

To: www.retreview.dpmc.gov.au/online-submissions

Dear Chairman and Panel members,

Thank you for the opportunity to make a submission to the RET Review. It is timely and important that the review of this key legislation is underway. As Minister Macfarlane stated in September last year 'the Coalition government will give industry policy certainty and stability' stating it would not be 'putting investment, jobs and economic growth at risk with erratic policies and taxation burdens on Australia's most important industry'¹.

The renewable energy industry, which currently employs around 24,300² Australians, has, like many participants in the broader energy sector, suffered from the push and pull of politics. Given the investment scale and long time horizon of investments in the energy sector, stability is what all participants crave.

While Minister Macfarlane's comments above were intended to relate solely to fossil fuel industries we believe it is time to put the clear objectives of energy policy beyond the reach of the political term and provide a stable energy investment platform for Australia. We commend the government for taking this approach with the Energy White paper.

Epuron came into existence eleven years ago in direct response to the Renewable Energy Target, introduced as the MRET by John Howard in 2001³. Epuron is a renewable energy developer responsible for a large number of wind farm developments in New South Wales and the owner and operator of four solar power stations in the Northern Territory. Today the company employs 24 people and has invested heavily in the development of its projects in New South Wales and the Northern Territory.

To date two Epuron developments have been built resulting in around \$470 million of investment in Australia. Epuron has obtained planning approval for four solar power stations and six wind farms and has a further three large scale wind farms in the planning process. The wind farms, both those approved and those in planning, would, if built, result in a further investment of several billion dollars. However, this investment relies on the continuation of the RET and would be at risk if investor confidence stalls through alterations or reductions to the RET.

Over the 11 years of the company's growth there have been several periods of protracted uncertainty. As a form of risk mitigation, some years ago Epuron adopted a model whereby an investor would be brought in early in the project development and would have an option over the project. This provided some certainty about the project being built as investors undertake due

¹ The Coalition's Policy for Resources and Energy September 2013
<http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=ld%3A%22library%2Fparty%2F2707238%22>

² ROAM Consulting, April 2014, see page 36, 37. <https://www.cleanenergycouncil.org.au/policy-advocacy/renewable-energy-target/ret-policy-analysis.html>

³ introduced as the Mandatory Renewable Energy Target (MRET) by John Howard in 2001 and legislated through the Renewable Energy (Electricity) Act 2000

diligence, including energy resource based on wind data measured on site. Epuron is working with experienced overseas investors, from New Zealand, Japan and China, in progressing 5 significant wind farms.

Investors have been attracted by Australia’s stable investment climate and are now concerned by a number of issues which include :

1. the scope of the Panel’s work:
 ‘... to examine the operation, costs and benefits of the RET scheme including the economic, environmental and social impacts, the extent to which the objectives of the scheme are being met and the interaction of the RET with other Commonwealth and State/Territory Government policies. The review is to provide advice on whether the objectives of the RET scheme are still appropriate and the range of options available for reducing its impact on electricity prices’
2. Personal statements, such as those made by the Treasurer Joe Hockey about wind farms being ‘utterly offensive’ serve only to further undermine investor confidence. The Treasurer’s comments, while considered inappropriate from the bearer of such office, are also considered to reflect the low standing the renewable energy sector has with the government.

Within a framework of budget cuts to most renewable agencies and funding bodies, those who would invest in Australia’s burgeoning power sector – renewables - are receiving many negative indications of the government’s intent. Perhaps the most concerning is the question at the heart of the review – whether the objectives of the RET remain appropriate.

The objectives of the Act are:

- a) To encourage the additional generation of electricity from renewable sources; and
- b) To reduce emissions of greenhouse gases in the electricity sector, and
- c) To ensure that renewable energy sources are ecologically sustainable.

Renewable Energy is popular

Beyond the questions the Panel must address is the underlying fact that the people of Australia have consistently and repeatedly stated that they want renewable energy. Poll after poll states that renewable energy, both wind and solar, is popular with voters across Australia, both in rural, regional and metropolitan areas, and from regions that already have wind and solar energy projects as well as those that don’t.

Renewable energy is bringing down wholesale electricity prices

AEMO and AER reports for the last few years have stated that where there are a number of wind farms installed in a state, such as South Australia, wind energy is bringing down wholesale electricity prices. Those who choose to say otherwise are indifferent to the stated facts. As the RET’s impact on electricity prices is to put downward pressure on them, the best option available for reducing electricity prices is to ensure there is no change to the RET.

Renewable energy is clean and safe with no known health impacts

Opponents to wind energy have attempted to establish health concerns associated with living near wind turbines but statements issued this year by the National Health and Medical Research Council⁴(NHMRC) and the Australian Medical Association⁵ (AMA) both rebut such claims and consistently

⁴ <https://www.nhmrc.gov.au/your-health/wind-farms-and-human-health>

⁵ <https://ama.com.au/position-statement/wind-farms-and-health-2014>

request to be availed of any evidence to support the claims made. The government has said it will hold a public inquiry into the issue. The industry welcomes the inquiry which, given the clear position of health experts on the matter should not be lengthy, but has some concern about the not insignificant costs which will be borne by the government.

Renewable energy gives choice and revenue to Australian landowners

Objectors state that those who receive payment from hosting wind turbines are happy but their neighbours are not. That is not our experience. Most people living close to the windy ridges and sweeping country which hosts wind turbines are practical people who have both an association with and affection for the land. They are on the frontline of drought, fire, and flood and most consider that renewable energy must be part of the way forward for delivering power. They would like to see their community benefitted from the change and this is what wind farm companies work with communities to deliver.

Renewable energy in Joe Hockey's electorate has brought \$3.5 billion of investment

Joe Hockey would take down the wind farm that offends him but he is in a small minority. In a beauty contest of power generation wind energy would win hands down. Regardless, and fortunately, beauty is not a consideration in planning for or investing in power generation.

