election and before the new Government ministers had become familiarised to their new roles at DECC.

The INWG subsequently met with the then Energy Minister Andrea Leadsom MP on 13 October 2015 where INWG representatives presented the findings and recommendations from their fourteen-month duration AM study. This included, amongst others, the recommendation that BS4142:2014 be used for the assessment and control of AM. The INWG also presented their concerns at that time regarding conflict of interest issues surrounding the Institute of Acoustics (IoA) wind turbine noise working groups and WSP/PB. The Energy Minister offered to provide INWG with the final WSP/PB report when submitted to DECC. The INWG has now reviewed a paper presented by WSP/PB at the Internoise conference on 23 August 2016 summarising their AM report to Government.

The INWG also has concerns regarding the report produced by the IoA on wind turbine AM measurement released on 9 Aug 2016 and forming an integral part of the WSP / PB report to Government. Since these two reports are produced by the same small group of closely connected acousticians largely from the wind industry supply chain, the INWG concerns below relate to both reports.

Summary of INWG concerns:

- The methodologies being proposed by WSP/PB and the IoA for measurement and control of AM are very similar to the methodologies proposed in the RenewableUK AM report from 2013. RenewableUK being the wind energy industry lobby organisation. The RenewableUK

report was subsequently heavily criticised and on testing by the INWG the proposed control methodology failed to protect against even the worst cases of AM. These methodologies also rely on the now discredited and undermined ETSU-R-97 guidelines for assessment of wind turbine noise. It should also be noted that the authors of the RenewableUK report were from the same small group of wind industry supply chain acousticians responsible for the two recent reports and most formal noise assessment guidance to Government over the last two decades.

- The control methodologies being proposed by WSP/PB have not been tested on real wind turbine noise data. The INWG plan to conduct such tests later this year when available resources permit.
- The WSP/PB report ignores much inconvenient scientific literature and evidence, thus summarily and unreasonably dismissing the use of BS4142:2014. The INWG found in their 2014/15 AM study that this latest version of BS4142 to be a most effective methodology for the control of wind turbine noise AM when tested with real wind turbine noise data. It should be noted that BS4142:2014 was developed by academics independent of the wind industry for assessing all types of industrial noise sources.
- The WSP/PB report and control recommendations are specifically for future wind turbines only and explicitly exclude existing wind turbines. Both the WSP/PB and IoA reports downplay the significance of AM from existing turbines. This leaves a large number of people living near wind turbines currently suffering from AM without adequate protection and local authorities no closer to a solution.
- Local communities are expressing their concerns regarding the lack of independence of the IoA with behaviour more akin to an industry trade body than an independent academic institution. The conflict of interest issue is covered in detail in the INWG 2014/15 AM study. In a letter¹ dated 7 August 2014 and obtained under a Freedom of Information request, W. Egan the then President of the IoA urged E Davy the then Secretary of State at DECC to adopt a penalty system for AM and in the penultimate paragraph states:

“The incidence of AM is reported to be increasing the number of complaints from onshore wind farms, and a number of nuisance cases are understood to be currently being progressed through the courts. Without a Government steer on the matter of AM, it is likely that Judges may accept a lower threshold of acceptance than current Government support for on-shore may suggest, which could restrict the roll-out of onshore wind in the UK.”

The INWG believe this is a clear attempt by the IoA to influence the independence of the judiciary for the benefit of the wind industry and further exemplifies the INWG’s deep concerns.

¹https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/388706/Letter_to_Ed_Davy_MP_7_Aug_14.pdf

Testing of IoA AMWG proposed AM noise control methodology:

Tests using real AM recordings have yet to be completed. However, preliminary analysis by leading Australian wind farm acoustic experts and INWG consultants, L Huson & Associates Pty Ltd., using only the test data supplied by the IoA AMWG already reveals substantial flaws.

For example, in situations where a wind farm is adjusting to frequently changing wind conditions (and each turbine may be turning at different speeds) the frequency range suggested in the IoA AMWG analysis process may not accommodate the speed range from all of the turbines and will produce false negatives.

It is probably the changes in wind conditions across a wind turbine that causes blade instability which gives rise to larger levels of amplitude modulation. When this is the case, then the IoA AMWG amplitude modulation metric will significantly underestimate the amplitude modulation in the input data and be a poor indicator of noise nuisance in the community.

In addition to testing the WSP/PB proposed AM control methodology, the INWG will be reviewing and producing a detailed critique of the WSP/PB and IoA AM reports.

The INWG has requested Government to provide a copy of the full WSP/PB report to enable a more detailed review to be conducted.

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Who are the Independent Noise Working Group?

The Independent Noise Working Group (INWG) was formed during August 2014 to study wind turbine noise amplitude modulation (AM) in response to concerns surrounding the setting up by the Institute of Acoustics (IoA) of an amplitude modulation working group (AMWG). The principal objective of the INWG study is to protect communities and wind turbine neighbours from amplitude modulation, challenging the IoA where appropriate.

The INWG is sponsored by Chris Heaton-Harris MP (Con., Daventry) and the National Alliance of Wind farm Action Groups (NAWAG) and consists of a diverse group of concerned individuals, experts and non-experts. The group takes an independent and holistic view of the current wind turbine noise AM problem avoiding the constrained wind industry approach adopted by the IoA AMWG. The INWG multi-disciplinary team is independent of the wind industry supply chain with expertise including:

- Acoustics
- Physics

- Meteorology
- Statistics and data analysis
- Health and sleep
- Environmental health (LPA)
- Legal and planning

A highly detailed report was released during the summer and autumn of 2015 which along with supporting presentations made to Energy Minister Andrea Leadsom MP on 13 October 2015 and to the IoA at their annual conference on 15 October 2015 can be downloaded at;

<https://www.heatonharris.com/reports-publications>