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Professor Warwick Anderson AM  
CEO  
National Health and Medical Research Council  
GPO Box 1421  
Canberra ACT 2601

Professor Anderson

Attached are observations on gross defects in the NHMRC's recent Draft Information Paper: Evidence on Wind Farms and Human Health.

The problems in the report are so pervasive as to cast serious doubt on the adequacy of the working of the associated Reference Group and those involved in the review. Consequently, there can be no reasonable expectation responses through the NHMRC's approved submission process will be given appropriate and adequate attention, especially if, as in this case, they question the role the Reference Group has played in this process.

For that reason I am directing my comments to you as CEO of NHMRC, since the credibility and governance problems with the paper reviewed potentially spill over to affect the credibility of NHMRC work on other matters.

Dr Michael Crawford

**Copies to:**

Hon Peter Dutton, Minister for Health  
Senator Fiona Nash, Assistant Minister for Health  
Senator Nick Xenophon  
Senator John Madigan  
Senator Christopher Back

Other interested parties

## Executive Summary

The conduct of the NHMRC review into Wind Farms and Human Health has not complied with the terms of reference given to the Wind Farms and Human Health Reference Group. Beyond that, the review is riddled with critical flaws and inconsistencies in the selection of evidence upon which it draws and in the analysis conducted.

While no doubt unintentional, this has created a massive, systematic bias in the results reported from the review. The flaws that plague the review include:

- A critical departure from the announced terms of reference that effectively amounts to intellectual “bait and switch”.
- The wholesale exclusion of studies that even the review report inadvertently demonstrates are actually relevant. This systematic exclusion encompasses virtually all studies of sound and health from industrial and urban settings as well as virtually all laboratory research.
- The use of only a few articles, not all peer reviewed scientific literature, to make strong, sweeping claims to rebut the possibility of health effects from wind turbine noise.
- The attempt to distil conclusions down to simple numerical assertions that take no account of the physics underlying sound propagation from wind farms and the complexities in the spatial distribution of their sonic energy.
- One-sided application of the requirement for evidence to be peer reviewed scientific literature to exclude material supporting the existence of health effects while using contrary, non peer reviewed material.
- Careless arguments that ignore relevant data and use sloppy logic.

If the review reported on what it was actually asked, ie the existence of evidence on *possible* health effects of wind farms, then even after the restrictions imposed on evidence considered and the review’s own special use of data and logic, it would have had to report:

*“There is evidence of possible health effects of wind farms under some circumstances.”*

which the review might legitimately have qualified with the observation that:

*“The precise circumstances under which various adverse health effects occur and the underlying mechanisms are not well understood.”*

Instead, having ignored the actual terms of reference, the review stated:

*“There is no reliable or consistent evidence that wind farms directly cause adverse health effects in humans.”*

The reviewers could, with equal veracity, have stated:

*“There is no reliable or consistent evidence that wind farms DO NOT directly cause adverse health effects in humans.”*

which would be important information for the authorities the review purports to advise.

Sadly, in its current form, the paper appears like a political document masquerading as a scientific one.

This inevitably calls into question either the attention to task, process management, or effective involvement of the Reference Group, given it is unthinkable that the multitude of review defects could be due to either incompetence or intentional bias.

The credibility problem it creates for NHMRC work on this topic can only be expunged by totally reconstituting the Reference Group and appointing review staff uncompromised by association with this debacle.

### Selective Departure from the Terms of Reference

The terms of reference for the group, as shown on the NHMRC website<sup>1</sup> are:

The Wind Farms and Human Health Reference Group will:

- Guide the development of a systematic review to determine if new evidence exists in the scientific literature on possible health effects of wind farms.
- Consider the outcomes of the review and use these findings to:
  - Inform updating *NHMRC's Public Statement: Wind Turbines and Human Health*; and
  - Identify critical gaps in the current evidence base.
- Provide the NHMRC's Prevention and Community Health Care Committee with a report on Wind Farms and Human Health.