Companies in the North Sydney electorate which Joe Hockey represents have invested \$3.5 billion under the RET and there is the potential for a further \$6.6 billion of investment – solely from companies in Joe Hockey's electorate.

The RET is working, provide certainty and let it continue

Given the ongoing relevance and widespread popularity of the key objectives of the RET we respectfully recommend that nothing in the Renewable Energy Target legislation be changed as this is the fastest way to extinguish fears of regulatory risk and settle down the investment community, enabling the objectives of the Act to continue to be met.

Not changing the RET will ensure billions of dollars of investment and create thousands of jobs across Australia and provide the most cost-effective clean energy for Australian electricity consumers, most of whom support the RET.

Not changing the RET will continue to ensure downward pressure on wholesale electricity prices. The RET also mitigates the impact of increasing gas prices in eastern Australia when CSG export starts in 2015.

In the following pages are more detailed responses to the questions posed by the Panel. We thank the members of the Panel for the opportunity to meet with them and to provide a response to the review. We look forward to reading the recommendations of the Expert Panel and to a swift decision by the Prime Minister to rebuild confidence, something all industries seek, to enable the private companies working under the RET to continue to build this vibrant sector.

Yours sincerely,



Martin Poole
Executive Director



Andrew Durran
Executive Director

About Epuron

Epuron is locally-owned and has been based in North Sydney since 2003. Epuron employs 24 people, including graduates from Sydney's universities. Epuron also periodically hires interns and provides work experience for school-leavers.

Epuron's projects in New South Wales include:

- Gullen Range Wind Farm (acquired and in construction by Goldwind Australia),
- Cullerin Range Wind Farm (acquired and constructed by Origin Energy, operating since 2009),
- Silverton Wind Farm, (JV with Macquarie Capital) acquired by AGL Energy,
- Conroy's Gap Wind Farm, planning approved and nearing construction commencement,
- Rye Park Wind Farm, in the planning process, currently on public exhibition
- Yass Valley Wind Farm, awaiting planning determination
- White Rock Wind Farm near Glen Innes, planning approved
- Liverpool Range Wind Farm in the planning process.

Epuron owns the 1MW Uterne solar power plant at Alice Springs and also the three integrated high penetration solar power stations at Ti Tree, Kalkarindji and Alpururulam (Lake Nash) in the NT, known as TKLN Solar which serve remote communities.

Response to Questions posed by the expert Panel.

How has the RET performed against the objectives in the Renewable Energy (Electricity) Act 2000?

The objectives of the Act are:

- a) To encourage the additional generation of electricity from renewable sources; and
- b) To reduce emissions of greenhouse gases in the electricity sector, and
- c) To ensure that renewable energy sources are ecologically sustainable.

The RET was designed to ensure that at least 20 per cent of Australia’s electricity comes from renewable sources by 2020 and is on track to do so. The policy rationale was to develop Australia’s capacity to generate electricity from our world class renewable energy resources, which would also diversify our energy supply and reduce greenhouse gas emissions and other environmental impacts.

The Clean Energy Regulator has accredited 400 power stations since 2001. LRET has been the key driver of a 4.5%⁶ fall in carbon emissions, which in combination with lower demand and SRES has resulted in a 7% fall in emissions from the stationary energy sector.

The combination of a reduction in projected demand and the installation of renewable energy has resulted in the mothballing of a number of coal generators. This serves to assist in the reduction of emissions and has been a predictable outcome of the RET since the target was increased in 2010. When the RET commenced opponents complained that it would not close a single coal fired generator. It has assisted to encourage the retirement of several older emissions-intensive generation. See table below.

Business	Power station	Technology	Summer capacity (MW)	Period Affected	Date commissioned
Queensland					
Stanwell	Tarong (2 units)	Coal fired	700	Oct 2012 to at least Oct 2014	1984 - 1986
Ratch Australia	Collinsville	Coal fired	190	From Dec 2012 until viable	1976
New South Wales					
Delta Electricity	Munmorah	Coal fired	600	Retired July 2012	1967
Victoria					
Energy Brix	Morwell unit 3	Coal fired	70	From July 2012 until viable	1956
Energy Brix	Morwell unit 2	Coal fired	25	Not run since July 2012. Only operates when unit 1 is under maintenance	1956
South Australia					
Alinta Energy	Northern	Coal fired	540	April to September each year from 2012	1985
Alinta Energy	Playford	Coal fired	200	From March 2012 until viable	1963

Source AER

⁶ State of the Energy Market 2013 - <http://www.aer.gov.au/sites/default/files/Chapter%201%20-%20National%20electricity%20markets%20A4.pdf>

Are there more efficient and effective approaches to achieving these objectives?

No. The RET is the most efficient and effective way of encouraging the additional generation of electricity from ecologically sustainable renewable sources and reducing emissions of greenhouse gases in the electricity sector.

However, the RET would be more efficient if the periodic reviews, which have a negative impact on investor confidence, were undertaken at most every four years. As well as greater confidence, a reduced stop-start and improved ability to schedule projects will make communities less uncertain and reduce the cost of finance thereby further reducing energy costs.

The RET is not only effective but has proven to be sophisticated in how it works in the electricity market and its impact in bringing down prices. As LRET projects are commissioned they bid in to the electricity market at the bottom end of the price stack which means that their output is accepted, as AER explains⁷:

‘To determine which generators are dispatched, AEMO stacks the offer bids of all generators from the lowest to highest price offers for each five minute dispatch period. It dispatches the cheapest generator bids first, then progressively more expensive offers until enough electricity is dispatched to meet demand. The highest priced offer (the marginal offer) needed to meet demand sets the dispatch price. The wholesale spot price paid to generators is the average dispatch price over 30 minutes; all generators are paid at this price, regardless of the price that they bid’.

