

17 July 2009

The Secretary
Senate Economics Legislation Committee
PO Box 600
Parliament House
Canberra, ACT, 2600

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Re: Submission to the Senate Economics Legislation Committee on the Renewable Energy Bills

Pacific Hydro welcomes the opportunity to submit to the Senate Economics Legislation Committee on the Renewable Energy Target (RET). This important legislation will be the central driver of emissions abatement in Australia in the short to medium term while the Carbon Pollution Reduction Scheme (CPRS) matures and it is vital that it pass through Parliament as a matter of priority.

The 20% Renewable Energy Target establishes the market that will provide for the long-term development of Australia's renewable energy industry. While in its current form it is linked to the CPRS, Pacific Hydro and the renewable energy industry consider the two pieces of legislation as quite separate. While the objective of the CPRS is to bring down Australia's emissions, the purpose of the RET is to build the energy industries Australia requires to deliver this sustainably. It is therefore essential that the passage of the RET is not delayed by any delay in the CPRS legislation.

The RET will also have significant benefits in terms of regional development and job creation. It is expected that the RET will stimulate upwards of \$25 billion in private investment, mostly in rural and regional areas, creating tens of thousands of jobs. Recent analysis by the Clean Energy Council estimates that 28,000 jobs will be created by the RET in combination with existing energy efficiency measures. Similar research undertaken by the Climate Institute found that if all renewable energy projects currently in the development pipeline were pursued, 26,000 jobs would be created in Australia. The bulk of these positions will be in traditional industries, including planning and construction. Contrary to recent reports from Europe on the negative impact of jobs in the renewable energy industry, which have since been revealed to be simplistic and reductionist, these are real jobs, created for real people, available from the time the legislation is passed into law.

The continued delay in the passage of the RET has material implications. Since the announcement of the delay to legislation of the RET as a result of the link to the CPRS legislation, and while it passes through this Senate enquiry, the Renewable Energy Certificate price has dropped from around \$52 to approximately \$38. This is a fall of 30% in only three weeks, and equates to a \$165 million devaluation in the market to date with substantially more to be lost in the forward market. While the spot price has little effect on larger firms such as Pacific Hydro, it does impact on forward prices, bringing them down over time also.

In addition, continued delay comes with a capacity cost. Renewable energy developers are unable to invest in Australia until legislation is passed and will only be able to carry the costs of this delay for so long. The Australian Parliament risks a downsizing of the industry, and gradual movement offshore, with every week of delay.

The recently released update to Australia's National Greenhouse Accounts show that Australia's greenhouse emissions continue to grow. While the CPRS will address this in the longer term, the RET needs to be in place to begin reversing that trend now, while building a sustainable long term renewable energy industry to help Australia

[ENCLOSURE](#)

meet more stringent emissions reduction targets in the future. Pacific Hydro and the renewable energy industry sit poised to help the government deliver on their commitment to achieve this, but cannot do so in the absence of legislation.

It is vital that the RET now be passed through both houses of Parliament without any further delay. While we anticipate that the Committee will receive a range of submissions calling for changes to technology eligibility or scheme design, it is essential for the industry that there be no further delay in the passage of the legislation. In the interests of expediency we therefore support legislation of the scheme with no change from the COAG endorsed design, with any review of eligibility included in the technology review scheduled for 2010.

Pacific Hydro has provided detailed submissions on the rationale behind the current design of the legislation on previous occasions and believes they are still relevant to this Senate enquiry. I therefore tender these two submissions below for your convenience. In addition I bring to your attention that Pacific Hydro has previously appeared in front of the Senate Select Committee on Fuel and Energy and the Senate Committee on Climate Policy, on the need for early implementation of the RET to support efficient delivery of the CPRS.

Pacific Hydro would welcome the opportunity to present to the Senate Economics Legislation Committee on these matters.

Yours sincerely



Lane Crockett
General Manager, Australia/Pacific

*Submission to the COAG Working Group
on Climate Change & Water 20%
Renewable Energy Target Discussion
Paper*

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25 March 2009

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Summary of Design Issues (Terms of Reference)

Terms of Reference	Pacific Hydro Response
<p>Liability & Annual Targets</p> <p><i>"Stakeholders' views are sought on possible approaches to setting annual targets and their implications for investment mix, generation profile and cost of the measure."</i></p>	<p>The target profile should aim to provide the greatest level of investment stimulus in the earliest possible timeframe. As such the scheme should commence on 1 January 2009 with a linear trajectory to 2020.</p> <p>Target profile to level out to 2025 then a linear decline profile to 2035 (see Exhibit A "Target Profile Chart").</p> <p>The removal in 2020 of 9,500 GWh of generation delivered by the original MRET provides a market opportunity for emerging technologies to be deployed in the latter stages of the measure and further highlights the importance of certainty provided by the 2035 date.</p>
<p>Eligible Sources</p> <p><i>"Stakeholders' views are sought on the treatment of renewable energy sources and technologies, including the treatment of forest biomass and solar water heaters."</i></p>	<p>For simplicity and ease of transition, eligible sources should remain as per the original MRET legislation.</p>
<p>Banking</p> <p><i>"Stakeholders' views are sought on approaches to banking of RECs and their potential impacts on investment profile, generation level and technology mix and on the cost of the measure."</i></p>	<p>Unlimited banking so as to provide greatest compliance flexibility for liable parties, to maximise market liquidity and allow certificate prices to be determined by market forces alone.</p>
<p>Project Eligibility Periods</p> <p><i>"Stakeholders' views are sought on the implications of restricting the eligibility period for projects under the scheme."</i></p>	<p>The existing VRET legislation should be seen as the "benchmark" for new project eligibility periods. Therefore post 2007 projects should be eligible for at least 15 years.</p>
<p>Existing Generators</p> <p><i>"Stakeholders' views are sought on how projects already in operation should be treated and whether projects predating 1997 should be treated differently from those predating 2007."</i></p>	<p>Pre 2007 projects should be eligible up to 2020 as per original MRET. Current baseline arrangements for pre 1997 generators to remain unchanged.</p>

<p><i>"Stakeholders' views are also sought on the treatment of additional generation created, for example, through capacity additions or refurbishment."</i></p>	<p>Determination of "additional generation" should be based on a combination of capital expenditure plus historical baseline methodology.</p> <p>Baseline determinations should also be made publicly available to allow for greater market transparency and price discovery.</p>
<p>Duration and Phase Out</p> <p><i>"Stakeholders' views are sought on methods and timing for phasing out the RET scheme between 2020 and 2030 and on their implications for investment profile, generation level, technology mix, and the cost of the measure."</i></p>	<p>To create the investment conditions that will underwrite the long-term development of the industry both the target size and profile should remain until 2035 (see Exhibit A "Target Profile Chart").</p> <p>No shortfall charge phase out is needed as RECs will move naturally with market forces, particularly as the Emissions Trading Scheme begins to effect the wholesale price of electricity.</p>
<p>Compliance Mechanisms</p> <p><i>"Stakeholders' views are sought on the appropriate level of the shortfall charge, in particular on whether it should be set at a very high level to encourage compliance or at a level only slightly above the maximum expected REC price."</i></p>	<p>We are in favour of the approach whereby the penalty price is set at a high level so as to ensure compliance. We would propose a non compliance penalty of at least \$100 per certificate.</p> <p>The existing MRET scheme has demonstrated that the REC price is set by market fundamentals of supply and demand, not the shortfall price.</p> <p>In the event that a shortfall charge only slightly above the expected REC price is chosen as the preferred mechanism, the VRET scheme penalty should be seen as the minimum requirement (\$43 per VREC, full CPI escalation, September 2006 base date) as substantial investment has already occurred under this scheme.</p>

The Science and Impacts of Climate Change

The impacts of climate change are broad sweeping and involve serious environmental, social, economic and security threats.

The Federal Government is to be congratulated for the strong commitment to addressing climate change it took to the 2007 election and subsequent actions of ratifying the Kyoto Protocol, release of the Carbon Pollution Reduction Scheme Green Paper and commitment to increasing the National Renewable Energy Target (NRET) to 20% by 2020.

Some questions regarding climate change will continue to be debated for many years to come and we may never arrive at a sufficient explanation for certain events; this is no different to any other stream of scientific endeavour. However it must be recognised that the overwhelming balance of scientific evidence from the IPCC, NASA & the CSIRO to name but a few, suggests that Climate Change is real, it is material and it is man-made.

As Rupert Murdoch recently said "*Climate change poses clear, catastrophic threats. We may not agree on the extent, but we certainly can't afford the risk of inaction*".

The impacts of climate change on Australia are not just environmental, although these impacts are many and are well documented such as the potential destruction of natural icons like the Great Barrier Reef and Kakadu and habitat destruction leading to species extinction.

The impacts of climate change are also social and economic. Recent reports from the Australian Bureau of Agriculture and Resource Economics (ABARE) not only associate the severity of recent droughts with climate change but forecasts significant reductions in agricultural output and adverse GDP impacts. This has been confirmed and reinforced most recently with the release of the draft Garnaut Review which has come to similar conclusions.

There can be little doubt regarding the broad sweeping effects of climate change when we read reports from the Pentagon and see independent analysis such as that conducted by Dr Alan Dupont and Dr Graeme Pearman on behalf of the Lowy Institute, that clearly indicate climate change will complicate and threaten the global security environment.

Given what we scientists and economists are telling us it is time to implement a broad suite of climate change insurance policies that will allow us to adapt to the climate change impacts already "locked in" and to avoid worsening future impacts that, according to the CSIRO, IPCC, ABARE and the draft Garnaut Review report will be far more severe than even that which we are seeing today.

Stationary Energy & Climate Change

Given what we know about climate change, to continue to build new coal fired power stations using existing technology would be environmentally, socially and economically irresponsible.

Almost 50% of Australia's greenhouse emissions come from the stationary energy sector with the burning of fossil fuels accounting for almost 90% of our electricity production capacity. This sector is the single largest source of greenhouse emissions in the country and continues to grow rapidly.

