

**Submission  
No 54**

## **INQUIRY INTO RURAL WIND FARMS**

**Organisation:** Origin Energy  
**Name:** Mr Tim O'Grady  
**Position:** Head of Public Policy  
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20 August 2009

The Directors  
General Purpose Standing Committee No.5  
NSW Legislative Council  
Parliament House  
Macquarie Street  
SYDNEY NSW 2000

Email: [gpscno5@parliament.nsw.gov.au](mailto:gpscno5@parliament.nsw.gov.au)

Dear Sir / Madam,

#### **SUBMISSION TO THE INQUIRY INTO RURAL WIND FARMS**

Origin Energy Limited (Origin) welcomes this opportunity to respond to the NSW Legislative Council's General Purpose Standing Committee's inquiry into the social, environmental and economic costs and benefits of rural wind farms.

#### **Overview of Origin's Position**

Origin is Australia's largest integrated energy company. As a major retailer with over two million electricity customers and one million gas customers we are a significant participant in both the current NSW Greenhouse Gas Abatement Scheme (GGAS) and the Federal Renewable Energy Target (RET).

Origin has been at the forefront of delivering sustainable energy solutions to the market for many years. We currently have over 500,000 customer accounts with green energy products such as Government accredited GreenPower and our Green Gas products. Origin was Ethical Investor's Sustainable Company of the Year 2007 and we recently received the Association of Chartered Certified Accountants' annual best Sustainability Report award in the energy and utilities sector.

Origin currently owns a number of gas-fired generation assets, including the recently commissioned Uranquinty plant in NSW and we're expanding our portfolio to include some 2,800 MW of capacity by 2010. Origin is also expanding its role as an investor in renewable energy technologies, including: geothermal, solar and wind.

Origin's investment in wind energy reflects our current view that it is one of the most cost-effective and fastest-growing sources of renewable energy. This year we announced our acquisition of Wind Power Pty Ltd which together with existing sites and options - increases Origin's access to a wind development portfolio of more than 2,000 MW. Origin has identified NSW as one of the prime locations for the expansion of its wind portfolio, including the recently-commissioned Cullerin Range Wind Farm and two other permitted sites at Conroy's Gap and Snowy Plains. In addition, we are continuing to assess the feasibility of a number of other sites in NSW. Another premium large wind resource site now in the portfolio includes the proposed 484 MW Stockyard Hill Wind Farm in Victoria. Origin has also entered into a Strategic Relationship Agreement with

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NSW based wind development generators Epuron, with options for another 500MW of potential generation capacity.

The composition of the Australian energy supply industry is changing and the inclusion of wind as a prominent component will be cemented over the next decade. As the development of wind farms exponentially grows it will result in increased public scrutiny and local community involvement - this in-turn will need to be mirrored by responsive and robust (i.e. protective, efficient and harmonised) planning and regulatory approval frameworks. These issues are somewhat reflected in the recent announcement<sup>1</sup> by the NSW Government outlining three new measures:

1. clean energy projects qualifying as critical infrastructure will have planning processes managed within four months
2. critical infrastructure fees will be waived from August 2009 to June 2011; and
3. new dedicated environment staff will work in the 'precincts' to drive the clean energy agenda and work with the community.

Federal policies (and the current level of certainty) on energy and climate change significantly influence Origin's investment decisions. Origin strongly supports the Carbon Pollution Reduction Scheme (CPRS) as the primary policy measure to reduce Australia's greenhouse gas emissions. The CPRS will provide a price signal for investment in the renewable sector over the longer term. As both an investor in renewable technologies and as retailer with liabilities in accordance with the RET, Origin believes that imminent passage into legislation of both the CPRS and RET will stimulate investment in renewable technologies, particularly relatively mature technologies such as wind. Participating in the wind sector also helps Origin to meet its customer demand for GreenPower.

