The Australian Psychological Society Ltd

Submission to the Senate Inquiry into the Social and Economic Impact of Rural Wind Farms

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APS contact:

Dr. Susie Burke

This submission was prepared for the Australian Psychological Society by Ms Emma Sampson, Mr Craig Wallace, Dr Susie Burke and Ms Heather Gridley. Expert input was received from the APS Climate Change and Environmental Threats Reference Group.

The Australian Psychological Society Ltd, Level 11, De Bono Centre, 257 Collins Street, Melbourne VIC 3000
Phone +61 3 8662 3300; Fax +66 3 9663 6177; Email contactus@psychology.org.au; Web www.psychology.org.au

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1. **Executive Summary**

The Australian Psychological Society (APS) recognises that an urgent transition from fossil fuels to clean renewable energy is needed to achieve a zero-emissions stationary energy supply to reduce climate risk and thereby reduce risks to human health and wellbeing from climate change. Wind farms represent one important form of renewable energy as part of a mix of solutions.

The APS is not aware of any published peer reviewed scientific studies that demonstrate adverse health effects associated with wind farms, and concur with the paper published by the National Health and Medical Research Council in 2009, which states:

> *While a range of effects such as annoyance, anxiety, hearing loss, and interference with sleep, speech and learning have been reported anecdotally, there is no published scientific evidence to support adverse effects of wind turbines on health.*

Research has found widespread community support for renewable energies, wind farms and even the placement of wind farms within individual residences and communities. Many see wind farms as a way of protecting the natural environment from destruction, providing a local source of energy for regions, providing a potential source of income for local residents and local sustainability projects, and enhancing the community's contribution and reputation as being active on climate change.

There is, however, considerable variability in how individuals and communities respond to actual wind-farm projects in their local communities. Understanding these responses is integral to the process of climate change adaptation. Discussions with neighbours, together with how the media represents wind farm projects, can play an important role in how communities perceive proposed changes like wind farms. Resistance can be due to individual barriers to change, negative perceptions of wind farms, place attachment, and/or inadequate processes of community engagement in local decision making.

Local opposition to wind farms is best understood as place-protective action which arises when new developments disrupt people's emotional attachments to their home and landscape, and threaten the identity they have with their home. Then, people can feel fear and anxiety about the proposed changes. These reactions are, of course, not limited to wind farm developments, but can include any proposed new development such as housing estates, supermarkets, coal-fired power stations, industrial estates, power-lines and energy grids.

Understanding place attachment and place identity (vis-a-vis resistance to wind farms) leads to more effective strategies to engage and involve communities in adapting to change. People strongly attached to their place are likely to take an interest in what is going on locally, such as proposed wind farms. They can perceive the change as a threat or as a positive opportunity, depending on how it is presented.

People are more likely to have positive attitudes towards wind farms if they:

- perceive the wind farm will directly enhance their community (through local employment, improved access to the landscape);
- if they have high trust in the developers and see them as a good citizen;
- local impacts of construction are minimised;
- impacts on the natural environment are minimised;
- the wind farm is not too large and is not close to other wind farms;
- the wind farm is not seriously at odds with conceptions of place and identity;
- the public has been collaboratively involved in the process from an early stage.

People are more likely to have negative attitudes towards wind farms if they:

- see the project as an occasion when local places must be 'sacrificed' in order to deal with climate change;
- believe the project will threaten place-related positive distinctiveness, for example by weakening the local character of the area, stigmatising the place, or altering their experience of familiar places by disrupting sensory experiences (sights, sounds).

Proposed developments should:

- use collaborative and participatory planning approaches, and prioritise community influence and control in local decision-making processes, including input into decisions about wind farm placement.
- undertake social and environmental impact assessments that incorporate local (place-based) and psychological assessments (e.g., of group environments or community attitudes).
- facilitate local ownership of the process and outcomes of wind farm projects

2. Recommendations

Based on the research outlined in this submission, the APS recommends that:

