

DRIVING INVESTMENT IN RENEWABLE ENERGY IN VICTORIA

Options for a Victorian market-based measure

Submission by Origin Energy in response to the Issues Paper released by Department of Infrastructure and Department of Sustainability and Environment, December 2005

1 February 2006

Executive Summary

There is widespread recognition that a comprehensive policy framework is essential if Australia is to see the changes in energy supply and demand that will enable long term deep cuts in greenhouse gas (GHG) emissions. Origin Energy commends the Victorian Government for its clear commitment and willingness to initiate and participate in the policy debate and processes essential to achieving deep cuts in the long term.

Origin, also an active participant in the policy debate, makes a direct contribution to cutting GHG emissions in several ways, including being the largest retailer of Green Power; purchasing Green Power for our own electricity needs; being the largest underwriter of wind farm investments in Victoria; being an investor in renewable energy technology such as solar and geothermal; having a portfolio of generation assets strongly weighted toward lower emission intensity technologies, such as gas and hydro; and seeking to develop lower emission gas-fired generation plants in Victoria and Queensland.

Origin is strongly supportive of policy instruments that provide the framework for energy consumers and suppliers to respond to the challenge of climate change. In our view, a comprehensive policy framework for achieving deep cuts in GHG emissions consists of the following components:

- a long term target for Australia's GHG emissions that delivers deep cuts, supported by milestones to support a trajectory towards that target;
- a statement from all COAG jurisdictions that no indemnity against future carbon exposure will be provided to any new generation or energy intensive facility built in Australia;
- the introduction of a national emissions trading scheme (NETS) to drive least cost GHG emissions abatement, including appropriate mechanisms to address industry adjustment and trade-exposed sector issues;
- a statement of principles for the transition arrangements from existing jurisdiction-based greenhouse gas schemes to a NETS to minimise sovereign risk issues; and
- support for research and development and the deployment of zero and low emissions technologies including, in the case of renewable energy technologies, the full set of Tambling MRET Review recommendations.

In Origin's view, the implementation of a Victorian-specific renewable energy scheme is inconsistent with such a comprehensive policy framework, primarily due to its narrow technology and geographic boundaries and a relatively short-term focus. Furthermore, it fails, for the most part, to deliver on the Victorian Government's stated policy objectives. Specifically, it:

- will not deliver cost-effective GHG abatement, being up to four times the cost of that delivered by other approaches;
- is unlikely to generate investment in greater diversity of renewable energy beyond wind power, due to the relatively short-term target;
- is likely to delay investment in more economically and environmentally efficient (in cost of abatement terms) gas-fired generation in Victoria; and

- will expose Victoria to a shortfall in secure generation capacity by introducing a less reliable supply.

The Victorian Government (and other jurisdictions) can achieve their climate change and renewable energy policy objectives more efficiently and effectively by vigorously pursuing a joint-jurisdictional process, in the absence of a national approach led by the Federal Government. The aim of a joint-jurisdictional process should be to create the intended effects of NETS and the Tambling MRET Review recommendations.

Origin realises that the Government may choose to implement its proposal despite the concerns raised in this submission. In this event, design features broadly consistent with the Federal MRET (and Tambling recommendations where possible) are strongly recommended to minimise the cost of the scheme.

In addition it is critical, should such a scheme be implemented, that unintended consequences be addressed. A policy to avoid tilting the playing field against prospective gas generation investments should be considered, and Origin would be very keen to participate in the design of such a policy.

The following submission elaborates on Origin's position and concerns.

1. Introduction

Origin has a heritage of over 140 years of operation in Australia and is one of Australia's leading providers of energy and energy related products and services, with significant positions in exploration and production, power generation, retail and trading, as well as investments in and management of distribution networks. In October 2004, Origin completed the acquisition of a controlling interest in Contact Energy, one of New Zealand's largest companies.

Combined, Origin and Contact have 3600 employees, supplying natural gas, LPG and electricity to over 2.7 million customers throughout Australia, New Zealand and the near Pacific. In 2004/5, Origin supplied 15.7 TWh of electricity, 117 PJ of natural gas and 506 kt LPG to Australian customers. Origin is also one of the largest wholesalers in the National Electricity Market (NEM) and has interests in 883 MW of power generation in Australia.

Origin purchases electricity from renewable sources to meet our obligations under the Renewable Energy (Electricity) Act 2000 and, in addition, to cover our sales of GreenEarth electricity retail products. Origin Energy offers some of the leading Green Power products in Australia¹ and had signed 62,500 customers to Green Power at June 2005. Origin has 91 MW of Victorian wind capacity under contract (Codrington, Toora and Chalicum Hills) representing the bulk of currently installed wind capacity in Victoria.

In upstream activities, Origin holds significant exploration and production interests. Origin produced 83PJ of gas and liquids in 2004/05 and had 2P reserves totalling 2,220 PJ as at 30 June 2005. The company's strategy to locate and commercialise gas close to market led to the discovery of the large Thylacine and Geographe gas fields in the offshore Otway Basin in 2001. In May 2004 the Otway Gas Project joint venture announced that it would proceed with the development of these fields which will supply 60PJ of gas, more than 100,000 tonnes of LPG and 800,000 barrels of condensate per annum once commissioned in 2006.