#### **Submission Responses to the Terms of Reference**

##### **1a. The role of utility-scale wind generation in reducing greenhouse gas emissions generated by electricity production**

Wind farms are playing an increasing role in Australia's climate change policy and energy future. Wind is predicted to deliver almost half the energy required to support the expanded RET target and help Australia to transition to a low carbon energy economy.

Electricity generated by wind farms potentially displaces more greenhouse intensive sources of energy such as coal. The energy supplied in each State has an average greenhouse gas emissions factor (the factor adjusts over time in response to changes in the mix of energy in the system). For example, currently in NSW, each megawatt hour of wind energy generated is likely to avoid on average, the production of 890 kg of greenhouse gas emissions.<sup>2</sup>

<sup>1</sup> *NSW Prepares for Clean Energy Revolution*, News Release Premier of New South Wales, 17 August 2009.

<sup>2</sup> The indirect (Scope 2) emissions factor for the consumption of purchased electricity from the grid in NSW is 0.89 kgCO<sub>2</sub>e/kWh. Source: Australian Department of Climate Change, *National Greenhouse Accounts Factors*, June 2008, (Table 5).



Another example of reduced emissions is Origin's Cullerin Range Wind Farm which will be commissioned soon. Cullerin Range has an installed generation capacity of 30 MW<sup>3</sup> and is expected to produce 115,630 MWh of electricity each year, which when multiplied by the NSW emissions factor is likely to result in approximately 100,000 tonnes of greenhouse gases being avoided per annum.

#### **1b. The role of utility-scale wind generation in producing off peak and base load power**

Wind is an intermittent energy source and will always need to form part of a broader mix of energy supply options to ensure peak and base load demands are met. Investment in gas generation, such as Origin's Uranquinty plant in NSW, helps meet base load demand, supports market reliability and in-turn further enables the growth of wind generation.

It is important to consider the future constraints that a large amount of intermittent generation from wind will have on the NSW energy supply system. A portfolio of lower carbon supply options such as gas-fired generation and other renewable technologies such as solar and geothermal (a potential base load renewable source) may prove highly valuable to the market in the long run.

#### **2. Locating rural wind farms to optimise wind resource use and minimise residential and environmental impacts**

Reliability of wind energy is obviously enhanced by locating wind farms in areas of consistent strong winds, but also by ensuring there is geographical spread across NSW to minimise periods of low supply.

The processes of stakeholder engagement, environmental/technical assessments and regulatory/planning approvals should combine to minimise the potential risks and maximise the opportunities of wind farms upon local communities, local economies and the environment.

Having appropriate and efficient processes is critical to supporting the exponential growth of the industry. The three new measures recently announced by the NSW Premier (as discussed above) indicate that the Government is seeking to address some of these issues. Origin advocates the aspects requiring improvement to ensure robust, judicial and credible processes include:

1. **Expediency.** For example a prescribed maximum timeframe for determination by the relevant Minister, such as 90 days could be applied. A maximum of four months was recently proposed by the NSW Premier for wind farms qualifying as 'critical infrastructure'.
2. **Harmonisation and consistency.** Origin is a national company and consistent regimes and approaches across jurisdictions reduce commercial and regulatory compliance burdens.
3. **Well defined and streamlined approval processes.** Avoiding potentially redundant and/or multiple approval hurdles. Ensuring that relationships and responsibilities amongst the various regulatory bodies are clearly defined.

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<sup>3</sup> The capacity factor for the Cullerin Range Wind Farm is estimated to be 44%.



Coordination of issues across different departments/authorities within the State system as well as coordination between different levels of Government, for example the bilateral agreement for the *Environmental Protection and Biodiversity Conservation Act, 1999* and the proposed National Wind Farm Development Guidelines announced by the Federal Minister for the Environment, Heritage and the Arts<sup>4</sup>. Providing avenues to enable participants to learn from previous projects, as opposed to treating each new wind farm in isolation.