1. The Senate Committee take account of the robust evidence base which suggests that wind farms do not present any major health risks. We recommend that equal attention be directed to the health consequences of climate change and the potential for adverse health effects from existing fossil fuel energy generation systems.
2. Any social, community or economic impact of wind farms be understood within a broader framework of climate change adaptation. To this effect, informing and educating the community about the impacts of climate change and the role of renewable energies in mitigating those impacts should be prioritised.
3. The Inquiry take account of the documented community support for renewable energies and wind farms in particular.
4. Individual and community resistance to actual wind farm projects be understood within a place-protective framework, which provides government, businesses and local communities a way to navigate diverse positions to maximise the social, community, economic and environmental benefits of wind farms.
5. Psychological principles be used to inform practices of public engagement, whereby change is seen in such a way as to enhance rather than threaten place-related continuity, distinctiveness, self-efficacy and self-esteem (Devine-Wright, 2009).
6. Collaborative and participatory planning approaches and strategic planning of wind farm locations be utilised in addressing resistance to wind farms.
7. Community influence and control in local decision making processes about wind farms be prioritised.
8. The benefits of wind farms should flow into the local community, not just in terms of land for turbines, but through other means such as local employment, local shareholdings or improved local economy, or improved access to landscape.
9. All stakeholders, particularly different levels of government, work collaboratively to ensure the local input and outcomes of wind farms are achieved. The support of government, business and other institutions is key to effective local wind farm initiatives.
10. The benefits of wind farms to individuals, communities and the environment be promoted via social networks and the media to ensure accurate representation of projects and to avoid/offset negative perceptions.

3. Introduction

The Australian Psychological Society (APS) is the premier professional association for psychologists in Australia, representing more than 19,000 members. Psychology is a discipline that systematically addresses the many facets of human experience and functioning at individual, family and societal levels. Psychology covers many highly specialised areas, but all psychologists share foundational training in human development and the constructs of healthy functioning. Community Psychology has a particular focus on social justice and on community-level interventions.

The Australian Psychological Society (APS) welcomes the opportunity to provide input to the Senate Inquiry into the Social and Economic Impact of Rural Wind Farms. Australian psychologists, along with other members of the scientific and professional community, are gravely concerned about the current state of the natural environment, and the overall adequacy and effectiveness of current initiatives to address environmental problems at regional, national, and international levels.

The APS is well placed to contribute to this consultation by identifying psychological research and best practice as it relates to human and social adaptation to climate change, including responding to initiatives designed to reduce carbon emissions. The APS has developed a literature review on Psychology and the Natural Environment as well as a Position Statement on climate change, which also inform this submission. We believe a more psychological framing of the human dimensions of global environmental change can greatly inform and enhance effective and collaborative climate change adaptation and mitigation policies and research.

While the policy imperative for using renewable energies has been clearly established, individual and community responses to actual projects have varied, particularly in relation to wind farms. We believe that developing an understanding of the forms and source of responses (particularly resistance), at both an individual and community level, is an integral part of the process of climate change adaptation. This will lead to more effective strategies to engage and involve communities in adapting to change.

4. Responding to the terms of the Inquiry

While the APS supports an inquiry into the social and economic impacts of wind farms, we are particularly concerned about the way in which the inquiry has been framed. Psychologists draw heavily on evidence-based research, and are careful to ensure robust research designs. In particular, ensuring research questions and foci are framed in a way that does not compromise findings and outcomes is a key ethical concern for the psychology profession.

We would like to draw attention to the negative focus of the terms of the inquiry, and raise concerns about how this may impact on the outcomes of the inquiry. To this effect, it is important that the Committee is aware of the robust evidence base which not only supports wind farms, but indicates the very high level of support for such initiatives within the Australian and global communities.

While we are not in a position to respond to each term of reference, as several of these are outside our area of expertise, our submission provides an overall response regarding the social and community impact of wind farms from a psychological perspective. In particular, we draw on a place-based framework to understand and respond to community resistance to wind farms. We believe understanding place-based connections and ensuring effective community engagement are key to maximising the environmental, health, social and economic benefits of wind farms in Australia, and minimising the likelihood of potential negative impacts.

5. Health impacts of climate change, renewable energy, and wind farms in particular

Climate change is regarded as the most serious global health threat of the 21st Century (Costello et al., 2009). The major threats, both direct and indirect, come from changing patterns of disease, water and food insecurity, vulnerable shelter and human settlements, extreme climatic events such as more catastrophic bushfires, droughts, floods and cyclones, and population growth and migration. Climate change is a global problem with significant psychosocial and health implications (refer to the APS Position Statement on climate change (http://www.psychology.org.au/publications/statements/climate/).

The APS recognises that an urgent transition from fossil fuels to clean renewable energy is needed to achieve a zero-emissions stationary energy supply to reduce climate risk and thereby reduce risks to human health and wellbeing from climate change. Wind farms represent one important and internationally accepted form of renewable energy which has the potential to reduce emissions of air pollutants and carbon dioxide, a powerful greenhouse gas.

