Senator Chris Back, Liberal Senator for Western Australia

Wind turbines - the untold story

July 9, 2012

By Senator Chris Back

Harnessing wind for energy purposes is not new. Wind turbines have been in use for decades overseas and in Australia. This has largely been led by Scandinavia, the USA and Holland. The oldest continually operating wind farm in Australia, Crookwell, has been in operation for 14 years.

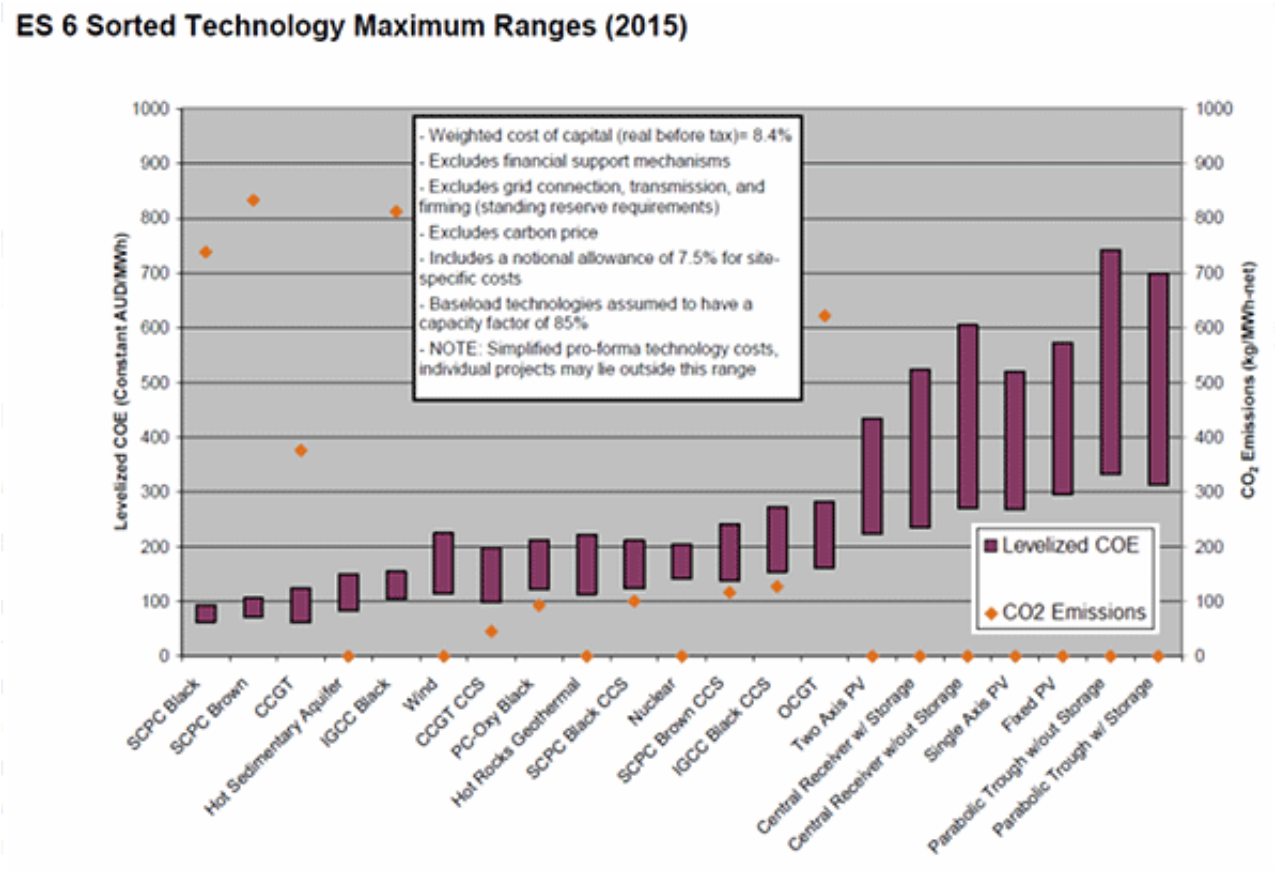
What is new in Australia is the burgeoning expansion of wind 'farms' in recent years in order to meet targets (Renewable Energy Targets—RET's) for power generation from renewable sources. This coincides with generous grants from the commonwealth government through the agency of Renewable Energy certificates (REC's) which are the economic drivers of most wind 'farm' projects.

