

**INQUIRY INTO THE ECONOMICS OF ENERGY  
GENERATION**

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Jonathan O'Dea MP  
Chair  
NSW Parliament Public Accounts Committee  
Parliament of New South Wales  
Macquarie Street  
Sydney NSW 2000

*By email: [pac@parliament.nsw.gov.au](mailto:pac@parliament.nsw.gov.au)*

Dear Chair

## **Inquiry into the comparative economics of energy generation**

We value the opportunity of submitting comments to the above inquiry.

Pacific Hydro is a leading Australian renewable energy company with nearly 20 years experience in project finance, development, construction and operation of hydro, wind, solar and geothermal power projects in Australia, Brazil and Chile.

Pacific Hydro is a wholly owned subsidiary of the Industry Funds Management (IFM) Australian Infrastructure Fund through which Pacific Hydro provides sustainable infrastructure investment opportunities for around 5 million Australian members of Industry Superannuation Funds. We are proud to continue to provide strong returns for the environment, local communities and investors.

We are also active in the growing international carbon market, with proven success in the production and trading of carbon credits from our Chilean run-of-river hydro projects registered under the Clean Development Mechanism of the Kyoto Protocol.

In addition to our existing wind and hydro plants in Victoria, South Australia and Western Australia, Pacific Hydro is a joint-venture partner in the proposed Moree Solar Farm.

As a proudly Australian company with investment and jobs which can be materially affected by climate change and renewable energy policy settings, we have a strong interest in this NSW Parliamentary Inquiry. The comments below respond in general to the terms of reference.

### **Communities and stakeholders**

In all our projects, we aim to develop and maintain good community relations through a strong focus on engagement and information provision at all stages of project development which may be several years.

Community polling continues to show that the overwhelming majority of Australians support wind energy development over continued investment in fossil fuels.

Pacific Hydro's recent survey of 1000 people living in communities where wind farms operate or are proposed showed that 83% support wind farms, while 14% were opposed to their development. Results for New South Wales were 77% support wind farms, 21% opposed. For

gas fired power plants: 53% support, 35% opposed and for new coal fired power plants: 30% support and 61% opposed.

### **Adaptation and investment**

Pacific Hydro considers that this Inquiry should have regard to the fact that climate change policy is now fundamentally linked to the energy market via the national Renewable Energy Target *and* the Clean Energy Future legislation. At a state level, the NSW target to deliver 20% renewable energy within the O'Farrell Government's NSW 2021 policy also has a clear link to energy generation and infrastructure investment plans.

The Australian east-coast energy market (the NEM) and its institutions are driven primarily by the National Electricity Objective (NEO). The NEO does not (yet) acknowledge the environmental imperative to reduce greenhouse emissions within the legislation. This fundamentally creates a divergence in the constitution of energy market investment signals to deliver on climate change and emissions reduction outcomes. This position has been highlighted in numerous Government reviews including the recent report to the Department of Climate Change and Energy Efficiency which noted:

“The regulatory objectives underlying the NEM, **could constitute an obstacle to effective adaptation of the regulatory framework** for the supply of electricity to climate change....”<sup>1</sup>

Reports from the IPCC (2007, 2011), Sir Nicholas Stern (2007) and Professor Ross Garnaut (2008, 2011) all make clear that increasing climatic change will impact upon critical infrastructure and without adaptation in policy, adaptation in practice will not occur in sufficient time.

Governments' policy responses to climate change implicitly and explicitly emphasise that this is a clear public policy concern and needs to be addressed by mitigation and adaptation policies and measures. In the state context, such responses include the NSW GGAS scheme, the NSW renewable energy resource zones, smart meter trials, the NSW Renewable Energy Development Program and the NSW target to deliver 20% renewables by 2021.

From our perspective all of the above amplifies the clear need to ensure the NEM market objective aligns with policy goals for the whole energy system which includes reducing emissions at a national level, consistent and complementary to state goals. NSW can pursue this objective through its membership on the CoAG Standing Council on Energy and Resources.

### **Renewable energy investment in New South Wales**

Electricity from renewables represents a small but growing proportion of NSW generation. Renewable energy from non-Snowy sources has increased sevenfold from one percent in 2001 to 7.3 percent in 2010. While some of this growth is related to household solar PV, NSW has significant potential for more cost-effective<sup>2</sup> utility-scale renewable.

New South Wales is blessed with substantial potential for wind and solar generation. It also has good access to the high voltage transmission and local distribution networks in close proximity to many potential renewable energy zones. These aspects provide the state with clear comparative advantages to underpin access to the global clean energy investment market.

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<sup>1</sup> Maddocks. 2012. The Role of Regulation in Facilitating or Constraining Adaptation to Climate Change for Australian Infrastructure. p. 67

<sup>2</sup> The Grattan Institute. 2011. Learning the hard way: Australian policies to reduce carbon emissions. Fig 3.1 p. 9 [http://www.grattan.edu.au/publications/077\\_report\\_energy\\_learning\\_the\\_hard\\_way.pdf](http://www.grattan.edu.au/publications/077_report_energy_learning_the_hard_way.pdf)

In our view, the State is very well placed to capitalise on the opportunity to enable the state to deliver its own jurisdiction target and the national Renewable Energy Target (RET), therefore capitalising on significant investment opportunities.