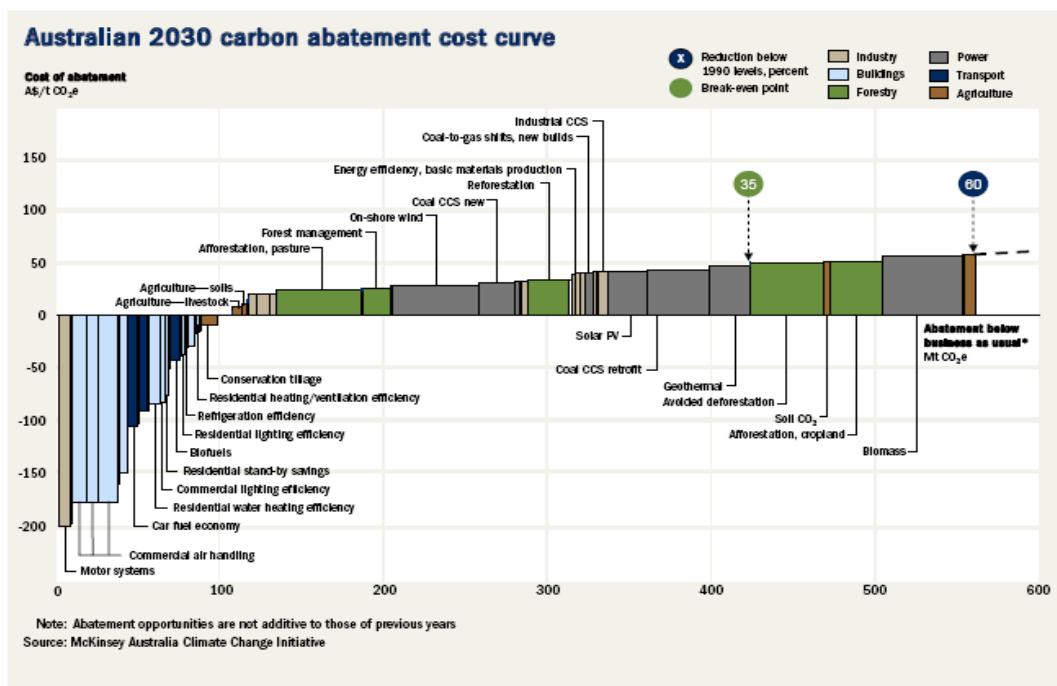
With energy demand growing at between 2% and 3% per annum, in excess of AUD \$40 Billion needs to be invested in the stationary energy sector over the next 20 years to ensure security of supply and to maintain our economic wellbeing.

Dealing with stationary energy sector emissions is a significant challenge for Government who need to provide a regulatory and policy framework that creates incentives for investment in new zero emissions capacity while over-turning a number of existing market barriers – many of which are a result of historical lock-in due to the long investment cycles within the industry.

Without a significant increase in renewable energy, and in the absence of immediate and significant technological breakthroughs in carbon capture and storage it is impossible to envisage any alternate measure of substantially reducing Australia's emissions of greenhouse gases in the near term.

Establishing a robust renewable energy industry via the NRET and encouraging greater energy efficiency and demand side improvements can, if policy settings are correct, achieve the dual objectives of stabilising greenhouse emissions in the stationary energy sector at today's levels (thereby not making the problem worse) and buying the thermal power sector more time to undertake the necessary R&D as part of a transition to a cleaner method of power generation.

The following abatement cost curve clearly demonstrates the near term abatement that can be achieved by encouraging both renewable energy and energy efficiency. While Carbon Capture and Storage may play some role in the future the common understanding is that the technology will not be ready for large scale deployment until sometime beyond 2020.



Source: McKinsey & Co 2008

Renewable energy has been deployed extensively around the world by nations seeking to stem the growth in emissions from their stationary energy sector and is set to play an ever increasing role in delivering actual emissions reductions below historical levels and not just a slowing of growth when BAU is used as the base trend.

A recent report produced by the Federal Department of Climate Change indicates that Australia's greenhouse emissions in 2020 will be substantially lower (120% above 1990 levels as opposed to 127%) because of the introduction of a 20% NRET. **No other current policy designed to address emissions from the stationary energy sector is as effective as NRET.**

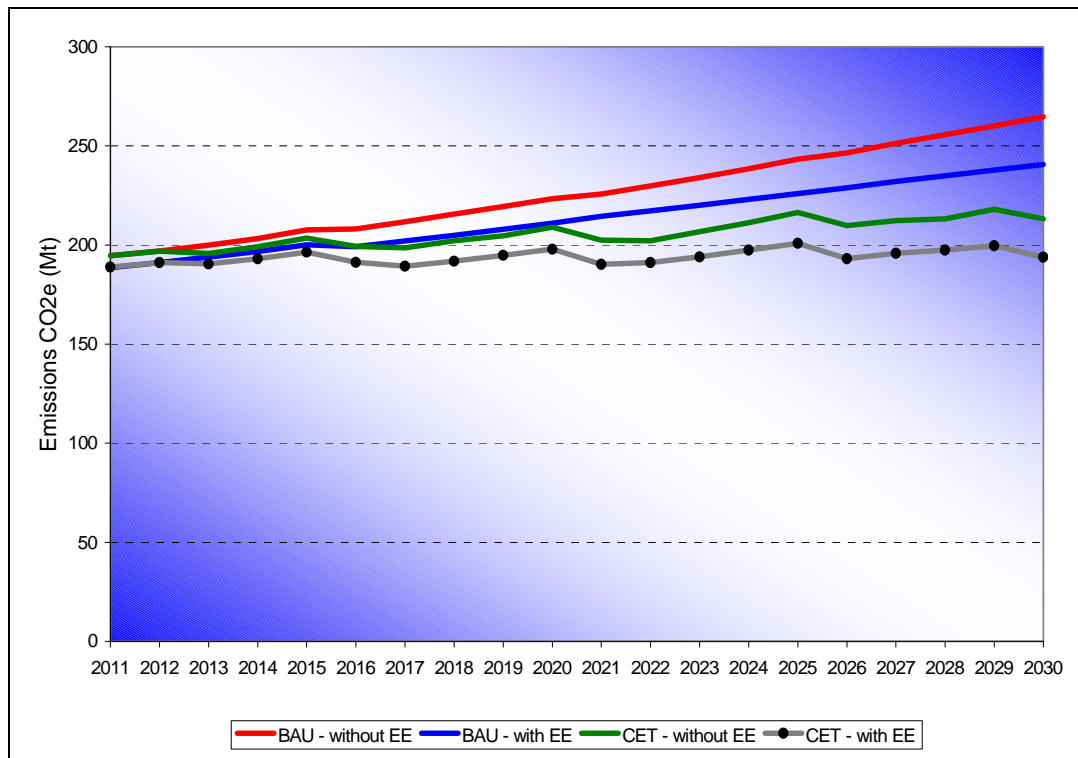
If we are to be successful in addressing climate change in Australia the thermal power industry must be part of the solution. The thermal power sector requires both R&D assistance to discover and prove up new technology and time in which to undertake these activities.

If decisive action within the energy sector was only brought about through an emissions trading scheme, the price per tonne of carbon would need to exceed \$60 AUD. As a discrete action a Federal NRET of 20% by 2020 does not cut into the existing levels of generation of thermal power stations, but deals with the future growth (or part thereof) of demand for electricity.

The following chart has been taken from work completed by Frontier Economics on behalf of the renewable energy industry in 2007.

This work looked at Business as Usual (BaU) emissions from the stationary energy sector and included a combination of renewable or Clean Energy Targets (CET) as they were called in this model and Energy Efficiency (EE) measures.

As can be seen a 20% NRET by 2020, followed by 30% by 2030 (as modelled) combined with energy efficiency measures can stabilise emissions from the stationary energy sector over that time.



Creating the Right Environment for Renewable Energy Investment

For many years now Australia's reputation as a place to invest in renewable energy has been poor by world standards.

China, India, parts of Latin America, Europe and much of the USA have dominated the renewable energy investment environment due to the establishment and maintenance of clear, strong and long-term policy and regulation that facilitated stable investment conditions.

The Government's commitment to establishing a 20% NRET by 2020 is welcomed by the clean energy industry which stands ready to invest the AUD \$20 Billion in zero emission generation capacity required to meet the target.

The key principles we believe should be followed in framing the 20% NRET are:

1. **Timeliness;** There is a substantial number of "investment ready" projects waiting for the legislative amendments to proceed. The scheme must be implemented by 1 January 2009 to provide investor confidence in making large capital investment decisions and to ensure we begin re-building industry capacity as quickly as possible.
2. **Simplicity;** The majority of the existing Mandatory Renewable Energy Target (MRET) legislation is sound, well understood and has demonstrated its ability to successfully pull through renewable capacity to meet the target. Therefore we believe that a relatively small number of changes are required, via simple legislative amendment, to give life to the 20% NRET.
3. **Certainty;** All investors in technology seek certainty in future markets. This does not mean all outcomes need to be known, participants will take "market" risks however the more certain an investment environment is the more likely new industries will be encouraged to establish themselves.

We have used these key principles as a guide when making recommendations within this submission which in turn help reduce investment risk. This will lead not only lead to greater investment but more diversity of technologies being pursued as developers of "new to world" and "new to market" technology feel confident in the market in which they hope to participate.

The key "risk" areas affecting investment in renewable energy are outlined in the following table.

Key Risk Area	Likely Impact
<p><i>Large movements in capital costs</i></p> <p>Most renewable energy technologies have near zero fuel costs but are capital intensive. As with all forms of power generation assets, there have been large increases to inputs affecting capital investment, particularly commodity price rises (e.g. steel).</p>	<p><i>Affects project viability</i></p> <p>Commodity price rises well in excess of CPI have affected ability to obtain investment for new projects. Further, the credit squeeze has impacted on the availability and price of project debt.</p>
<p><i>Delay in passage of legislation</i></p> <p>Legislated market in early 2009 will provide some investment certainty. Currently, the only market providing certainty for new investment is the Victorian RET and potentially the NSW RET.</p>	<p><i>Industry downturn</i></p> <p>Industry has started to gear up for state based schemes backed by promise for expanded national RET. Delays in passage of legislation will result in industry downturn, loss of jobs and time lost to rebuild capacity again.</p>
<p><i>Unreliable Market Fundamentals</i></p>	<p><i>Investor confidence can be eroded</i></p> <p>Volatile renewable energy price fluctuations will erode</p>

<p>Market fundamentals must be reliable. Main fundamentals are:</p> <ul style="list-style-type: none"> • REC price (market distortion if shortfall surcharge is paid); and • Project eligibility (needs min 15 year term). 	<p>investor confidence. Any fluctuations need to be a result of market fundamentals such as supply and demand not legislative or regulatory distortions.</p>
<p><i>Limited Transmission capacity and access</i></p> <p>Years of under-investment in transmission has resulted in capacity and access constraints and requires:</p> <ul style="list-style-type: none"> • Consistent jurisdictional regulatory obligations; and • The ability of the market to provide investments in deep augmentation for Projects in remote areas. 	<p><i>Delays and additional costs</i></p> <p>As the expected growth in the energy market and specifically renewable energy generators puts further strain on the energy network a visionary national regulatory approach on transmission infrastructure is required.</p>

Industry Capacity Building

NRET will not only slow the growth in greenhouse emissions from stationary energy today but build the industry capacity that will be critical if we are to achieve the deep cuts in emissions that will be required in the future.

