



**Public Health Association**  
AUSTRALIA

## **Public Health Association of Australia submission on Select Committee on Wind Turbines**

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## **Introduction**

The Public Health Association of Australia Incorporated (PHAA) is recognised as the principal non-government organisation for public health in Australia and works to promote the health and well-being of all Australians. The Association seeks better population health outcomes based on prevention, and promoting the ecological and social determinants of health, and equity principles.

## **Public Health**

Public health includes, but goes beyond the treatment of individuals to encompass health promotion, prevention of disease and disability, recovery and rehabilitation, and disability support. This framework, together with attention to the social, economic and environmental determinants of health, provides particular relevance to, and expertly informs the Association's role.

## **The Public Health Association of Australia**

PHAA is a national organisation comprising around 1900 individual members and representing over 40 professional groups concerned with the promotion of health at a population level.

Key roles of the organisation include capacity building, advocacy and the development of policy. Core to our work is an evidence base drawn from a wide range of members working in public health practice, research, administration and related fields who volunteer their time to inform policy, support advocacy and assist in capacity building within the sector. PHAA has been a key proponent of a preventive approach for better population health outcomes championing such policies and providing strong support for the Australian Government and for the Preventative Health Taskforce and National Health and Medical Research Council (NHMRC) in their efforts to develop and strengthen research and actions in this area across Australia.

PHAA has Branches in every State and Territory and a wide range of Special Interest Groups. The Branches work with the National Office in providing policy advice, in organising seminars and public events and in mentoring public health professionals. This work is based on the agreed policies of the PHAA. Our Special Interest Groups provide specific expertise, peer review and professionalism in assisting the National Organisation to respond to issues and challenges as well as a close involvement in the development of policies. In addition to these groups the Australian and New Zealand Journal of Public Health (ANZJPH) draws on individuals from within PHAA who provide editorial advice, and review and edit the Journal.

## **Advocacy and capacity building**

In recent years PHAA has further developed its role in advocacy to achieve the best possible health outcomes for the community, both through working with all levels of Government and agencies, and promoting key policies and advocacy goals through the media, public events and other means.

## 1. Term of Reference c

In relation to the Term of Reference c), **the role and capacity of the National Health and Medical Research Council in providing guidance to state and territory authorities;**

One of the National Health and Medical Research Council's (NHMRC) statutory roles is "Developing health advice for the Australian community, health professionals and governments." The PHAA believes that it carries out this function well, in a considered and independent manner. It has the access to the expertise, the infrastructure and mechanisms to make sure it does it well. The members of the Council have a broad range of interest and expertise, and there are more than a dozen specialised committees to advise them on health related matters.

## 2. Term of Reference i

In relation to the Term of Reference i), **any related matter:** we wish to draw the Inquiries attention to the health implications of wind turbines within the broader context of health and energy in Australia.

PHAA's policy position on Wind Turbines and Health (attached) is summarised:

"Wind energy is an important part of the renewable energy spectrum for replacing fossil fuels to improve human health and protect the environment now and in the long term. Some people report adverse effects from wind turbine noise, despite a paucity of peer-reviewed evidence to support some of these claims. On the balance, the evidence suggests that at on a population level, the adverse impacts of fossil fuels outweigh the adverse effects of wind technology."

We note the recent NHMRC Statement on wind farms and human health. A summary of those findings (from the PHAA policy) is:

"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 from bias, or confounding factors (such as an antipathy to wind farms). No evidence of effects from shadow flicker were found. The levels of low frequency EMR were less than in the average suburban home." No evidence suggesting a possible causative relationship between wind turbine noise and health could be found.

A more detailed assessment of the health effects of wind energy is given in the Climate and Health Alliance paper Health and Energy Choices Background 1. In brief that paper finds that adverse health effects from wind turbines have been reported in Australia and internationally. There are claims about health effects resulting from exposure to infrasound (low frequency sound, in the range less than 200Hz), and about the character of the noise and associated reports of sleep disturbance and annoyance, which have the potential to contribute to stress related disorders. Differences of opinion exist among acousticians regarding the specific characteristics of the sound, and of the physiological mechanism underlying those complaints.

The available Australian and international evidence does not support the view that the infrasound or low frequency sound generated by wind farms causes adverse health effects for people living or working in proximity to them.