While the direct physical health effects of wind farms are not the focus of this submission, the APS supports the submission made by the Climate and Health Alliance (CAHA), of which the APS is a member. In particular, we draw attention to the lack of any published peer reviewed scientific studies that demonstrate adverse health effects associated with wind farms, and concur with the paper published by the National Health and Medical Research Council in 2009, which states:

> *While a range of effects such as annoyance, anxiety, hearing loss, and interference with sleep, speech and learning have been reported anecdotally, there is no published scientific evidence to support adverse effects of wind turbines on health.*

Examination of the potential for adverse health effects from emerging energy generation technologies should also take into consideration the adverse health effects from existing energy generation systems.

Mental health and community wellbeing should be considered important aspects of the health impacts of any climate policy initiatives. Within this context, the remainder of the submission will focus on the perceptions, experiences and involvement of local communities in wind farm projects, as a way of understanding and promoting mental health and community wellbeing in this context.

6. Community perceptions of renewable energies

Research has found widespread support for local generation and use of renewable energy. For example, 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. Similarly, an AMR Interactive survey commissioned by the NSW Government in mid-2010 on community attitudes to wind farms found they were regarded as an acceptable form of power generation by 81% of the population. The survey also found that 80% of residents were supportive of wind farms being built in their local region and more than 60% supported them at 1-2km from their residence. There was also broad acknowledgement of the benefits of wind farms to the local community, including economic and employment benefits and broad endorsement of more wind farms being built in the area (Clean Energy Council, 2011).

Respondents not only support renewable energies but have been found to expect benefits from wind farm projects in terms of increased community spirit and conservation of natural resources (Rogers et al., 2008). However, while research has indicated this widespread community support for renewable energies, wind farms and even the placement of wind farms within individual residences and communities, there continues to be individual and community resistance to actual wind farm proposals/projects.

7. Understanding resistance to wind farms

Given that research has indicated that 'attitude towards wind power' has been linked to support of wind farms (Rogers, 2008), furthering our understanding of individual and community resistance to wind farms is an important part in the process of achieving more sustainable practices. Indeed, it is important to better understand and address communities' reluctance or resistance to any climate change policy or governance initiatives, including wind farms. Community responses are likely to be related to:

- community perceptions of state and federal governments and local authorities;
- the reasonableness and fairness and justification of the policy, initiative, or regulation;
- the perceived costs and benefits of the initiative or change as compared to alternatives;
- the possible symbolic import or meaning attached to the proposed initiative or change;
- a clear understanding of why the initiative is necessary and effective.

8. Environmental and psychosocial impact assessment

Very few environmental impact assessments in Australia of projects like wind farms take psychological considerations into account. Conventional social impact assessments tend not to include psychological considerations such as concern, distress, reactance, educational engagement, participative decision making, etc. An aspect of environmental impact assessment which is routinely ignored is visual amenity value and aesthetic response. Changes to public space and 'natural' areas, landscapes and scenic venues are often seen as intrusive, insensitive, and ugly, and can be associated with highly stigmatised technological products such as powerlines and energy grids (e.g., Furby et al., 1988; Nasar, 1988; Horlick Jones, Prades & Espluga, 2010). Such changes in turn diminish perceived environmental quality and can be experienced as a real and irreversible loss, involving appreciable psychological and social costs with respect to quality of life and environment.

Environmental impact assessment should therefore take into consideration the psychosocial impacts of the project, incorporating local (place-based) and psychological assessments (e.g., of group environments or community attitudes).

9. Psychological barriers to adequate climate-change adaptation

Resistance to wind farms can be understood within the broader context of responses to climate change. Notwithstanding the role of structural factors in mitigating climate change, there are many well-documented psychological barriers or obstacles that may hinder pro-environmental behaviour change (APA, 2010). There are a range of individual-level explanations for these barriers. For some, a barrier is ignorance of the problems or the best solutions. For others, uncertainty, or even denial of the existence of climate change, human contribution to climate change and/or the contribution of one's behaviour, pose significant barriers to change. For many, conflicting goals and aspirations are an obstacle. Everyone has multiple goals and values; for example, whilst someone may want to reduce their greenhouse gases, they may also like to have a residence with an uninterrupted view of the rolling hills. This barrier is particularly pertinent to wind farm discussions.

Individual explanations are insufficient however, at explaining attitudes to climate change, including resistance to renewable energies. Similarly, assumptions that the provision of information will remedy any knowledge deficit and then levels of opposition will fall, overlook the importance of issues of justice, equity and trust in energy conflicts, and do not adequately account for issues of place attachment (Devine-Wright, 2009).

10. A place-based framework

Local opposition to wind farms has more recently been understood as place-protective action. Drawing from extensive research into the importance of sense of place and community to people's sense of belonging and identity, opposition to wind farms is conceived as "a form of place-protection action, which arises when new developments disrupt pre-existing emotional attachments and threaten place-related identity processes" (Devine-Wright, 2009: 426).

