Dissenting Report by Senator John Madigan and Senator Nick Xenophon

Introduction

1.1 The Senate Economics Committee's referral of the Renewable Energy (Electricity) Amendment (Excessive Noise from Wind Farms) Bill 2012 ('the Bill') to the Environment and Communications Legislation Committee ('the committee') gave an opportunity for an examination of the Bill, albeit with a constrained hearing schedule and time frame which affected communities expressed concern to us about. Given the continuing public and scientific debate surrounding the impacts of noise generated by wind farms, this inquiry was an opportunity to examine the current state of evidence from communities, scientists and wind farm operators alike.

Noise Regulations

1.2 In our Dissenting Report to the Senate Economics Committee's inquiry into the Bill (attached) we raised concerns regarding the adequacy of current noise guidelines. We take this opportunity to affirm these concerns and add the following comments to this particular and critical aspect of the debate.

1.3 The Bill seeks to establish a definition of "excessive noise":

> (6) For the purposes of this Act, a wind farm creates excessive noise if the level of noise that is attributable to the wind farm exceeds background noise by 10 dB(A) or more when measured within 30 metres of any premises:
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> (a) that is used for residential purposes; or
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> (b) that is a person's primary place of work; or
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> (c) where persons habitually congregate.

1.4 As explained by Mr Steven Cooper, a leading and well respected acoustician and Principal of The Acoustic Group:

> excessive noise, which relates to the first part of the bill, may be identified in various planning documents and wind farm guidelines but is not defined. The purpose of the bill gives a methodology for defining excessive noise.

1.5 The importance of having a nationally applicable definition of excessive noise was discussed by Dr Bob Thorne during the public hearing:

> Dr Thorne: The thing that none of us has is a consistency across all states. That leads to my mind to the most important function of this bill: it gives a consistent approach to excessive noise throughout all of Australia, whereas each individual state could and does have completely different criteria, different standards. Back in the old days, there was a competition policy process whereby one state could not disadvantage the other states by having different criteria. In the days when I was working with it, we were dealing

> with environmental noise. We tried to get a consistency of approach through all the different states—this was back in the mid-nineties. This is where I would see the benefit of this particular bill in that it provides a certainty of approach to all states, it provides a certainty of approach to the industry and it gives a clear definition to all the different states' legislation.

1.6 The benefits of a definition of excessive noise that applies to all states and territories are twofold: it provides clarity and consistency of application throughout Australia. Those who live close to wind farms can therefore be assured the wind farms are required to operate in accordance with established noise guidelines so that any disturbance caused by wind farm noise is minimised.

The impact of noise on sleep and health

1.7 The committee acknowledged sleep disturbance is the most commonly reported complaint in relation to the operation of wind farms. Dr Nissenbaum, a radiologist at the Northern Maine Medical Centre in the United States, discussed the potential consequences of chronic sleep disturbance:

> Senator Madigan: Dr Nissenbaum, why is chronically impaired sleep a health problem?
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> Dr Nissenbaum: When one has chronically impaired sleep… (it) will result in adverse health effects through stress mediated effects on the hormonal systems in the body. This will result in all sorts of stress related illnesses, as well as cardiovascular effects, as well as changes in cognition and mental health in a pretty significant subset of individuals.

Dr Nissembaum continued:

> Some people are more immune than others, but we have to take people as they come, and a significant proportion of people will be affected in a negative way when there is chronic sleep disturbance. It is important to recognise that fact. Once we recognise that fact, the question becomes: do industrial wind turbines that are sited too close to people result in sleep disturbance? If we can prove that is correct, then we will know that over time very serious adverse health effects will develop.

1.8 Significantly, Dr Nissenbaum identified the need for further research to be undertaken in relation to the link between noise generated by wind farms and sleep disturbance. The impact of night time noise on sleep disturbance was discussed in the World Health Organisation's 'Guidelines for Community Noise':

> If negative effects on sleep are to be avoided the equivalent sound pressure level should not exceed 30 dBA indoors for continuous noise. If the noise is not continuous, sleep disturbance correlates best with LAmax and effects have been observed at 45 dB or less. This is particularly true if the background level is low. Noise events exceeding 45 dBA should therefore be limited if possible.

1.9 These guidelines relate to residential areas in European urban environments. Therefore it is not unreasonable that the Bill seeks to require that wind farms operate within lower noise limits so as not to disturb the sleep of residents in quiet, rural Australian environments.

1.10 The committee has recommended that "specific noise measurements, thresholds and measuring locations not be included in legislation, as there is insufficient consensus on these elements of the proposal." We fundamentally disagree with the committee's finding in this respect. The Bill is taking a conservative approach by only referring to dB(A), even though there is a mounting body of scientific evidence to suggest other spectrums should be considered.

1.11 The committee refers to recent research entitled 'Can expectations produce symptoms from infrasound associated with wind turbines?' by Crichton, Dodd, Schmid, Gamble & Petrie regarding the 'nocebo effect'. The report concludes:

> Results suggest psychological expectations could explain the link between wind turbine exposure and health complaints.