Approvals for and location of wind 'farms' rest with State/Territory and local governments. In most cases, local governments are not adequately resourced for this task. It is not the role of the federal government to interfere in this planning process, residing as it does, under the Constitution, with the States.

Without access to grant funding by the Commonwealth under the REC scheme however, most if not all would not be viable.

Debate rages on the cost-benefit of wind generated power when absorbed into an electricity grid in both peak and non-peak demand periods. It is not the purpose of this paper to pursue the alternative arguments of this question.

The following graph shows that coal provides the cheapest form of electricity generation in Australia. This is followed by gas, wind, hot rocks, while photovoltaics come in as a much more expensive form. Wind generated power is approximately double that generated from coal.



HEALTH IMPACTS OF WIND TURBINES

This has been the subject of bitter argument and disagreement, denial and deception for many years in all countries. The stakes are very high on both sides of the argument. It is an unequal contest between a billion-dollar industry and small rural communities.

There is a growing body of evidence that adverse health impacts are real and that they are occurring at greater distances from turbines than previously recorded.

Where distances of two kms were regarded as a safe distance between turbines and residences, recent evidence would appear to push this out to 10 km from the nearest turbine.

The wind farm development guidelines for Western Australia are covered by Planning Bulletin Number 67 which was written in 2004, before the first health impacts were reported. Planning Bulletin 67 states, “As a guide, the distance between the nearest turbine and a noise-sensitive building not associated with the wind farm, is likely to be 1km.” The bulletin also endorses the outdated South Australian Environmental Protection Authority – Wind Farm Environmental Noise Guidelines. These guidelines are now the subject of a recently upheld court appeal which has resulted in the wind farm concerned switching off the offensive turbines.

There was a view that turbine ‘hosts’ (earning an income) suffered no ill effects from wind turbines but that neighbours (missing out on income) did.

This has now been debunked.

I have spoken to a turbine host who, together with his wife, is suffering health effects attributable to wind turbines and is willing to say so publicly. He was interviewed in a national TV program in early June to express his concerns.

This man is a retired Australian naval engineer who worked in the field of electro-magnetic wave technology so has some familiarity in the science of wave motion through the atmosphere.

The income from the wind turbines on his farm provides a much needed supplement to his navy pension for himself and his wife. His motives are genuine. He presents this evidence at his economic peril.

In recent years, there has developed an increasing body of evidence pointing to adverse health effects of people residing within the ‘noise shadow’ of wind turbines. As turbine size and generating capacity has increased exponentially (from 67 metres high with a rotor diameter of 44 metres and 600 KW generating capacity to 175 metres high with a rotor diameter of 112 metres and 3.0 MW MW capacity) so has the impact on those residing in the vicinity of the turbines.

The accepted minimum distances between residences and turbines are seriously challenged by claims or evidence by affected parties.

This whole scene is exacerbated by the numbers of wind turbine projects being promoted, the size and number of units in each project and the proximity to built up areas in the urban-rural interface and in rural areas in most states.

HEALTH EFFECTS OF WIND TURBINES IN HUMANS

The symptoms developed can be divided into two groups based on whether they result from acute exposure (instant/days/weeks) or longer term chronic exposure (months to years).

Acute exposure: related to Infrasound and Low Frequency Noise (ILFN) exposure leading to vestibular disturbance via the outer hair cells of the inner ear.

Exposure may result in instant symptoms (for example tinnitus, ear pressure, vertigo, feelings of motion sickness, nausea, dizziness, sensations of head pressure, headaches, migraines, visual blurring, tachycardia, and irritability).

People specifically at risk of developing these symptoms include people with pre-existing migraine disorders, motion sensitivity, or damage to inner ear structures (such as hearing loss from industrial noise exposure).

Chronic exposure: severe balance disturbance, specific cognitive deficits including problems with mental arithmetic, difficulties with word finding, and planning activities specific and measurable short term memory deficits.

Over the longer term, people also notice that there is an acceleration in the severity of their pre existing chronic health problems (eg diabetes, autoimmune disorders, angina, hypertension and others.

