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Energy White Paper Taskforce  
Department of Industry  
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## **Energy White Paper - Issues Paper**

Pacific Hydro welcomes the opportunity to provide comments to the Department of Industry regarding the Energy White Paper (EWP) Issues Paper.

Pacific Hydro is a leading Australian renewable energy company with over 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 also a licenced electricity retailer for commercial, industrial and SME customers in a number of Australian deregulated energy markets.

Pacific Hydro is a wholly owned investment within IFM Investors' Australian Infrastructure Fund. IFM Investors is one of Australia's largest investment management firms, managing in excess of \$50 billion on behalf of institutional investors globally. IFM Investors is owned by, and invests on behalf of, 30 Australian Industry Superannuation funds. Through IFM Investors' ownership, Pacific Hydro provides sustainable infrastructure investment opportunities for around 5 million Australian superannuants. We aim to achieve investor returns by powering a cleaner world.

As a proudly Australian company with investments which can be materially affected by energy, renewable energy and climate change policy settings, we have a strong interest in the EWP's development and related policies including the 2014 Renewable Energy Target Review and the Government's Direct Action Plan.

Since the Warwick Parer-led Energy Directions Paper in 2003, we have seen successive governments attempt to pursue a clear agenda for nationally consistent energy policy. Unfortunately, and again with this paper, the policy agenda carves out emissions reduction policies and renewable energy as separate issues to the central energy policy and reform agendas. It is our view that the future of traditional energy systems, renewable energy and action on climate change are irrevocably linked and therefore any policy development must seek to deliver consistent outcomes across all these elements.

With regard to this EWP Issues Paper, we urge the department to consider a number of trends including emissions reduction targets and the expansion of renewable energy and energy market reforms which will support an orderly transition to cleaner energy systems.

In the response below, we will focus our comments largely on issues raised in relation to renewable energy and its relationship with broader trends in the traditional energy sector. It is our view that investment should occur within a framework of efficient, appropriate and fair planning, policy and regulatory settings. From this perspective we have made comments on a number of issues raised by the Issues Paper:

1. The security of energy supplies
  - 1.1 Ensuring reliability and long term energy security in a dynamic market
  - 1.2 The role of renewable energy in system reliability
  - 1.3 Addressing infrastructure barriers to emerging energy sources
2. Regulatory reform and the role of Government
  - 2.1 Improving market competition
3. Growth and investment
  - 3.1 Encouraging investment
  - 3.2 Reducing costs and barriers
  - 3.3 Community engagement and consumer interests
4. Trade and international relations
  - 4.1 Enhancing energy supply security
5. Alternative and emerging energy sources and technology
  - 5.1 Encouraging competitive renewable technologies and alternative energy sources
  - 5.2 Cost and market impacts of renewable energy

## Comments

### 1. The security of energy supplies

#### 1.1 Ensuring reliability and long-term energy security in a dynamic market

Significant change in consumer usage patterns and attitudes and the potential for future price shocks as traditional fuels become more exposed to international markets are two key trends that add to energy security concerns.

For a variety of reasons consumers are turning their backs on traditional energy systems, requiring utilities and regulators to think differently about the services they provide. In our view, the EWP needs to delve deeply into this issue and challenge utilities to propose new economic models that support return on investment for owners while not penalising consumers for exercising their right to choose. It should also recognise the role of renewable energy in spreading energy supply risk across a significantly broader base.

#### 1.2 The role of renewable energy in system reliability

The development of the National Energy Market (NEM) has increased energy supply security through many years of investment and improvement to the network and increasingly sophisticated energy market management systems.

In the case of wind energy particularly, the last five to ten years have seen major change and improvement. AEMO has been developing and integrating systems and services to manage wind generation in secure, predictable and balanced ways. Plant has moved, largely, to semi-scheduled dispatch settings that enable AEMO to manage the integration of wind generation, accurately predicting wind supply to 97% (or above) for each period. The case of South Australia shows that wind generation can be well integrated into the energy market without

impacting reliability and security of supply. Wind now supplies over 25% of energy in South Australia annually.

Over the next decade and beyond wind generation will play a key role in ensuring energy (price) security to Australian consumers is maintained. In the context of rising gas prices, and ensuring that gas is used in the most efficient way for the market, enabling renewable energy supply to offset the need for gas powered generation is a clear benefit to security of supply.

