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Senate Community Affairs Committee – The social and economic impact of rural wind farms

Members of the Community Affairs Committee,

The Victorian Government supports the development of wind power as an important source of renewable energy. The development of the industry must however take into account broader social and environmental needs to ensure communities and sensitive landscapes are not unreasonably impacted. In achieving this, it is important that greater certainty is provided to communities and industry alike.

In 2010, the Victorian Parliament passed the *Climate Change Act 2010*, which legislated Victoria's new emissions reduction target of 20 percent by 2020 (based on 2000 levels).

In 2009 wind accounted for 49 percent of Victoria's renewable electricity production. Eight wind farm projects are currently operational having 266 turbines with a total capacity of 428 MW, and together account for an investment of approximately \$1.2 billion. A further 28 projects with a combined capacity of around 3192 MW have already been approved, with two major projects currently under construction. If fully progressed by project investors, these new projects are expected to result in up to \$5 billion in expenditure, with the majority of construction investment located in regional areas of Victoria. Recognising the obvious potential capacity for wind farms to contribute to renewable energy generation, the Victorian Government is committed to delivering fair and equitable opportunities for industry and the general community, whilst addressing potential adverse impacts to regional communities and the environment.

The development of wind farms faces a number of constraints, including access to the national grid, securing investment funding, and obtaining public acceptance. The level of public concern regarding the amenity and health impacts of wind farms in Victoria is evident, and poses a challenge to the expansion of the wind farm industry in this State. The extensive scale of large wind farms, potential for cumulative impacts, and traditional land use planning approaches that focus on assessment of individual projects are particular challenges in this regard.

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The Victorian Government acknowledged these issues in its pre-election policies and released the Plan for Energy and Resources 2010, which provided specific actions that aim to 'restore fairness and certainty to the planning system for wind farms'. A key policy action is to ensure that the placement of a turbine will be no less than two kilometres from the nearest home (unless there is agreement between the resident and wind farm developer). The Government will also:

- develop new guidelines for wind farm planning and operational aspects such as noise, strobe impacts and bird kills;
- streamline the planning process to ensure greater transparency and consistency, and to return greater decision making responsibilities to local councils in relation to wind farm proposals;
- reduce potential impacts on adjacent landholders;
- examine measures to broaden the base of direct economic beneficiaries from wind projects; and
- investigate opportunities for a wind farm strategic assessment to ensure that identified significant landscapes and environmental values are protected from wind farm developments.

In Victoria, several policy and regulatory documents support the responsible development of the wind industry. The Commonwealth expanded Renewable Energy Target is expected to underpin continued expansion of large scale generation of electricity from wind turbines. The release of the policy document *Policy and planning guidelines for the development of wind energy facilities in Victoria 2009*, established a consistent approach to the development of wind energy facilities across the State. The Guidelines provide guidance to proponents, authorities and the Victorian community in considering the merits and impacts of wind energy proposals within a policy framework. The Victorian Government is also involved in the development of the draft National Wind Farm Development Guidelines. These guidelines will be considered as part of the Victorian Government's commitment to new wind farm guidelines.

The following sections relate to the terms of reference for the inquiry:

- (a) Any adverse health effects for people living in close proximity to wind farms;
- (b) Concerns over the excessive noise and vibrations emitted by wind farms, which are in close proximity to people's homes;

An assessment by the National Health and Medical Research Council (NHMRC) concluded that there is no published scientific evidence to positively link wind turbines with adverse health effects on humans, but recommended that relevant authorities take a precautionary approach and continue to monitor research outcomes.

The Victorian Government notes the apparent absence of any targeted medical studies based on Australian conditions and the possible impacts of wind farms on human health. There are anecdotal reports from medical professionals that suggest a pattern of health impacts where a common factor may be proximity to wind farms.

The particular focus of any research on noise and health is also important. Popular discussion on wind farms and health impacts tends to focus on infrasound (very low frequency, sub-audible) noise, and the direct pathological effects such sound might have

on the body (e.g. injury to hearing or organs). This focus may distract from the issues associated with *audible* frequency wind farm noise.

Relevant research on audible wind farm noise impacts that requires further attention includes:

- A 2010 European Environment Agency technical report, which noted:
 - that wind farm noise causes much greater disturbance to communities than other sources of environmental noise (road, rail, industry) at the same sound (dB) level; and
 - the indirect physiological impacts that noise has upon humans.
- A 2007 University of Salford Report for the United Kingdom Department for Business, Enterprise and Regulatory Reform and Department for Environment, Food and Rural Affairs, which found that:
 - Community complaints of low frequency noise were actually attributable to amplitude modulation (AM) of aerodynamic noise. AM is a characteristic of audible noise which occurred in some wind farm sites in the United Kingdom. When noise has an unusual character such as AM, it can worsen the negative impacts of the noise; and
 - Although there has been much research into the general area of AM it is a highly complex field, and whilst general principles are understood there are still unanswered questions.