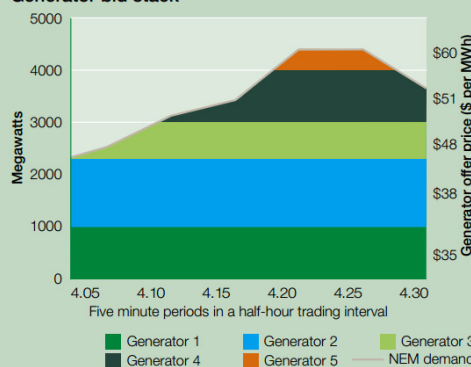
The more wind energy bid into the market the fewer bids are dispatched at the top end of the bid stack as the demand is met by lower cost bidders. They act in effect as a negative load or reduction in demand in the market. This means the most expensive bidders are accepted less frequently. This has an impact on the peak generators who are accepted less frequently but it also has an impact on the whole market as all bidders receive the highest price bid to meet demand, so when the highest price bidders are not required everyone dispatched for that half hour receives a lower price. See AER figure below:

Box 1.2 Setting the spot price in the NEM

Figure 1.12 illustrates a simplified bid stack in the NEM between 4.00 pm and 4.30 pm. Five generators are offering capacity into the market in different price ranges. At 4.15 pm the demand for electricity is about 3500 MW. To meet this demand, generators 1, 2 and 3 must be fully dispatched and generator 4 is partly dispatched. The dispatch price is \$51 per MWh. By 4.20 pm demand has risen to the point at which a fifth generator must be dispatched. This higher cost generator has an offer price of \$60 per MWh, which drives up the price to that level.

A wholesale spot price is determined for each half hour period (trading interval) and is the average of the five minute dispatch prices during that interval. In figure 1.12, the spot price in the 4.00–4.30 interval is about \$54 per MWh. This is the price that all generators receive for their supply during this 30 minute period, and the price that customers pay in that period.

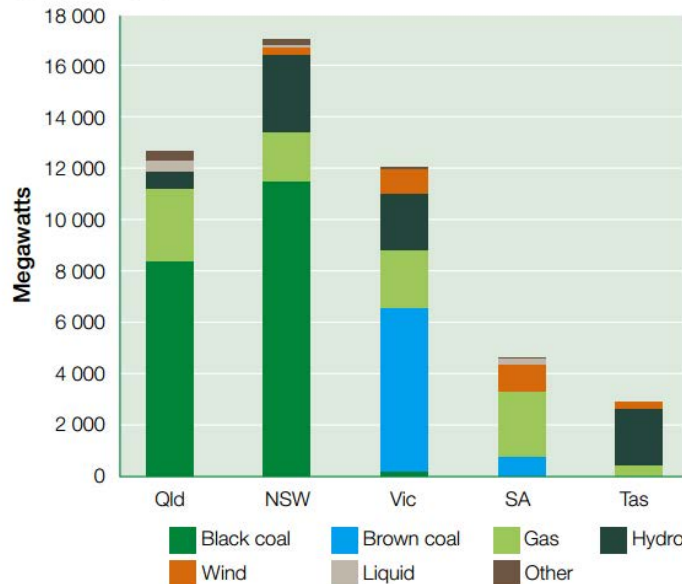
**Figure 1.12
Generator bid stack**



⁷ State of the Energy Market 2013 - <http://www.aer.gov.au/sites/default/files/Chapter%201%20-%20National%20electricity%20markets%20A4.pdf>

Given the relatively small proportion of large scale renewable energy by region, changes to the RET would create inefficiency and impact on the effectiveness of the downward pressure renewables are having on pricing in the electricity market. See graph below⁸:

Figure 1.6
Generation capacity, by region and fuel source,
30 June 2013



Incumbent generators are, directly or indirectly, market participants and do what they are permitted to do under market rules. For example, over summer of 2012/2013 several generators in Victoria reacted to tight market conditions by rebidding low priced capacity into higher price bands; and in Queensland a tight supply–demand position was created when generators withdrew around 1000 MW of capacity from the market via rebidding activity.

The more new renewable generation there is in the market the fewer opportunities there should be for incumbent generators to take opportunities, such as disorderly bidding⁹, to drive up prices in the electricity market. Strategic transmission line ownership, disorderly bidding and other market activities have significant ability to push up wholesale prices whereas LRET projects do not have market power as they are individually owned, smaller in scale, dispersed and always bid in at the low end of the price stack.

A feature of Australia’s RET (as opposed to the European style FIT) is that it is a market mechanism. It has delivered the benefit of zero-cost marginal production at least cost, as renewable energy projects compete for customers. This has provided long term pricing, in the case of wind energy, around 40% lower than Europe.

⁸ State of the Energy Market 2013 - <http://www.aer.gov.au/sites/default/files/Chapter%201%20-%20National%20electricity%20markets%20A4.pdf>

⁹ AER State of the Energy Market 2013 page 39 - <http://www.aer.gov.au/sites/default/files/Complete%20report%20A4.pdf>

Do the objectives of the Act remain appropriate, in light of falling electricity demand and the Government’s target and policies for reducing greenhouse gas emissions?

Yes, the objectives of the Act remain appropriate. The RET target, set in legislation in 2009, intended that the equivalent of at least 20% of Australia’s electricity supply be generated from ecologically sustainable renewable sources by 2020, to reduce emissions. The largest single source of greenhouse gas emissions, and the easiest to target and quantify, is from the stationary energy sector. The RET provides a transparent, quantifiable, independent mechanism for measuring emissions which as noted earlier have been reduced by new renewable energy installed under the RET by 4.5%. Given the budget cut to the Emissions Reduction Fund only the RET can deliver the required emissions reductions in line with targets without new cost to the Australian people

ROAM’s RET policy analysis report (April 2014) notes that “since that target was set, forecasts of Australia’s electricity demand in 2020 have decreased and rooftop PV uptake has been larger than anticipated. The combined effect of these factors is that achieving the current LRET target of 41,000 GWh in 2020 will likely deliver slightly more than 20% of Australia’s electricity supply from renewables in that year. ROAM estimates that renewables will deliver 22.6% of electricity consumed in Australia in 2020.”