### **1.3 Addressing infrastructure and supply constraints and barriers to emerging energy sources**

For emerging energy sources there are two key aspects of barriers to entry – structural and infrastructure.

In terms of structural barriers, it is a fact that most fossil fuel power plants were built and owned by state governments, and this situation still underpins many privately owned energy businesses. For new entrants who are competing with generators who have the good fortune to have infrastructure already in place (paid for by consumers or tax payers) the playing field has never been level.

There are many areas of the market that continue to benefit from cross-subsidisation arrangements that present barriers, or structural hurdles, to new entrant plant.

In some jurisdictions, government ownership of plant, control over planning; plant scheduling and market operations creates ongoing and new hurdles with every step a new entrant tries to take. In the end, these structural barriers tend to deter private investors and reduce economic activity and productivity gains, delivering lower competition and sub-optimal outcomes for consumers and energy supply diversity.

The above should not be seen as direct criticism of decisions made in the past, nor of the legacy benefits that endure, but a recognition that these benefits exist as a barrier to entry for new technologies and work as a brake on innovation in the stationary energy sector.

In terms of infrastructure barriers, there remain very limited mechanisms available to develop new transmission in remote areas which will, in our view, continue to impede investment. Pacific Hydro strongly considers that there is a need for a national planning role, delivered by AEMO, which identifies appropriate and necessary investment.

Well targeted grid augmentation could have a dramatic impact on the development of emerging renewable resources such as solar and geothermal. For example, grid infrastructure in the mid-north of South Australia would greatly facilitate development opportunities for base-load generation from geothermal power. Further, grid augmentation west of the existing grid infrastructure along the eastern states, from Queensland to Victoria, would similarly facilitate connection of large amounts of utility scale solar PV and solar thermal power.

## **2. Regulatory reform and the role of Government**

### **2.1 Improving market competition**

Pacific Hydro supports the continued deregulation of retail energy markets that provide greater choice for consumers.

Pacific Hydro has long argued that our national energy law should include a clear reference to emissions reduction in its objective. This would entrench the connection between policy goals

for energy investment with a number of related trends that affect the operation of the energy market and decisions made by NEM institutions, regulators and by the private sector.

In our view there is compelling evidence that efficiency gains achieved through privatisation of generators and state-owned networks would be the single greatest initiative to arrest the significant increase in retail power prices, particularly in New South Wales, Queensland and Tasmania.

In this context, we consider that the Government should focus its efforts on areas of the supply chain that can deliver biggest returns to consumers. In our view the focus in terms of cost impact should be on networks and enabling fully competitive retail markets to prosper and deliver consumers more choice, better service and appropriate (and streamlined) government regulation.

We believe increased competition in retail energy can deliver significant cost savings for consumers and is one of the most meaningful actions governments can take to ease cost of living pressure.

We also believe that increased competition in the energy generation sector, which is being fostered through the renewable energy target, ARENA and the Clean Energy Finance Corporation, can deliver medium to long-term rewards for consumers. The EWP should consider these broader energy market reform trends and ensure recommendations are included that foster continued action on competition and renewable energy generation.

In the current context, the EWP and any reform agenda that it catalyses needs to look well beyond 2020, to the future role of regulation and policy directions that will enable the energy sector to deliver appropriate, sustainable, least cost and competitive energy products and services.

In our view, there is a central role for renewable energy, delivered through the RET and encouraged beyond 2030 via a clear long term goal. A clear, consistent goal for renewables will also provide clear signals to new entrants, current participants and reduce barriers to exit for retirement of generation plant.

Continued renewable energy deployment will also continue to provide a fuel-price hedge against gas prices, hold wholesale power prices lower than they would be without renewables and enable more efficient use of the energy system.

### **3. Growth and investment**

#### **3.1 Supporting growth and encouraging investment**

Australia's energy investment trends are driven by global and local market factors. Across the world, there is a clear move away from fossil fuel generation technologies to cleaner forms across all technology options. Australia has high value renewable energy resources across all known options from wave, ocean, biomass, solar, wind, and geothermal. While these technologies are at varying levels of deployment and demonstration in Australian, many are already operating at scale in other countries.

In 2012, \$244 billion went into clean energy investment, continuing to drive renewable energy capacity across the world. With solar costs falling 30-40%, significant levels of solar generation were added in many nations.