Production from the Yolla field, located 147 km off the Victorian coast, is expected to commence in 2006. Origin has developed the infrastructure to deliver 20 PJ of gas and more than one million barrels of liquids per annum from Yolla. Origin has contracted with its partners to take all of the gas produced from the field to supply our retail gas portfolio.

Origin also has a number of development projects in Australia. We are currently seeking development approvals for high efficiency gas-fired power stations up to 1000 MW each at Spring Gully (80 km north of Roma in central Queensland) and at Mortlake in western Victoria. We are also investing in renewable energy generation including SLIVER solar cell technology and have a 17.81% interest in Geodynamics Limited which is developing perhaps the world's largest hot rock geothermal resource in South Australia's Cooper Basin.

Origin believes energy producers and consumers must acknowledge that we are now operating in an environment increasingly constrained in its ability to absorb greenhouse gases without unacceptable environmental impacts. In response to this, Origin has established a comprehensive list of strategies and actions and publicly reported them in

¹ GreenEarth Wind and GreenEarth Solar ranked in the top category of 100% new renewable products available in the Australian market <http://www.electricitywatch.org/>

our Sustainability Reports². They include improving the company’s greenhouse gas measurement, seeking economic avenues for reducing greenhouse gas emissions, further investment in renewable energy, reducing fugitive emissions from the business and providing clean energy choices to our customers.

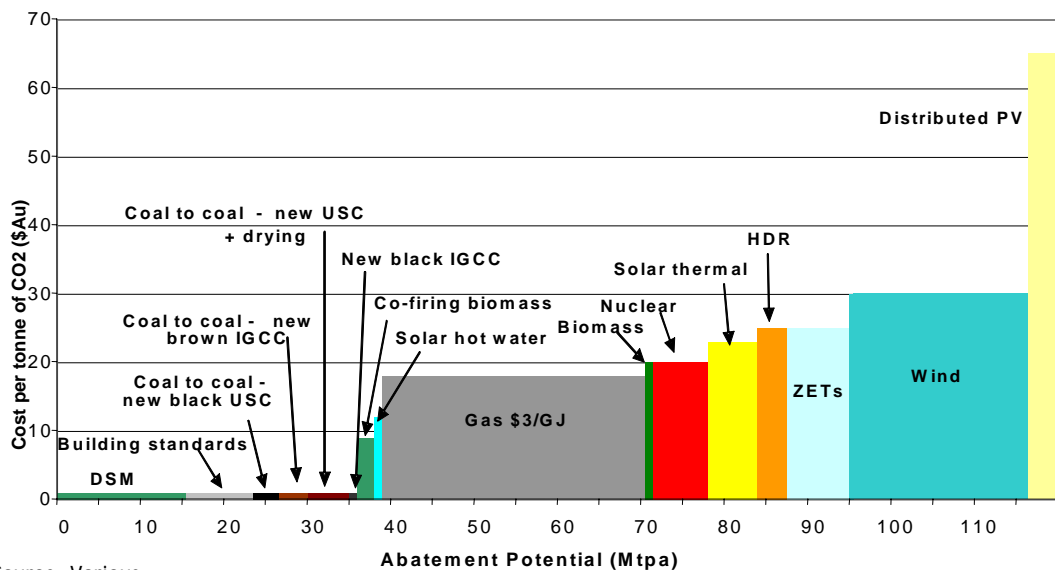
Over the last 3 years, Origin has published our supply chain GHG emissions and in the last 2 years we have also reported our company GHG inventory. In the 2004 Sustainability Report, we reported supply chain emissions of 31.5 Mt CO₂e, which represents 12% of Australia’s stationary energy emissions and a GHG inventory on an equity-accounted basis of 2.65 Mt CO₂e.

Given our experience in energy and environmental commodity trading, and our exposure to a wide range of greenhouse policies and measures, we are pleased to respond to the Victorian Government’s Issues Paper and look forward to continuing dialogue on a range of climate change policies.

2. The role of renewable energy generation

In Origin’s view, the centrepiece of an appropriate policy response to climate change is a national emissions trading scheme (NETS) designed to support the achievement of a GHG emissions target. This is vital to providing the necessary policy certainty for investors in the energy supply sector to incorporate the impact of greenhouse gas (GHG) emissions into their investment decision-making process with confidence. Such a carbon signal would be applicable to, and advantage, all technology choices including clean coal and renewable energy according to their carbon intensity.

The efficiency of a NETS stems from the ability of a market mechanism to drive least cost abatement, starting with the lowest cost abatement opportunities across the economy. The figure below is an indicative abatement curve for Australia. The carbon signal created by a NETS drives investment in (and deployment of) abatement opportunities as they become the marginal (least cost) option.