4. **Simplified, clearly defined and non-discriminatory** protocols, standards and criteria for environmental and technical assessments (e.g. agreeing a standard methodology for visual impact assessments)
5. **Certainty.** Definitive and stable policy and regulatory frameworks enable better investment decisions to be made with respect to the NSW wind industry.
6. **Effective stakeholder engagement.** The number of project developers and the relative volume/size of new wind farms will rapidly increase. Therefore, ensuring adequate, timely and effective stakeholder engagement will be a key success factor to enable the full scale development of wind energy in NSW.

### 3. The impact of rural wind farms on property values

Origin is not aware of any credible studies into the impacts on property values in Australia.

Anecdotal evidence in reference to land sales near rural wind farms suggests that property values remain largely unchanged by wind farm installations. Initial concerns about visual and noise impacts could be perceived to temporarily reduce prices marginally in the short-term. However, over the longer-term, wind farms may either have no, or even a slight positive financial impact on the local property market (e.g. Esperance, Western Australia<sup>5</sup>).

Studies overseas have found there is little to suggest that wind farms impact negatively on the value of neighboring properties.<sup>6,7</sup>

Having appropriate planning approval controls minimises the risks of adverse impacts on property prices and ensures the long-term viability of the wind farms. Overall, the potential impacts on property values are typically not a material issue for development proposal consent.

### 4. Mechanisms for encouraging local ownership and control of wind technology

Local 'ownership' of wind farms is a new concept. One example would be the Hepburn Wind<sup>8</sup> community project in Victoria which has received the necessary planning approvals and is in the process of securing the remaining financial investment before construction of a small wind farm can begin.

<sup>4</sup> Media Release, PG/308, 14 July 2009

<sup>5</sup> *Fact Sheet 12, Wind Farms and Property Values*, Australian Wind Energy Association, <http://www.wind-power.com.au/Downloads/12LandValues.pdf>

<sup>6</sup> *Wind Energy, Myths and Facts*, May 2007, Sustainability Victoria. (Page 11) References include both American and Danish studies.

<sup>7</sup> Excerpt from MacIntosh, Andrew and Downie, Christian (The Australia Institute), *Wind farms: the facts and the fallacies*, Discussion Paper No. 91, October 2006, (Pages 26 & 27).

<sup>8</sup> <http://www.hepburnwind.com.au/index.htm>.



The NSW Government may like to investigate opportunities to encourage a similar local community project or to replicate a public-private partnership model such as the Federal Solar Cities program.

Participation of local communities in nascent green industries should be supported. To date, it is our understanding that the research & development and manufacturing of wind infrastructure have not received any major government support. The majority of wind farm equipment is centrally manufactured, for example, most turbines (i.e. blades and nacelles) are manufactured overseas. Local engineering contractors typically support the manufacturing of the towers. International competition is strong, particularly as the US, Europe and increasingly Asia become the major players in the wind energy market. Typically the capital spend on international components of wind farms is over 50% of the budget (sometimes it can reach 70%) with less than 50% being spent within the Australian economy.<sup>9</sup> Another added benefit of local manufacturing that can be promoted is that the carbon footprint associated with the international transportation of equipment is significantly reduced.

Government assistance supporting this burgeoning industry in a rural context is necessary to improve new technologies and enable them to become commercially competitive. Potential initiatives to support local involvement in these new 'green collar' jobs should be assessed and implemented based on merit. Policy and planning approval certainty is another vital factor in ensuring viable local development of these technology industries. Other elements required for encouraging the establishment of local manufacturing and technology companies include: promoting/publicising the demand for the products, incentives & concessions and good transport/freight linkages.

## **5. The potential role of energy generated by rural wind farms in relation to the Australian Government's proposed Renewable Energy Target**

Origin has undertaken modelling to determine our liability under the RET and to explore ways of meeting future demand for renewable energy certificates. Wind is a mature renewable technology and we believe that it can fulfil a significant proportion of the future RET demand in Australia. This is further supported by modelling conducted for the Federal Government that states *"By 2020, almost half the extra renewable generation induced by the RET is taken up by wind generation."*<sup>10</sup>

NSW has good wind resources and we foresee exponential growth of wind farm development over the coming years.