In Australia the cost of wind generation has fallen by 10% and the cost of solar PV by 29% since 2011, while the cost of energy from new fossil-fuelled plants is high and rising<sup>1</sup> because:

- New coal is made expensive by high financing costs. Australia's four largest banks are unlikely to finance new coal without a substantial risk premium due to the reputational damage of emissions-intensive investments – if they are to finance coal at all.
- New gas-fired generation is expensive as the expansion of Australia's liquefied natural gas (LNG) export market forces local prices upwards.

The commonly held view that fossil fuels are cheap and renewables are expensive is out of date. In our view to continue to develop energy policy from that perspective will be detrimental to Australia's long term interests.

There is a significant risk that fossil fuel assets will be written down in value as investors and markets transition away from emissions intensive infrastructure. This risk is highlighted in an Oxford University report and has been the subject of statements by the World Bank.<sup>2</sup>

Pacific Hydro is of the view that long term reliability of energy supplies will be improved by significant investment in low emissions technologies and that the EWP should consider mechanisms for retiring high emissions infrastructure before it becomes stranded.

### 3.2 Reducing costs and barriers

In the current context, uncertainty of policy is having a major and negative influence on investor decisions for entry and particularly for exit for retirement of generation plant.

Policy uncertainty on climate change has been a feature of the energy market for some time but appears further from resolution than five years ago. It is a fact that ongoing uncertainty is not cost free<sup>3</sup> affecting investors in both new and old plant as well as consumers.<sup>4</sup>

Some commentators estimate that there is an oversupply of many thousands of megawatts in the NEM. This oversupply includes plant that is currently "ghosting" the market rather than exiting. At the end of 2013, some 2.47GW of fossil fuelled plant was mothballed or in seasonal storage.<sup>5</sup>

While policies to encourage energy efficiency, consumption curtailment and renewables (large and small scale) added major supply competition into the market, a lack of clear connection between energy and climate policy has made investing in the energy market a minefield.

By the end of this decade around 4-5 GW of solar PV is expected to be installed<sup>6</sup>, creating an extension to the current issue of "oversupply". In our view, the current problem reflects successive decisions to treat climate change, energy efficiency and renewables as separate to the energy supply system. Today renewables are approaching mainstream and will, along with changing consumer consumption patterns and product choices, continue to place pressure on existing market participants.

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<sup>1</sup> Celsius. (2014). Unsubsidised renewables now cheaper than subsidised fossil fuels – Australia.

<sup>2</sup> Swann, T, Denniss, R. (2014). The Conversation. Fossil fuel campaigners win support from unexpected places. 5 February, 2014.

<sup>3</sup> See for example, AGL (2012). Working Paper No. 35. LRET – An analysis of Australia's Large Scale Renewable Energy Target: restoring market confidence. Pp 2-3.

<sup>4</sup> Ibid.

<sup>5</sup> AEMO (2012) and (2013). Electricity Statement of Opportunities (ESOO).

<sup>6</sup> AEMO (2012). Rooftop PV Information Paper. P.iii

While more choice and new technology is good for competition, there is also a clear issue for policymakers to address which should be central to the EWP process. That is: how can Governments enable a smooth exit from the market of plant that is no longer needed and increasingly inefficient, with declining productive capacity?

Firstly the Government needs to acknowledge that consumer driven change, climate change and energy policy options are interlinked and cannot continue to be addressed in silos. Secondly, the Government must clarify its position on a long term goal for reducing emissions and thirdly, make it clear to the industry that plant which is no longer being operated profitably should be closed.

A risk that we do see, however, in plant closure is the unknown cost of decommissioning. It will be in all of our interests to understand whether old generators have appropriate and practical decommissioning plans and what costs are expected to be borne by governments and consumers in that context.

### 3.3 Community engagement

#### a. Community attitudes to renewable energy

As consumers of energy products and services, the community's views on energy – especially renewable energy – cannot be ignored in the development of the 2014 Energy White Paper. As noted above, consumers are beginning to move away from traditional forms of energy, moving more and more to self-generation. This trend is unlikely to abate and, in circumstances where significant tariff reform is being considered, may gain even greater momentum.

- In our 2013 commissioned polling, around 80% of Australians instinctively support renewable energy and even when shown negative messages, support dropped by only 5% - that's still an overwhelming 75% of the community in favour<sup>7</sup>. These results are consistent with other surveys that have been conducted by environmental organisations, traditional market research companies or others; 75% of the community (or more) support renewable energy.<sup>8</sup>
- Australians understand the connection between their solar PV system, lower bills for them and better outcomes for the environment.
  - Solar PV has become a common feature for many homes, with 16 per cent of SA residences, 14 per cent of Queensland residences and 11 per cent of Western Australian residences having renewable systems (such as solar panels) installed<sup>9</sup>, reducing the amount of energy needed from the grid by those households.