Pacific Hydro built the first non-government wind farm in Australia at Codrington in South West Victoria which was also the largest in the country at the time (July 2000). Since then we have built an additional wind farm at Ararat in Western Victoria and pursued planning approval for numerous other projects in Victoria and South Australia.

These projects were developed under the existing Federal MRET arrangements and played a significant role in establishing a tower manufacturing facility in Portland by local engineering firm Keppel Prince and the establishment of a wind turbine blade facility in Portland by Vestas. A similar situation occurred in Tasmania and to a lesser extent South Australia based on wind energy development activity.

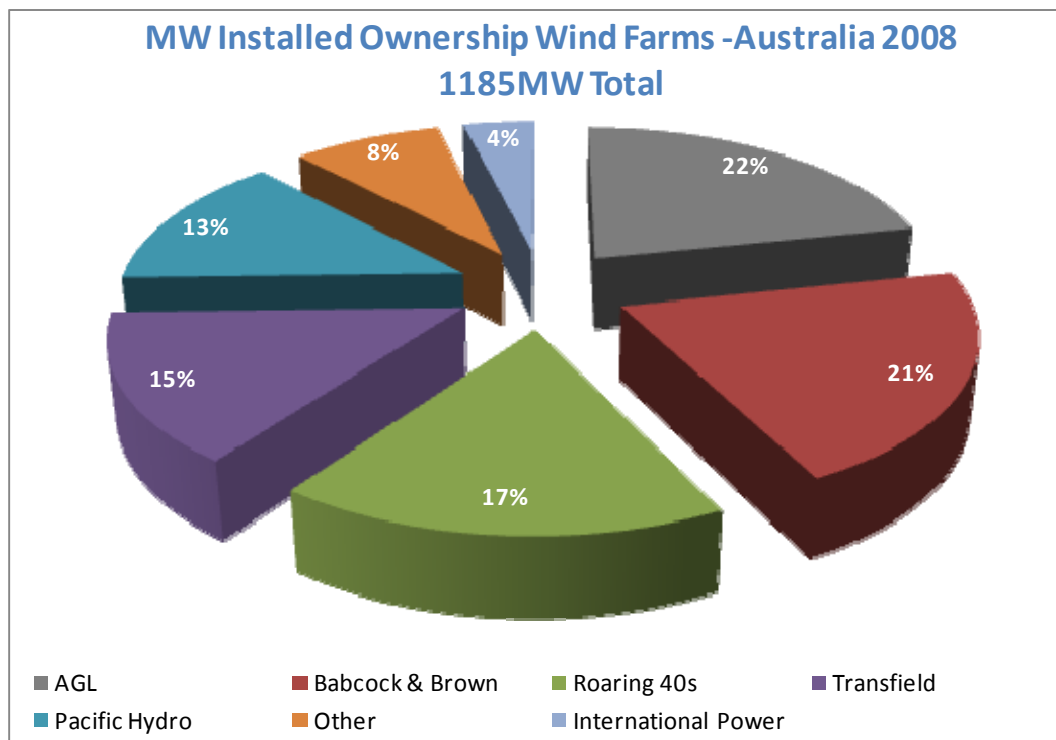
Since the Victorian Government introduced their own renewable energy legislation (VRET) in 2007 Pacific Hydro has also commenced construction of a \$350M wind farm in Portland and progressed planning approvals for an additional \$300M in potential wind farm development.

In all, development activity in Victoria over the last 12 months as a result of VRET would see the state based target exceeded by 2012.

All of these projects will be included in the Federal 20% NRET when in place as the industry prepares for the \$20B market that will be created.

Since the Government announced its intention to pursue the establishment of a 20% NRET we have seen a significant increase in interest from many international renewable energy players and a surge in activity by existing Australian companies as they bring potential new projects up to "investment readiness".

The following chart provides a brief overview of the current state of the Australian wind energy market.



Based on the current level of activity in the market it can be expected that a significant number of new investors will enter the Australian renewable energy market while existing participants will re-double efforts to maintain their competitive position.

Pacific Hydro alone is planning to invest in excess of AUD \$2 Billion as a direct result of the 20% NRET. We envisage our initial investments will be centred on new wind energy capacity however we see great opportunities emerging over the coming years in conventional geothermal power.

Industry Development and Job Creation

NRET will drive significant investment, establish new industries and create additional jobs

Based on experience in both Europe and the United States a 20% NRET could stimulate up to 6,000 additional jobs within the Australian economy.

Despite an uncertain market environment for clean energy in Australia we have already seen substantial new employment in development, manufacturing, construction and operations.

Importantly, increasing renewable energy targets will bring significant benefits to rural and regional Australia. Based on current wind energy proposals it can reasonably be expected that wind energy will make up approximately half of the 20% renewable energy target by 2020 and would therefore deliver:

- More than **\$12 billion in investment** in new wind energy generation alone.
- An additional **6,000 direct jobs** will be created (based on European experience).
- Continued expansion and support for the **export** of renewable energy technologies and services.
- A substantial part of this new investment and job creation will be in **regional and rural Australia**.

Potential ongoing economic benefit to rural communities from planned wind projects would be:

- Landholder lease payments >**\$50 million per year**
- Operation and Maintenance costs >**\$150 million per annum**

The renewable energy industry has begun to rebuild capacity and jobs based on the state renewable energy target schemes and, since November 2007, backed by the Federal Government's promise to expand the existing MRET.

However, the NSW scheme has been delayed whilst the expanded NRET is being developed, leaving the VRET scheme as the single market mechanism which promotes new investment. This has led to a situation where the legislation which drives demand and therefore investment has stalled and become uncertain.

The 20% NRET must come into force on 1 January 2009 lest current momentum in rebuilding capacity will be lost. For example, international suppliers that were significantly affected by the failure to increase MRET in 2005 have started to show interest in setting up manufacturing facilities in Australia. However, these suppliers are beginning to show concern as state schemes have been put on hold waiting on a federal scheme that could be delayed.

Pacific Hydro reiterates that the timing of the introduction of the expanded NRET scheme is critical to maintaining industry momentum, job creation, capacity building and significant short term abatement within the stationary energy sector.

Detailed Comments on Design Issues

Liability & Annual Targets

"Stakeholders' views are sought on possible approaches to setting annual targets and their implications for investment mix, generation profile and cost of the measure."

The target profile should aim to provide the greatest level of investment stimulus in the earliest possible timeframe. As such the scheme should commence on 1 January 2009 with a linear trajectory to 2020. Target profile to level out to 2025 then a linear decline profile to 2035 (see Exhibit A "Target Profile Chart").

It is important to provide the certainty of a 2035 sunset date to ensure investment in new generation capacity continues up to 2020 therefore providing at least 15 years eligibility to create certificates.

It is also important to ensure investment occurs in the latter years of the scheme as the 9,500 GWh of annual generation, registered under the first MRET will fall away after 2020 requiring additional investment in new projects between 2018 and 2020 to ensure the 45,000GWh target is met and maintained.

This situation will deliver more new renewable energy projects to market and therefore enhance the industry development and capacity building aspects of the scheme.

It will also work to provide demand for emerging technologies such as geothermal, wave and large scale solar that will spend the initial years of the NRET undergoing research and development and therefore may only enter the market with any scale in the later part of the scheme.

Eligible Sources

"Stakeholders' views are sought on the treatment of renewable energy sources and technologies, including the treatment of forest biomass and solar water heaters."

For simplicity and ease of transition, eligible sources should remain as per the original MRET legislation. Flexibility should be maintained to add new renewable energy technologies as they emerge.

Banking

"Stakeholders' views are sought on approaches to banking of RECs and their potential impacts on investment profile, generation level and technology mix and on the cost of the measure."

We are in favour of unlimited banking so as to provide greatest compliance flexibility for liable parties, to maximise market liquidity and allow certificate prices to move fully with normal market forces.

If certificates were effectively put into vintages or "time bands" prices would not flow easily across the market with different vintages of certificates attracting differing prices which leads to increasing complexity and transaction costs. This would also effectively "fracture" the market, impacting overall liquidity and transparency and once again lead to increased costs of compliance and possibly non-compliance in certain circumstances.

Project Eligibility Periods

"Stakeholders' views are sought on the implications of restricting the eligibility period for projects under the scheme."

The existing VRET legislation should be seen as the "benchmark" for new project eligibility periods. Therefore post 2007 projects should be eligible for at least 15 years. Pre 2007 projects should be eligible to create certificates up to 2020.

If one of the objectives of 20% NRET is to build industry capacity, including manufacturing capacity, then the legislation should always look to maximise the potential for investment in new developments. For this reason the eligibility periods of the old MRET and new NRET schemes should remain separate with 2007 being the line of demarcation as described above.

Banked certificates from the original MRET, provided they were created before 2020, can still be used for post 2020 compliance.

Existing Generators

"Stakeholders' views are sought on how projects already in operation should be treated and whether projects predating 1997 should be treated differently from those predating 2007."

"Stakeholders' views are also sought on the treatment of additional generation created, for example, through capacity additions or refurbishment."

For simplicity and to avoid any issues with sovereign risk arising, pre 2007 projects should be eligible to create certificates up to 2020 as per the original MRET. For post 2007 calculations the determination of "additional generation" should be based on a combination of capital expenditure (such as 50% of capital value) plus historical baseline methodology.

This methodology is not dissimilar to the additionality test within the Kyoto Protocols flexibility mechanisms which ensures only genuine new investment that has occurred as a direct result of the scheme is able to obtain a benefit under the scheme.

While we suggest current baseline arrangements for pre 1997 generators should remain unchanged we suggest more market transparency should be required when determining baselines. Under the existing MRET regulations baseline determinations made by the Office of the Renewable Energy Regulator (ORER) are confidential which effectively withholds important supply related information from the market and effects price discovery by participants.

Therefore all baselines determinations made by ORER should be made available to allow greater market information and transparency.

Duration and Phase Out

"Stakeholders' views are sought on methods and timing for phasing out the RET scheme between 2020 and 2030 and on their implications for investment profile, generation level, technology mix, and the cost of the measure."

To create the investment conditions that will underwrite the long-term development of the industry both the target size and profile should remain until 2035 (see Exhibit A "Target Profile Chart"). No shortfall charge phase out is needed as RECs will move naturally with market forces, particularly as the Emissions Trading Scheme begins to effect the wholesale price of energy.