This figure is consistent with the target of at least 20% renewable energy by 2020. It should also be consistent with the expectations of the fossil fuel generators who have had 7-14 years to anticipate possible scenarios and respond to new market conditions. There are very few new fossil fuel generators on the market and most have had 20 – 50 years of revenue from their plant. As fuel prices increase with export conditions, associated power costs increase for fossil fuel generators.

In line with the question, not only will the RET meet the target of at least 20% renewable generation, it will provide three key benefits:

1. quantifiable emissions reductions at a known cost, while having the effect of
2. reducing the wholesale market cost of electricity and
3. limiting the ability of market participants to manoeuvre higher pricing in the market (see above).

Predicting future electricity demand is difficult. Gas prices are set to rise significantly in eastern Australia when the gas export market swings into action in about 2015. This increased gas price has the potential to increase power prices unless another generator takes its place. If more coal is used it will increase emissions; if more renewable energy is used it will not. Many in the market predict the swift uptake of electric vehicles. This would significantly increase the use of electricity for recharging, providing significant storage/ demand levelling ability and enabling renewable energy penetration much greater than the 20-30% level without ‘grid-scale’ centralised electricity storage being required.

As gas prices increase, there is also likely to be ‘fuel substitution’ as higher costs drive residential, commercial and industrial customers to replace gas fuel with electricity – eg for space, water and process heating.

How has the RET influenced the development of the renewable energy industry?

The RET has not simply influenced the development of the renewable energy industry, it is the bedrock upon which it has been built. Since 2001 the RET has delivered:

- An industry sector which directly employs 24,300¹⁰ people. If allowed to continue a total of 18,400¹¹ jobs will be created between 2014 and 2020 with 9700 in large scale renewables and 8,700 in small scale renewables. These jobs are located across major cities, regional centres and rural Australia;
- Over 7000MW of new renewable energy capacity across Australia;
- More than \$20 billion of investment in renewable energy technologies and is on track to deliver additional investment of nearly \$15 billion¹² in today's dollars.

Companies like Epuron would not exist without the RET. When the Treasurer Joe Hockey stated on public radio on 2 May 2014 that he found wind farms “utterly offensive”¹³ Epuron, a small business in Mr Hockey’s electorate, was dismayed that such sentiment could yet further reduce investor confidence in an already shaken industry sector. Epuron looked into the contribution to investment in Australia made by businesses in Mr Hockey’s electorate.

To begin with Epuron alone:

- two Epuron developments, acquired and built by Origin Energy and Goldwind Australia, have already resulted in around \$470 million of investment in Australia;
- three further Epuron developed and consented wind farms would bring further investment of around \$1 billion;
- If the three large wind farms Epuron is currently progressing through the planning process in NSW are built they would result in up to a further \$2.8 billion of investment;
- The total potential contribution to investment in Australia brought by one small wind farm development company under the RET could be over \$4 billion.

Companies based in Mr Hockey’s electorate (AGL Energy, Ratch, Epuron, RES) are to date responsible, directly as a result of the RET, for:

- Operating projects totalling \$ 2.4 billion of investment;
- Projects in construction totalling \$1.1 billion of investment;
- Projects currently approved which would be built under the RET, totalling \$1.9 billion of investment;
- Projects in the planning process which, if built, would result in a further \$4.7 billion of investment.

To summarise¹⁴, companies in Joe Hockey’s electorate are currently responsible for \$3.5 billion of investment under the RET and there is the potential for a further \$6.6 billion of investment under the RET. The total of actual and potential investment under the RET for the Treasurer’s electorate is over \$10 billion. The RET is responding to the market conditions by driving domestic and international investment and this is driven by small privately owned Australian companies such as Epuron.

¹⁰ The Clean Energy Australia Report - <https://www.cleanenergycouncil.org.au/policy-advocacy/reports/clean-energy-australia-report.html>

¹¹ ROAM Consulting, RET policy analysis, p. 3. <http://www.cleanenergycouncil.org.au/policy-advocacy/renewableenergy-target/ret-policy-analysis.html>

¹² ROAM Consulting, RET policy analysis, p. 4. <http://www.cleanenergycouncil.org.au/policy-advocacy/renewableenergy-target/ret-policy-analysis.html>

¹³ <http://www.abc.net.au/news/2014-05-02/joe-hockey-wind-turbines-utterly-offensive/5425804>

Joe Hockey says wind turbines 'utterly offensive', flags budget cuts to clean energy schemes

¹⁴ See table attached at the end of the submission

The RET should also be credited with the introduction of the hundreds of renewable energy degrees and research facilities across Australia's Universities. With no renewable energy sector to work in it is unlikely that so many courses would have emerged. Due to the frequency of statutory reviews of the RET, investment slows and, at times such as this, comes close to stalling. The brain drain of bright young graduates taking their Australian university acquired acumen overseas will continue as long as the sector is subject to the investment uncertainty which accompanies frequent reviews.

Should the LRET be abolished, reduced or increased? If retained, what level should it be? What would the impact of such changes be?

The LRET should be maintained at its current level. Any kind of alteration to the fundamentals of the legislation would delay the return of investor confidence in the LRET market. One minor non-technical adjustment would reduce regulatory risk and market volatility and that is that legislated reviews should be undertaken no more frequently than every four years.

Abolishing or reducing the LRET would present a significant regulatory risk and would send a clear signal to the international investment community that Australia is out of step with the rest of the world in transitioning towards renewable energy. The abolition or reduction of the RET would result in:

- The loss of significant domestic and international investment – around \$18 billion;
- The loss of thousands of jobs in the sector which according to the Australian Bureau of Statistics¹⁵, based on tax returns, show there were 15,881 renewable energy businesses in Australia in 2011-2012;
- increased use of currently retired old fossil fuel generators;
- increased emissions;
- increased wholesale electricity costs.

