Submission to the NSW Department of Environment and Planning on the Bango Wind Farm Project

November 2016

Doctors for the Environment Australia

67 Payneham Road
College Park SA 5069
P 0422 974 857
E admin@dea.org.au
W www.dea.org.au

Healthy planet, healthy people.

Submission to the NSW Department of planning and Environment - Bango wind farm project submission
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6686

Doctors for the Environment Australia (DEA) is a voluntary organisation of medical doctors in all states and territories. We work to address the diseases – local, national and global – caused by damage to the earth's environment.

DEA strongly supports the Bango wind farm project. The reduction of carbon intensive energy generation is an essential component of limiting our greenhouse gas emissions, which are contributing to global warming with devastating effect on the health of the planet and its inhabitants. Direct pollution from carbon energy also contributes significantly to ill health.

DEA thus strongly advocates, for the health of the community, the phasing out of coal fired power stations. This can only be achieved if alternative non-carbon based technology such as wind and solar are deployed. Thus, DEA sees the establishment of facilities such as Bango as an essential component in energy generation allowing for closure of coal fired power stations.

Bango turbines could generate 1,025 GWh of clean electricity per year, which is enough energy to power 140,000 homes. This displace the emission of 361,000 tonnes of CO_2 based on the carbon density of NSW electricity generated from black coal at 98.1kg CO_2-e/GJ.

Concerns have been raised that Wind turbines may impact on human health. The term Wind Turbine Syndrome has been coined but this is not an officially recognised condition or syndrome.

Audible noise from any source is recognised as a potential cause of ill health. However, no physiological mechanism has been found for the effects of sub audible low frequency noise. The NHMRC 2014 literature review of the effects of wind turbines showed no reliable or consistent evidence of noise causing ill health. Both audible and sub audible low frequency noise was considered.

Outcomes reporting health effects from annoyance and sleep disturbance may have been affected by bias confounding factors such as antipathy to wind farms. The South Australian EPA study (2014) concluded that infrasound levels at homes near wind turbines were no greater than that experienced in the rural or urban environments and that wind turbines did not contribute to significant levels of infrasound compared to background.

A most recent review, which examined the biological mechanisms that might account for ear related symptoms from low frequency noise, found no plausible mechanism but stated that further research in this area is needed.

Symptoms may arise in some individuals as a result of expectations of adverse effects and there is evidence to suggest that increases in symptom reporting in some wind farm locations is being driven by the promotion of potential adverse health effects in these communities.

DEA thus advocates

1. That the small number of people living near wind turbines that have suffered from ill health should be taken seriously. However, based on current medical literature there is no credible evidence to suggest that wind farms cause significant harm to human health.

2. In order to minimise the impact of human-driven climate change on the vital, interdependent ecosystems of our planet, and the confirmed health problems associated with coal fired power stations, the development of new wind farms, with appropriate community consultation, such as Bango is a matter of urgency.

DEA has developed a Position Statement on the Health Effects of Wind Turbines and is included as Appendix A.

Appendix A

Doctors for the Environment Australia **Position Statement**

Health Effects of Wind Turbines

DEA recognises that:

- Our health is dependent on the ecological and environmental conditions afforded by the stable climatic conditions of the Holocene era.
- Global health impacts are already occurring as a result of climatically induced environmental change, and projections of future climate change are likely to lead to profound health impacts and ultimately unmanageable conditions.
- Stationary energy is the single largest contributing sector to greenhouse gas emissions in Australia and globally. Therefore replacing carbon intensive energy generation with low carbon alternatives will be essential in limiting greenhouse gas emissions.
- Wind and solar electricity generation technologies are currently the primary, and probably only, scalable technologies that can be deployed economically in the required time frame [1].
- Successful rollout of these technologies is therefore paramount if the world is to limit global average temperature increase to less than 2°C.

DEA notes that:

- Claims have been made that wind turbines can impact human health in numerous ways via a range of acoustic, vibrational, visual affects or electromagnetic emissions.
- The term "Wind Turbine Syndrome" [2] has been coined to describe the collection of symptoms reported in the vicinity of wind

turbines. Currently this is not an officially recognised condition or syndrome.

- Audible sound from any source, including wind turbines, should not be trivialised, as noise is recognised as having the potential to cause health impacts [3].
- A physiological mechanism to account for the claimed health impacts from sub-audible low frequency sound has not been described.
- Negative effects arising from an energy source must be viewed in the context of wider significant social and environmental consequences. In the case of Wind Turbines, health benefits accrue from the avoidance of air pollution and greenhouse gas emissions, which have both immediate, long term and cumulative health effects.
- There has been a persisting failure for policy makers to account for the broader social and health effects that are integral to energy generation, despite these being increasingly well recognised and documented.