When assessing the economics of a new renewable energy project two primary revenue streams are considered, namely revenue provided via transactions within the wholesale energy market and the renewable energy certificates created under NRET. Together these revenue streams make up the total sent out price from the plant.

The competitive nature of both the wholesale energy and NRET certificate markets mean that sellers can't simply adopt an energy revenue plus full certificate value pricing strategy. Rather the two revenue streams move dynamically with one another as the market dictates the certificate clearing price which is, in part dependent on the wholesale price of energy.

Compliance Mechanisms

"Stakeholders' views are sought on the appropriate level of the shortfall charge, in particular on whether it should be set at a very high level to encourage compliance or at a level only slightly above the maximum expected REC price."

We are of the view that the penalty price should be set at a sufficiently high level so as to encourage compliance at all times. The market value of certificates created under the scheme will be affected by numerous forces including trading behaviour of liable parties, capital costs of new renewable energy plant and the underlying prices of electricity in the wholesale energy market.

The investment risk for most renewable energy projects, unlike thermal power plant, is highly dependent on the upfront capital cost. For example wind farms, geothermal power and solar powered generation do not have an ongoing fuel cost and thus the great majority of cost is the upfront capital expenditure required to build the generation assets.

In setting market parameters for the 20% NRET such as the shortfall charge the Working Group should be cognisant of the main inputs to upfront capital expenditure and their potential volatility, especially in today's economic environment.

Upfront costs are especially sensitive to inputs such as the cost of funds, labour indices and commodity prices. As a recent example of volatility, steel prices alone have risen nearly 60% in the last five months and these costs flow directly into the costs of supplying equipment which make up power generation facilities.

This rise is on top of surging prices for power generation equipment resulting from demand being unable to meet supply in the international supply market. Accordingly, we have seen quoted prices for the supply of power generation equipment rising in excess of 10% per annum over the last few years, significantly above CPI. We understand this is a common issue across a broad range of generation technologies.

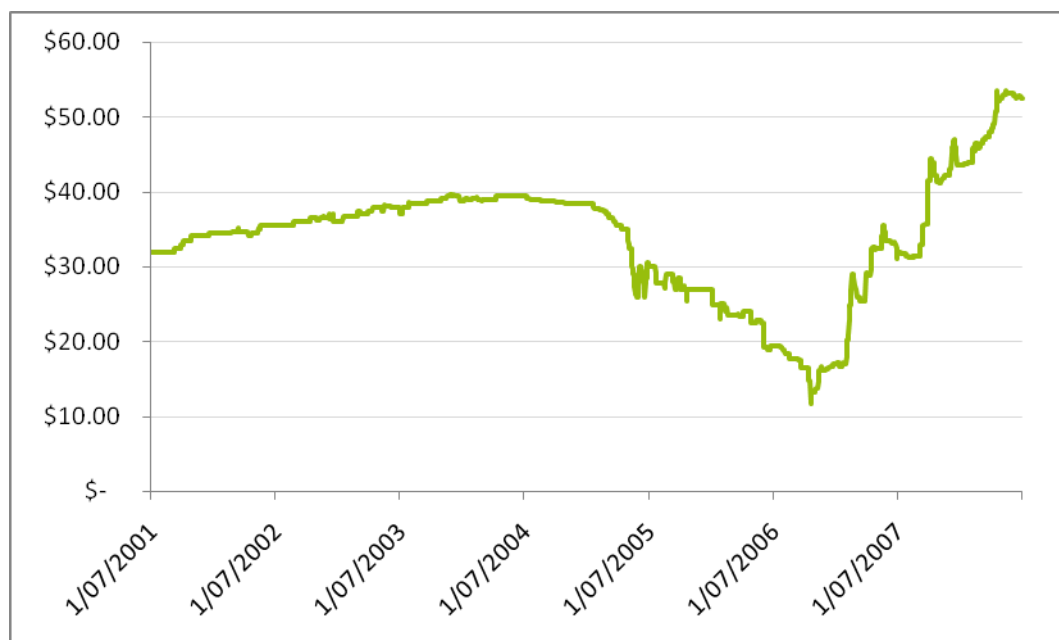
It is therefore our view that attempting to set the shortfall charge only slightly above the maximum expected REC price would be very risky and could easily lead to a situation where the input price volatility would result in the shortfall charge being below that which is necessary for investment in new projects.

The objective of the scheme should be to encourage compliance and therefore should not inadvertently create a situation where liable parties are unable to comply with the legislation. This would undermine both the industry capacity building and greenhouse abatement objectives of the scheme.

The original MRET legislation sets the non-compliance penalty at a flat \$40 per certificate. As this is a penalty it is not tax deductible and as such the tax effective penalty rate is \$57 per certificate.

While this may imply that certificates would automatically trade at the maximum value of \$57 the competitive nature of the MRET market ensured that market prices never reached that point as the following spot market certificate price chart demonstrates.

The most recent uplift in certificate prices has come about through “speculative” trading of small parcels of certificates leading up the introduction of a 20% NRET.



The most important aspect of setting the penalty rate is to ensure the target for deployment of new generating capacity is met over the life of the measure. In doing this it must provide a strong market or “investment” signal for developers of new projects and to outline market boundaries and cap “risk” for liable parties.

If the Government prefers the setting of a shortfall charge only slightly above the maximum expected REC price, Pacific Hydro considers that the VRET penalty represents the minimum shortfall charge to be considered.

Companies such as Pacific Hydro have already made significant investments into new renewable infrastructure based on the VRET scheme compliance mechanisms. We understand that the VRET scheme will be blended into the expanded NRET scheme and therefore the value of our VRET investment would be at risk if the NRET shortfall charge were to be set below the VRET penalty.

Setting the Shortfall Surcharge

A current example of how setting a high shortfall charge to ensure compliance can be seen in operation in the European Union. To ensure compliance within the European Union ETS a penalty price set at a level well above the expected trading price of credits was put in place.

The original proposal was to impose a financial penalty either at a rate of EUR100 per excess tonne or twice the average market price during a predetermined period, whichever is the higher. However the latter aspect was removed after debate in parliament.

In addition to this penalty payment, the excess emissions penalty does not release the operator from the obligation to surrender an amount of allowances equal to those excess emissions when surrendering allowances in relation to the following calendar year (similar to current make good provisions in MRET).

Notwithstanding this fairly robust dissuasive penalty, the price of carbon during the current phase has not exceeded, and is not currently forecast to exceed, EUR30/t.

In light of the EU ETS experience, combined with concerns regarding volatility of capital input prices, we recommend that a similarly robust penalty price should be adopted.

As a guide for setting this cap it may be useful to look at the original MRET penalty of \$40 per certificate, or more precisely a tax effective cost of \$57. It is not unreasonable to suggest that the original penalty, set in 2000 represented the effective marginal cost (energy + certificate value) of the last new renewable energy project to be commissioned within the scheme in 2010.

If this penalty price was subjected to CPI the tax effective value would be approximately \$97 in 2020.

Therefore a cap of \$100 per certificate, set in 2008 would represent a sufficient level of penalty so as to ensure compliance in 2020. This cap would not be escalated with CPI but should be assessed on a semi regular basis to ensure it was driving compliance by liable parties and delivering the conditions required for investment in new renewable energy.

It is important to reiterate that when such price caps have been put in place they have not been "breached" by actual prices in the market.

It is also important to note that compliance under the existing Federal MRET has been close to 100% for its duration with very few instances of minor non-compliance in the early years of the scheme.

Future Issues for Consideration

Transmission Infrastructure

The recent Garnaut Review was quick to realise the important role that good public infrastructure will play in Australia achieving both emissions reductions and continued economic growth. We believe that urgent reform is required in the transmission and distribution segments of the electricity sector. The exact nature of that reform is still open and the Energy Supply Association of Australia has made an important start to the debate with the release of a report¹ on this subject.

We believe that in many cases transmission infrastructure is a public good and that the existing monopoly regulation in this important area is not appropriate. Transmission lines are similar in their economic nature to some road, port, rail and communications infrastructures where a natural monopoly exists; however conventional monopoly regulation has resulted in large scale under-investment in infrastructure.

For example, the lack of investment in transmission infrastructure in South Australia is particularly acute. South Australia has an abundance of wind resources however wind is approaching its limit of penetration, mainly because the regulatory mechanisms do not support system augmentation and therefore cannot capture the opportunity to add substantial renewable capacity. This barrier to investment is also likely to stall the development of large geothermal resources as no single project can underpin the required investment in transmission infrastructure.

Currently there is no mechanism available to develop new transmission in remote areas. The costs are prohibitive for the private sector under the conventional monopoly rate of return regulations that persists in Australia that effectively creates a first mover disadvantage while the Government has been reluctant to build infrastructure where it believes it may crowd out more efficient private investment. This stand-off has resulted in continual under-investment in grid maintenance, upgrades and expansion.

The Garnaut Review also correctly identified work on public contributions being made in Britain and California. We would also like to bring to your attention, less conventional approaches to this issue already in place in Texas. Exhibit B to this submission provides an alternative viewpoint into how transmission investment is handled in other parts of the world, in this case, the largest US State of Texas where an excellent wind resource is located in remote areas with no connection to existing grid infrastructure.

As a result of this policy Texas achieved the highest level of wind installation in the world in 2006 which affirms our contention that the regulatory environment closely correlates with the investment environment in the sector.

In addition to those initiatives described in Exhibit B we encourage the Federal Government to engage with the private sector in developing a strategic infrastructure initiative that identifies areas of high resource or strategic value such as wind, solar, wave and geothermal resources but also natural gas and geological storage, all of which will require substantial infrastructure assistance if they are to realise their full potential.

Given the threat of first mover disadvantage, potential owners and operators of transmission infrastructure must look to secure a long-term revenue stream before investing the billions required. A role of government could be to enter into Public Private Partnerships with industry, underwriting a return on strategic infrastructure assets. The level of underwriting "risk" progressively reducing over time as more generation capacity is connected or usages of the asset increases

1

http://www.esaa.com.au/images/stories/3cs%20cra%20report_effects%20of%20retail%20price%20regulation%20in%20energy%20markets.pdf

The Australian market favours large wind farms with high voltages and the existing Transmission system favours sources of generation in proximity to the coast. According to a study by the Australia Greenhouse Office, "*the NEM could readily accept 8000MW of wind farms under certain conditions*"².

Given the current installation of wind in the NEM is around 1000MW, it is safe to say that the NEM could easily cope with a rapid expansion of the industry in the short term without any major upgrades to the grid infrastructure. However, beyond this substantial new wind capacity will be restricted as will new capacity in many forms of renewable energy such as large scale solar and geothermal.