Source: Various

² <http://www.originenergy.com.au/about/about.php?pageid=800>

Achieving deep cuts in GHG will almost certainly require the full range of abatement options and Origin considers having a competitive renewable energy sector in Australia important for this reason. Most assessments of relative technology costs suggest that a NETS is unlikely to deliver significant new investment in renewable energy until the carbon price is in the order of \$20-25/tCO₂e or higher. In Origin's view, policy measures designed specifically to foster more rapid innovation and development in the renewable energy sector are warranted, provided they lead to efficient, effective outcomes. To be efficient the support provided by such measures should be temporary, with the aim of fostering a sector that ultimately can compete on its underlying economics (with an appropriate carbon signal in the future).

Origin supports the Federal Mandatory Renewable Energy Target (MRET) as an efficient, effective policy measure in this regard (which has 'industry development' and 'GHG abatement' as its stated policy objectives). The measure enables renewable energy investors/suppliers to enter and operate in the energy market (or to expand the output of existing operations) where they could not do so on current market fundamentals alone. As investors/suppliers gain familiarity and experience with renewable generation processes, they are likely to discover ways to bring down costs.³ Scale effects are a related and important source of a declining cost structure made possible by the measure. Importantly, these factors are expected to act together so that, beyond the life of the measure, the sector is able to compete on the basis of its 'carbon-adjusted' cost structure.

The measure is economically desirable in the way it stimulates innovation and development because it results in an efficient allocation of resources within the renewable sector. It does this by enabling the market to determine which renewable technologies are least cost and to invest in and deploy accordingly. This internal efficiency is based on 4 fundamental design attributes of the MRET:

1. *a trading framework rewards the most cost effective investor/supplier* - a system of tradeable certificates is dynamically responsive to innovation in technology and conducive to cost competition among technology options;
2. *neutrality with regard to technology type* - unbiased treatment of all potential technology options on the basis of cost, lowers the total cost impost of the scheme on consumers and the economy more broadly;
3. *broad-based geographic coverage of renewable generation sources* - inclusion of all sources of renewable generation in all jurisdictions, lowers the total cost impost of the scheme on consumers and the economy more broadly;
4. *national policy coordination and efficient administration of the scheme* - minimises regulatory uncertainty, especially in a national energy market, and lowers transaction and compliance related scheme costs; and

In Origin's view, implementation of the package of recommendations from the Tambling MRET Review would further improve the performance of the scheme against its policy objectives. Independent⁴ and internal Origin modelling of the impact of Tambling package of recommendations indicated that extension of the scheme's targets beyond 2010 would provide a more balanced, sustainable development path and lead to a more

³ See Goulder, L., "Induced Technological Change and Climate Policy" (2004)

⁴ McLennan Magasanik Associates

diverse and lower cost renewable energy portfolio in the longer term. In particular, there would be greater opportunity for emerging technologies, for example geothermal (hot dry rocks) and the next generation of solar technologies.

A state-specific renewable energy scheme will lead to a higher cost and less diverse renewable energy sector.

3. Policy implications of a Victorian scheme

Origin has consistently expressed a strong preference for national approaches to energy market policy issues, coordinated via the CoAG/MCE structure. However, we acknowledge that joint-jurisdictional approaches may be warranted where a single national approach is not possible. The current work of the Inter-jurisdictional Working Group on Emissions Trading is one such example, where Origin considers there to be net benefits available from joint-jurisdictional policy action beyond what the Federal Government is prepared to take at this time. Origin notes a strong alignment of views with the Victorian Government's Greenhouse Challenge for Energy Position Paper (December 2004) in this regard.

Furthermore, in response to the Federal Government's decision to maintain the MRET as currently legislated, the Victorian Government committed in November 2005 to investigate options for a market-based scheme to run in parallel with the MRET. We had therefore anticipated that the Victorian Government would pursue its own policy objectives for renewable energy, and wind power in particular, through such a joint-jurisdictional approach.

Origin is therefore somewhat surprised and concerned by the proposal canvassed in this Issues Paper. Furthermore, whilst certainly reflecting the Government's clear commitment to the Victorian renewable energy sector, the proposal is unlikely to fully support the Government's own policy aims:

"The aim of the Victorian Scheme is to ... :

- deliver cost-effective greenhouse gas abatement in the long term, protecting Victoria against future carbon constraints;
- drive regional investment and employment; and
- contribute to the diversity and security of Victoria's energy supplies." (p.2)

Cost-effective greenhouse gas abatement

GHG abatement is most likely to be cost-effective when it is achieved through the adoption of the widest possible range of actions acting on both the demand and supply sides of the energy chain. These would include, but not be limited to, energy efficiency, mandated building and appliance standards, and both low and zero emission technologies based on fossil fuels and renewable alternatives. Measures that operate like an *ad hoc* subsidy to a particular sector rather than a comprehensive development program designed to achieve sustainable improvement in competitiveness (after the support is withdrawn) will be less cost effective.

Regional investment and employment

Narrowly based, poorly targeted measures are unlikely to create net positive investment and employment effects. Labour and capital resources will be attracted away from higher yielding activities/industries in Victoria or elsewhere across the economy, to the renewable sector in Victoria. But for as long as the subsidy continues to be required, the loss in economic value associated with the transfer of these resources from high yielding industries/activities, will continue.