An expanded version of the terms of reference are cited in the review report<sup>2</sup> but does not differ in requiring the Reference Group to guide a review to determine if evidence exists “on **possible** (my emphasis) health effects of wind farms”. The expanded version of the terms of reference restricts the evidence to be considered to “peer reviewed scientific literature”. No criticism is made here of that restriction per se, only with the subset of “peer reviewed scientific literature” that was subsequently allowed into the review, and with the inconsistent way in which that requirement was actually applied in the review.

The first term, as stated, is relatively broad, ie “determine if new **evidence exists** in the scientific literature on **possible** health effects of wind farms” in that it refers to **possible** health effects, not **proven** health effects. It also simply asks if evidence exists.

The introduction to the paper “NHMRC Draft Information Paper: Evidence on Wind Farms and Human Health” says “This Information Paper provides Australians with a summary of the evidence on whether wind farms cause health effects in humans”<sup>3</sup>. Note the shift of wording. It is not about “possible health effects” as required by the terms of reference, but about “whether wind farms **cause** health effects”. It has replaced a quite broad term of reference with a far more restricted one that places a burden of proof on the considered literature that is absent from the actual requirement in the terms of reference.

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<sup>1</sup> <http://www.nhmrc.gov.au/your-health/wind-farms-and-human-health>

<sup>2</sup> “NHMRC Draft Information Paper: Evidence on Wind Farms and Human Health”, February 2014, p. 18.

<sup>3</sup> *ibid*, p. 2.

In science, as in other areas of life, few things are ever proven incontrovertibly and most items of evidence individually are not strong proof. It is the combination of multiple, consistent pieces of evidence that generally add up to what we regard as proof.

The terms of reference ask for no more than the assembly of what may be pertinent items of evidence, if they exist, without demanding the items either individually or collectively constitute **proof** of a causal effect. The departure from the terms of reference is to impose the tougher filter of whether wind farms actually do **cause** health effects. Given the bias of scientific testing in terms of disposition to accept the null hypothesis, this raises the bar against finding reportable evidence of health effects.

This significant restatement of task from that actually imposed by the terms of reference enabled the reviewers, under “Summary of Evidence”, to claim (given the peculiar restrictions imposed on literature considered [discussed later], and the idiosyncratic use of data and argument):

*“There is no reliable or consistent evidence that wind farms directly cause adverse health effects in humans.”<sup>4</sup>*

The reviewers could, with precisely the same veracity, have stated:

*“There is no reliable or consistent evidence that wind farms DO NOT directly cause adverse health effects in humans.”*

However, had the review reported on what it was asked, ie the existence of evidence on **possible** health effects of wind farms, then even after the restrictions imposed on evidence considered and the review’s own special use of data and logic, it would have been forced to report:

*“There is evidence of possible health effects of wind farms under some circumstances.”*

The review might have legitimately qualified that statement with the observation:

*“The precise circumstances under which various adverse health effects occur and the underlying mechanisms are not well understood.”*

Such statements would have been totally consistent with both the available evidence and the task specified in the terms of reference, yet somehow they escaped the reviewers and, instead, what was offered was fortuitously the misleading, partial statement wind farm advocates were wanting to hear and promote.

**The departure from the announced terms of reference effectively amounts to intellectual “bait and switch”. This is the first critical failure in the review.**

### **Biased Exclusion of Evidentiary Articles**

The paper tells us how it selected “evidence”<sup>5</sup> in the “systematic” part of the review:

For information to be considered in the systematic component of the independent review, it had to:

- be publicly available;

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<sup>4</sup> *ibid*, p.13.

<sup>5</sup> *ibid*, p.4.

- look at exposure to wind farm emissions;
- *not* choose participants only because they had reported health effects;
- compare two or more groups with different levels of exposure to wind turbines (e.g. a “near” group and a “far” group);
- explain how the data were collected;
- report on health (or health-related) outcomes; and
- analyse the results.