NEM Governance

Consideration of broader policy objectives concerning climate change should give rise to a review of the purely economic objective of the National Electricity Market (NEM) dispatch regulations. The current national electricity market objective does not consider the environmental impact associated with the delivery of energy.

While the NEM objectives aim to deliver the least cost energy safely and reliably, it does so without considering the cost to the environment. The objective ought to now be redrafted with the broader aim of delivering the cleanest mix of energy at the least cost. This in turn would help deliver the country's obligations under Kyoto and the overall emission reduction target.

The Rules of the market have been amended to bring intermittent generation into the central dispatch. While this provides for a level playing field and improves the management of transmission network flows, it may also lead to a reduction in the availability of green certificates for carbon abatement.

The development of the NEM was premised on the management of large thermal generators and a requirement to control their output in order to manage the demand/supply capacity in an energy only market.

New generation technologies using intermittent energy sources such as wind, solar and run of river hydro are offering clean energy only into the market but not firm capacity. If these properties of the technologies were recognised in the market design principles there would be ramifications for NEM governance leading to a more balanced treatment of renewable energy technologies.

The challenge for the NEM will be to deliver new modelling techniques on top of the traditional marginal cost principles to facilitate an expanded MRET and Emissions trading Scheme. Constraining the transmission of renewable energy in the NEM will reduce the ability of the industry to meet the proposed targets and thus impact downstream electricity costs at the retail end.

Single National Regulatory Approach

In the electricity industry there are cases where state regulations are not consistent with national regulation. For example in South Australia, the energy regulatory body (the Essential Services Commission of South Australia) imposes additional licensing obligations which are above and beyond the national requirements which result in inefficient outcomes and stifle investment.

Pacific Hydro believes that consistent regulations across the National Electricity Market provide investment certainty and will support the renewable energy industry to build new infrastructure to meet the expanded target at the lowest possible cost.

² National Wind Power Study, Australian greenhouse Office, November 2003.

Exhibit A – Target Profile Chart

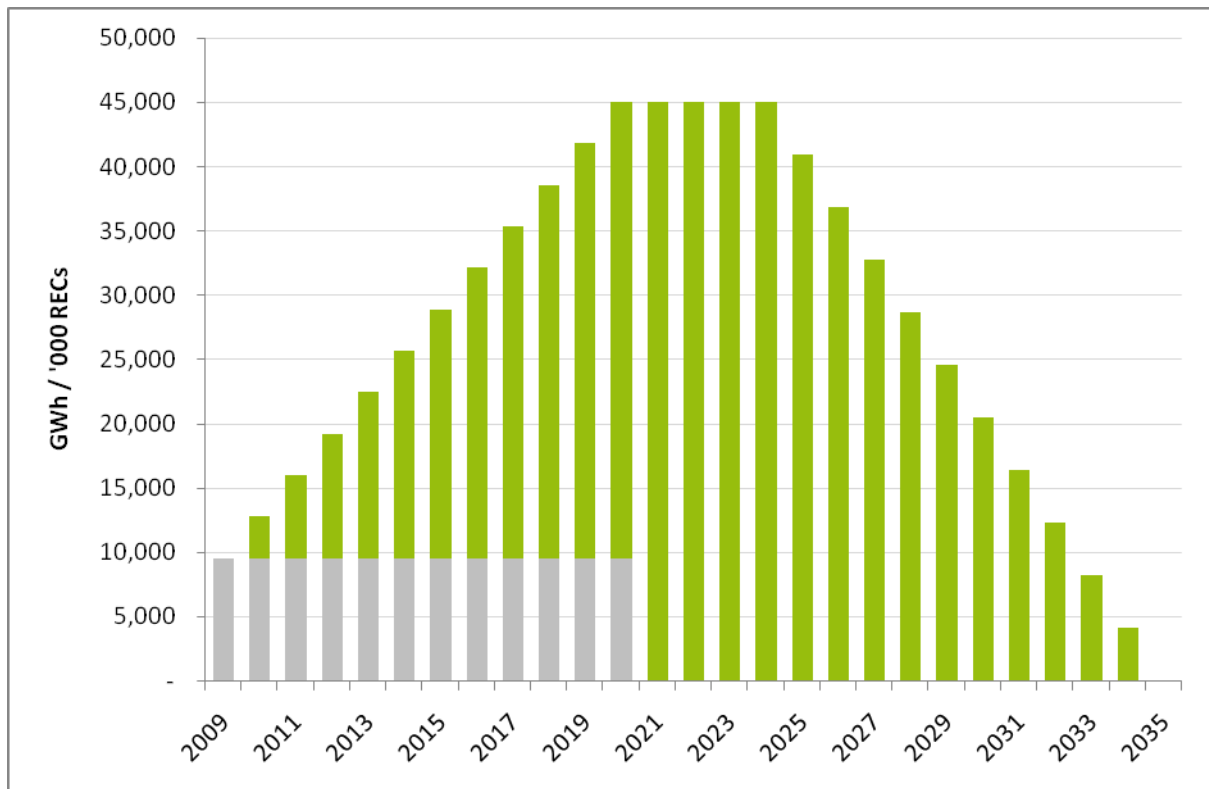


Exhibit B – Transmission Incentives in USA

Texas Transmission

The major wind developers in Texas locate their wind turbines in areas which are ideal for maximum wind power generation but which also are the least populated and remote areas far from load and demand centres. Senate Bill 20 includes a transmission plan for areas of high wind resource but poor grid connectivity. This was recognised as an issue when the 775MW of wind capacity in West Texas could only export a maximum of the output of 330MW of the installed capacity.

ERCOTS McCamey plan

The Electricity Reliability Council of Texas (ERCOT) are the transmission operator and traditionally offered developer friendly transmission costs to generator by running a “postage stamp” pricing scheme where all transmission costs were spread evenly amongst all customers regardless of the distances required. However the long time to build transmission lines 5-6 years was still not considered adequate enough for wind generation. The McCamey plan in 2003 was adopted by ERCOT to construct 345kw transmission lines to the remote McCamey area at a cost of \$155 million to connect with 1100MW worth of wind capacity. The McCamey plan initially required that the transmission lines are 100% subscribed with wind interconnection agreements prior to installation of the 5 year process. This proved insurmountable.

CREZ

To overcome the shortcomings of the McCamey plan, Senate Bill 20 was modified to provide a process whereby ERCOT are able to nominate Competitive Renewable Energy Zones (CREZ).

These Zones are ways to identify the best wind resources anywhere in the state of Texas and details the transmission available in those areas.

The CREZ's will be nominated and defined by 5 July 2007. Once a CREZ passes the nomination process the grid will be paid for evenly by ratepayers.

As a result of the CREZ project, Governor Rick Perry announced that \$10 Billion of investment in 10,000 MW has been promised.

On the transmission side, several companies have partnered together to form ventures to build merchant transmission for the CREZ's for the construction of around 2000 km of transmission line and also a 1500km high voltage high capacity backbone transmission system.

Federal Rule for Transmission Access

In February 2007, The Federal Energy Regulatory Commission (FERC) made a ruling to allow greater access to transmission lines for power generators of all types, including renewable energy projects.

Under this rule wind developers are exempt from excessive charges when the amount of energy deliver differs from what they are scheduled to deliver.

This new rule on open access transmission tariffs eliminates the broad discretion that transmission providers have in calculating unused available capacity on their lines.

Texas however is not subject to FERC regulation because most of its transmission lines do not cross state boundaries.

Submission to the Renewable Energy Target Exposure Draft Legislation

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17 February 2009

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Executive Summary

The Renewable Energy Target (RET) is the key industry development mechanism for the Australian renewable energy industry and is essential in underpinning sustainable industry growth over the next 20 years. With the appropriate policy settings the RET will stimulate investment in the order of \$25 billion in clean energy infrastructure in Australia over the next 10 years and create tens of thousands of jobs, many of which will be located in regional areas.

It is therefore essential that the *Renewable Energy (Electricity) Amendment Bill 2008* delivers a scheme which has at its core the primary objective of sustainable growth and development of the renewable energy industry. The exposure legislation must now deliver a policy design which allows both the 20% target to be delivered and stimulates sustainable development of the renewable energy industry.

The design of the RET scheme, as currently set out in the exposure legislation, introduces barriers which threaten investment and undermine the long-term sustainability of the industry's development. These flawed aspects fail to create the medium- to long-term certainty required to stimulate investment from the industry and financial institutions.

The primary barrier to sustainable industry development in the exposure legislation is the sharp decline of the phase-out trajectory. This single design element undermines the effective size and longevity of the market as it significantly impacts the 15 year debt repayment term that project lenders typically require. Investment will therefore stall after 2015 and the RET will fail to stimulate enough investment in new renewable generation capacity to meet the Government's commitment of 20% renewable energy by 2020. Modelling undertaken by IES on behalf of the Clean Energy Council and Pacific Hydro indicates that a maximum of 15% of electricity generation from renewable energy will be stimulated by the scheme (Figure E1).

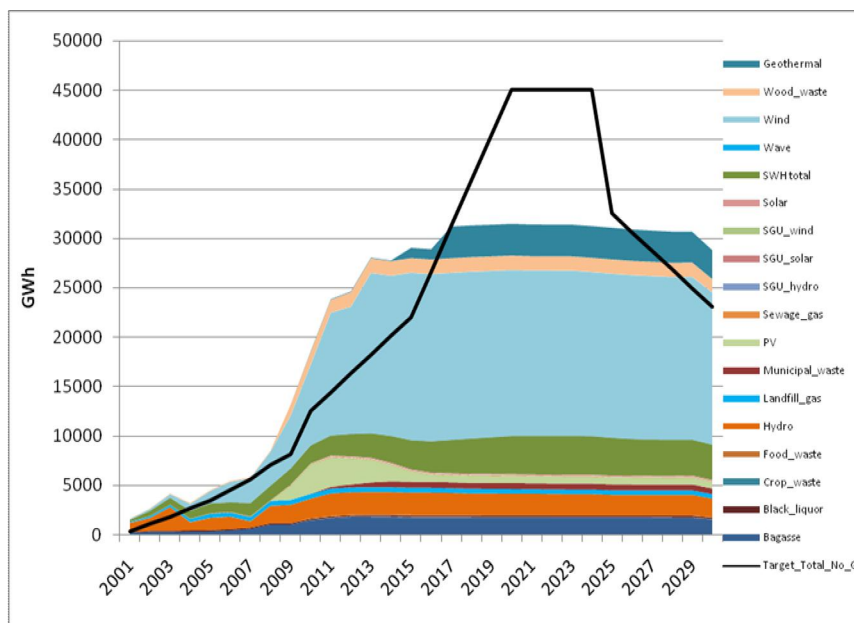


Figure E1. Generation from renewable sources under the RET exposure legislation

Retaining the declining phase-out will reduce the industry development potential of the RET by approximately 103 million RECs. This equates to the production of approximately 22 wind farms, \$6.6 billion in foregone investment and over 24,000 jobs over the life of the scheme¹. This is incongruent with the policy's primary objective, which must be to develop a strong and sustainable renewable energy industry, transforming Australia's energy sector in a carbon constrained future.