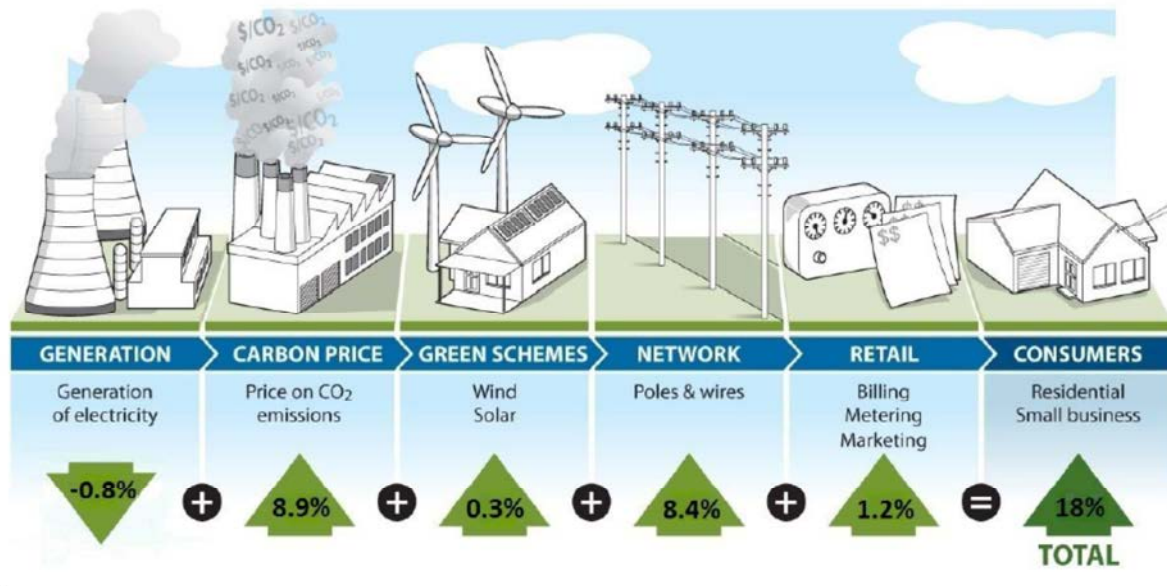
Cost – the LRET is bringing down costs

There has been widespread public and industry unrest about increases in power bills. In numerous AER and AEMO reports it is stated that wind farms are reducing the wholesale cost of electricity. Yet politicians and opponents of the RET continually state that it is driving up electricity prices. While renewable energy is being attacked as a prime reason for the cost increases, the very clear and significant drivers of electricity cost increases were the network charges and the carbon tax.

In NSW retailer are obligated to state in red ink on electricity bills: '*NSW Govt estimates that Federal carbon tax and green energy schemes add about \$332 a year to a typical 6.5MWh household bill – www.ipart.nsw.gov.au*.' This wording is current. In the year the graph below was issued, 2012,- the wording was \$316 for 7MWh. Given that in 2012 the 'average' bill was \$1,905 the implication was that that Federal green costs increase electricity prices by 16%. The following useful graphic produced by IPART in NSW shows that Green schemes were 3% of the bill:

¹⁵ <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4660.02011-12?OpenDocument>
Epuron submission to the Expert Panel on the Review of the Renewable Energy Target May 2014

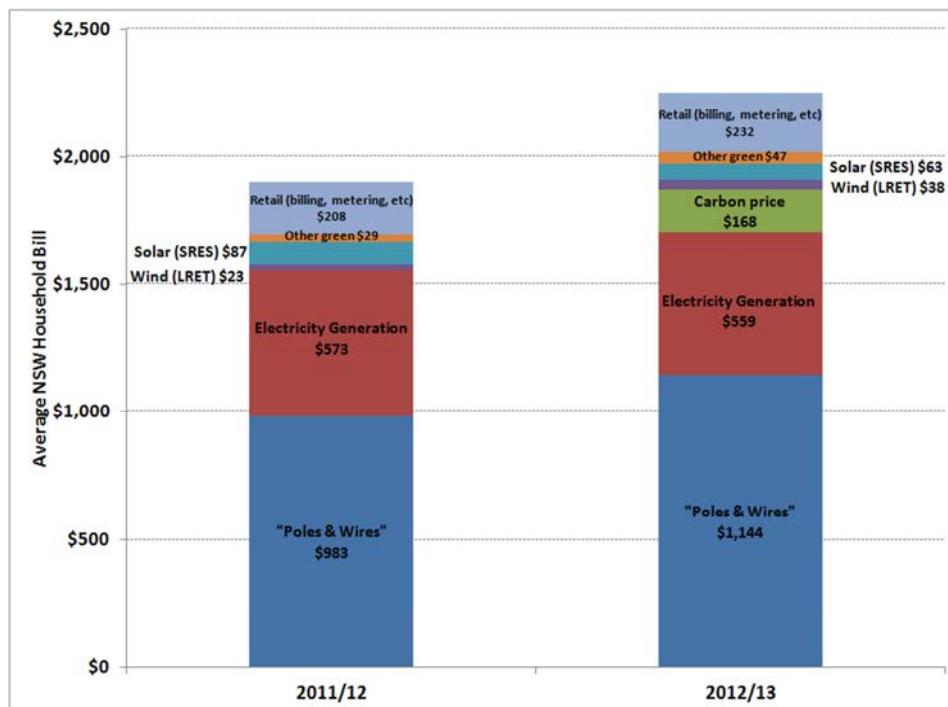
Figure 1 Drivers of increases in average regulated retail electricity prices on 1 July 2012, across NSW (including inflation, %)



Note: 'Green Schemes' include all of the Commonwealth and NSW Government schemes designed to reduce greenhouse emissions except for the Commonwealth Government's carbon pricing mechanism.

