Submission to the Senate Inquiry into "The Social and Economic Impact of Rural Wind Farms"

Preamble

This submission is presented under the term of reference "any other relevant material" and is most relevant to the adverse health effects for people living in close proximity to wind farms.

This submission describes the effect of noise emissions from large laboratory buildings erected within an inner suburban residential area (Appendix 1), on the health of the residents living in close proximity to this noise source.

The complainants in this suburban area were subjected to noise which has common frequencies with that generated by wind farms. The adverse health and social effects suffered by the residents are very similar to those described by residents affected by exposure to wind farm noise emissions.

Similarities between the wind farm noise and the urban noise problems

1. Symptoms experienced by affected residents were very similar:
   - interrupted sleep
   - constant tiredness presumed to be consequent to lack of proper sleep
   - annoyance and stress, especially as there is no escape from the noise
   - distressing and persistent "buzzing noise in the head" (sometimes described as tinnitus). Initially this would resolve when the residents sought respite away from the area. The effects seemed to be cumulative as the period away from the noise to achieve resolution, increased with time. This was documented in detail for at least one resident.
   - increases in blood pressure. In at least one case, this was measured carefully and returned to normal when the resident moved residence out of the area
   - feelings of pressure and vibration on the body.

2. Evasive actions taken by affected residents were similar

   Residents tried wearing ear plugs and sound cancelling earphones to escape the noise. Neither were effective due to the long wavelength of the low frequency noise. Similarly, double glazing of the windows and acoustic insulation in the ceiling of homes were not effective as the long wavelengths pass through these barriers. (Initially residents were not aware of the nature of the noise and did not understand the physics of the low frequency noise and therefore embarked on these ultimately futile exercises.)

   People took to moving their sleeping quarters to the back of their houses and then to having as much time as possible away from their homes. In one case, the resident moved to temporary accommodation for a year in the hope that the problem would be resolved. The problem was not solved within this time frame and the resident relocated permanently to another suburb.

   These responses parallel those described by residents affected by wind farm noise, that is trying to escape the noise and ultimately for some, abandoning their homes.

3. The responses by the owners of the offending noise sources were similar:
   - denial of the problem
   - a campaign that the complainants were somehow supersensitive or inventing their symptoms
   - an inability and/or unwillingness of the authorities to act.

4. Social distress and dislocation

   The residents embarked on a series of interactions with the owners and authorities in an effort to restore the amenity which they had enjoyed for many years. These interactions were distressing and ultimately only partially effective. The distress of going to bed each night not knowing how bad the noise would be or whether sleep would be possible, is extreme. This distress is further exacerbated as for many residents, the option of relocation is not practical. The noise problem in that community is known and affects the saleability of properties. The dislocation to social and family life of constantly moving to find a quiet place to sleep and to seek respite from conditions in the family home is extreme. This type of social distress is similar to that experienced by residents affected by wind farm noise.

Learnings from the experience and recommendations

1. The symptoms experienced by people exposed for long periods of time to low frequency noise (LFN) are real.

   The experience of residents in the urban situation is almost identical to that reported by people suffering from wind farm noise exposure.

   The evidence for adverse health effects from long term exposure to LFN and other noise has been reported on now for some time in other countries. (Reference: Hansen CH Ed. 2006 The Effects of Low Frequency Noise and Vibration on People. ISBN 0 906522 45 5, Multi-Science Publishing Co Ltd, UK)

   The current adverse health effects of residents subjected to LFN in these two communities, urban and rural, highlights the need to address regulation of this noise emission.

   Recommendation

   That the adverse health effects of exposure to LFN be recognised. Regulation be framed to reduce LFN emissions below the level causing adverse health effects.

2. Investment in buildings and equipment without knowledge of the harm they can cause to communities limits the possible responses.

   In both situations, urban and rural, there has been major investment in buildings and/or equipment. Once construction is complete, it is very difficult and expensive to re-engineer to limit LFN emissions. This highlights the importance of specification of equipment to limit noise emissions at source. Another consideration is the cumulative effect of multiple potential sources on one site.

Recommendation

Noise emitting equipment be specified to limit LFN emissions at source.

3. The current legislation does not cover LFN emissions adequately.

   The SEPP-N1 regulation for governing noise emissions generally does make an "allowance" for low frequency and tonal noise. This "allowance" in the calculation is at the discretion of the acoustic engineer making the measurement.

   Recommendation

   A standard measurement of LFN which could be part of a regulation for governing noise emissions should be developed.

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Signed: .....