Modelling undertaken by the Clean Energy Council indicates that maintaining the 45,000 GWh target between 2020 and 2030, allowing the scheme to phase out naturally as the price of energy increases under the Carbon Pollution Reduction Scheme is the most appropriate design to ensure the 20% target is achieved(Figure E2).

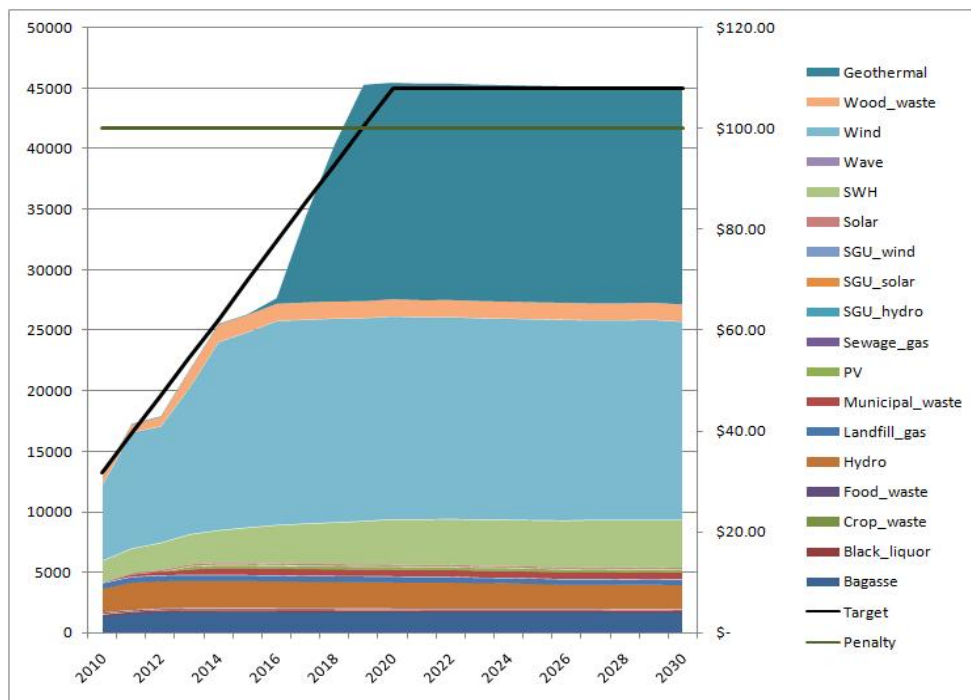


Figure E2. Generation from renewable energy sources under a sustained 45,000GWh target from 2020-2030 (Y axis: GWh)

In addition, the following amendments should be made to the exposure legislation design to maximise industry development:

- Remove the REC multiplier for small generation units which creates “phantom” RECs without requiring the commensurate level of generation, introducing market uncertainty by eroding the relationship between RECs and MWh of electricity generated. If the multiplier for small generation units is to remain within the RET, the scheme should be augmented with additional generation and RECs to the value of those removed from the system as phantom RECs to maintain the integrity of the target.

¹ Assumes wind farms of 100MW capacity at a capital cost of \$3 million per MW installed. Jobs based on EU experience, excluding jobs associated with turbine manufacture (“Wind Energy at Work: Wind Energy and Job Creation in the EU” European Wind Energy Association, January 2009).

- Introduce a linear trajectory to 2020, increasing the total number of RECs available to the industry thereby enhancing the industry development aspects of the scheme.
- Set the penalty charge for non-compliance at a price that ensures the entire 20% target can be met. The level at which the penalty charge is set will have no effect on the cost of delivering the scheme – just as the market ultimately sets the price of certificates just as the energy market sets the price of energy despite a price cap of \$10,000 MWh – but it has an important effect on industry development, investment security and in ensuring scheme compliance.
- Include the Terms of Reference of the scheme review in the legislation in order to avoid an industry downturn as a result of uncertainty, as was seen as a result of the 2003 Tambling Review of the original MRET scheme.
- Outline the mechanism for rolling the Victorian RET into the Federal scheme, adopting the generation measurement principles from VRET. The VRET regulations provide a more accurate measurement of renewable energy generated thereby providing more RECs to project developers and are more consistent with energy generation in the NEM. The transition of the VRET into the RET should also recognise the sovereign risk and direct financial losses posed to projects built under the scheme as a result of changes in energy measurement under the RET.

Introduction

The Federal Government is to be congratulated for their commitment to developing a strong renewable energy industry in Australia via the Renewable Energy Target (RET). As an industry development mechanism, the RET will play a crucial role in establishing the renewable energy industries of tomorrow that will be required if we are to meet future greenhouse abatement and energy security objectives. Pacific Hydro welcomes the release of the exposure legislation for consultation and looks forward to its swift passage through Parliament during the first half of 2009.

The 2007 Federal Labor policy document *"Securing a Sustainable Energy Supply for Australia's Future"*, stated:

A Rudd Labor Government will drive the development of renewable energy, alternative fuels and clean coal technologies, so that Australia has a sustainable and secure mix of energy sources for the future.

The same policy statement committed to ensuring 20% of Australia's energy (45,000 GWh) was sourced from renewable energy by 2020 as the primary development mechanism for Australia's renewable energy industry. The legislation should now deliver a scheme which allows this target to be delivered.

The design of the RET scheme as set out in the exposure legislation does, however, introduce barriers and limitations which threaten investment and undermine the long-term sustainability of the industry's development. These flawed mechanisms will create barriers to investment as they fail to create the medium- to long-term certainty required to stimulate investment from the industry and financial institutions.

Long-term vision and market certainty is at the heart of the success of Europe's renewable energy industries. For example Germany and Denmark, which are home to some of the strongest renewable energy industries in the world, used a range of innovative policy measures to create a long-term market and stable income stream to develop strong renewable energy industries in the nations' interest. Germany and Denmark are now the biggest exporters of wind energy equipment in the world.

Through the RET, the Government has identified the importance of developing a strong renewable energy industry in Australia. It is integral to the success of the RET scheme and the development of the industry that the Government takes steps to address the flaws in the scheme design which will undermine the scheme's policy objectives, particularly that of industry development.

Pacific Hydro believes that, although their impact is significant, the flaws in the exposure legislation can be easily rectified through minor amendments to the design of the scheme. These amendments will impose no extra cost to the Government but will allow efficient and sustainable development of the renewable energy industry in Australia.

With the appropriate policy settings the RET will stimulate investment in the order of \$25 billion in clean energy infrastructure in Australia over the next 10 years. It will also create tens of thousands of jobs in both existing and emerging clean energy technologies, stimulating a diverse range of new industries, many of which will be located in regional areas. This investment will come at a time when the Australian economy is in need of just such large-scale economic stimulus. Due to the RET being a market-based scheme, this will come at minimal cost to Government and a

fair cost to consumers. In addition, designing an effective RET will be complementary to the delivery of the Carbon Pollution Reduction Scheme (CPRS), allowing more flexibility in medium-term emissions reduction targets.

Trajectory

Along with the penalty price, the shape of the target trajectory to meet and maintain the 45,000 GWh objective is the most crucial aspect of the legislation both in terms of the demand profile it creates and the total number of certificates to be created underneath the trajectory curve.

The post-2024 phase-out trajectory will have the greatest impact on the ability of the scheme to meet the 45,000 GWh objective, affecting the overall industry development and greenhouse objectives of the scheme.

Of lesser, but still material, importance is the ramp up trajectory which suppresses the overall volume of renewable energy certificates created under the scheme.

Phase-out trajectory

Of all the design elements outlined in the exposure legislation the sharp phase-out mechanism between 2024 and 2030 included in the scheme design will have the single largest effect on the scheme's success as an industry development mechanism. This is because of the critical importance of the phase-out in determining the size, longevity and therefore certainty of the market, which in turn underpins investment confidence.

Pacific Hydro and the Clean Energy Council recently commissioned modelling by Intelligent Energy Systems to quantify the effects of the specific features of the scheme outlined in the exposure legislation on REC creation and industry development (Figure 1). The modelling found that the combination of unlimited banking of RECs and the sharp decline of the target from 2025 to 2030 meant that, while sufficient RECs were created to meet the target, generation of 45,000 GWh of electricity from renewables in any one year was never achieved. As the target's purpose is to stimulate energy production as opposed to REC creation, we therefore conclude that:

Under the phase-out mechanisms set out in the exposure draft legislation, the RET will fail to stimulate enough investment in new renewable generation capacity to meet the Government's stated policy commitment.

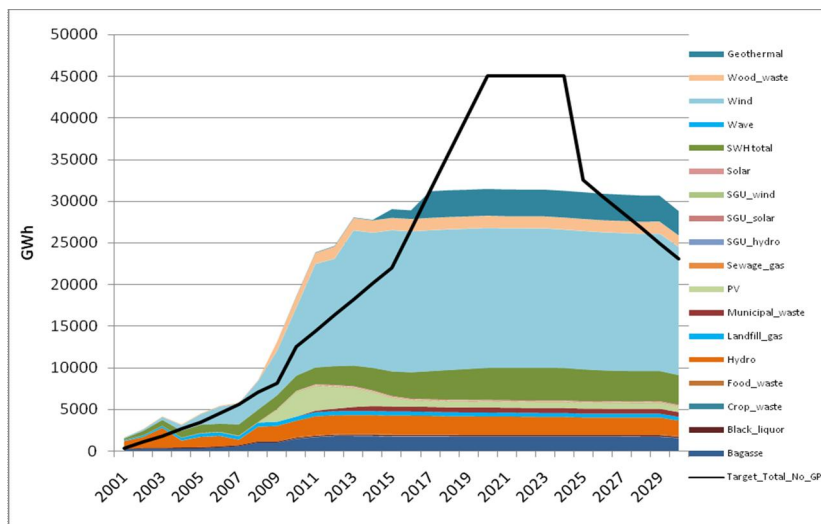


Figure 1. Generation from renewable sources under the RET exposure legislation design

The modelling shows that the maximum level of generation from renewable energy achieved under the scheme is in the order of 32,000 GWh. This equates to only 15% of energy from renewables in 2020, rather than the stated policy commitment of 20%.

