



Submission by

Alternative Technology Association

on the

Senate Inquiry into the

Social and Economic Impact of Rural Wind Farms

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1. Introduction

The Alternative Technology Association (ATA) welcomes the opportunity to respond to the Senate Committee for Community Affairs Inquiry into the *Social and Economic Impact of Rural Wind Farms*.

ATA is a national community-based, not-for-profit organisation representing consumers in the renewable energy and energy efficiency marketplace. The organisation was established in 1980 to empower our community to develop and share sustainable solutions and to promote the uptake of sustainable technologies.

The organisation currently provides service to approximately 6,000 members nationally who are actively engaged with small, medium and large scale renewable energy projects, energy efficiency and the national electricity market.

1.1 ATA Expertise

Over the past four years, the ATA has been a significant contributor to the energy policy debate in Australia at both the Federal and State level. In particular, ATA has been involved in the development of:

- the *Renewable Energy Target*, including its legislative iterations in both August 2009 and June 2010;
- various policy inquiries and on-ground projects relating to small (<30kW) and medium (30kW – 1 MW) scale, community owned renewable energy projects, most notably involving wind technology;
- the *National Smart Meter Program*, including its impacts and opportunities for greater penetration of renewable energy at all scales across the electricity grid;
- the importance of GreenPower (and its associated contribution from the large wind sector) as valid additional carbon abatement beyond mandated targets under national carbon policy;
- the design, implementation and review of feed-in tariffs throughout South Australia, Victoria, New South Wales, Queensland, the Australian Capital Territory and Western Australia.

The ATA also has significant in-house experience at wind energy resource assessment and small and medium scale wind energy project design, construction and implementation.

As such, ATA has developed a sound understanding of the current state of play of renewable energy policy and wind energy projects in Australia. This includes the opportunities presented by the medium and large scale wind sector to contribute to Australia's existing mandated Renewable Energy Target of ensuring at least 20% of the nation's electricity supply is sourced from renewable energy by 2020.

2. The Role of Wind Energy

Wind turbines convert the wind's energy in moving air into the electricity on which our society depends.

This fuel source – moving air – is free and renewable. It does not need to be mined or transported, processed, or burnt. There are no by-products that need to be captured or stored and the energy that goes into building a wind farm is produced (or recovered) within a matter of a few months of operation.

Wind energy is naturally variable, and this is dealt with in a number of ways, including from sophisticated regulation mechanisms built into wind turbines to help smooth short term, small scale variability, and broad geographic distribution.

2.1 *The Opportunity for Community Wind*

A low carbon economy, both globally and in Australia, is inevitable. Whilst many would argue that the science of climate change requires that this transition is achieved much faster than is currently being experienced, the scientific imperative is clear that this transition must happen.

Wind energy, particularly in Australia, is crucial to the success of this transition.

Large scale wind is currently the cheapest form of utility scale renewable electricity generation projects in Australia, and will likely remain so for a number of years.

We know that survey after survey indicates that the majority of Australians agree that climate change presents a significant challenge for humanity and that greater investments in renewable energy are required in order to meet that challenge.

And yet from a political perspective, it is evident that there remains a small degree of resistance to the development of large scale renewable energy projects, in particular wind farms. Policy makers of all forms are acutely aware that broad community support must be achieved before effective climate and renewable policy can be enacted.

This leads us to the opportunity presented by *Community Wind*.

2.1.1 What is Community Wind?

Community wind refers to a wind project that is generally of medium scale (in the hundreds of kilowatts or few megawatt range) and is supported by the community in which it is located.

Most importantly, community wind has economic, environmental and social benefits for the local community above and beyond that which commercial wind energy developments offer.

Community ownership of renewable energy facilities has been integral to the broad acceptance of clean energy technologies in other jurisdictions. A host of countries including the UK, USA, Germany, Canada and Denmark have significant community ownership of renewable energy infrastructure.

The benefits of community wind projects are many, and include the following:

Empower communities to be active in carbon abatement:

- Community wind projects offer people the chance to make a significant, collective contribution to reducing climate change — way over and above what they can achieve by installing fluorescent light bulbs, using public transport, improving home insulation or other energy savings measures.
- Direct ownership changes attitudes at the local level, and leverages committed individuals in a community, giving them a positive outlet for action. This is a particularly significant benefit in the context of this inquiry and in light of continuing ill-informed perceptions and views on wind energy in general.
- Community ownership increases support for additional climate change mitigation measures and improves people's broader environmental awareness.

Delivers regional economic benefits

- Community wind projects create jobs in regional areas, and generate new income streams for communities adding depth to local / regional economies.
- Most community wind projects commit a specific proportion of profits to the community as financial support. An example of this is the Hepburn Wind project near Daylesford, in Victoria. On top of dividends to investors, revenues will be poured into the Community Sustainability Fund. This fund will provide \$15,000 per turbine per annum (increasing annually with inflation) for local projects that address social, economic and environmental sustainability.

Accelerates renewable energy industry development and impact

- Small projects often lead to large ones. Denmark and Germany provide examples where community wind initiatives have led the way for large scale corporate investment in renewable energy.
- With successful local examples, community opposition is reduced.

Taps a new funding source – the community investor

- Community ownership encourages greater diversity in the investor base and taps a latent and lower-cost patient source of capital.

Bridges the gap between individual and corporate action

- The average rooftop solar installation delivers 1.5 kW, while a utility scale renewable energy project may deliver in excess of 100 MW. Between these two extremes lies an enormous opportunity for medium scale and community energy to play a part.
- Community wind projects, typically in the range 2 – 10MW, can deliver efficiencies that approach those of utility-scale infrastructure without sacrificing the many benefits of small scale initiatives.