As noted earlier, clean energy delivers the community a reliable insurance policy against the risk of fuel price hikes while also enabling direct benefits through investment flows to regional communities.

Australians instinctively understand that increasing our proportion of renewable energy is not only good for the local and global environment, but also helps us reduce our over-dependence on fossil fuels like coal and gas. Increasing the level of renewable energy is seen as a clear pathway to deliver a better future that is aligned with globally significant, growing industries and technologies.

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<sup>7</sup> Pacific Hydro polling commissioned ahead of the 2013 Federal Election.

<sup>8</sup> See for example, Pacific Hydro (2012). Community Polling, The Climate Institute (2013). Climate of the Nation, Clean Energy Council (2012) Wind Energy Community Polling Report,

<sup>9</sup> ABS (2014). Media Release. SA leads the way with renewable electricity. 30 January 2014.

**b. Energy technologies and community health implications**

In Pacific Hydro's view it would be most beneficial to inform the community of the health impacts of energy resource mining and power generation. It is noted that the Government is preparing to perform further studies on the health impacts of wind farms.

In our view this study should be broadened to all forms of power generation including the associated mining and extraction of resources. There is significant international evidence that the mining and burning of fossil fuels can result in significant health impacts. Accordingly, it would be of great benefit to the community and Governments to have an understanding of the health implications of existing and proposed energy facilities. This information can be utilised to understand the economic and social benefits of transitioning to cleaner energy systems.

**4. Trade and international relations**

In the context of Australia's international trade relations, it is worth reviewing where our major trading partners are heading on energy.<sup>10</sup>

- China is investing rapidly in renewable energy, driving down air pollution and rolling out carbon trading in a number of regions.
- In the US, the government has made climate change a foreign policy priority, encourages renewable energy investment and has set emissions limits for new power plants. The Obama administration will look to add limits to existing power plants this year.
- Europe continues to pursue emissions reduction and energy reform that encourages renewable energy investment to deliver on carbon reduction and energy security.

At some future time there is the potential that global trading will account for emissions intensity. Accordingly it would be prudent for Australia to consider its future energy productivity relative to its emissions and make appropriate policy adjustments to reduce the risk of any trade barriers that may arise.

**5. Alternative and emerging energy sources and technology**

**5.1 Encouraging competitive, renewable, low emission technologies and alternative energy sources**

The smooth, but rapid transition to cleaner energy systems is in the national interest. Increasing the proportion of renewable energy not only reduces emissions; it provides lower prices to consumers and reduces health and environmental costs.

**a. The Renewable Energy Target**

Australia's Renewable Energy Target established by the Howard Government in 2001, is arguably the most successful single policy measure to date in delivering 22.5 Mt of abatement at a low cost while enabling significant regional investment and jobs growth across every state and territory.