This is as a result of a high level of construction early in the scheme creating a surplus of RECs which are banked and acquitted as required to meet the target in later years. This will be driven by the dramatic reduction in the target from 2025 which significantly undermines the 15 year debt repayment term that financial institutions typically require. Given this situation, developers and financiers will race to secure viable projects in the early years of the scheme so as to ensure project debt is able to be recovered prior to 2025, when it is expected that REC prices will fall significantly in line with the target reduction. Investment will therefore stall after 2015 as demand for RECs collapses along with their market value. Alternatively, developers may be able to secure debt over a shorter term (for example 10 years). However, shorter repayment terms increase the level of annual debt recovery costs to the project borrower, therefore driving up the price required per REC and the cost of the scheme to the economy.

It would appear that the shape of the trajectory being contemplated is an attempt to provide a least cost approach to the delivery of the RET. However, as already discussed, in attempting to achieve this the Department of Climate Change (DCC) has created a scheme which will severely limit, if not completely stall, investment after 2015.

Alternatively, project developers securing debt over a shorter time frame will require a higher cost per REC to meet compressed repayment schedules, driving up the cost of scheme. In this way, the current design of the RET trajectory will ensure either that delivery is not least cost or that investment is not made after 2015 and the target is not achieved.

It would also appear that the assumption underpinning the decreasing phase-out trajectory is that as the CPRS matures, the energy price will increase sufficiently to make a range of renewable energy technologies competitive with thermal plant, particularly as the relative costs of renewable energy falls over time. Pacific Hydro supports this goal of both the RET and the CPRS and looks forward to a time when renewable energies do not need specific legislation or government support to be competitive. However the exposure draft design attempts to force the convergence of the two markets via legislation, rather than allowing a natural transition as the CPRS matures.

Compounding this is the Federal Treasury modelling which indicates that a sufficient price to support renewable energy generation (approximately \$60/t CO₂e) will not be delivered through the CPRS until after 2034². There is therefore an argument to leave open the possibility to extend the scheme to 2035 through the scheme review, to ensure the carbon price is high enough to support ongoing investment in clean and renewable energy.

The recent experience in Australia would indicate there is a high degree of interaction between the energy and renewable energy certificate markets. What is clear from this experience is that certificate prices have been driven by both the capital cost of new renewable energy plant and the prevailing energy price. The transition from the RET to the CPRS will be driven by a combination of reduced relative cost of renewable energy and the increase in energy prices under the CPRS.

It is important to note that the “least cost” approach to the design of the RET fails to acknowledge that there will be an economic cost of emissions reduction due to the CPRS and that the cost of abatement will be progressively built into the economy over the coming 20 years. Therefore whether this cost is attributed to the RET or the CPRS is largely irrelevant on a “whole of economy” basis in the medium- to longer-term. Attempting to force a “least cost” design on the RET will not necessarily lead to “least cost” on a whole of economy basis and will cause the scheme to fall short of the target and fail to deliver the Government’s policy.

A more effective design for the scheme, given other design elements outlined in the exposure legislation, would be to maintain the 45,000 GWh target between 2020 and 2030, removing the decreasing targets and allowing the scheme to phase out naturally in 2030 as the price of energy has fully encapsulated the cost of carbon under the CPRS. Retaining the declining phase-out will reduce the industry development potential of the RET by approximately 103 million additional RECs. This equates to approximately 22 wind farms and \$6.6 billion in foregone investment and, based on European experience (excluding jobs in manufacturing turbines), over 24,000 jobs over the life of the scheme³.

Modelling undertaken for the Clean Energy Council indicates that maintaining the target at 45,000 GWh from 2020 to 2030, regardless of a constant or decreasing shortfall charge, was the only scenario in which the target could expect to be met (Figure 2). This single change would therefore create a scheme which would effectively underpin the development of the industry and allow the RET to succeed.

² Australia’s Low Pollution Future, Chapter 6

³ Assumes wind farms of 100MW capacity at a capital cost of \$3 million per MW installed. Jobs based on EU experience, but excluding turbine manufacturing component (“Wind Energy at Work: Wind Energy and Job Creation in the EU” European Wind Energy Association, January 2009).

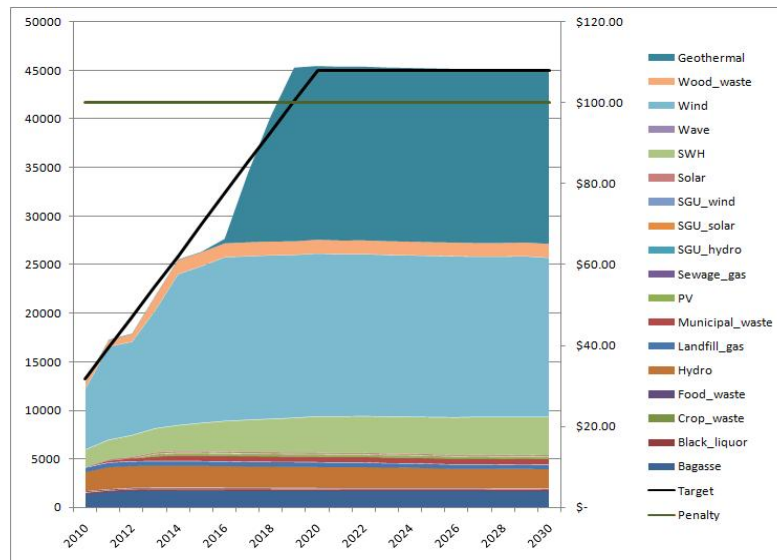


Figure 2. Generation from renewable energy sources under a sustained 45,000GWh target from 2020-2030

Ramp-up trajectory

As an industry development mechanism, the RET must aim to make as many Renewable Energy Certificates (RECs) available to renewable energy generators as possible over the life of the scheme. This will increase the number of projects which can be supported by the scheme, which in turn maximises the level of industry development and diversity of technologies deployed. A dual-linear trajectory, as put forward in the exposure legislation, undermines this fundamental principle. Approximately 34 million RECs will be unavailable to industry as a result of the dual-linear trajectory, which equates to approximately 700MW of foregone renewable energy generation capacity⁴, \$2.1 billion of investment⁵ and over 7,000 jobs⁶ over the life of the scheme.

As per our original submission to the July 2008 COAG discussion paper, *Design Options for the Expanded National Renewable Energy Target Scheme*, Pacific Hydro recommends that the scheme include a linear trajectory to 2020 in order to maximise industry development, employment and investment under the scheme.

Shortfall Charge

The shortfall or penalty charge is an essential element of a market-based system as it ensures compliance with the scheme. It is important however that the shortfall charge is not considered as a tariff or cap on the cost of the scheme, or even as a guide to the marginal cost of renewable energy, particularly when attempting to calculate the cost of the scheme. The penalty charge is precisely that – a penalty which is intended to encourage compliance with annual targets

⁴ 700MW applies to wind farms only, assuming 15 years of RECs are available for each MW of wind capacity constructed.

⁵ Assuming a cost of \$3 million for each MW of installed wind capacity.

⁶ Based on European experience of 15.1 jobs created for every MW of wind energy installed, but discounted to 11 jobs/MW to remove jobs associated with turbine manufacture (“Wind Energy at Work: Wind Energy and Job Creation in the EU” European Wind Energy Association, January 2009)

rather than a tariff which would add to the cost of scheme delivery. It is, however, important to the success of the scheme to ensure that the scheme is complied with and the maximum amount of renewable energy is generated.

It is therefore irrelevant to the cost of the scheme whether the penalty is set at a price marginally higher than the REC price or at a significantly higher price. In this regard we would highlight the approach taken to managing price caps in the National Electricity Market (NEM) whereby a very high price cap (currently \$10,000/MWh) is set to protect retailers and consumers in times when demand significantly outstrips supply, and to send a clear price signal to new entrants of "peaking" generation plant. This price cap is not used to calculate the likely cost of energy traded in the market as the normal supply and demand forces set prices. It is difficult to fully understand the implications of the penalty charge on industry development in light of the other design mechanisms in this RET scheme when the dollar value of the penalty has not yet been released. However, **as the price of any penalty has no effect on scheme delivery cost, but is an important compliance mechanism, the penalty should be set at a price that ensures the market clears on a supply-demand basis rather than the penalty being paid, that maximises investor confidence and that ensures annual targets are met.**

This differs from the intention put forward in the exposure draft commentary to set an unindexed shortfall charge at a level marginally above the projected peak REC price. In such economically uncertain times, attempting to estimate the future costs of raw materials, equipment costs and exchange rates – all key inputs into any infrastructure project – is a futile exercise. Furthermore, other compliance mechanisms exist which are worthy of consideration in ensuring maximum industry development. Under the existing market-based measures in Australia (MRET and the Victorian Renewable Energy Target (VRET)), if the shortfall charge is invoked it is a simple penalty which is redeemable as a "loan" if RECs are surrendered to cover it in later years. The penalty is otherwise surrendered in lieu of RECs. While neither penalty has ever been paid, in principle this system is incongruent with the aim of maximising industry development. However in the UK, companies that fail to meet their obligations under the Renewables Obligation scheme are required to pay the penalty price for each unit of energy they are in deficit, but also surrender the requisite number of certificates to cover the shortfall in following years. In this way the non-complying entity is truly penalised for non-compliance, and the industry remains supported to that amount by the scheme.

Multiplier for Small Generation Units

The REC multiplier, which awards multiple RECs to small scale generators for every MWh of electricity generated, introduces a range of complexities to the RET design which will have material implications for the scheme's industry development potential.

Most importantly, the multiplier erodes the integrity of the relationship underpinning the scheme that one REC is equivalent to one MWh of generated electricity. In the early years of the multiplier, when each MWh generated from a small generation unit is awarded five RECs, this means that for every one MWh of electricity generated, four "phantom RECs" are issued which do not require the commensurate amount of electricity generation (Figure 3).

While the REC multiplier will not constrain the generation of the required number of RECs to meet the target in any one year, it is important to note that the Government’s target is not expressed in RECs but in electricity generation. Through introducing design elements which lead to the creation of phantom RECs and not electricity generation, the legislation will prevent the industry from generating what is actually required to meet the generation targets.