Specifically, Victoria's regional economy is unlikely to experience the net desired expansion by the proposal. This is because other prospective (non-renewable) projects such as gas-fired generation also tend to be regionally-based and will potentially be displaced or diminished by a boost to renewable generation. In the case of wind, investments are heavily weighted toward initial cost of construction with relatively low ongoing economic activity. In this context, it is inappropriate to assess economic gains in employment and investment in the renewable energy sector without considering reductions in other sectors as a result.

Diversity and security of energy supplies

A greater degree of renewable generation is likely to contribute to diversity in Victoria's energy power supplies, particularly if emerging sources of renewable generation are stimulated. However, if the majority of additional renewable generation is from highly intermittent sources, such as wind, then the effect on the security of Victoria's energy power supplies will almost certainly be negative. ESIPC in South Australia has estimated that 8 per cent of wind capacity can be considered firm⁵. This is more of a concern if more stable prospective generation projects are displaced or diminished as a result. South Australia also provides an illustration of this factor through the negative impact on the Pelican Point gas-fired generation plant caused by the growth in the wind power sector in that state.

A national (joint-jurisdictional) approach to creating a carbon signal using NETS and complimentary renewable energy policy measures such as an enhanced MRET will advance Victoria (and other jurisdictions) toward achieving their policy objectives comprehensively. While a State-based approach may serve to expand the renewable sector in Victoria in the short term, it will not deliver effectively against the Government's stated policy objectives.

4. Efficiency implications of a Victorian scheme

The Issues Paper states that market forces are the best means to determine how and where renewable energy technologies are developed, a position that Origin supports. It also states that a market-based approach is consistent with the approach adopted by the MRET. While the proposal is for a market-based mechanism similar in fundamental design to the MRET, its near-term targets and State-specific coverage are highly inefficient and actually distort market outcomes. Distorted market outcomes arise for the following reasons.

⁵ ESIPC (2005) *Planning Council Wind Report to ESCoSA*, p. 55.

Unlevel playing field

Although a neutral approach to technologies is likely to ensure allocative efficiency within a renewable sector within a particular jurisdiction, the exclusion of renewable projects outside that jurisdiction distorts rather than improves the performance of the renewable generation sector overall.

The imposition of a different (more onerous) target in one jurisdiction effectively sacrifices the allocative efficiency of a market-based approach. Potentially, higher cost projects in one jurisdiction will get dispatched ahead of lower cost alternatives in other jurisdictions. The problem is exacerbated by the fact that natural endowments, integral to the determination of scale and cost structures of different renewable technologies, are not evenly distributed across jurisdictions.

Misallocation across jurisdictions and technologies is almost certainly going to occur, unless Victoria's entire stock of renewable projects happened to be at the lower end of the national renewable cost curve. For example, investment capital may be diverted from a more cost effective wind project in South Australia to one in Victoria, or investment capital may be diverted away from a more cost effective solar project in Queensland to a wind project in Victoria.

Greenhouse and related policy measures that tilt the playing field are likely to drive a pattern of innovation and development that ultimately hinders the competitiveness of a sector in the long term. This is clearly contrary to the objective of sound renewable sector policy.

Additional compliance costs

Although adoption of a Victorian scheme that is consistent with the existing MRET may reduce its administrative complexity and compliance costs, energy market participants will bear additional compliance costs as a result.

Energy market participants liable under current schemes are currently required to divert resources to compliance and reporting activities, employment of trading personnel and systems to be able to comply with multiple schemes. The number of separate schemes operating in the energy markets adds directly to these costs. Such costs are a particular issue for energy market participants operating in more than one jurisdiction. Moreover, such costs are a potential impediment to new entrants, particularly smaller players, discouraged from entering multiple jurisdictions because of compliance requirements.

Greenhouse and related policy measures that increase compliance costs add to the cost of energy, either explicitly or via inhibiting new entrant competition in some cases.

Inappropriate balance between existing and emerging technologies

While imposing a relatively onerous renewable energy target in Victoria may serve to expand renewable generation in Victoria *per se*, a development pathway that is inappropriately balanced between available and emerging technologies is not an efficient and effective way to grow a competitive renewable generation sector for the long term. In Origin's view, the Victorian Government's specific policy commitment to renewable energy, and wind energy in particular, is likely to lead down an inappropriate development pathway:

The impact of a target(s) that is too onerous, in terms of its magnitude and/or timing, manifests in two ways:

- due to supply constraints such as project development congestion, community resistance or commercial readiness of a number of emerging technologies, expansion of the sector simply does not occur for an initial period, over which liable parties are forced to incur the penalty imposed by scheme; and
- expansion of the sector does commence in the initial period and is made up of currently available renewable technologies which are likely to have less scope for further innovation and development, than emerging technologies.

While wind generation is likely to expand under the proposed scheme, emerging renewable technologies such as geothermal (hot dry rocks), next generation PV and wave energy would virtually be excluded in any practical sense. The international competitiveness of the renewable generation sector in Australia, 10 or 20 years from now, is determined by the degree to which local market adoption 'keeps pace' with renewable technologies emerging internationally.