## **6. Any other relevant matters**

### **6.a Transmission & network access**

Grid connection and network transmission should be managed by the NSW Government so as not to be an impediment to wind farm development.

<sup>9</sup> Sinclair Knight Merz (August 2004) *Pyrenees Wind Farm Economic and Tourism Impact Report*.

<sup>10</sup> McLennan Magasanik Associates, *Report to Department of Climate Change - Benefits and Costs of the Expanded Renewable Energy Target*, January 2009, (Page 35).



### **Connecting remote renewable generation**

The Australian Energy Market Commission (AEMC) has noted that the expanded RET will require approximately 8,000 MW of new renewable plant by 2020.<sup>11</sup> Much of this generation is likely to be wind, particularly in the early years of the RET and will be remote from the existing transmission network. Locational decisions for wind are somewhat different from conventional generation as proximity to the fuel source is critically more important, i.e. wind farms have to be located in good wind resource areas.

The long distances inherent in the development of renewable energy in Australia will make the cost of transmission connection going forward a key factor in determining the viability of projects. The high upfront costs of transmission infrastructure could therefore act as an impediment to remote wind generation connecting. The AEMC is currently conducting a review into the impact of climate change policies on energy markets, and has proposed a solution to help address this issue. The so called "Network Extension for Remote Generation Proposal" would facilitate the efficient building of transmission connection assets through the regulatory process with generators repaying their portion for the use of the asset as they connect. Origin is supportive of this model and considers that it will be instrumental in ensuring the connection of remote generation such as wind to the electricity network.

### **The RET and efficient expansion of the network**

The entry of increasing amounts of renewables will significantly change the pattern and location of generation in the market, placing stress on the existing transmission networks (this is another key issue being investigated by the AEMC review). As the volume of generation increases in specific areas of the electricity grid it can lead to bottlenecks, congestion and transmission network limits being reached. This will have negative implications for both new plants (such as wind farms) and incumbent generators, as increased congestion means that generators are not assured that their energy will be delivered to the market. Origin therefore argues that it is imperative that the energy market frameworks ensure that transmission investment keep pace with the entry of new generation, through the efficient and timely augmentation of the transmission network.

#### **6b. Other economic benefits**

Local communities benefit economically, both directly and indirectly from wind farms, in particular through the new income to landholders. Installations often also contribute significantly to the rate payments made to local councils.

Wind farms enable the diversification of revenue streams into communities that may have historically relied on one or two industries, with a primary agricultural base.

At a local and regional level - wind farms create employment opportunities, both during construction and the ongoing operational/maintenance phase. As an example, a study commissioned for Origin's proposed Stockyard Hill Wind Farm has estimated that up to 250 direct jobs will be created during construction and approximately 30 jobs to support the operation of the wind farm. Another example is the 165 MW Portland Three

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<sup>11</sup> AEMC 2<sup>nd</sup> Interim Report, (Page 13).



Capes project in Victoria which predicts to employ 450 people during construction and create up to 15 full time permanent jobs.<sup>12</sup>

Many more indirect jobs are created in the local community to service the industry and support the installation and maintenance of the wind farms. Another positive is the training and up-skilling provided to local employees that can have longer-term flow-on benefits such as attracting other industries requiring skilled labour to the area. To paint a broader picture - the wind sector worldwide has become a major job creator: within only three years it has almost doubled the number of jobs from 235,000 in 2005 to 440,000 in the year 2008.<sup>13</sup>

Regards

A handwritten signature in black ink, appearing to read "Tim O'Grady".

Tim O'Grady  
Head of Public Policy

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<sup>12</sup> *Wind Energy, Myths and Facts*, May 2007, Sustainability Victoria.

<sup>13</sup> World Wind Energy Association, WWEA Report 2008.

[http://www.wwindea.org/home/index.php?option=com\\_content&task=view&id=226&Itemid=43&limit=1&limitstart=1](http://www.wwindea.org/home/index.php?option=com_content&task=view&id=226&Itemid=43&limit=1&limitstart=1)