Both place attachment (the process of attaching oneself to a place and a positive emotional connection with familiar locations) and place identity (the ways in which physical and symbolic attributes of certain locations contribute to an individual's sense of self or identity) are important considerations here. The impacts of change within or to a place have been labelled as place disruption or threat to place identity, resulting in emotional responses such as fear or anxiety (Fried, 2000, cited in Devine-Wright, 2009). These reactions are not limited to wind farms, of course, but can include any proposed new developments like new housing estates, supermarkets, coal-fired power stations or industrial estates.

People who are strongly attached to their place can be expected to take an interest in what is going on locally. This may lead to negative evaluations of place change on one hand (where change is perceived as a threat); conversely, place attachment may actually correlate positively with project support when projects are interpreted as place enhancing. Specifically:

- Opportunity: people see a project as directly enhancing the local community
- Threat: people interpret energy projects as occasions when local places must be 'sacrificed' in order to deal with climate change; the project is thus framed as 'industrialising' hitherto 'natural' places.
- Threat: if projects are believed to threaten place-related positive distinctiveness, e.g., by weakening the local character of the area or stigmatising the place, or to alter people's experience of familiar places by disrupting sensory experiences (sights, sounds, smells).

Emerging research into individual and community perceptions and experiences of wind farms has found that:

- social networks (discussions with neighbours) and the media (how wind farms are represented) play an important role in community attempts to make sense of change and to respond at a local level;
- levels of trust in key actors moderated the relation between place attachment and negative attitudes to the wind farm.
- there is no apparent relationship between the proximity of submitters to a proposed wind farm and their likelihood of having a negative perception of the proposal. (Graham, Stephenson, & Smith, 2009);
- people are more likely to perceive wind farms as an intrusion into privacy if they also feel a lack of control over the decision, subjected to injustice, a lack of influence, and not believed (Pedersen, Hallberg, & Waye, 2007);
- perceptions of 'place' can be interpreted on different scales as an economic entity, as involving a sense of local ownership, as a resource and as nature. These perceptions are important in understanding responses to proposed changes to places posed by wind farms. Interpretations of the impact of wind farms on a place include: environmental status and significance of electricity produced, projects for local people, commercial, experimental, pioneering, industrial impacts, and a sense of being 'at one with Mother Nature' (McLachlan, 2009).

11. The process is important: community engagement and procedural justice

Research suggests that a key part of community resistance to wind farm projects stems from inadequate community engagement processes. Rogers (2008), for example, found wind farm proposals are less likely to generate local opposition if the public have been collaboratively involved in the process from an early stage. In addition, further research has suggested that:

- energy projects may threaten place-related self-efficacy (i.e., the belief that one has some capacity to influence one's world) if processes of decision-making, including public consultations, are believed to be 'imposed' upon places by companies or governments without genuine public engagement (Gross, 2007, cited in Devine-Wright, 2009);
- beliefs about the degree of influence (political efficacy) individuals or groups can exert over place change are likely to be an important factor in the context of opposition to wind farms (Devine-Wright, 2009);
- many respondents perceived the proposed project as a potential focus for community members to work together, which might create a ''better spirit among people'' (R25, Rogers, 2008).

Similarly, the procedural justice literature suggests that disputants care as much about how their disputes are resolved as they do about the outcomes they receive. Thus when people evaluate the fairness of procedures, they consider those aspects of procedures that affect the way in which decisions are made and those that determine the type of treatment they experience as individuals (Blader & Tyler, 2003).

Rogers, Simmons, Convery, & Weatherall (2008) investigated public expectations of how and why people would like to participate in renewable projects. They found widespread support for local generation and use of renewable energy, with respondents expecting benefits from a project in terms of increased community spirit and conservation of natural resources. However, desire for active involvement was lower and residents viewed themselves participating as consultees rather than project leaders. Community-based renewable energy projects are likely to gain public acceptance but are unlikely to become widespread without greater institutional support or investment from government or local authorities.