Other symptoms (acute and chronic) include chest pain, tachycardia, a perception of body vibrations, severe headaches, intense anxiety, night time waking in a panicked state and sleep disturbance/deprivation.

The characteristic feature is that they all IMPROVE when people are away from the wind turbines and other sources of ILFN, but get worse when they go back to being exposed to the operating turbines.

Some people report clinical signs when they either approach or are inside buildings. Others report severe symptoms in the open, such as in the paddock.

The symptom complex resembles syndromes caused by vestibular dysfunction. The proposed mechanism is disturbance to balance and position sense by noise and vibration. Balance related neural signals affect a variety of brain functions, including spatial awareness, memory and problem solving, fear, anxiety, autonomic functions (heart rate) and aversive learning.

There is plenty of evidence of people having to move away from their residence in affected areas, obviously with severe disruption to employment, schooling and social networks.

Clinical symptoms in Australia were first reported by Dr David Iser in 2004.

IMPACT ON ANIMALS

In animals the signs reported on farms in Australia are those of stress. Ewes and cows become very agitated and will leave their offspring in fits of panic if they are in the vicinity of operating turbines. These behaviours are demonstrated during lambing or calving respectively when the parturient animal is sufficiently disturbed to interrupt the birth process.

I have been presented with the autopsy results on 12 week old lambs with perforated ulcers of their stomachs and intestines. These are typical of lesions found at autopsy in zoological animals which were caught in the wild and confined in zoos. They are described as being stress-related.

Cardiac pathology has been recorded in laboratory animals subjected experimentally to infrasound similar to that emitted by wind turbines. Blood biochemistry shows elevated cortisol levels seen in stress induced situations.

LOGICAL USE OF RENEWABLE ENERGY IN COMBINATION WITH GAS-FIRED POWER GENERATION

In the Greenough near Geraldton, a wind farm feeds electricity into a nearby gas fired powerhouse for electricity generation.

This may well be a sound investment and the operators are planning to add photovoltaic cells to supply solar energy to the generating mix in the near future. It can be argued that this achieves the best of all worlds: solar generated power in the daytime, wind generated power at night when the wind is strongest and natural gas available to generate electricity when neither is available and to guarantee reliable supply of sufficient power to the grid.

CONTRACTS WITH TURBINE 'HOSTS' AND WITH NEIGHBOURS OF WIND TURBINE HOSTS.

Hosts are those on whose properties the wind turbines are located. Wind turbine manufacturers or project entrepreneurs do not typically work directly with communities or potential 'hosts' where a wind 'farm' is targeted.

This is achieved through local promoters, known in the community and often themselves a potential 'host'.

Typically, hosts are required to sign up to a legally binding CONFIDENTIALITY AGREEMENT with the promoters. In return they are paid an annual lease fee in consideration of each turbine on their property.

Confidentiality Agreements are interesting. They may bind the 'host' for periods of up to 50 years or longer. Clauses include:

- Waiving the right to speak publicly on any aspect of the project, the turbines, or their impact without the written permission of the promoter;
- Stipulating the property owner accepts that the operation of the wind farm will have a noise impact. The noise impact limit is the decision of the promoter (wind company) and is stated in the agreement. The land owner or any future owner will not make a claim or complaint regarding the noise impact provided that the noise impact limit is not exceeded. Furthermore, the land owner is required to release the wind company from any current or future claim and legal liability in relation to the noise impact, which would also include any subsequent health related impacts as a consequence of the noise;
- The inability to sell or lease the property or alter equity in the asset without approval;
- The inability to build within certain exclusion zones without approval; and
- Restrictiing other land use on the property without approval.

A second type of agreement in use is the **COMPENSATION AGREEMENT**, signed by property owners on neighbouring properties. These are also struck for periods of time up to 75 years.

In consideration of a fee payable by the promoters, these compensation agreements bind the neighbour to:

- Waiving the right to speak publicly on any aspect of the project, the turbines, or their impact without the written permission of the wind company;
- Providing or signing consent in support of the project if and when requested by the wind company including to the local shire and the EPA;;
- The inability to sell or lease the property or alter equity in the asset without approval;
- The inabliity to build within certain exclusion zones (distances from nearest turbine) without approval; and
- Restricting other land use on the property without approval.