Note that Green Schemes include all Commonwealth and NSW Government schemes so the 3% shown is both the RET and NSW state Feed-in-tariffs.

To assist with community consultation Epuron broke down the graphic above to show costs for LRET attributable to wind farms, SRES attributable to solar PV and other green – attributable to state schemes including FIT schemes.



This shows that the cost components of the average NSW bill were:

Cost item	2012	2013	% of 2013 bill
Network	\$983	\$1,144	50.8%
Electricity	\$573	\$559	24.8%
Retail costs	\$208	\$232	10.3%
Carbon tax	-	\$168	7.5%
Solar (SRES)	\$87	\$63	2.8%
NSW green	\$29	\$47	2.1%
Wind (LRET)	\$23	\$38	1.7%
Total	\$1,903	\$2,251	100%
MWh	7	6.3	

With or without the carbon tax on a domestic or large users bill, network charges remain the largest component of a bill.

Dissatisfaction with these network charges has been a key driver of the installation of domestic rooftop solar. Even if the SRES was capped, that genie is out of the bottle and the desire for home owners to have more autonomy over their power costs is loudly stated.

Electricity bills, however, do not show the downward pressure on costs from wind and solar on wholesale electricity prices. There has been some misinformation about how renewable energy is pushing up electricity prices. The Australian Energy Market Operator clearly refutes this.

AEMO’s 2013 South Australian Wind Study Report states

Wind generation and electricity price¹⁶

Higher market pricing is observed at times of low wind and vice versa. This is due to renewable generation bidding into the market at lower prices than fossil-fuel based generation.

AEMO’s 2013 South Australian Electricity Report notes:

Forecast drivers

Key drivers of the 2013 annual energy and Maximum Demand (MD) forecasts over the 10-year outlook period are:

- Increased rooftop PV installations. South Australia has the highest penetration of domestic rooftop PV of all National Electricity Market (NEM) regions as a percentage of annual energy. Increased rooftop PV installations result in less electricity being required from the grid;
- Consumer response to recent electricity price rises;
- Increased energy efficiency measures (including increased energy efficiency from changes in building standards and regulations).

Differences between current annual energy and MD forecasts and those presented in the 2012 SAER include:

- Lower-than-expected demand in the large industrial sector (due to the deferral of the Olympic Dam mine expansion project);
- Increased rooftop PV installations and contribution to MD.

¹⁶ SOUTH AUSTRALIAN WIND STUDY REPORT 2013, AEMO

These AEMO reports clearly state that:

1. wind generation has the effect of driving down wholesale electricity prices and
2. rooftop solar helps the network by contributing power during periods of maximum demand.

Epuron has been in the renewable energy sector for 11 years and due to the two yearly reviews and the delays in re-establishing certainty following each review, there have been several periods of protracted uncertainty. Accordingly, as a form of risk mitigation, some years ago Epuron adopted a model whereby an investor would be brought in early in the project development and would have an option over the project. This provided some certainty about the project being built as investors undertake due diligence based on wind data measured on site so that the 'fuel resource' is a known factor in their decision to have an involvement with a project. Having the investor on board increases the probability of the wind farm being built.

All of Epuron's projects, both approved and in planning, have an investor on board. The investors are from New Zealand, Japan and China. Recent State planning changes to projects within the planning system raised some curiosity about regulatory risk at the State Government level and the RET review with associated reporting has not served to comfort overseas boards interested in the large scale investments associated with wind energy projects.

Investment stability and opportunity

The RET has encouraged investment in Australia by experienced companies from Japan, China, Spain, Denmark, Germany, Portugal, United States, New Zealand, UK, France and others. All of these investors seek a stable regulatory environment and sufficient horizon for the return on investment. With this in place they will assist Australia with private investment into the transitional upgrade of our power sector.

Strong competition will also continue to ensure the most cost-competitive renewable energy projects go ahead. In conjunction with the experience this market provides, locally trained people and start-up companies can accelerate their own development and in turn displace overseas resources and become exporters of high tech products and services. Epuron's sister company Fulcrum3D is one such high technology start-up company which sees an excellent global future subject to there being a domestic market.

Public opinion and risk

Consistently over 70% of the Australian electorate state that they want all forms of renewable energy. There is an increasingly vocal consensus among landholders in rural areas that wind energy is not only a relatively benign impact on their land but it comes with both choice to host or not and associated recompense. At the same time there is a young voter drive for continued support of and increased targets for renewable energy.

The drumbeat of public opinion is growing on this. August publications such as the British Medical Journal and the Lancet have increasingly frequent peer reviewed articles urging action to reduce emissions, citing climate change as 'the biggest global-health threat of the 21st century'¹⁷.

¹⁷ <http://www.ucl.ac.uk/news/news-articles/0905/09051501>

This month Stanford University is reported to have divested its \$18.7 billion endowment from coal¹⁸. Doctors for the Environment Australia have mounted a campaign to encourage divestment from banks investing in new coal. It is no longer possible to dismiss such actions as radical as they come from mainstream society and they do provide an opportunity to take the pulse of global and local strategic thinking.

Do small-scale renewable energy systems still require support through the SRES? If so, for what period will support be required for?

The renewable energy sector seeks certainty which will be best served by not changing the RET.

Should the LRET and SRES schemes be recombined?

No. The renewable energy sector seeks certainty which will be best served by not changing the RET.

What impact is the RET having on electricity markets and energy markets more broadly? How might this change over time?

While there is very little doubt about the ability of the RET to contribute significantly to emissions reduction, there remains confusion about whether it is making electricity more expensive or less.

The answer is that the RET is bringing down wholesale electricity prices. In part it is doing this by building new generation slightly ahead of the demand curve. However, if the RET was reduced then those generators who have coal plant shut down or off-line – which they state is mainly because of reduced demand – may be able to bring them back on-line. The impact of this would be to increase emissions significantly and reduce the downward pressure on electricity costs which is the effect of the RET on the electricity market.