While audible noise from wind turbines has been demonstrated to be much lower than many other sources of environmental noise, this component is associated with annoyance.<sup>i</sup> Noise levels, including infrasound, diminish with distance from the source wind farm.<sup>ii</sup> It has been argued that wind farm noise is too low to be audible, whereas reports suggest that under certain conditions, sound can be heard at a distance of several kilometres.<sup>iii</sup> The variable tonal or fluctuating swish from wind turbines has been suggested as the prime contributor to annoyance in susceptible people<sup>iv</sup> which they find more annoying than transportation or industrial noise at comparable levels.<sup>v</sup>

At distances beyond 500 metres, infrasound and low frequency sound generated by wind farms in Australia is thought to be below the level capable of causing health effects to occur, and there is no accepted physiological mechanism where sub-audible infrasound from wind farms could cause health effects. A number of mechanisms additional to noise have been suggested that may account for complaints attributed to the operation of wind turbines.<sup>vi, vii</sup> These include the ‘nocebo’ effect, in which expectations of symptoms can become self-fulfilling; misattribution of pre-existing or new symptoms to a novel technology; worry about the technology increases the chances of someone attributing symptoms to it; and social factors, including negative media reporting and interaction with lobby groups, which can increase symptom reporting.<sup>viii, ix</sup>

Several studies demonstrated anxiety about the sound source elevates negative responses, and this underpins a potential source of tension. The association between expectations and health outcomes dates back to Hippocrates<sup>x</sup> and is well established in the health psychology literature. The influence of pre-intervention expectations upon positive or negative outcomes is consistently demonstrated across a range of health endpoints, including weight loss,<sup>xi</sup> smoking cessation,<sup>xii</sup> and post-operative recovery.<sup>xiii</sup> Indeed the pervasive power of expectations is responsible for the double-blind design becoming a universal standard for evaluation studies<sup>xiv</sup> and the “power of positive thinking” is used therapeutically.<sup>xv</sup>

“Nocebo response” is the term to describe new or worsening symptoms that are caused only by negative expectations on the part of the patient and/or negative verbal and nonverbal communications on the part of the treating person, without any treatment or intervention.<sup>xvi xvii</sup> People who have higher levels of concern about how various aspects of modern life, such as exposures potentially harming their health, report higher levels of physical symptoms than people with lower levels of concern.<sup>xviii</sup> The nocebo response can also be powerfully elicited through news reports and social media.<sup>xix</sup> Recent studies have specifically tested attitudes and reported symptomatology in response to wind farm noise. Crichton et al. demonstrated response differentials between pre-exposure positive and negative information and post exposure symptomatology.<sup>xx, xxi</sup>

In Australia, an audit of all known complaints using wind company records, news media reports and searches of 2394 public submissions to three government enquiries found that there are large historical and geographical variations in wind farm complaints.<sup>xxii</sup> This suggests that social factors in addition to the noise are potentially at play.

Annoyance can contribute to physiological or psychological stress responses,xxiii and can cause sleep disturbance and sleep deprivation, which can negatively impact on wellbeing. Influential factors that can enhance or mitigate the annoyance levels in those exposed to the noise include prior attitudes to wind farms, their visibility and receiving financial recompense (or not).xxiv,xxv,xxvi

Studying of quality of life is an inexact science. Perception of quality of life varies between individuals and is dynamic within them, and people with different expectations will report that they have a different quality of life even when they have the same clinical condition.xxvii Additionally, people whose health has changed may report the same level of quality of life when measures are repeated. It is also apparent that current measures do not take account of expectations and cannot distinguish between changes in the experience of disease and changes in expectations of health. This provides little comfort for people who report symptomatology, and it contributes to the complexity in characterizing the relationship between wind farms and human health.

However, with respect to Australia's energy future, broader consideration of energy choices and health is required. Consecutive wind farm reviews have found no evidence of health harm meanwhile extensive international literature consistently links fossil fuels with far reaching direct health harms.

The balance of evidence clearly suggests that wind turbines are likely to be considerably less damaging to human health in the short and long term at a population level than fossil fuel alternatives.xxviii

The problems associated with annoyance, while unfortunate for those affected, are relatively minor when considered in relation to the significant adverse effects associated with the use of fossil fuels, and the millions affected.xxix The net harm potential is on a vastly different scale.

Overall the PHAA affirms that:

“The balance of evidence currently suggests that although wind turbines are not completely free of all harm to neighbouring populations, in comparison with non-renewable sources of energy such as fossil fuels, and nuclear energy, they are likely to be considerably less harmful in both the short and long term at a population level than the alternatives.”

## Conclusion

PHAA has confidence in the NHMRC in its current role and functions of the providing high quality, independent advice to the Australian public and governments on health related policy matters.

Secondly we submit that any potential health impacts of wind turbines need to be assessed within the broader health context of health impacts on individuals and society from all energy sources, and the broad health and energy needs of a 21st century economy and society faced with the prospect of runaway global warming if we do not rapidly reduce our greenhouse gas emissions by greater than 20% by 2020. In this context wind turbines can make an important contribution which offsets its noise effects on a minority of people.

The PHAA appreciates the opportunity to make this submission and the opportunity to speak to the inquiry should this be required.

Please do not hesitate to contact us should you require additional information or have any queries in relation to this submission.



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