Pacific Hydro considers that NSW Renewable Energy Precincts approach is a good initiative to enhance the Government's capabilities with regard to emerging clean technologies and their potential in the State. This initiative targets technology opportunities (by conducting feasibility research and data capture) for specified geographic zones and also funds a local coordinator to provide an accessible source of information and advice for local communities and stakeholders.

The Clean Energy Council estimated that for NSW, future wind energy alone will provide some \$10.45 billion in capital investment and nearly 4000 direct jobs.

With that opportunity available, a clear state framework to support private investment plans can provide a strong pathway. There are clear examples where state climate change legislation and clear strategic support for renewable investment has delivered results.

South Australia introduced its Climate Change and Greenhouse Emissions Reduction Act in 2007 with a target to achieve 20% renewables by 2015. The South Australian Premier increased the renewables target to 33% by 2020 after the 20% target was reached in 2011.

- In 2003 South Australia had 0.15 MW of wind. Today, the state has 1,150 MW installed and over 21% of the state's electricity needs are supplied by renewables equivalent to around 54% of Australia's total wind power generating capacity.
- Over \$2.5 billion of private capital investment has been injected through wind energy projects alone, and more than 3,200 jobs created (25% direct, 75% indirect). (CEC document)
- In terms of emissions, wind generation (generally) reduces the need for the most carbon intensive fossil fuel generation to supply the market at the settlement price – over time this has significantly contributed to lower emissions in the state.<sup>3</sup>

### Wind energy

Wind energy is the most cost-effective renewable energy source in Australia.

New South Wales has potential for at least 3000 MW of wind energy, with the geography of the Great Dividing Range interacting with the calmer background winds that blow from west to east across the NSW inland.<sup>4</sup>

While Pacific Hydro has not yet ventured into NSW in wind investment, we developed the first privately financed utility scale wind project in Victoria (Codrington) which began operating in 2001.

From our experience, wind energy investment can provide significant economic benefit to communities in which they operate through landholder payments, community funds and/or direct and indirect support to local government.

There are many examples of wind energy projects providing sufficient income streams to enable farmers to remain on the land. In most cases, wind turbines can co-exist with other farming activities such as grazing. In this way, wind energy offers multiple benefits in terms of building resilience into regional and rural jobs, communities in addition to reducing emissions.

<sup>3</sup> AEMO. South Australian Demand and Supply Outlook 2011. <http://www.aemo.com.au/planning/0400-0031.pdf>

<sup>4</sup> NSW Trade and Investment. <http://www.trade.nsw.gov.au/energy/sustainable/renewable/wind>

Wind energy development can also provide significant allied industry stimulus, provided there is sufficient certainty, as has occurred with the Keppel Prince tower facility in Portland.<sup>5</sup>

#### Solar energy

The Renewable Energy Precincts pre-feasibility report described that solar resources and shared infrastructure (electricity grid access) could see up to 1,000 MW of generation developed in the NSW region. The areas identified in the study for potential projects based on solar radiation, access to grid infrastructure, water, gas and land prices included were Broken Hill, Darlington Point, Dubbo, Tamworth and Moree.

Pacific Hydro, as part of a joint venture, is developing the 150 MW Moree Solar Farm project. The project was selected ahead of competitors for the utility scale PV funding under the Commonwealth Government's Solar Flagships program<sup>6</sup>. Solar Flagships is specifically designed to bring large scale solar to market and therefore demonstrate commercial viability.

The NSW Government also allocated critically important funding of \$120m, underscoring the merits of this project for the region and renewable industry development in the state.

The Moree Solar Farm project will provide hundreds of jobs in the Moree region over the coming years and will be an important contributor to the local economy. To date, Consortium partners and the local council have invested significant time and resources and the project is at an advanced state. There is broad commitment from all parties and strong support from the local community.

Commercially attractive arrangements for solar panel supply, construction and grid connection for the project are at an advanced stage while a core group of lenders remain committed to the project's development.

The Moree Solar Farm consortium has provided a project that meets the large solar criteria set by the Federal Government while gaining significant learned experience that can be applied to future projects.

The Federal Government re-opened the Solar Flagships process on 6 February in response, primarily, to market factors that have stood in the way of final financial close – specifically concluding a power purchase agreement. Despite this hurdle, Pacific Hydro is committed to working to deliver this project and we remain confident that it still represents the best opportunity to demonstrate the commercial and technical viability of utility scale solar PV. The MSF will provide an updated bid to the Federal Government at the end of February.

#### **Grid system management, infrastructure and investment**

Wind is variable, but its existence is relatively predictable for the operation of semi-scheduled utility scale wind generation. Indeed, wind is sufficiently predictable that in the connected eastern sea-board grid, it can be integrated into system and market operation by the Australian Energy Market Operator to around 98% accuracy, using their wind energy forecasting system (AWEFS).

NSW is very well placed to capitalise on the opportunity for significant investment opportunities in wind, solar and other renewables that will drive local regional jobs, resilience and adaptation for a lower carbon future.

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<sup>5</sup> <http://www.keppelprince.com.au/> and <http://www.abc.net.au/news/stories/2011/05/27/3228627.htm?site=ballarat>

<sup>6</sup> <http://www.moreesolarfarm.com.au/announcements/the-dawn-of-a-new-era>



Regarding future investment, and broader diversification of the NSW energy supply system, for many emerging renewable technologies grid infrastructure and interconnector capacity is a barrier to deployment.

There is a clear role for a long term approach to ensure that NSW develops a vibrant and growing clean energy sector that will particularly target regional economic development.

Yours sincerely



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