Personal stories, opinions and medical records submitted by individuals were not considered in the independent review.

Most of these requirements are non problematic, eg that reports be publicly available, explain how the data were collected, report on health (or health-related) outcomes, and analyse the results. However, one of the imposed requirements is extremely restrictive, ie the requirement that to be considered as “evidence” a paper **must** “look at exposure to wind farm emissions”.

This last restriction is like saying a review of the possible health effects of solariums will only consider studies that involve solariums and will pay no attention to studies dealing with exposure to sunlight and the development of cancer.

Or indeed like saying that in reviewing the health effects of sticking a fork into a household electric socket, NHMRC will consider only studies covering people doing so and will ignore any other information on the deleterious consequences of people coming into contact with high voltages. Needless to say, the NHMRC and its independent reviewers will find few peer-reviewed articles on the consequences of sticking forks into power points, and they will probably find a few ethical and other impediments to commissioning such studies.

Nonetheless, no doubt most members of the NHMRC and its review committee believe there is reliable evidence that sticking forks into power sockets causes adverse health effects and they would be unwilling, simply on the basis of a dearth of published papers meeting comparable restrictions to those the reviewers chose to impose in relation to windfarm health effects, to announce to the world that “*There is no reliable or consistent evidence that sticking forks into power points directly cause adverse health effects in humans*”.

The review did include “background” or “parallel” coverage which could introduce non wind farm material. However, the review report makes clear this was far more cursory than in the “systematic” part which excluded all material not directly involving wind farms.

Obviously NHMRC should look at any studies that specifically examine “wind farm emissions”. The problem is restricting the “systematic” evidence to those cases. The ridiculousness of this restriction is evidenced by the fact that the “independent reviewer” started with 3,356 papers that seemed potentially relevant and yet ended up with only 11 papers to review. Only 0.3% of all papers considered made it through the screen. So, according to the reviewers, 99.7% of all papers that had some notional relevance to the topic actually had no information relevant as evidence as to whether there are “possible health effects of wind farms”. Seriously, that result does not pass the smell test.

The perverse nature of this restriction is highlighted by an explicit statement in the report. In seeking to mount an argument, on very weak evidence, the report states “There is no evidence that health or health-related effects from wind turbine noise would be any different to those

from other noise sources at similar levels”<sup>6</sup>, a statement which is probably valid, assuming that by “similar levels” one means the full spectra characteristics are identical. The reviewers then use that to claim wind turbine infrasound is unimportant to health because “People exposed to infrasound and low-frequency noise in a laboratory (at much higher levels than those to which people living near wind farms are exposed) experience few, if any, effects on body functioning.”<sup>7</sup>

In so doing, the report totally invalidates the decision to exclude any studies linking sound emissions to health effects that did not explicitly involve wind turbines. The reviewers are willing to use studies that don’t involve wind turbines in order to argue against sound related health effects from wind turbines but refuse to consider any such studies in the “systematic” pool of evidence used to support the thesis that wind turbine noise can have adverse health effects. This startling inconsistency seems to demonstrate muddled thinking, at best.

### ***Selection Criteria Biased Against Finding Possible Health Effects of Wind Farms***

No doubt it is unintentional, but the selection criterion of considering **only** research that “look at exposure to wind farm emissions” is fundamentally biased against finding possible health effects. To understand why, consider the nature of possible health effects. There are broadly two types of relevant health effect:

- relatively immediate symptoms while exposed to wind turbine noise, which may persist for hours, days or even weeks after the exposure but which are ultimately transient (except to those required to live with perpetual exposure to high levels of such noise); and
- physiological, effectively irreversible, changes from prolonged exposure to wind turbine noise.

It may be possible to undertake controlled experiments to test the first of these. It is clearly impossible, for both time and ethical reasons, to attempt controlled experiments on humans to test the second class of effects – though it is possible to undertake controlled animal experiments for this purpose.