In line with this broad approach, the ATA has provided answers to specific questions, as outlined in the discussion paper below.

3. Response to the Specific Impacts outlined in the Inquiry

(a) Any adverse health effects for people living in close proximity to wind farms.

Current research and scientific investigations have found there are no adverse health effects from people living in close proximity to wind farms.

Numerous credible sources continue to convincingly counter the health risk claims often made by a small number of less reliable sources – i.e. that wind farms can affect peoples' health through mysterious maladies.

The National Health and Medical Research Council (NHMRC) recently found that “there is currently no published scientific evidence to positively link wind turbines with adverse health effects.” The NHMRC review concludes:

“It has been suggested that if people are worried about their health they may become anxious, causing stress related illnesses. These are genuine health effects arising from their worry, which arises from the wind turbine, even though the turbine may not objectively be a risk to health.”

In addition, the Victorian Department of Health after examining both peer reviewed and validated scientific research also concluded that:

“The Department of Health has examined the available scientific literature on wind farms and has concluded that there are no direct health effects that can be attributed to modern wind turbines.”

In late 2010, the Clean Energy Council (CEC) commissioned expert noise consultants Sonus to provide the latest information on environmental noise from wind farms. Sonus found there is no evidence that residents will suffer any direct health effects from living near operating wind farms. The Sonus report also found that once wind farms are built, the rates of complaints are very low in Australia and New Zealand.

The American and Canadian Wind Energy Associations established a scientific advisory panel comprising medical doctors, audiologists and acoustic professionals from the US, Canada, Denmark and the UK. The panel concluded that ‘wind turbine syndrome’ is not a recognised medical diagnosis but rather reflective of symptoms associated with annoyance. Factors culminating in annoyance include the nocebo effect defined as:

“...an adverse outcome, or worsening of mental or physical health based on fear or belief in adverse affects”.

- (b) *Concerns over the excessive noise and vibrations emitted by wind farms, which are in close proximity to people's homes.*

Research conducted on modern turbines has shown that the levels of low frequency noise and infrasound are within accepted thresholds.

Like many things around us, all wind turbines make audible noise. To this end, there are standards and regulations to ensure that turbines are not located close enough to residences to risk seriously impacting those that live near wind turbines.

There is currently no peer reviewed scientific data to suggest that the levels of low frequency sound or infrasound emitted by turbines have the potential to cause any adverse medical effects. This position is supported by both the Victorian Chief Health Officer and the National Health and Medical Research Council.

The British Wind Energy Association conducted research in 2005 on modern turbines which showed that the levels of infrasonic noise and vibration radiated from modern turbines are at a very low level; so low that they lie below the threshold of perception, even for people who are particularly sensitive to such noise and even when very near to turbines.

In addition, Pacific Hydro commissioned Sonus to measure and compare infrasound levels from wind farms and some common environment infrasound sources, both natural and human-made. The report "*Infrasound and Measurements from Wind Farms and Other Sources*" demonstrated that the levels of infrasound produced by wind turbines is well known.

- (c) *The impact of rural wind farms on property values, employment opportunities and farm income.*

No empirical evidence exists to suggest that wind farms negatively influence surrounding property values.

The issue of impact on property values is a subject that is not well understood, as is the case with many things that affect property values generally.

In an assessment by the NSW Valuer General of 45 property sales located within a 10km radius of eight wind farm sites, it was found that property values were not negatively affected. No reductions in sale price were evident for rural properties located in nearby townships with views of the wind farm. The findings of the NSW Valuer General are consistent with international studies in the United States and the United Kingdom.

Economic importance of wind energy

Australia's Renewable Energy Target (RET) will deliver 20% of the country's electricity from renewable sources by 2020, unlocking more than \$20 billion in investment and creating many jobs. Wind power is the lowest cost form of readily available renewable energy in Australia. As a result much of the 20% target will come from wind. Threats to the development of the wind industry will have significant negative economic consequences for Australia's economy in this regard.

Employment opportunities

Employment in the regions affected by wind farm developments are generally boosted by the presence of a wind farm, particularly during construction, but often also through the ongoing operation of the wind farm. The resulting training experience of staff that comes with this brings new skills and experience that go on to serve those whose live and work in those communities.

Modelling by SKM-MMA (Sinclair Knight Merz – McLennan Magasanik Associates) for the Clean Energy Council found that the wind industry is expected to provide 1,600 direct employees by 2020 and 17,000 full time equivalent jobs in construction over the next decade. These jobs will be primarily in regional Australia.

(e) Other relevant matters

Research indicates extensive support for wind farms including in the local regions where they are being built.

While a small but vocal opposition continues to protest the development of the wind industry, it is important to note that wind is well supported across large sections of Australian society.

A Newspoll survey commissioned by the Clean Energy Council in December 2009 found that in regional areas 90% of people said that Australia should produce more renewable energy.

Recent polling conducted in regional NSW during 2010 by AMR Interactive for the NSW Government on community attitudes to wind farms, found that 85% of residents supported wind farms being built in NSW. The survey also found that 79% of residents were supportive of wind farms being built within 10km of their residence and more than 60% supported them at 1—2km from their residence.

Greenhouse abatement

Every kWh of wind energy produced reduces the need to generate a kWh of coal-fired electricity.

A report by respected economics firm, MMA found that every MWh of wind energy results in more than 1 ton of emissions reductions.

An additional benefit of wind energy is that it does not consume water in operations. Traditional thermal power plants that generate steam to drive turbines use 1.4% of Australia's water (ABS, 2005).

4. Further Contact

Thank you for the opportunity to submit to this inquiry and please contact us should you have any questions regarding the content of this submission.

Yours sincerely,

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