As a result of these distortions, the direct benefit to the Victoria renewable energy sector arising from the proposal will be substantially outweighed by associated inefficiencies.

5. Impact of wind generation on the wider energy market

While wind energy represents a steadily growing component of renewable generation in Australia, and therefore a valid part of the sector's capacity to abate GHG, its cost impact outside on the broader energy market needs to be considered.

Unreliable capacity requires additional generation support

Additional wind capacity will require two forms of generation support because of the intermittent nature of the underlying energy source:

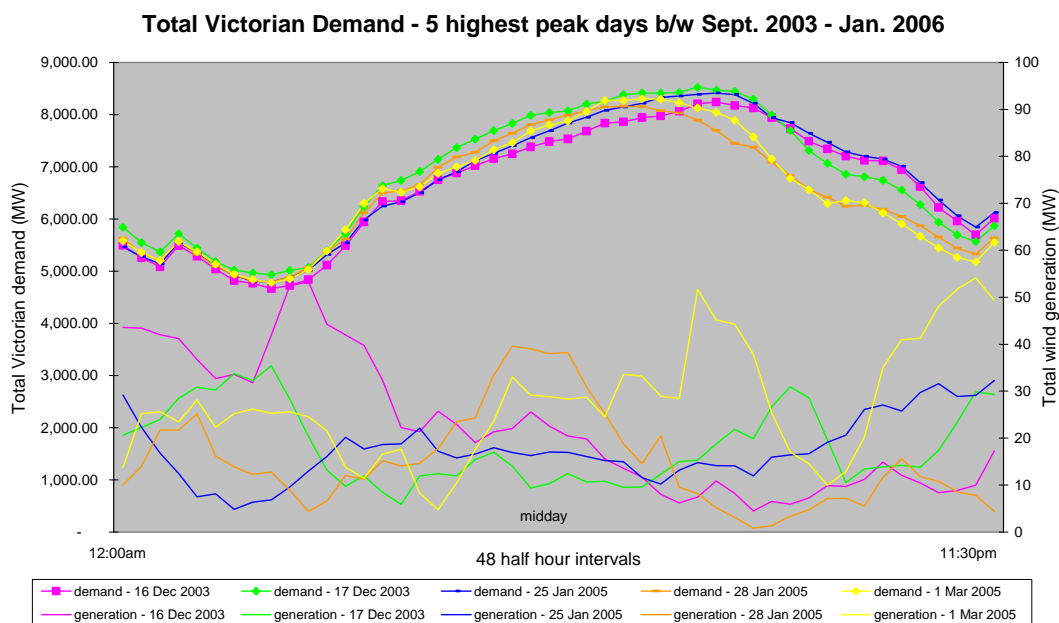
- *variability outside 5 minute dispatch intervals* - gas turbine generation, which can take between 15 and 30 minutes to reach maximum output, is either required to run to adjust for wind generation variability or to stand idle as back up support⁶; and
- *variability inside 5 minute dispatch intervals* - ancillary services generation is required, sometimes at significant extra cost, to cater for wind generation variability.

The costs of both forms of generation support are ultimately borne by energy consumers. Moreover, these costs are magnified as greater amounts of wind generation are connected to the system and more generation support is required.⁷ This is compounded by inter-connector constraints from time to time as more generation support is required from other regions in the NEM.

⁶ If the NEM is short of generation capacity to cover this variability, NEMMCO must contract additional reserves from outside the market, adding to the cost for market participants.

⁷ It is realised that in countries where a substantial proportion of their energy supply mix is wind generation (such as Denmark and Germany) the effects of intermittency can be minimised as the number and spread of wind-farms increases. Australia's wind industry is not of a comparable diversity and magnitude, nor is the interconnectedness of the NEM as advanced as it is in Europe.

The chart below plots total half hourly Victorian demand (on the 5 highest peak load days between September 2003 and January 2006) against the total wind production for Victorian wind generation per half hour. Significant generation support was required to account for variable wind generation output during peak periods on these 5 days.



Source: Origin Energy 2006

Victorian electricity spot market volatility increases

The intermittent nature of wind generation translates into higher electricity spot price volatility. Modelling of the impact of 1000 MW of wind generation on the South Australian electricity market indicates that 1 per cent of the time 250 MW of supply could be lost within the half hour and 390MW within the hour which, in Origin's view, would significantly increase electricity spot price volatility.⁸ Preliminary modelling by Origin indicates that Victorian electricity spot prices could increase by between \$2 and \$5/MWh (average flat price impact) as a result of a similar level of variability occurring in Victoria. The cost of additional financial risk associated with greater electricity spot price volatility will ultimately be borne by energy consumers.

Distorts the economics of potentially more efficient base-load generation

The characteristics of wind generation limit its use as base-load generation. Its intermittent nature and associated costs of support render it uneconomic as base-load supply. Origin modelling indicates forecast demand of 10100 MW (50 per cent PoE) by 2010 in Victoria. While wind generation is probably not being contemplated as a potential source of base-load generation, its introduction, as a direct result of Victorian Government policy, warrants careful consideration in terms of its potential impact on prospective base-load investments (which accounts for around 90 per cent of forecast capacity demand, even if 1000 MW of wind generation be installed).