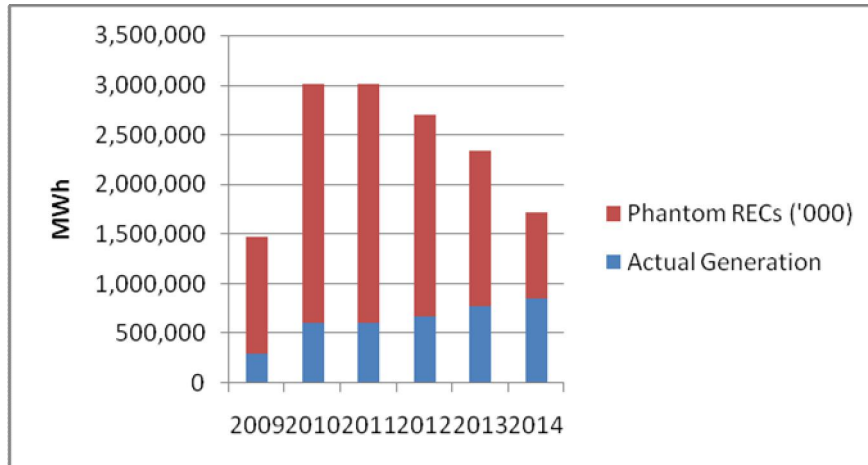


Figure 3: Relationship of forecast actual generation from small generation units (<1.5kW) to consumption of RECs from the scheme as a result of the multiplier for small generation units (Generation forecast from Intelligent Energy Systems)

Distorting the relationship between RECs and MWhs also introduces complexity into the market which will create uncertainty. This is particularly so in relation to GreenPower, another significant industry development mechanism. GreenPower obligations are met through the purchase of RECs from the market, relying on the standard 1:1 relationship between RECs and MWhs. If one REC no longer has the value of one MWh, it is unclear how GreenPower obligations will be measured and relinquished and the effect that this will have on delivery of the RET scheme. This important point has not been addressed in the exposure legislation.

It is important that, if the “least cost” objective of the scheme is to be achieved, the multiplier approach put forward in the draft legislation does not set a precedent for specific technology “banding” as it would add to compliance costs and create investor uncertainty.

If the multiplier for small generation units is to be pursued through the RET legislation, the scheme needs to be augmented with additional generation and RECs to the value of those removed from the system as phantom RECs.

This will maintain the integrity of the 20% renewable energy target and ensure that it is met by actual generation.

Scheme Review

The purpose of the scheme review, scheduled to be undertaken in 2015, must be to ensure that the legislation is succeeding in meeting the policy target of 20% renewable energy by 2020 and that the industry is developing in a substantive and sustainable manner. We believe that in achieving this purpose it is important to learn from the industry's experience of the MRET review, undertaken by John Tambling in 2003.

The Tambling Review was required in 2003 under the *Renewable Energy Electricity Act 2000*. Despite the predictability of the Review timing, the Review inadvertently caused a significant downturn of the industry leading to depressed investment in new generation capacity in the 12 months of the Review. This was caused by industry uncertainty from the lack of transparency around the Review's terms of reference, which were not made available to the industry prior to the Review. As the future longevity, size and mechanisms of the scheme were unclear, the industry could not make investment decisions until the outcomes of the Review were known.

The scheme review details proposed in the RET exposure legislation are very likely to lead to a similar industry downturn in 2015. In order to prevent this, **the Federal Government should include the terms of reference for the scheme review within the legislation.**

These terms of reference should focus on ensuring that the target is being met and that support will not be removed prior to a fully functioning, uncapped, supply-demand driven market is operating under the CPRS to support renewable energy development. They should also guarantee that the target will not be revised downward as a result of the review. This would give the industry confidence in the future of the scheme and allow efficient investment to continue while the review is underway.

This approach has been undertaken in the *Victorian Renewable Energy Act 2006*, which sets out that the review will have regard to the extent to which the targets have been achieved and the required GWh of electricity required to meet the target.

If amendments to the scheme, and specifically to the phase-out trajectory, are not undertaken as described previously, the scheme review will become crucial to the success of the scheme. We believe it will be necessary to undertake similar changes as an outcome of the review rather than undertake them now, however leaving amendments to 2015 risks a significant downturn, or movement offshore, of the industry as a result of the lack of investment certainty. If these amendments are not undertaken prior to scheme commencement, we believe it would be prudent to include a clause in the legislation allowing the review to be undertaken earlier than 2015 if the industry shows signs of stalling.

Other Issues to be addressed

Victorian Renewable Energy Target

The Federal RET scheme will supersede all existing national and state renewable energy targets. Victoria remains the only state which has implemented a renewable energy development scheme. The VRET was legislated in 2006 and commenced on 1 January 2007. However it has not been outlined in the RET exposure legislation or the accompanying regulations how the incorporation of VRET into the national target will occur.

Although VRET and MRET have a shared objective, there are differences in their legislation and regulations that result in material differences in their application. These are caused by different approaches to the measurement of the renewable energy generated from accredited power stations. VRET measures energy generated from the generator terminal, which is more aligned with the principles of energy measurement incorporated in the National Electricity Market. However the existing MRET measures the energy generated from the connection point to the distribution or transmission network. Losses incurred between the generator and the connection point is therefore not counted toward total REC creation. We believe that the VRET scheme has been developed based on experience gained from the MRET scheme.

The RET exposure regulations maintain the measurement methodology which was included in the existing MRET regulations. Projects which were constructed under VRET are therefore disadvantaged under the RET as the losses between generator terminals and the connection point will be deducted from energy generation levels which were built into the original investment case.

Pacific Hydro considers the transition of VRET regulations as an area of sovereign risk for the company should the appropriate regulatory changes not be made at a Federal level. Pacific Hydro has constructed two wind farms under the VRET legislation. These wind farms, at Cape Bridgewater and Cape Nelson South (both close to the town of Portland in Victoria), total 102 MW of generation and were built at a capital cost of \$300 million. Central to the financial viability of these two wind farms is the additional \$10 million in revenue gained under the connection point and energy measurement provisions of the VRET regulations. Should these provisions not be adopted in the RET, or at a minimum be appropriately grandfathered, Pacific Hydro would suffer a material financial loss.

There are three options for addressing this issue within the RET scheme which do not compromise the Victorian legislation.

1. Maintain the VRET regulations in Victoria while rolling out the proposed RET regulations in other states. This would minimise the risk of a legislative breach in Victoria and financial detriment to projects built under the VRET scheme. It would however be administratively burdensome and potentially give Victoria an unfair advantage under the federal legislation.
2. Include the VRET regulations within the RET scheme. This would minimise the risk of legislative breaches in Victoria, create equal conditions between jurisdictions and maximise industry development potential.
3. Financially compensate projects built under VRET that become disadvantaged under RET.

Pacific Hydro has provided a detailed submission to the RET exposure regulations expanding on these points. However it is vital for industry certainty that the mechanism for incorporating VRET into the expanded federal RET is announced prior to introducing the legislation to Parliament in 2009.

Transmission Infrastructure

The ability of the renewable energy industry to deliver generation capacity to meet the 20% target by 2020 will be contingent on access to transmission infrastructure. It will also be significantly affected by the ability of existing network infrastructure to carry increased generation loads from distributed sites (which are suited to renewable energy generation) to the load centres in highly populated areas.

This limitation has been created by serious underinvestment in new transmission capacity over recent years, and has been identified as a risk to the delivery of new generation capacity in several recent government reports. The first interim report of the Australian Energy Market Commission *Review of Energy Market Frameworks in light of Climate Change Policies*, released in December 2008, identified a lack of transmission infrastructure as a significant barrier to the energy market's ability to achieve the 20% RET target. In addition, the Infrastructure Australia report to COAG on Australia's infrastructure priorities, also released in December 2008, identified upgraded and expanded transmission infrastructure as a key national investment priority. This was particularly the case in South Australia, which will become a significant exporter of energy in the future due to its high quality renewable energy and gas resources, but has an under-developed transmission network and congested interconnection to other National Electricity Market (NEM) jurisdictions.

RET-Affected Trade-Exposed Industries

The COAG discussion paper on the treatment of RET-Affected Trade-Exposed (RATE) industries singles out these industries, which are energy intensive, for assistance under the scheme. RATE industries as defined in the discussion paper are a significant consumer of electricity in Australia. Excluding them from the scheme therefore has the potential to create uncertainty around the size of the renewable energy market and whether a 20% target is measured as a percentage of all electricity consumption or only electricity consumed by Liable Parties while increasing the cost for the remaining electricity users in the NEM.

Provided the integrity of the 45,000 GWh target is maintained, and is not revised downwards in future years as a result of the exclusion of some industries, Pacific Hydro considers that the treatment of RATE industries is immaterial to industry development.

However, if RATE industries are included but compensated under the scheme, we believe that the Government purchase of RECs to cover the liability of RATE industries is most consistent with the industry development objective of the RET scheme.

Recommended Amendments to Legislation

1. **Maintain the 45,000 GWh target from 2020 to 2030**

Modelling undertaken by the Clean Energy Council indicates that this is the only design option which will deliver 45,000 GWh of renewable energy generation in 2020, thereby stimulating sustainable industry development. This simple action will come at no extra cost to the Government but stimulate up to an extra 2,200 MW of projects under the scheme, equating to over \$6 billion in investments and creating approximately 24,000 jobs.

2. **Replace phantom RECs under the multiplier with commensurate RECs to meet the target**

The small generation multiplier destroys the relationship between energy generated and RECs created, creating market distortions which prevent the 2020 target from being achieved. This can be undone by augmenting the scheme with RECs available to all market participants to the value of the phantom RECs removed by the small generation multiplier.

3. **Set a high shortfall charge that ensures annual targets are met based on normal market forces**

The shortfall charge is not a capital cost of the scheme and is only included to ensure the target is met by the market clearing based on normal market forces of supply- and demand. As the price of any penalty has no effect on scheme delivery cost, but an important effect on industry development, the penalty should be set at a high price in order to ensure compliance and the policy objectives are achieved.

4. **Include the Terms of Reference for the scheme review in the legislation**

In order to avoid an inadvertent downturn in industry development as a result of the scheme review, as was seen in the 2003 Tambling Review, the Terms of Reference for the scheme review should be included in the RET legislation. These Terms of Reference should be modelled on the VRET legislation which permits only positive changes to the target and should leave open the possibility of extending the target to ensure a sufficient price to support renewable energy is being delivered by the CPRS.

5. **Adopt VRET regulations under the RET scheme**

The mechanism for incorporating the VRET scheme into the RET legislation must be made transparent and address the regulatory differences of the two schemes. The VRET regulations should be adopted across all jurisdictions as they provide a more accurate measurement of renewable energy generated, thereby making more RECs available to project developers.

6. **Compensate RATE industries with Government purchased RECs**

If RATE industries are included but compensated under the scheme, Government purchase of RECs to compensate the eligible industries is most consistent with the industry development objective of the RET scheme.