Even the first may be difficult to do ethically given the lengthy duration of post-exposure symptoms reported in some cases of exposure to wind turbine generated infrasound and low frequency noise (ILFN)<sup>8</sup>.

Studies of physiological change due to excessive noise must inevitably be restricted to populations that have already been exposed to prolonged excessive noise. This is the type of group Nuno Castelo Branco and colleagues have studied in delineating vibroacoustic disease and its links to ILFN<sup>9</sup>.

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<sup>6</sup> *ibid*, p. 13.

<sup>7</sup> *ibid*, p. 13.

<sup>8</sup> Ambrose, Stephen E. and Robert W. Rand, “The Bruce McPherson Infrasound and Low Frequency Noise Study: Adverse Health Effects Produced by Large Industrial Wind Turbines Confirmed”, December 14, 2011, p. 3.

<sup>9</sup> Alves-Pereira Mariana and Nuno Castelo Branco, “Vibroacoustic disease: Biological effects of infrasound and low-frequency noise explained by mechanotransduction cellular signalling”, *Progress in Biophysics and Molecular Biology* 93 (2007) 256-279.

However, for reasons of temporal development and economics, intensive, rigorous studies of sound effects on health are more likely to be found covering industrial and urban settings than wind farms.

Wind farms are not erected in urban settings. They are established in rural locations where population is dispersed and usually remote from researchers. Consequently, studies of effects in such localities are more costly than studies in urban and industrial settings. These costs are both monetary and in terms of researcher time. In addition, the widespread dispersion of residents and the thin population make it a lot more difficult to enrol adequate numbers of study participants than in urban and industrial settings, which statistically diminishes the chance of finding results.

Academics have strong professional incentives to undertake research where they are likely to find effects rather than where study conditions make that difficult, academic journals being more willing to publish the former rather than the latter. Thus there is a serious impediment to rigorous research by impartial academics in the field of wind farms and health.

The cost issues are less likely to be a problem for companies wanting “research” to be done to validate their investments and to their government enablers. In addition, small samples are not a problem for them. The interest of the sponsors of such studies is generally in *not* finding effects, and smaller numbers of subjects reduce the likelihood of finding a statistically significant effect even if there is a strong effect in reality.

The temporal issue is simply that industrial noise and intense urban noise have existed much longer than widespread wind turbine noise. So the opportunity for the exposure of many people, over prolonged periods, has been much greater in industrial and urban settings than in the vicinity of wind farms, as has been the consequent opportunity for studies in such locations to occur and be published.

So for both these reasons, relevant, rigorous research on the effect of sound, at different frequencies, on human health is more likely to be found based on industrial and urban settings. Given the comment in the report that “There is no evidence that health or health-related effects from wind turbine noise would be any different to those from other noise sources at similar levels”<sup>10</sup>, *the decision in the “systematic” review to exclude studies not involving wind turbines can only be seen as a design decision, however inadvertently reached, to actually exclude much of the relevant research.*

Alarming, the requirement that the only studies considered must look at exposure to wind turbine emissions necessarily rules out all laboratory studies of the effects of sound on both humans and animals, it being difficult to get wind turbines into a laboratory.

Given that laboratory studies are a staple component of research in medical science and biomedical science, the decision to say that such research should not be intensively canvassed for possible health effects of wind farms is truly bizarre. This is especially so when the very first sentence of the review report claims “This Information Paper provides Australians with a summary of the evidence on whether wind farms cause health effects in humans”<sup>11</sup> despite having refused to look at a huge panorama of potential evidence. Note, the paper does not

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<sup>10</sup> “NHMRC Draft Information Paper: Evidence on Wind Farms and Human Health”, February 2014, p. 13.

<sup>11</sup> *ibid*, p. 2.

simply claim to provide a summary of *some* evidence, it claims to summarise *the* evidence, as in “there is nothing missing”.