⁸ ESIPC (2005) *Planning Council Wind Report to ESCoSA*. These results are indicative only as this modelling was based on a small sample of wind generators in South Australia.

Community concerns associate with wind generation installation

Wind generation has attracted significant and mixed attention from communities affected by wind turbine installations. Visual amenity is an issue that wind generation is more likely to attract than other generation investments (although community approval is an important part of all generation investments).

Wind generation brings with it a range of additional costs that make it less efficient overall, despite its zero emission intensity of carbon, than other generation options.

6. Implications for gas-fired generation

The Victorian average level of GHG emissions per MWh of electricity is almost 1.3tCO₂e. Conventional brown coal generation is at the relatively high end of the spectrum (1.2 to 1.6tCO₂e) and combined cycle gas-turbine (CCGT) generation is at the relatively low end of the spectrum (0.4tCO₂e).

Non-renewable generation investment is clearly required to meet projected demand growth in Victoria regardless of the introduction of additional wind generation. While the fuel costs of brown coal generation make its economics strong, the capital costs of brown coal generation are increasing. Improvements in gas-fired generation efficiency and the substantially lower GHG footprint of gas-fired generation make it an attractive alternative for investors. Arguably, the strong expectation of a carbon charge being introduced into Australia's electricity supply sector at some point over the life of large generation assets, puts gas-fired generation marginally in front as the next investment in generation supply with base-load characteristics in Victoria.

Victoria has significant gas resources and it is expected that new production activities will supply an increasing proportion of output to gas-fired generation over the next decade. Within Australia there is a competitive gas supply market and with future demand growth, more incentive for domestic exploration and production. The capacity of the gas supply sector to respond to these market developments in a dynamic fashion has been well-documented in recent years, countering concerns raised from time to time by more static forecasts of gas demand and supply such as that recently published by ABARE. Origin strongly supports this positive view based on rigorous market analysis, and has shared this assessment with various arms of the Victorian Government. We would be happy to elaborate further if such gas supply concerns remain.

Government policy that directly induces renewable generation investment will potentially alter the economics of prospective gas-fired generation investments by virtue of the impact that wind generation has on the wholesale price. At best, such a policy is likely to delay investment in prospective gas-fired generation and at worst, limit the size of generation installed (or possibly displace it all together). Such an outcome would be economically and environmentally costly to Victoria for several reasons:

- *the economic cost of gas-fired generation is lower than wind generation* - the combined capital and running costs of a gas-fired power station are approximately half that of a wind turbine (adjusted for the intermittency of wind and including higher running costs of running a gas-fired power station)⁹;

⁹ Assumes capital availability of 95 per cent for a gas-fired power station and 33 per cent for a wind turbine.

- *gas-fired generation is a more cost-effective source of greenhouse gas abatement than wind generation¹⁰* - at approximately half the economic cost, a gas-fired power station reduces emissions up to twice as much as a wind turbine, because of the better utilisation of the gas-fired power station and the relatively low emission intensity of gas-fired electricity (which makes gas at least 4 times more cost-effective on a \$/tCO₂ basis than wind)¹¹;
- *gas-fired generation is more reliable than wind generation which is reliant on the vagaries of nature* - gas-fired generation can be turned off and on to meet demand requirements while wind generation is regarded as firm for about only 8 per cent of the time (according to ESIPC in South Australia)¹²;
- *gas-fired generation can provide much larger increments to generation capacity to satisfy growing demand*- a large scale gas-fired power station may be up to 1000MW which is all available to generate on average 95 per cent of the time compared to a 1000MW of wind generation which is available to generate on average 33 per cent of the time; and
- *diversity and security of supply are improved by gas-fired generation and diminished by wind generation* - gas-fired power stations stimulate gas supply sources (potentially expanding the range of viable gas production in regional Victoria available for other uses) and connect to the transmission system (potentially in more remote areas) without lowering supply security (as would be the case with wind).

Gas-fired generation has significant economic and environmental advantages over wind generation making it the most efficient option for new capacity in Victoria. The Victorian Government's stated policy objectives would be better served by investment in gas-fired generation than investment in any other generation technology. The introduction of wind generation via direct policy incentives runs the risk of depriving Victoria of the full benefits of its proximate gas reserves.

7. Response to specific design issues

As discussed above, Origin has fundamental concerns with the proposed Victorian-specific renewable scheme, especially one with such near-term targets. These relate to deficiencies in the context of cost-effective climate change policy and renewable energy policy in particular, and to the unintended consequences.

However, in the event that such a scheme is going to be implemented, there are several scheme design issues, which if addressed, will minimise the cost of the scheme and of achieving the Victorian Government's aims. In general, consistency with the Federal MRET should be aimed for where possible, although there are exceptions where a departure might be beneficial. At the very least, consistency will enable some administrative and compliance costs to be avoided.

