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Dear Steven

Cape Bridgewater Wind Farm Acoustic Study

Congratulations on the release of your benchmark research into the effects of wind farm activity and the measurable effects on persons living in the locale. At 235 pages for the report and 6 technical annexures (491 pages) the study cannot be matched by any previous wind farm study in Australia. The research is a unique contribution to science and is remarkable and ground-breaking:

1. The determination of the actual physical parameters involved in the measurement, interpretation and assessment of wind farm noise (audible and infrasound) on persons is formalised and supported by extensive documentation.
2. The development and determination of the concept of 'sensation' as distinct from 'noise' due to infrasound, low frequency sound, audible sound or vibration is ground-breaking and unique. The concept has an important place alongside standard measures such as 'quality of life' and psychoacoustical correlates.
3. The obvious support from both PacificHydro and the residents is the stand-out feature of the study and it is clear from the text that the outcomes were not envisaged by yourself or the study participants at the commencement of the study. The approach taken is highly professional and supportive to both your client (PacificHydro) and sympathetic to the residents who provided you with their assistance.

The study is extremely comprehensive. Outcomes immediately apparent from an overview of the study that should become a vital part of any present and future wind farm study are:

1. Measurement and analysis methodologies for instrumentation and uncertainty derived from the study are now the benchmark for all acoustic consultants, scientists and engineers involved in the field;
2. The determination of a wind turbine signature at two different frequency 'sets' related to sensation is unique. The sensation frequencies are grouped in the infrasound 1Hz to 5Hz and low frequency 30Hz to 35Hz bands for the Repower 88 turbines. Different turbines will have

different centre frequencies and sidebands at the blade pass frequency. The methodologies for determining sensation are the link-points for many other studies that did not have the access to the acoustical data and human response questionnaires developed by you for this study.

3. Infrasound is firmly identified as a standard and normal part of the emissions of a wind farm. The character of the infrasonic emissions is identified as being measurably different from 'ordinary' wind; that is, infrasound generated by/from turbines consists of trains of pressure pulses and must be measured through narrow-band analysis and interpreted accordingly. Standard measures with third-octave bands and G-weighting are found to be not valid identifiers/measures of wind turbine affected wind noise;
4. The determination of a wind turbine signature consisting of the nominal blade pass frequency and first 5 or 6 harmonics is a significant outcome from the study as these frequencies are present and measurable even in high winds.
5. The study provides significant 'food for thought' for power station managers and regulators with respect to the anecdotal issues /questions / complaints of adverse health effects and sleep disturbance, annoyance and loss of amenity and wellbeing experienced by persons living near a wind farm.

The most intriguing part of your study is the set of conclusions dealing with the 'pattern of high severity of disturbance' experienced by the residents with the wind farm in operation. Therefore, the obvious question, based on the detail in your study, is:

Can the operation of the wind farm be modified to reduce or mitigate the disturbances experienced by the residents?

The present situation cannot continue without change. The report has raised hard questions for PacificHydro to discuss with the residents. It is to be hoped - and expected - that support is given for the next steps of resolving the issue of adverse effects and restoring individual amenity and wellbeing to its original status prior to the operation of the wind farm.

Best Regards

Dr Bob Thorne PhD, MAAS, MIOA, FRSPH

Principal

Reference source:
http://www.pacifichydro.com.au/english/our-communities/communities/cape-bridgewater-acoustic-study-report/?language=en