12. Ensuring local benefits of wind farms

Harnessing the benefits of wind farms to local communities (in addition to promoting their broader environmental benefits) is key to ensuring that wind farms enhance (rather than threaten) existing place-based experiences. This includes:

- local involvement in decision making (as outlined above) and input throughout the process of implementation of wind farms. Collaborative and participatory planning processes at all levels of government are key here;
- maximising local employment opportunities through wind farm projects (e.g., research by the New York State Energy Research and Development Authority found wind energy produces 27% more jobs per kilowatt hour than coal plants and 66% more jobs than natural gas plants)[1]
- exploring opportunities for wind farms to enhance communities that are in decline (e.g., a Colorado community found that the economy turned around for the depressed rural communities when construction began on the Colorado Green Wind Farm in 2003. At the height of construction, subcontractors employed nearly 400 workers, providing a boost to local businesses. Local companies that provided services also benefited)[2].
- balancing impacts of local construction with opportunity for local employment;

[1] http://www.nrel.gov/docs/fy04osti/33590.pdf

[2] http://www.nrel.gov/docs/fy04osti/33590.pdf

- ensuring the developer (often energy companies) is well respected (e.g., does not damage the local environment unduly in the installation process) and engages the local community to have a say in important decisions around wind farm projects;
- exploring mechanisms where economic benefits can be harnessed, such as community-led wind farm projects, including local shareholdings in wind energy developments, as in Europe (Rogers, 2008). Such community initiatives require access to trusted resource bases with expertise in both community development and technical issues.
- harnessing the wind farms as a source of local pride and enhancing tourism opportunities, rather than detracting from them.

13. Recommendations

Based on the research outlined above, the APS recommends that:

1. The Senate Committee take account of the robust evidence base which suggests that wind farms do not present any major health risks. We recommend that equal attention be directed to the health consequences of climate change and the potential for adverse health effects from existing fossil fuel energy generation systems.

2. Any social, community or economic impact of wind farms be understood within a broader framework of climate change adaptation. To this effect, informing and educating the community about the impacts of climate change and the role of renewable energies in mitigating those impacts should be prioritised.

3. The Inquiry take account of the documented community support for renewable energies and wind farms in particular.

4. Individual and community resistance to actual wind farm projects be understood within a place-protective framework, which provides government, businesses and local communities a way to navigate diverse positions to maximise the social, community, economic and environmental benefits of wind farms.

5. Psychological principles be used to inform practices of public engagement, whereby change is seen in such a way as to enhance rather than threaten place-related continuity, distinctiveness, self-efficacy and self-esteem (Devine-Wright, 2009).

6. Collaborative and participatory planning approaches and strategic planning of wind farm locations be utilised in addressing resistance to wind farms.

7. Community influence and control in local decision making processes about wind farms be prioritised. This could extend to community-led wind farm projects.

8. The benefits of wind farms should flow into the local community, not just in terms of land for turbines, but through other means such as local employment, local shareholdings or improved local economy, or improved access to landscape.

9. All stakeholders, particularly different levels of government, work collaboratively to ensure the local input and outcomes of wind farms are achieved. The support of government, business and other institutions is key to effective local wind farm initiatives.

10. The benefits of wind farms to individuals, communities and the environment be promoted via social networks and the media to ensure accurate representation of projects and to avoid/offset negative perceptions.

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Appendix 1: Psychological Barriers to Adequate Climate-Change Adaptation

Table 1:	What psychologists know about people's reluctance to make changes in the face of climate change and other threats
Ignorance	Unawareness of the issue or lack of knowledge about what action to take
Uncertainty	Perceived or real uncertainty reduces the frequency of pro-environmental behaviours; acting in short term self-interest - tendency to interpret any sign of uncertainty as sufficient reason to act in self-interest over that of the environment
Mistrust and reluctance	Evidence suggests people distrust messages that come from government or scientists, particularly where such advice threatens one's freedom
Denial	Denial of existence of climate change and human contribution to it, or more specifically denial of the role of one's behaviour or group behaviours in harming others
Judgement discounting	Undervaluing future or distant risks, such as discounting climate change in temporal and special terms (conditions presumed to be worse elsewhere, so less motivation to act locally)
Place attachment	People may be more likely to care for a place to which they feel attachment than for one they do not. The role of place attachment is likely to be complex but acts as an impediment to action in some populations
Habit	Many habitual behaviours are extremely resistant to permanent change, and others are slowly changed...changing attitudes does not always change behaviours
Perceived behavioural control	Because climate change is a global problem, many individuals feel they can do nothing about it
Perceived risks from behavioural change	A range of perceived risks resulting from changes in behaviour have been documented - such as functional risk, physical risk, financial risk, social risk, or time lost.
Tokenism and the rebound effect	The tendency for people to favour behaviours that are easier to change (but have less impact) than those which are more difficult but have great effect (low-cost hypothesis)
Social comparison, norms, conformity and perceived equity	If any sort of inequity or perceived inequity exists, cooperation declines
Conflicting goals and aspirations	The common goal of getting ahead often means engaging in actions that run counter to the goal of reducing climate change impacts
Belief in solutions outside human control	for religious or human nature reasons

Table compiled from the report of the American Psychological Association task force on the interface between psychology and global climate change (APA, 2010).