¹⁰ Assumes that conventional coal-fired generation is being displaced, resulting in abatement of GHG.

¹¹ Assumes capital utilisation equal to capital availability in the previous footnote above, and, GHG intensity of gas-fired electricity of 0.4 tCO₂e and 0CO₂e for the wind turbine.

¹² ESIPC (2005) *Planning Council Wind Report to ESCoSA*, p. 55.

1. Stakeholders' views are sought on the appropriateness of a 1 January 2007 or alternative start-date for the scheme.

Origin recommends a start date no earlier than 1 January 2007. This date represents a compromise between attempting to stimulate sufficient investment to meet the target in 2010 and providing retailers and the Government with sufficient time to prepare for the schemes' implementation. An early start date enables a gradual increasing of the target toward 2010.

At least a year is required for retailers to prepare, which includes being able to bill customers under a new scheme, capture and monitor customer load data, implement compliance procedures and secure supply of Victorian RECs. A start date of 1 January 2007 would provide sufficient preparation time provided the schemes details are finalised and announced by 30 June 2006.

Notwithstanding this we believe that an interim target for 2007 cannot be met with supply from new projects. Therefore if the scheme does commence in 2007 some existing renewable energy projects will need to be eligible to create Victorian RECs (discussed further under number 7. below).

2. Stakeholders' views are sought on whether the target should be based on GWh or as a percentage of consumption.

Simplicity of scheme operation is important to minimising administration and compliance costs. A target based on percentage of consumption is simplest from a retailer's (or customer's) point of view because it expresses their liability as a fixed and certain proportion of the value of each MWh sold out into the future. A target based on an absolute GWh basis is continually being adjusted as a proportion of actual MWh sold each year. Origin recommends that a percentage target is used to simplify the liability calculation, which would bring greater certainty to the liable entity.

3. Stakeholders' views are sought on what should be the basis for setting the interim target level? Two options have been identified (i) linear method (ii) profile that supports the development of sustainable manufacturing industry for renewable energy equipment.

The interim target level should be set on the basis of a dual linear method (similar to that used under the Federal MRET scheme). Origin recommends a small increase in the first 2 years of the target followed by an elevated gradient for the final years of the target's increase.

4. Stakeholders' views are sought on whether the overall target be based on a technology neutral or portfolio approach?

A technology neutral approach drives least cost renewable investment. However a short range target (like 2010) has a quasi-portfolio effect because it narrows the range of investments available considerably. With the current renewable technology mix, a target of 10 per cent by 2010 will be met mostly by wind projects. A longer range target with a lesser slope would have the effect of facilitating the development of emerging renewable technologies like geothermal, wave and next generation solar technologies, in addition to wind. This would, in effect, make the proposal more technology neutral.

5. Stakeholders' views are sought on:

- **the appropriateness of a 2025 or alternative end date?**

To enable the rate of return necessary for a renewable investment to take place, access to RECs of approximately 15 years is necessary. Provided the interim target is sustained at 10 per cent then it is appropriate that the scheme end at 2025.

However if a lower target is set for 2010, and increased beyond 2010, the scheme should end 15 years after the last year of increase in the target.

- **should there be a target beyond 2010 or an alternative target trajectory?**

Origin supports the package of Tambling Review Panel recommendations, and specifically the target trajectory and timings proposed. The Review Panel was not convinced of the need to increase the target prior to 2010, but considered that there was a strong case for an increase in the target after 2010. This approach was designed to maintain the stimulus provided by the Federal MRET without adversely affecting electricity users in the short term.

The Review Panel modelled the current MRET target trajectory and found that a large amount of investment would occur prior to 2007 followed by a rapid reduction after 2007. As far as the Victorian scheme is concerned, a more managed increase in demand, from 2007 to 2016, would ensure investments are more soundly assessed and that both local and export market development occurs in a more orderly manner.

The Review Panel also recommended delaying any increase in the Federal MRET level until after 2010, to allow the industry to invest in a more managed fashion, maximising the utilisation of new technologies emerging as a result of the high levels of investment and R&D currently occurring around the world.¹³ If adopted under the proposed Victorian scheme, such an approach would ensure it was in effect neutral with regard to technology.

Origin recommends a linear target that starts in 2007, stabilises in 2016, and rises by a real 1 per cent per annum in the interim. This would reduce the risk of locking the industry into presently available technology, such as wind, which would be the result of the proposed target of 10 per cent by 2010.

6. Stakeholders' views are sought on the appropriateness of making all electricity retailers and wholesale purchasers of electricity in Victoria liable parties under the Victorian Scheme.

Origin supports this position, conditional on retailers' ability to pass through costs over their entire customer base (regulated and unregulated). The impact on the current MOU price path needs to be fully understood and if margin bands are breached retailers should be able to seek recovery for the incremental costs.