It is important to remember that availability is not the only factor at play in electricity pricing. The incentive of market participants is also a key factor. As an AER report¹⁹ notes:

‘A tight supply–demand balance caused South Australian spot prices to average \$106 per MWh in April–June 2013, almost double the average in other mainland regions of the NEM. Prices were the highest for those months in South Australia since market start. ...The high prices were driven by tight supply conditions, evidenced by the lowest reserves for four years. During this period, AEMO issued market notices forecasting a lack of reserve conditions for 41 days. South Australia narrowly avoided interrupting customer load. The supply conditions were the tightest in South Australia since the blackouts during the summer of 2009. **The tight supply conditions were not due to a lack of installed capacity** in South Australia. Rather, **three major generators**—Alinta, International Power and AGL Energy—**made commercial decisions to reduce their available capacity to the market and increase the offer prices** of remaining capacity.’

Volatility has continued to be a feature of the market. While prices rarely spiked above \$5000 per MWh in 2012–13, the number of prices above \$200 per MWh was the highest for seven years (figure 1.17). The number of such events recorded a sevenfold increase compared with 2011–12, rising from 99 to 704 events. The events mostly occurred in Queensland and South Australia, and were often unrelated to demand. In Queensland, network congestion triggered waves of disorderly generator bidding and market volatility.²⁰

¹⁸ <http://www.bloomberg.com/news/2014-05-06/stanford-university-says-it-will-divest-from-coal-companies-1-.html>

¹⁹ State of the Energy Market 2013 - <http://www.aer.gov.au/sites/default/files/Chapter%201%20-%20National%20Electricity%20markets%20A4.pdf>

²⁰ See Network congestion and

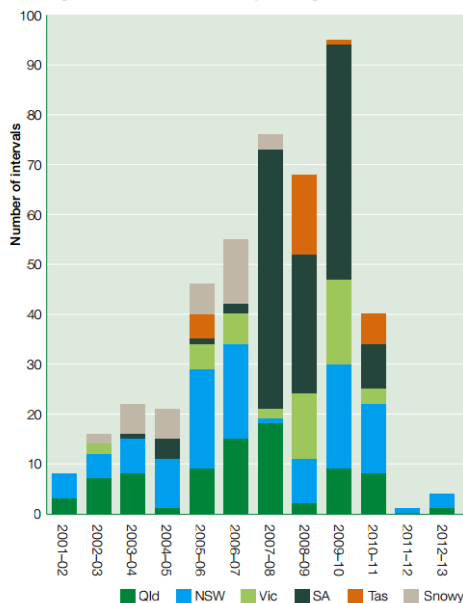
One answer to network congestion has been to build more transmission capacity but that is a very expensive way to address a problem which can be addressed by other simpler, lower cost actions.

Renewable energy bidders automatically bid into the market when they are generating as they are nearly always pre-sold in off-market arrangements such as Power Purchase Agreements. Renewable energy plant ownership is geographically highly dispersed through the market and there is no ownership at scale. This assists to ensure that fewer market participants have market-muscle power to indulge in disorderly bidding, as noted above.

Despite manipulation of market conditions and rebidding as described, the trading intervals above \$5,000 per MWh in the NEM are reducing - see Figure 1.16 below²¹

Given that fossil fuel generators cite reduced demand as the key reason for taking their plant out of generation, it is unlikely that anyone would consider building new coal plant which today, while more efficient than the existing plant on the NEM, comes in units with a minimum size of 800MW.

Figure 1.16
Trading intervals above \$5000 per megawatt hour



Note: Each trading interval is a half hour.
Sources: AEMO; AER.

Of the plant retired or taken off-line, only one has been retired. It is presumed that when the market picks up the remainder may come on line. Several of these power stations are heavy carbon emitters which will create further challenges to emissions reduction within a similar cost bracket as that provided by the RET.

Key pricing considerations for the RET Review are the impact of the RET on power pricing – which is to reduce it – and the cost of emissions reduction under other schemes.

disorderly bidding in Queensland, page 39, State of the Energy Market 2013 - <http://www.aer.gov.au/sites/default/files/Chapter%201%20-%20National%20electricity%20markets%20A4.pdf>

²¹ State of the Energy Market 2013 - <http://www.aer.gov.au/sites/default/files/Chapter%201%20-%20National%20electricity%20markets%20A4.pdf>

The emissions reductions which flow from the RET are part of the cost of progressing renewable energy which both accepted and popular among consumer but also importantly paid for by all consumers. While several big customers objected to the carbon price there is a greater acceptance by most parties of the price allocated to wind energy and solar on the electricity bill.

The costs of any other emissions scheme would need to be clearly explained to those who will pay and such a scheme would need to have clear auditable, administrative measures documented and implemented. While the RET is in place such a new scheme is not required and would be a non-trivial reinvention of the wheel.

How should reforms to the RET be implemented? What transitional issues could arise and how might they be addressed?

While the industry believes the scheme is effective and any material reduction or deferral of the renewable energy target would have significant negative impacts, there are two areas of change that are worthy of consideration:

- Removing the provision for a legislated review of the RET every two years. This has presented the single biggest challenge to the industry and the effectiveness of the scheme. Constant reviews, and the associated uncertainty and speculation, stall financing and result in sub-optimal levels of investment;
- An extension of the scheme beyond 2030 (while leaving the current 2020 target in place) to allow a more stable and efficient rate of deployment of new renewable energy projects.

The RET and other policies

How does the RET interact with other government policies that have, or will have, an impact on the operation of the RET, or that impact on renewable energy or energy markets more generally? What can be done to improve the efficiency and effectiveness of these interactions in delivering intended policy objectives?