**This wholesale exclusion of studies that, even the review report inadvertently demonstrates are actually relevant, is the second critical problem in the review.**

### **Use of Skimpy Evidence to Rebut the Possibility of Health Effects from Wind Farms**

The report makes a number of sweeping claims directed at refuting possible wind turbine health effects. In general those claims are supported by production of the flimsiest of evidence. These claims are made based on evidence much weaker than the review is prepared to consider in support of links between wind turbines and health effects.

For instance, it makes the claim “Noise from wind turbines, including its content of low-frequency noise and infrasound, is similar to noise from many other natural and human-made sources.”<sup>12</sup> To support this quite strong assertion, the reviewers quotes a single report that based its conclusions on:

“Measurements were undertaken over a period of approximately one week at seven locations in urban areas and four locations in rural areas including two residences approximately 1.5 kilometres away from the wind turbines.”<sup>13</sup>

The notion that measurements undertaken at only 11 locations and over one week for phenomena that are known to vary substantially throughout a year is risible. The data may well be adequate to argue that *some* urban settings are as noisy in terms of infrasound as *some* rural settings in the vicinity of wind turbines, but it is totally inadequate for the sweeping claim made in the review report.

The review paper then implicitly makes the dumb assumption that all turbines are equally noisy, when in fact they are not and the size and generating capacity of the turbine are significant factors, and increasing over time. It also apparently assumes that distance from the turbine is irrelevant. As the quote from the cited report explicitly says, it used residences approximately 1.5 kilometres from wind turbines. Yet in real life there are residences much closer than that to turbines. The NHMRC paper makes a blanket statement that assumes no differences in these situations.

The sloppy use of such a limited report, and the sweeping assumption that it can be applied to all cases irrespective of distance from turbine, turbine power, terrain, sonic interaction between emissions of an array of turbines, is completely at variance with the rigour the reviewers insist on in papers demonstrating some relationship between wind turbines and health.

No doubt it is entirely coincidental that the single piece of skimpy evidence upon which the Adelaide-based “independent reviewer” Adelaide Health Technology Assessment has relied for this conclusion happens to have been produced by an Adelaide-based firm (Resonate Acoustics) for the Adelaide-based South Australian Environment Protection Authority (SA

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<sup>12</sup> “NHMRC Draft Information Paper: Evidence on Wind Farms and Human Health”, February 2014, p. 13.

<sup>13</sup> Evans T, Cooper J, Lenchine V. Infrasound levels near windfarms and in other environments. Environment Protection Authority South Australia; 2013, p ii.

EPA), which organisation has presided over the growth of wind farms in South Australia and appears to have a vested interest in a finding of “no effect”.

It also appears that the same Adelaide-based firm and SA EPA have come under strong criticism<sup>14</sup> from other acousticians for alleged deficiencies in another report Resonate Acoustics had carried out for the EPA. This is not an arrangement likely to suggest impartiality to any arm’s-length observer and further taints the credibility of the NHMRC review, especially in view of the range of other flaws that serve to bias the reported results.

It is also noteworthy that the report cited for this weak evidence is actually not a peer reviewed article. Yet the terms of reference require the review to consider only “peer reviewed scientific literature”.

**The use of a few articles, not all peer reviewed scientific literature, to make strong, sweeping claims to rebut the possibility of health effects from wind turbine noise is the third major problem in the review paper.**

### **Ignoring the Physics of Sound Radiation and Transmission in Reaching Conclusions**

The review paper tells us “It is unlikely that substantial wind farm noise would be heard at distances of more than 500–1500 m from wind farms.”<sup>15</sup> This is characteristic of the bald, sweeping statements made in the analysis section of the report. It ignores the qualifications that physics requires in this context. It ignores critical differences in the size and power of existing and future wind turbines and the implications for the distance at which sonic energy will be imposed. And it ignores the phenomenon of inaudible sound and the greater distances over which it is propagated relative to audible sound. All these factors are ignored in order to convey the impression that there can be no problem due to sound beyond 500–1500 metres.