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APPENDIX 1

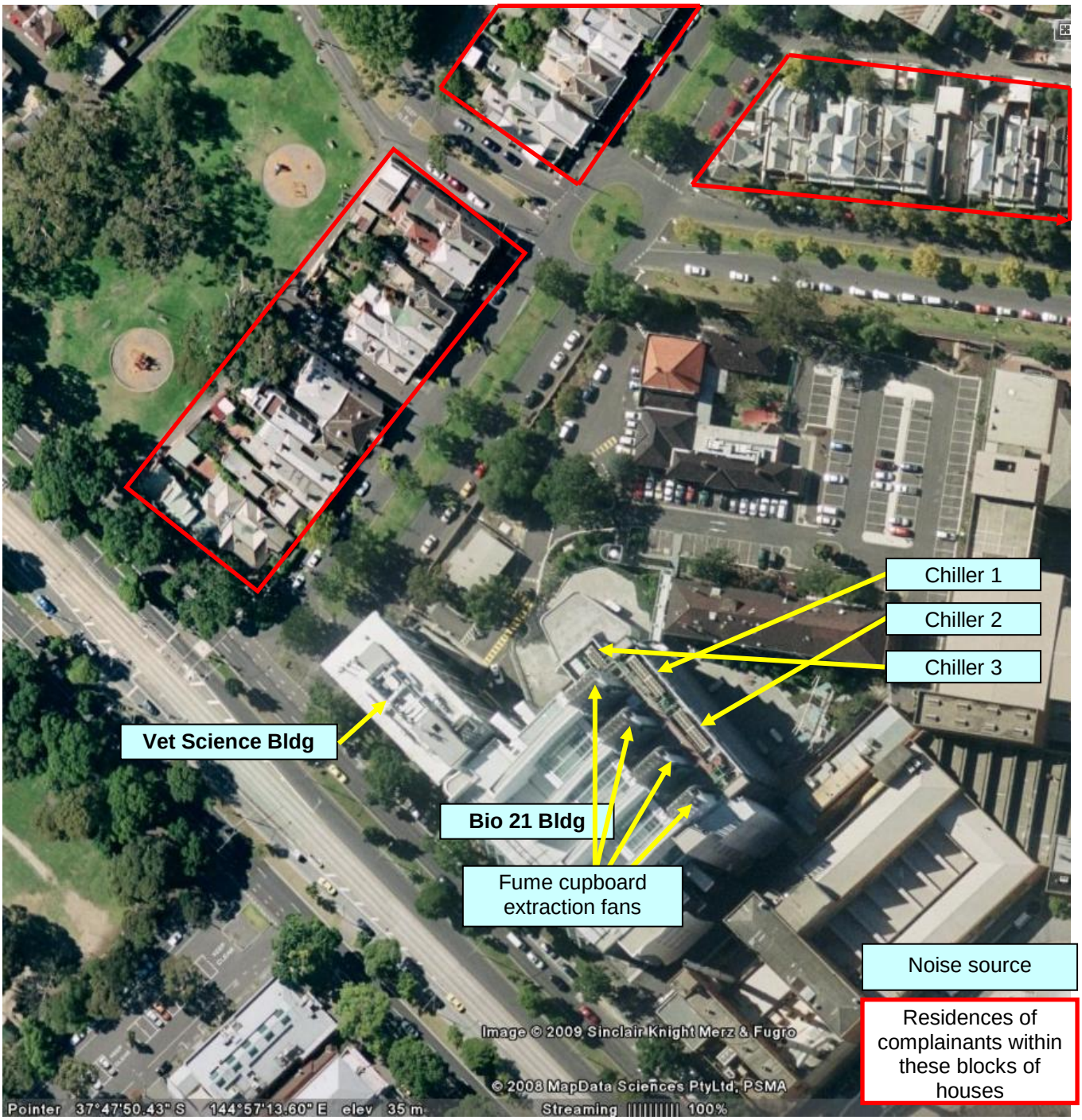
Brief description of the experience of residents in an inner urban environment exposed to LFN and other noise from a large laboratory building

The buildings generating the noise are on a site known as “The Bio 21 Precinct” owned by The University of Melbourne (see map next page). The noise emissions included tonal noise within the low and high frequency ranges. In practical terms, the frequencies of the noise emitted corresponded to a rumble, a hum and a whistle. The noise characteristically “cut in and out” during the night time that is, modulating noise.

The City of Melbourne’s Responsible Officer acknowledged in writing in October 2006 that the noise came from the Bio 21 building, had no option but to continue to pressure The University of Melbourne to solve the problem. The inability of the responsible authorities (EPA, which delegated authority to The City of Melbourne) to act is understandable in terms of their limited resources. The City of Melbourne Officer was a Health Technician with little formal knowledge of acoustics. There was a frequent turnover of responsible officers in the EPA. These authorities had inadequate resources or skills to identify the specific source(s) of the noise from the many large machines in and on the offending buildings, to inform a specific action plan which could be required of the owners.

The owners had considerable investment in the building. The design was such that many of the noise emitting plant and equipment were unprotected. For example, large air conditioning units were positioned so that the emissions were received directly by the residents. Identification of the sources of noise involved the residents hiring acoustic consultants and interacting with the owner. Identification of the sources did not lead to an easy solution of the problem. These structures were part of the overall design and it is not simple to re-engineer or protect such major pieces of equipment.

Although the responsible authority stated that disturbances of this nature may be considered a nuisance under the Health Act 1958, they had to rely on the efforts of the owner to control the noise. These efforts of the owner continued for the next three years with frequent meetings and interactions with the affected community. The expense and uncertainty of the residents pursuing remedial action under the Health Act made this course of action impractical.


Chiller 1
Chiller 2
Chiller 3
Vet Science Bldg
Bio 21 Bldg
Fume cupboard extraction fans
Noise source
Residences of complainants within these blocks of houses
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