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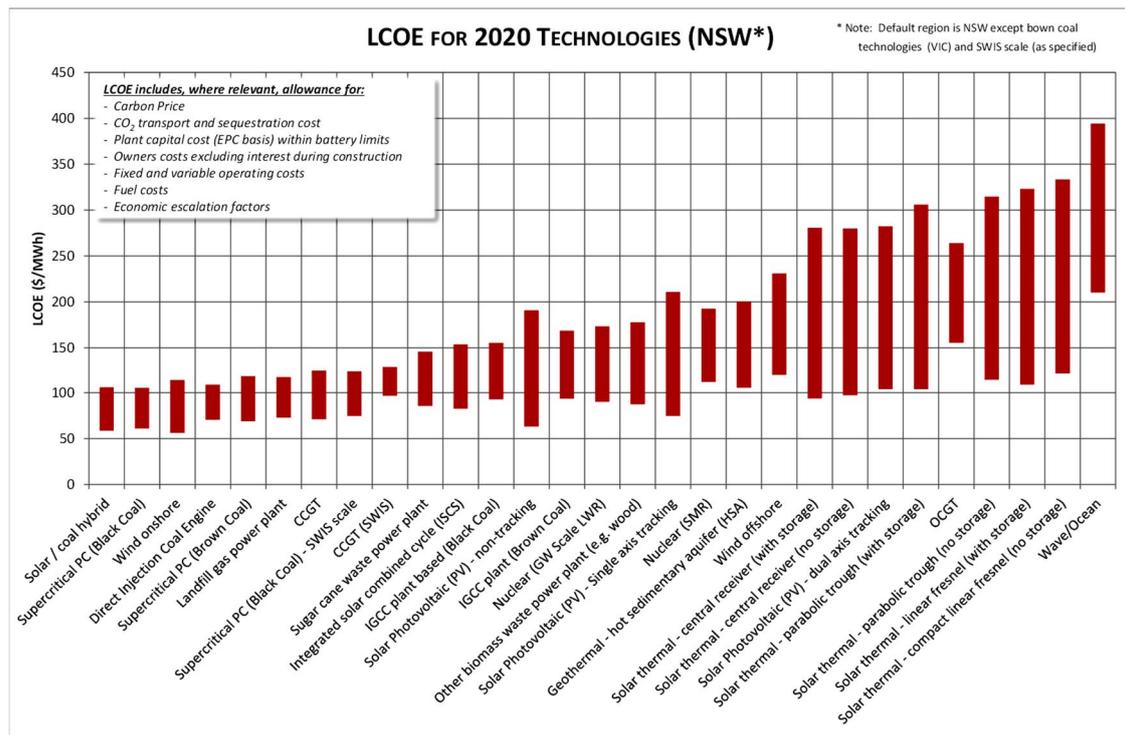
<sup>10</sup> Connor, J. (2014). The Interpreter. International events in 2014 will test Australian Government's climate credibility. February 4, 2014.

As noted recently by Frontier Economics, the RET has been a very effective way of reducing emissions<sup>11</sup>. In Frontier's view, the RET would provide some 96 per cent of abatement in the next decade if the carbon tax continued in its current form. In the context of repeal, Frontier believes that the RET and Direct Action could work together to deliver significant "bang for buck" in terms of carbon abatement and price reductions at the same time<sup>12</sup>. In its view, and ours, the RET works well because it involves a secure investment instrument (a contract) between an electricity retailer and a wind generator or solar plant.

The RET ensured that Australia met its international emissions reduction commitment in 2012 and will also provide the largest source of abatement to deliver the Abbott Government's 2020 emissions reduction target.

The structure of the Renewable Energy Target policy ensures that the least-cost technology options are deployed at both large and small scale.

The latest Australian Energy Technology Assessment update from Australia's Bureau of Resources and Energy Economics (BREE) concluded that within the next five years renewables will continue to prove the least cost technologies<sup>13</sup> as shown below. Nuclear remains more expensive than wind, solar, biomass and many fossil fuel technologies including hybrid renewable-fossil technology options.



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<sup>11</sup> Heath, J. (2014) Price pushes RET revamp plan. Australian Financial Review. P. 7. 31 January 2014. Refers to an August 2013 Frontier research paper.

<sup>12</sup> Ibid.

<sup>13</sup> Bureau of Resources and Energy Economics (2013). Australian Energy Technology Assessment 2013 Model Update. Pp. 10-11.

<sup>14</sup> Bureau of Resources and Energy Economics (2013). Australian Energy Technology Assessment 2013 Model Update. Figure 9. P. 57

**b. Gas development, renewables and energy price security**

Pacific Hydro is of the view that the risk of sharply rising costs for natural gas on the east coast underscores the economic case for enabling renewable energy investment, through the Renewable Energy Target.