One of the important issues with wind farms is that they are an array of wind turbines, not a single turbine. Anyone understanding the physics of wave propagation knows that an array of radiation emitters is qualitatively different from a single source emitter. The array creates interference patterns in the emitted energy (be it electromagnetic or sonic) such that at some points around the array amplitude is dampened and at other points reinforced, and that the points at which interference is strongest are frequency dependent as well as being influenced (in the case of sound) by the transmission medium, terrain and other factors. Consequently there may be pockets of quiet close to such an array and noisy pockets further out. Similarly locations equi-distant from the array can vary widely in noise levels. In reaching conclusions, the report acknowledges none of this complexity.

Likewise the statement blithely ignores turbine height and power. It should be well understood that globally turbines are getting larger and more powerful and thus are likely to generate increased noise, with a greater proportion of it falling in the ILFN range<sup>16</sup>. This leads to a trend for measurable emitted sonic energy to impact at increasing distances. It also means extant studies will tend to be based on wind turbines less powerful than those being installed today.

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<sup>14</sup> <http://stopthesethings.com/2013/03/10/that-sound-resonate-acoustics-copping-a-left-hook-from-cooper-et-al/>

<sup>15</sup> *ibid*, p.13.

<sup>16</sup> Moller, Henrik and Christian Sejer Pedersen, “Low-frequency noise from large wind turbines”, *J. Acoust. Soc. Am.* 129(6), June 2011, pp 3727-3744.

So the statement made in the review paper can only be validly expressed if it includes a qualification about the power of turbines to which it refers, as well as taking appropriate account of the physics affecting the radiation from arrays of emitters.

The review authors are clearly aware of infrasound and its suggested health effects, since the report mentions it several times. They are also aware that low frequency sound propagates further than higher frequency sound<sup>17</sup>. This difference between infrasound and audible sound is substantial.

That combination strongly suggests the need for attention to the distance at which infrasound and low frequency noise (ILFN) emissions might be experienced, not just audible sound. Yet strangely the review authors see fit to report distances only for wind turbine sound with the higher attenuation rate, an action that would reasonably lead a less knowledgeable reader to infer that the stated distance is the only one that matters.

**The attempt to distil conclusions down to simple numerical assertions that take no account of the physics underlying sound propagation from wind farms and the complexities created in the spatial distribution of their sonic energy is the fourth fundamental flaw.**

### **Biased Selective Application of Requirement to Use Peer Reviewed Scientific Literature**

The terms of reference require the review to consider only “peer reviewed scientific literature”. This requirement is used in the review report to emphatically exclude much potential evidence for an effect of wind turbine noise on health.

Yet, as earlier noted, in attempting to argue against wind turbine noise having a health effect, the review relies on a single, non peer reviewed report, to support the sweeping claim that “Noise from wind turbines, including its content of low-frequency noise and infrasound, is similar to noise from many other natural and human-made sources.”<sup>18</sup> There appear to be other non peer reviewed articles and reports upon which the reviewers have drawn to support their inference of no, or little, health effects from wind turbine noise.

Thus the requirement of only “peer reviewed scientific literature” has been rigorously imposed to exclude evidence in other forms, such as personal histories, which suggest an adverse health effect from wind farms. Yet evidence of a contrary nature is accepted despite also not being from “peer reviewed scientific literature”.

**That glaring inconsistency in application of the requirement for evidence to be peer reviewed scientific literature is damning and naturally leads to questions about the way the Reference Group has discharged its responsibilities and is the fifth critical class of problem in the review.**

### **Specious Logic and Spurious Use of Inappropriate Data**

There are instances of sloppy analysis. For example, we find that while the authors have acknowledged concerns about possible health effects of infrasound from wind turbines, and

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<sup>17</sup> *ibid*, p.11.