These studies accord with the challenges faced by authorities regulating wind farm noise and responding to community concerns. For example:

- AM is raised as a potential issue in the draft National Wind Farm Development Guidelines, and the 2010 New Zealand Standard for wind farm noise. The draft National Guidelines recommend that State regulators build in a noise modelling penalty of 5dB in wind farm assessment frameworks to take account of the potential impact of special audible characteristics such as AM.
- Community reports about noise impacts from wind farms in Victoria focus on characteristics of sound that may be attributable to AM.

Furthermore, while additional research is of course extremely important, a key priority is collation of validated monitoring data to assess the extent of compliance of existing wind farms with audible noise standards - including the presence of AM. Non-compliance with standards may be a primary issue for sites where communities report negative health impacts. Authorities need to ensure there is thorough assessment against the appropriate standards.

In addition, the Inquiry may choose to look at the current arrangements for responding to emerging research, in setting standards and public messages on health. Currently, the NHMRC has recommended that authorities monitor research outcomes. Accordingly, the Victorian Government will continue to monitor research and will respond to any findings that are significant.

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

Property values

- The impact of rural wind farms on property values is currently unclear as only limited studies have been undertaken. Further investigation is required. While the agricultural value of land is unlikely to change as a result of any wind farm, the ability of wind farms to generate cash flow through leases and their impact on the visual landscape, may have an impact on property values. However the net impact of these effects has not yet been fully investigated.

Employment opportunities

- Local employment opportunities relate mainly to the tower construction, civil works, cabling, assembly and operation and maintenance of the turbines. Generally, the blades and nacelles are imported. Overseas studies indicate a modest level of direct, local (i.e. in the host community) jobs created through operation and maintenance of wind farms, equivalent to about 0.33 ongoing jobs per installed megawatt of wind power.

Farm income

- Host farms can benefit from lease income for wind turbines; this is in the order of \$2.1 million per annum for operating wind farms in Victoria. If all of the approved wind farms in Victoria were constructed these annual payments are estimated to be in the order of \$16 million.
- An emerging issue to be addressed in the future development of guidelines is the cost impact on aerial agricultural practices (eg. crop spraying) to adjoining farms and how this can be more equitably considered.

Fees paid by wind farm operators to local councils are currently approximately \$700,000 per annum. If all of the approved wind farms were constructed this would increase to \$4.6 million.

It is noted that there are opportunities for regional clean energy and low-emissions job growth which could support the resilience of some regional communities. However, there are limits to the extent of infrastructure that can be supported in high wind resource landscapes. The benefits of large modern wind farms needs to be carefully balanced with other regional development and environmental objectives, such as other land uses, tourism opportunities based on landscape amenity, and the direct impact on certain bird and bat species.

(d) The interface between Commonwealth, state and local planning laws as they pertain to wind farms

The Victorian Government is committed to empowering local governments to play the lead role in the location of future wind farms. The Government will return control of wind farm development applications to local councils for all wind farm planning decisions, with technical and ongoing support from appropriate State Government agencies, as necessary. In order to further facilitate balanced planning processes in Victoria, the following actions have also been implemented:

- A State Coordinator for wind farm planning now operates in regional Victoria to provide an integrated planning function between local government and state agencies, and a direct point of contact for both industry and local communities; and

- A Municipal Association of Victoria/State Government working group has been established to expediently address emerging issues and to build technical capacity in regional areas.

Commonwealth wind farm policy needs to respect that local communities must have a strong say in the development of their local regions. This could be achieved by empowering the planning system to provide better strategic direction for the distribution of the overall renewable energy network.

The Victorian Government considers it essential that people in rural communities and farming areas are adequately provided for in the long term planning of areas with high wind resources. This means minimising the overall combined impact of transmission infrastructure and terminal stations. It may also mean that other planning tools and mechanisms, such as overlays, may be necessary in the longer term to also safeguard industry's investment in infrastructure and the expectation of communities.

(e) Any other relevant matters

None.

References:

- European Environment Agency Good practice guide on noise exposure and potential health effects: <http://www.eea.europa.eu/publications/good-practice-guide-on-noise>
- University of Salford Research into aerodynamic modulation of wind turbine noise: <http://www.acoustics.salford.ac.uk/res/moorhouse/?content=am>

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