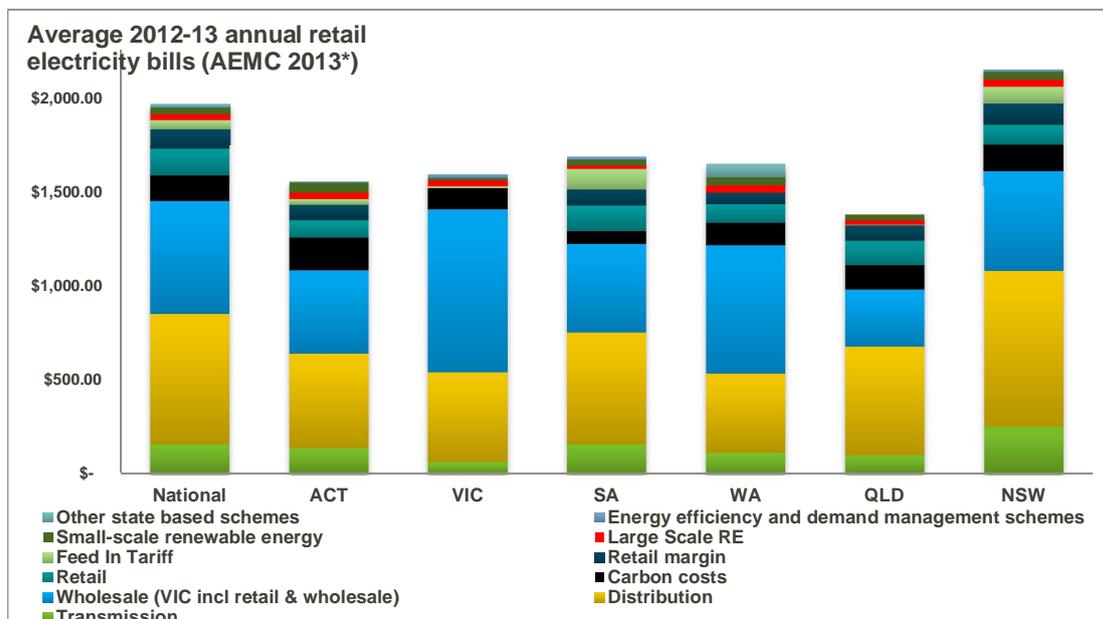
In the current context and into the future, renewables provide a price-risk hedge against the impact of increasingly expensive gas fired generation. This is due to the fact that fuel costs are \$0 per unit and there are low and predictable costs to operate and maintain renewable energy assets.

The EWP should also take into account the projected greenhouse gas emissions in the event of more coal seam gas (CSG) development. Emissions from CSG developments are higher than traditional gas sources.<sup>15</sup> The Government should take this into account in its emissions projections and ensure that CSG developments properly measure and report fugitive emissions.

**5.2 Cost and market impacts of renewable energy**

Retail electricity costs are made up of a number of supply chain elements. The largest contributors to rising costs in recent years relate to network (poles & wires) expenditure, often delivered by government owned entities, regulated by government agencies. As shown below, the cost to consumers from large scale renewable energy (Large Scale RE) is small in comparison to other elements and, given technology cost trajectories, will fall in real terms over time.

**Large scale renewable energy costs and retail bills, state by state<sup>16</sup>**



<sup>15</sup> Hardisty, P. E, Clarke T.S, and Hynes. R. G. (2012). Energies. Life cycle greenhouse gas emissions from electricity generation: a comparative analysis of Australian energy sources. Vol 5. Pp. 872-197.

<sup>16</sup> Data derived from AEMC (2013). Electricity Price Trends Report, state analyses.

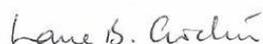
While some believe that renewables add costs to consumers, several reports recently concluded that because new entrant renewable energy generation at scale puts downward pressure on the wholesale market, the cost to consumers will be net-neutral by 2020. This conclusion is drawn for a number of related reasons:

- The large scale RET cost to consumers through the retail market is around \$0.48c a week (\$27 or around 1.5% per year), but this is wholly or more than offset by the impact on wholesale power prices.
- By 2012 additional renewable generation had pushed down wholesale prices by up to \$10/MWh in some regions<sup>17</sup> from where they would have been otherwise. The current large-scale RET legislation will see continued downward pressure on prices out to 2020 and beyond.
- The additional renewable energy in the National Electricity Market has also helped to reduce wholesale spot price volatility with all five NEM regions experiencing volatility levels that are at, or close to record lows.<sup>18</sup>

In conclusion, Pacific Hydro commends the Government for restarting the focus on energy market reform. We strongly believe that a focus on improving market competition, reducing barriers to entry for – and exit of – generation, and a clear direction on renewable energy and emissions reduction in the energy sector will be supported by the majority of Australians.

We look forward to engaging in the development of the White Paper over the course of 2014.

Yours sincerely



Lane Crockett  
Executive General Manager, Australia  
Pacific Hydro Australia

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<sup>17</sup> SKM (2012). Benefit of the Renewable Energy Target to Australia's Energy Markets and Economy. Report to the Clean Energy Council. P. 1 (Key Findings)

<sup>18</sup> SKM (2012). Benefit of the Renewable Energy Target to Australia's Energy Markets and Economy. Report to the Clean Energy Council. P. 14