<sup>18</sup> *ibid*, p.13.

also acknowledged that infrasound travels further than audible sound of similar initial energy, the reviewers then make sweeping statements that either simply assume that infrasound does not matter or falsely assumes it is attenuated at a similar rate to audible sound.

Consider the statement “Based on the studies referred to above, wind turbines would be unlikely to cause any direct health effects at distances of more than 500 m. At 500–1500 m from a wind farm, wind turbine noise levels are generally in the range 30–45 dBA. At these distances, effects on sleep are likely to be modest, if any. At distances of more than 1500 m from wind turbines, where noise levels are generally less than 30 dBA, sleep disturbance is unlikely.”<sup>19</sup>

The reviewers should be fully aware that the sound measure dBA, cited in the passage above, is a weighted measure of *audible* sound. It excludes most low frequency sound and virtually all infrasound. Yet the reviewers are prepared to base the claim “wind turbines would be unlikely to cause any direct health effects at distances of more than 500 m” on this systematically selective data which excludes all measurement of infrasound and low frequency noise which are attenuated much more slowly than audible sound as they radiate from wind turbines.

**The sort of careless arguments described above are the sixth major class of problem in the review.**

### **Socio-Political Intent of the Paper**

In its introduction the review paper says “It is intended for use by any person or group interested in wind farms.” and later “The outcomes of NHMRC’s review may assist these organisations to make decisions about the regulation of wind farms.”<sup>20</sup>

So the reviewers and Reference Group clearly sees it as a contribution in what they must understand is a highly charged socio-political debate in which some parties have large financial interests and invested political capital. Yet knowing the nature of that debate, the report has somehow ended up systematically slanted in multiple ways, as has been here demonstrated, that favour one side of the debate.

Given that the paper positions itself as a contribution to a social and political debate, it has a duty of care to make very clear that according to the selection criteria that have been applied, there is neither reliable nor consistent evidence that wind farms cause adverse health effects *or that they do not cause adverse health effects*. It certainly has offered not one paper that meets its selection criteria that can offer “reliable” and “consistent” evidence to support the proposition that wind farms do not harm health.

Competent researchers are well aware that “absence of evidence is not evidence of absence”, especially when rigorous scientific approaches are applied to determine what will be considered as evidence. Unfortunately a great many journalists, commentators and politicians are either entirely ignorant of this maxim, or willing to feign ignorance when it suits their interests to do so.

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<sup>19</sup> *ibid*, p.15.

<sup>20</sup> *ibid*, p.2.

Thus in a public policy debate in which a scientific group intervenes to provide advice about the existence of “evidence” in relation to some matter, it has a duty to do so in a way that does not allow the subsequent debate to proceed as though a reported “absence of evidence” may be erroneously or maliciously interpreted as “evidence of absence”.

**The review has visibly failed this duty of care in properly informing public debate, having gone for some headline-grabbing quotes that bury any of its more nuanced comments.**

## **Conclusion**

Given the multiple serious flaws readily apparent in the governance and conduct of the review, it is not surprising if suspicion arises that the review may have been somehow beset by incompetence or carelessness, or skewed through other factors.

If that suspicion can accrue to one NHMRC review then it is natural to wonder whether other NHMRC work is tainted by similar flaws. Thus the abject deficiencies in the governance and conduct in this case inevitably cast doubt on the overall credibility of the NHMRC.

That is a high price to pay. The only way to avoid it is to reconstitute the Reference Group and all researchers associated with the review so it is clearly conducted by people who are unarguably objective on the matter and who are not compromised by association with this debacle.

No doubt there will be a temptation to sweep these problems under the carpet and hope they will remain hidden. That’s what public bodies generally try to do in such circumstances, in the process corrupting their principles and betraying their responsibilities. Let us hope NHMRC’s CEO has the courage and strength to overcome that temptation.

Michael Crawford

BSc (ANU), BA (Admin) (UCan), Master of Admin Studies (ANU), Ph D (AGSM/UNSW)

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