Updated review of published evidence:

- The NHMRC 2014 literature review on the health effects of wind turbines examined three aspects of wind turbine effects: noise, shadow flicker and electro-magnetic radiation (EMR). No reliable or consistent evidence of noise directly causing health effects was found, although indirectly the annoyance and possible sleep disturbance some people experienced may impact on wellbeing. Impacts from audible, infrasound and low frequency noise from wind turbines were considered. However study outcomes reporting health effects from annoyance and sleep disturbance may also be affected by bias, or confounding factors (such as an antipathy to wind farms). No evidence of shadow flicker effect was found. The levels of low frequency EMR were less than in the average suburban home [4].
- A comparative infrasound study by the South Australian EPA (2014) concluded that infrasound levels at homes near wind turbines were no greater that that experienced in other rural or urban environments, and that wind turbines did not contribute significant levels of infrasound in comparison with background sources [5].
- Symptomatology may arise in some individuals as a result of expectation of adverse effects, (termed as a “nocebo” effect, and the corollary of placebo effect). There is evidence to suggest that increases in symptom reporting in some wind farm locations is being driven by the promotion of potential adverse health effects

in those communities [6,7,8].

- Pre-exposure information can positively and negatively contribute to post exposure symptomatology [7]. Other factors that can enhance or mitigate annoyance levels in those exposed to noise include prior attitudes to wind farms, their visibility and receiving financial recompense (or not) [8,9,10].
- The most recent review (2014) to examine the biological mechanisms that might account for auditory and vestibular symptoms from low frequency sound concluded: "If we attempt to explain the vestibular symptoms of Wind Turbine Syndrome within the framework of our present knowledge, we have to conclude that there is no evidence for biological plausibility" [11]. It did acknowledge that "we still have significant knowledge gaps regarding the activation of vestibular system with acoustic signals, particularly low-frequency and infrasound (below 20 Hz) components".

DEA therefore:

- Acknowledges that a small proportion of people living near wind turbines have reported suffering from noise-related complaints and takes these complaints seriously. However, based on the current medical literature, DEA reiterates that there is a lack of credible evidence to suggest that wind farms result in significant harm to human health.
- Suggests that in the development of new wind farms; community consultation should be undertaken, which is both informative about wind energy and involves the local community in wind farm development decisions. Moreover, distributing the economic benefits more widely in the whole community will improve broader acceptance.
- Supports the urgent deployment of wind farms to enable the transition away from carbon-intensive energy generation, in order to minimise the impact of human-driven climate change on the vital, interdependent ecosystems of our planet.
- Calls for full cost accounting, which can include health impacts from air pollution and climate change, to be mandatory in determining energy generation choices.

References

1. United Nations Climate Commission, 2013. T*he Critical Decade 2013: Climate Change Science, Risks and Responses,* available at http://apo.org.au/research/critical-decade-2013-climate-change-science-risks-and-responses (accessed 27 July 2014).
2. Bowdler, Dick, 2012. *Acoustic Australia* 40(1)."Wind Turbine Syndrome: An Alternative View".
3. Leventhall, H., Low frequency noise and annoyance. *Noise and Health* **2004,** 6, (23), 59
4. NHMRC 2014, Wind Farms and Human Health Reference Group, NHMRC Draft Information Paper: Evidence on Wind Farms and Human Health, available at https://consultations.nhmrc.gov.au/public_consultations/wind_farms (accessed 11/5/2014)
5. SA EPA. Infrasound levels near windfarms and in other environments. T Evans, J Cooper, V Lenchie. http://www.epa.sa.gov.au
6. Crichton F, Chapman S, Cundy T and Petrie KJ (2014) The link between health complaints and wind turbines: support for the nocebo expectations hypothesis. *Front. Public Health* **2**:220. doi: 10.3389/fpubh.2014.00220
6. Job, R. S. 1999, 'Noise sensitivity as a factor influencing human reaction to noise', *Noise and Health*, Vol.1, no.3
7. Crichton F, Dodd G, Schmid G, et al. The Power of Positive and Negative Expectations to Influence Reported Symptoms and Mood During Exposure to Wind Farm Sound. *Health Psychology*. 2013; 33(12)
8. Crichton, F, Dodd, G, Schmid, G, Gamble, G, and Petrie, KJ. 2013,'Can Expectations Produce Symptoms From Intrasound Associated With Wind Turbines?' *Health Psychology*, March. Abstract available at http://www.ncbi.nlm.nih.gov/pubmed/23477573
9. Pedersen E, van den Berg F, Bakker R, Bouma J. 2009, Response to noise from modern wind farms in The Netherlands. *J Acoust Soc Am* Vol 126, pp. 634-643.
10. Carr AJ, Gibson B, Robinson PG. Is quality of life determined by expectations or experience? *BMJ*. 2001; 322(7296): 1240-3.
11. Robert V. Harrison (2014): On the biological plausibility of Wind Turbine Syndrome, International Journal of Environmental Health Research http://dx.doi.org/10.1080/09603123.2014.963034

December 2014

Doctors for the Environment Australia

Healthy planet, healthy people

67 Payneham Road
College Park SA 5069
P 0422 974857
E admin@dea.org.au
W www.dea.org.au