7. Stakeholders' views are sought on:

- **the exclusion of existing renewable energy generators that already benefit under MRET.**

Origin, with 91 MW of wind generation under contract in Victoria, has facilitated the advancement of the renewable industry in Victoria. The majority of this

¹³ pg 128, Renewable Opportunities, A Review of the Operation of the Renewable Energy (Electricity) Act 2000 September 2003

capacity was commissioned after the initial election policy announcements in 2002¹⁴ which sought to strengthen Victoria's greenhouse response. That is to:

- o "increase the share of Victoria's electricity consumption to be provided from 4 per cent to 10 per cent by 2010
- o facilitate the development and construction of up to 1,000 MW of wind energy facilities in environmentally-acceptable locations by 2006"¹⁵

Origin's early action in favour of the Victorian Government's policy objectives should not be penalised by exclusion from the Victorian scheme. Origin recommends that all renewable projects commissioned from 2002 onward be able to choose between creating a REC under the Victorian Scheme or a REC under the Federal MRET for every megawatt hour of generation post July 2006, as long as there is no 'double-dipping'.

Before any renewable generation will move into the financial close and construction phase, a solid legislative base will be required to guarantee investor certainty. The long lead times in moving renewable projects from planning to commissioning suggests that the earlier the legislation is passed the greater likelihood that there will be sufficient RECs to meet a proposed target.

Notwithstanding this Origin considers that there will not be adequate renewable energy generated to meet the first and possibly second year's targets (with a start date of 2007). Therefore if the start date is to remain in place for 2007 some existing renewable energy projects will need to be eligible to create Victorian RECs, otherwise retailers will be forced to pay the penalty in the first year(s).

- **whether existing market conditions are sufficient to drive efficiency improvements in the current stock of renewable energy generation? If not, should baselines be set for existing renewable energy generators that participate in the Victorian Scheme?**

Responded to above.

- **the potential inclusion of low emission technologies. If included, how should these technologies be defined and included in the Victorian Scheme?**

Origin encourages the support of low emission technologies but does not consider their inclusion in a renewable energy scheme, efficient or workable. However to avoid tilting the playing field against low emissions technologies, a separate scheme/policy mechanism is required. Origin would be very keen to participate in the design of such a policy.

- **the appropriateness of mid 2006 or an alternative date after which new renewable energy generators would be eligible to participate in the Victorian Scheme.**

Responded to above.

¹⁴ The Greenhouse Challenge for Energy, Driving investment and reducing emissions, June 2003

¹⁵ The Greenhouse Challenge for Energy, Driving investment and reducing emissions, June 2003

- the exclusion of renewable energy technologies that currently receive adequate support under other government programs and policies or are economic in their own right in the current market. If so, which technologies should be excluded?

Origin supports a technology neutral approach under the Victorian scheme as stated above, and as such, does not support the exclusion of any class of renewable technology.

8. Stakeholders' views are sought on:

- how the shortfall charge could be designed to underpin the target?

Origin supports consistency with MRET.

- the appropriateness of a leeway of up to 10 per cent in meeting annual targets.

Origin supports this position.

9. Stakeholders' views are sought on the proposal that the Victorian Scheme adopt the same banking and borrowing rules as MRET.

Origin supports this position.

10. Stakeholders' views are sought on:

- the role(s) of the State Administrator.
- who should perform the functions of accreditation and validation of certificates?
- what design principles will need to be included to minimise transaction and administration costs?
- what administrative design features would need to be included to achieve an efficient and transparent market?
- how the market for renewable energy certificates under MRET is likely to interact with that of the Victorian Scheme?

Origin supports consistency with MRET to minimise the costs of administration and compliance imposed by the scheme. Further the Federal ORER should be engaged to perform the accreditation and validation functions.

11. Stakeholders' views are sought on how the Victorian Scheme could be designed to flexibly transition into a potential multi-State scheme or expanded MRET scheme.

Origin supports consistency with MRET as the means to ensure flexibility in transition to a multi-State scheme or expanded MRET scheme, should either of these eventuate.

8. Conclusion

Origin understands the Victorian Government's desire to enhance support to the renewable energy sector, partly to capture the benefits of economic activity in this sector and partly to shield the Victorian economy from longer term carbon constraints. However, Origin has serious concerns about the efficiency and effectiveness of the

proposed scheme to achieve these core policy objectives, and the negative impact of particular consequences most likely unintended by the scheme's designers.

Origin's preferred position on renewable energy policy is for full implementation of the Tambling MRET Review recommendations by the Federal Government. However given that this not an available option, it is Origin's next policy preference for a joint-jurisdictional renewable energy scheme that replicates the effect of the Tambling recommendations. In Origin's view, a national approach of this kind will achieve both the long term industry development and GHG abatement policy objectives of the MRET scheme and Victoria's (and other jurisdictions') state-specific policy objectives.

Origin recommends that the Victorian Government pursue a joint jurisdictional approach with State Government counterparts. However if the Government remains committed to implementing the Victorian-specific proposal, then Origin strongly urges consideration of an additional measure to counter balance the impact on gas-fired generation. While not the ideal policy response in Origin's view, such a counter balance is necessary to ensure that cost effective gas-fired generation is not unduly thwarted by the pull through of additional, less efficient wind generation. The aim of the additional measure would be to level the playing field between renewable generation and gas-fired generation.