1.12 The research by Crichton, Dodd et al specifically refers to infrasound which is not a subject addressed by this Bill. Furthermore, the research excludes audible sound which is the subject of the Bill. Excessive noise levels set by the Bill are not related to infrasound and as such the research of Crichton, Dodd et al is not relevant. With respect to the overall health effects of wind turbines the research by Crichton, Dodd et al suggests 'psychological expectations could explain the link…' However in medical research other factors must be eliminated before making such a diagnosis, which is premature and pre-emptive.

1.13 Correspondence provided by Dr Nissenbaum stated:

> On 'nocebo', if a physician provides the diagnosis of 'nocebo' (a psychologically mediated effect analogous to a 'psychosomatic illness/response'), medical protocols dictate that it be done subsequent to a process of thoroughly excluding the possibility of any pathophysiological pathways that are plausible, more likely, or more important (because of serious downstream implications) to consider.

Dr Nissenbaum continued….

> The 'nocebo' concept is inapplicable and it would be irresponsible to apply it as an explanation for the chronic sleep disorders which are the result of often unremembered nighttime arousals related to noise.

1.14 The committee received a range of evidence regarding possible links between noise produced by wind farms and health effects. This debate is continuing however the body of evidence demonstrating the impact of sleep disturbance and sleep deprivation on health continues to grow.

1.15 We are concerned that the current literature review underway by the NH&MRC is just that: a review of the literature rather than actual research into the

relationship between wind farms and human health. While it is true that Federal Government grants are available for research purposes, given community concerns and the likelihood that more wind farms will be built in Australia near homes we believe the Federal Government should establish and fund an independent expert panel in order to conduct further research. This is imperative given the Federal Government's ongoing financial support of wind farms to achieve the Renewable Energy Target.

Recommendation

The Federal Government establish and fund an independent expert panel in order to conduct research into the impact of noise generated by wind farms on human health.

Reporting of wind speed and noise data

1.16 In order to test compliance, it is necessary for wind speed data to be made available:

> Mr Cooper… the noise emission for the wind farm is expressed in terms of a DBA level versus the wind at the hub height. So the only way you can do a compliance check is to measure the noise at the residence and compare it with the wind at the hub height. If you cannot get the wind at the hub height, you cannot determine acoustic compliance. So you need that information. It is not available. The wind proponents or the authority will not supply the material.
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> Senator Xenophon: To use one of Senator Cameron's classic phrases, there is some information asymmetry here with respect to that?
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> Mr Cooper: Yes. It is impossible for anybody to do a compliance check without this data.
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> Senator Xenophon: So it is a catch-22. You cannot work out whether there is compliance or not for a particular development without this data?
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> Mr Cooper: As it is expressed in terms of a noise limit versus the speed. If there were an absolute limit full stop it would be a different kettle of fish. But because the wind farms are expressed relative to the background level and the wind speed you have to do the compliance with respect to that criteria.

1.17 The committee has recommended 'where there is ongoing debate over noise compliance issues for particular wind farms, that governments consider making data for those operations available to an independent authority for review of compliance'.

1.18 We agree with and are encouraged by the intention of this recommendation, however we believe it could be made stronger in a number of ways.

1.19 Firstly, the recommendation relates only to 'ongoing debate over noise issues for particular wind farms' (emphasis added). The Bill is intended to apply to all wind

farms and as such noise and wind speed data should be made available by all wind farms.

1.20 Secondly, the recommendation relies on 'governments' making the data available. This makes the assumption that governments already have access to the data. We believe this assumption needs to be addressed by including an explicit requirement that wind farm operators must make data available to an independent authority directly.

1.21 Lastly, the recommendation does not specify when the data should be made available. We would suggest that wind and noise data be supplied to the independent authority at regular intervals (for example every three months) as well as on request in the event a specific complaint has been made. Data held by the independent authority should be publically accessible under defined protocols.

Recommendation

Where there is ongoing debate over noise compliance issues for wind farms, wind farm operators are required to provide data (including wind and noise data) to an independent authority every three months as well as on request in the event a specific complaint has been made.

1.22 We would like to take this opportunity to acknowledge that Pacific Hydro's offer to provide data to an independent statutory body under strict confidentiality with the data's use restricted by well-defined protocols. It is our understanding this offer to provide wind data is the first of its kind by a wind farm operator and believe Pacific Hydro should be given credit for setting an example for the rest of the industry.

Conclusion

1.23 This bill will ensure there are mechanisms in place to enable the monitoring of noise generated by wind farms and that where wind farms are shown to have created excessive noise, they are unable to receive Large Scale Renewable Energy Certificates for the electricity generated. We believe it is not appropriate for wind farms to be financially rewarded through these Certificates when they are shown to be non-compliant with noise guidelines. Therefore wind farm operators that are compliant have nothing to fear from the requirement that they must not create excessive noise.

Recommendation

The Renewable Energy (Electricity) Amendment (Excessive Noise from Wind Farms) Bill 2012 be passed.

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