Agreements may contain 'buy-out' clauses which address the possibility of changes to land valuations, reflected by annual rate notices by the local government. To this end, the promoter may agree to compensate the neighbour for reduced land valuation, subject to a negotiation

and appeals process.

Contractual agreements are typically written with the promoters and not with the multinational manufacturers or entrepreneurs. These parties appear to distance themselves from any legal responsibility or obligation in the event of adverse outcomes at some time in the future.

It is interesting to consider why proponents would want to contractually bind neighbours if they have no concerns about the adverse health effects or any other impacts on the local environment. What do they know that they don't want the wider community to know?

There are compelling reasons why affected hosts will not speak publicly:

• **Firstly,** they are in default under their Confidentiality Agreements; and

• **Secondly**, they expose themselves to the threat of litigation from their neighbours if the neighbour has been adversely affected by the activities occurring on the host's property. This may be in the form of 'inconvenience' including health effects often forcing the neighbour to leave residence on their property to move elsewhere or reduced land values resulting from the wind farms.

To understand the scale of these projects, the Collgar Wind Farm near Merredin in Western Australia's wheat belt 300 km east of Perth is illustrative.

It has 111 wind turbines, each of 2.0 MWh capacity, located over an area of 18000 hectares. It has the capacity to generate 206 MW of electricity or 792,000 MW hr per annum subject to wind performance.

It is generally accepted that the best performance under ideal conditions is generating capacity in the order of 38% to 42%.

CONCLUSION

Many wind turbine projects are having divisive impacts in rural communities. Family members are at logger-heads, club memberships are under threat and the social fabric within rural communities is being torn apart.

Rural communities currently in dispute over proposed wind farms include Williams, Kojonup, Dandaragan, Three Springs and Eneabba.

I know of one such rural community in Western Australia recently in which call-outs to a bushfire failed to attract the usual response from some neighbour-brigade members due to the anger from a proposed wind farm in that community.

Comments

Mike Barnard
Tuesday, 10 July 2012
11:57 AM

Mr. Back is actually a Senator in Australia? While having such an extraordinarily ascientific, afactual view of wind energy?

17 major health reviews of thousands of peer reviewed studies world-wide have found that wind farms don't impact health. A small subset of people very close to wind farms find the noise annoying, and annoying noise is best dealt with by closing windows and buying cheap white noise generators. Health impacts are due to anti-wind lobbyists promoting fear of health impacts, otherwise known as a psychogenic illness, not a real one.
http://www.quora.com/Wind-Power/What-might-cause-people-who-live-near-wind-turbines-to-get-sick/answer/Mike-Barnard

Infrasound from wind farms can't cause health impacts; emissions are so low that they can't be heard or felt. Wind farms generate less infrasound than waves on a beach, and much, much less than driving in cars or traveling in planes.
http://www.quora.com/Wind-Power/Is-the-infrasound-emitted-by-wind-turbines-harmful-to-humans-or-animals/answer/Mike-Barnard

Wind farms have lower impacts on wildlife and livestock than any other form of electrical generation. Fossil fuels harm is much, much higher than any minor impacts attributed to wind energy. As for 'perforated ulcers' and 'agitated behaviour', Mr. Back is making up connections which don't exist.
http://www.quora.com/Wind-Power/How-significant-is-bird-and-bat-mortality-due-to-wind-turbines/answer/Mike-Barnard

Four major, statistically valid property value reviews covering 41,000 property transactions by respected organizations in the US and UK have found that wind farms do not harm property values. In fact, two found positive impacts after wind farms were operational, which makes sense as greater jobs, greater tax revenues and differentiating features are good for communities.
http://www.quora.com/Wind-Power/Do-wind-turbines-reduce-the-value-of-nearby-properties/answer/Mike-Barnard

Yes, wind farms have become a divisive issue in rural communities. This isn't due to anything about the wind farms. It's all about anti-wind lobbyists stirring up fears as this article is doing.

Untold story? Far too often told myth, more like it.

Prof Simon Chapman
Tuesday, 10 July 2012
12:16 PM

Post Comment