Department of the Senate
PO Box 6100
Parliament House
Canberra ACT 2600
Australia

A Response to the Social and Economic Impact of Rural Wind Farms Inquiry

Dear Sir/ Madam,

Please accept my submission to the Senate Inquiry into the Social and Economic Impact of Rural Wind Farms.

In the latest 2010 State of the Climate Report, the CSIRO and the Australian Bureau of Meteorology (2010:10) reaffirmed that climate change is real, that is already affecting Australia and that is greater than 90% certainty that changes in the climate are caused by anthropogenic factors in particular atmospheric increases of Greenhouse gas concentrations. Maintaining current CO_{2e} emissions trends can potentially lead to temperature increases of over 2C before the end of the century with dire consequences for the planet's ecosystems, biodiversity and the human population (Hansen 2010). Despite the high levels of scientific certainty and repeated warnings about the serious risks, worldwide emissions continue to grow unabated thus increasing the risks of passing dangerous tipping points that can make the global climate system unstable (Hansen 2010). Hansen (2010) and Hamilton (2010) strongly argue that global CO_{2e} emissions must peak before 2020 and then reduce 90% by 2050 to keep climate change within safe levels.

Australia is one of the largest per capita producers of CO_{2e} emissions in the world, with the Energy sector responsible for over 50% of the country's net total greenhouse emissions (Geoscience Australia & ABARE 2010). This high level of emissions is due to our dependency on fossil fuels such as coal for electricity generation. Currently only 5% of our energy requirements are sourced from renewable sources (Geoscience Australia & ABARE 2010). Mark Diesendorf (2009) argues that as a country we need to transform our energy sector to reduce our net levels of CO2e emissions and mitigate the potential climate change effects. He proposes a broad strategy, focusing on power efficiency to reduce overall demand and the deployment of renewable energy sources to replace fossil fuels. This strategic approach is widely supported by many others including Bunting and Healy (2003) and Pears (2010).

Wind power is considered the least expensive (ATSE 2009, Diesendorf 2009, Varun et al 2009) and most sustainable (Evans et al 2009, Varun et al 2009) form of renewable energy. It is the fastest growing renewable energy technology in Australia and in the world (Geoscience Australia & ABARE 2010). Australia has a great potential to further develop wind energy as it has one of the best wind resources in the world. From a current 1.5% share in electricity generation, wind could potentially increase its share of the energy sector to 12.1% by 2029 without major changes to the electricity grid (Geoscience Australia & ABARE 2010). Despite this strong economic potential the further development of wind power is strongly contested by both local community interests (Bunting & Healy 2003) and other agents that prefer to maintain the current fossil fuel and greenhouse emissions intensive energy mix (Diesendorf 2009 and Pearse 2007).

Wind Energy has important technological, environmental and economic advantages. From the technology perspective wind is a simple, well understood and mature technology (Geoscience Australia & ABARE 2010). These elements allow investment in technological improvements with minimal risk. From the environmental perspective wind power is a clean energy source as no fuel is required and no emissions are generated. In direct contrast to coal generation it does not require

any water for cooling of turbines a strong advantage for a dry continent such as Australia . Wind has, over its life-cycle, the lowest CO_{2e} emissions of all other power generation technologies and the highest sustainability ratings (Evans et al 2009, Varun et al 2009). Economically wind power is the most competitive of all the renewable generating technologies (Graham & Williams 2003). It has the lowest price per kWh of energy generated (Evans et al 2009) as a result of the very low operating costs and the zero fuel costs. It's clear advantages are highlighted when the full social and environmental externality costs are considered. The Australian Academy of Technological Sciences and Engineering found in a 2009 study that wind power has the lowest external cost of all other generation technologies estimated at $1.50 per MWh. Another important benefit of wind farms is that they allow the continuation of agricultural land use such as cropping or pasture for animals (ATSE 2009), this is in contrast to Coal Seam Gas (CSG) production which is threatening agriculture communities in different parts of the country. Wind farm developments strongly benefit the local and regional economies by creating direct and indirect regional employment during the construction and operations phases as demonstrated by the Sinclair Knight Merz (SKM) Economic Impact Assessment of the Hallet Wind Farms report (2010). According to Bloomberg (2010) in 2009-2010 wind farms generated almost $1.6 Billion in new investment in Australia. In general all of these benefits seem to be clearly understood by the majority of the public and governments show strong acceptance of wind power as a renewable energy source (Wustenhagen et al, 2007).

Despite these clear benefits for the majority of the public, at the local community level wind farm projects can generate strong controversy mainly due to their visual impact on the landscape (Bunting & Healy 2003, Wustenhagen et al 2007). Wind turbines are large structures which are usually located in open areas and clearly visible from large distances away. Residents who over the years develop an emotional attachment to the landscape can feel dispossessed and stressed when the wind farm is built and their view changes (Cass & Walker 2009) thus leading to strong project opposition. This local opposition can sometimes described as NIMBY (not in my backyard) (Bunting & Healy 2003, Gross 2007) however as many authors point out the motivations for the opposition could be very complex (Cass & Walker 2009, Gross 2007 and Jobert et al, 2009). While most of the opposition groups are small, they are strongly supported by climate change deniers and fossil fuels lobby groups thus allowing them to have a disproportionate voice in the public debate. We should not forget that there are less vocal but strong local support for wind farm developments.

One of the main issues raised to fuel local opposition is the unfounded fear of adverse health effects for people living in close proximity of wind farms. Peer-reviewed Australian studies conducted by the National Health and Medical Research Council and from the Victorian Department of Health, conclude that there are no evidence to positively link wind turbines with adverse health effects. However despite the lack of scientific peer-reviewed evidence, wind farm opponents keep raising this fear and creating high levels of anxiety among residents living close to wind farm potential sites. These high levels of anxiety can lead to stress related health effects not directly related to the wind turbines (NHMRC 2010). It is interesting that these wind power opposition groups do not raise the same issue from the coal-based energy production which in Australia is a major contributor to the country's greenhouse emissions thus impacting not only in human health but also ecosystems health as widely documented in the Intergovernmental Panel Climate Change (IPCC 2007) and other reports.

Another issue raised by wind farm opponents is the proposition that people living in close proximity to a wind farm will experience excessive noise or vibrations. Studies carried out at the Clements Gap and Cape Bridgewater wind farms demonstrate that the noise levels of wind turbines are well bellow the human perception thresholds and of similar levels to other natural and man made sources such as the beach, the Adelaide CBD and a power station (Sonus, 2010).

Wind farm developments should be subject to strong local, regional, state and Commonwealth

planning regulations, like any other infrastructure development. As a country we need to ensure that they are placed in the most appropriate locations and guarantee local participation in decision making . Decision making must include a broad set of stakeholders but need to address the wider public good. Authorities should not put specific hurdles or restrictions to prevent wind development such as the policy of a 2KM buffer around wind farms, proposed by the Baillieu Coalition Government in Victoria. These restrictions will only reduce the likelihood of projects going ahead by significantly increasing costs and reducing the benefits. Local, State and the National Government should support the development of Renewable energy projects to achieve the target of reduced emissions.

Wind power is a highly important source of clean renewable energy to enable Australia to reduce its reliance on fossil fuels and our current levels of Greenhouse emissions. We need the Senate to ensure that no undue limitations are placed on the industry to fully develop to its full potential. I'll trust the Senate will not accept unsubstantiated fear campaigns by lobby groups to prevent the development of clean and safe energy sources. Australia needs wind power to diversify its energy mix and reduce its dependence on fossil fuels. It needs the wind energy projects to drive investment and create jobs in regional areas.

Daniel Sacchero

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