A key driver of the RET is emissions reduction. The AER has an excellent summary of the market. It notes:

The use of black and brown coal for electricity generation peaked in 2008–09 and has since declined. While energy demand has also declined, gas powered generation rose over the past decade, following new investment in all regions of the NEM. Wind generation has risen strongly, particularly since a 2007 expansion of the RET increased the target and extended the scheme to 2020.

The introduction of carbon pricing in 2012 contributed to further shifts in the generation mix. Notably, around 2300 MW of coal plant has been shut down (retired) or periodically offline since 2012 (table 1.3). The closures generally affected older, higher cost plant. Some plant is running only in summer, when demand is typically high (for example, Alinta’s Northern plant in South Australia).

Other owners are rotating plant throughout the year. CS Energy, for example, operated only three of its six 280 MW Gladstone units in Queensland in January 2013.

AEMO cited carbon pricing and the growth of renewable energy at a time of weak electricity demand as driving the reduced availability of coal plant. Most plant owners cited low energy demand as a key factor in their decisions.

The owners of Tarong (Queensland), Munmorah (New South Wales), Morwell and Yallourn (Victoria) also cited climate change policies as a contributing factor. ...

The share of gas powered and wind generation in the energy mix also rose in 2012–13. Overall, these changes in the generation mix contributed to the emissions intensity of generation in the NEM falling from 0.916 tonnes of carbon emissions per megawatt hour (MWh) of electricity produced in 2011–12, to 0.875 tonnes per MWh in 2012–13—a decline of 4.5 per cent. This fall in emissions intensity, combined with lower NEM demand, led to a 7 per cent fall in total emissions from electricity generation in 2012–13.

As long as the renewable energy industry and the fossil-fuel industry exist as dynamic players in the NEM prices will be kept in check and there will be some balancing of generation and emissions reduction.

Reducing the administrative burden of the RET.

Can the administrative arrangements of the RET be simplified? If so, how can they be simplified and what would be the risks of doing so?

The administrative burden is not so great. As H.L. Mencken said: "For every complex problem there is an answer that is clear, simple, and wrong". Changes to the administrative arrangements of the RET would risk unforeseen consequences and further rock investor confidence.

Other issues for the Review:

As a result of our involvement in the Uterne solar power station expansion near Alice Springs we have become aware of the perverse outcome that including renewable electricity acquisitions as a component of the threshold which determines an obligated party's liability acts as a disincentive to support renewable energy. It would indeed be perverse if the RET was the single impediment to 3MW of solar being installed into the grid in Alice Springs. We recommend a minor administrative adjustment to correct this unintended consequence.

Should any other energy sources be included in the LRET?

Any source should be considered if it is renewable and passes the same test as the current sources.

Should any non-renewable (but low emissions) energy sources be included?

No. The Act is a renewable energy act.

Should any new small-scale generation technologies be eligible under the SRES? Should any new displacement technologies be eligible under the SRES?

Any technology should be eligible if it passes the relevant test. The scheme is technology neutral so as long as it is eligible and viable it should be allowed to participate.

What should be the frequency of statutory reviews of the RET?

Investment has slowed and stalled cyclically over the term of the RET. Fast on the heels of the previous review, which in summary recommended that the scheme continue and reviews be every 4 years, ongoing uncertainty has stalled development for three years.

Statutory reviews should be no more frequent than 6 months after each federal election or 18 months prior to the end of the RET. Under that timing even if threats to amend the legislation were

made there would be sufficient time for investment to proceed prior to a review. To date there has been very little investment since the previous review.

Table showing investment status of projects within and outside of the Treasurer Joe Hockey's electorate

Wind Farm Name	State	Developer	Owner/ Operator Origin	North Sydney Electo- rate	Status	Capacit y (MW) Maxim um	Capital Cost (\$M)	Calculated \$M/MW	Assum ed \$M/M W	Reference
Cullerin Range	NSW	Epuron	Origin Energy	Yes	Operating	30	90	3.0		www.originenergy.com.au/cullerinrange
Macarthur	VIC	Meridian	AGL	Yes	Operating	420	900	2.1		www.agl.com.au/about-agl/how-we-source-energy/renewable-energy/macarthur-wind-farm
Toora	VIC	Ratch	Transfield	Yes	Operating	21	38	1.8		http://ratchaustralia.com/ratch_renew_toora.html
Oaklands Hill	VIC	WindLab	AGL	Yes	Operating	67	200	3.0		http://www.agl.com.au/about-agl/how-we-source-energy/renewable-energy/oaklands-hill-wind-farm
Brown Hill (Hallett 1)	SA	Prospect	AGL	Yes	Operating	95	228	2.4		http://www.agl.com.au/about-agl/how-we-source-energy/renewable-energy/hallett5-wind-farm/the-project
Hallet Hill (Hallett 2)	SA	Prospect	AGL	Yes	Operating	71	189	2.7		http://www.agl.com.au/about-agl/how-we-source-energy/renewable-energy/hallett5-wind-farm/the-project
North Brown Hill (Hallett 4)	SA	Prospect	AGL	Yes	Operating	132	334	2.5		http://www.agl.com.au/about-agl/how-we-source-energy/renewable-energy/hallett5-wind-farm/the-project
Bluff Range (Hallett 5)	SA	Prospect	AGL	Yes	Operating	53	129	2.4		http://www.agl.com.au/about-agl/how-we-source-energy/renewable-energy/hallett5-wind-farm
Starfish Hill	SA	Tarong Energy	Ratch	Yes	Operating	35	65	1.9		http://ratchaustralia.com/ratch_renew_starfish.html
Wattle Point	SA	Meridian	AGL	Yes	Operating	91	225	2.5		http://www.aussierenewables.com/directory/listing.php?id=93
Windy Hill	QLD	Stanwell	Ratch	Yes	Operating	12	20	1.7		http://ratchaustralia.com/ratch_renew_windy.html
Operating Wind farms owned or developed by companies in North Sydney Electorate							\$2,417			
Gullen Range	NSW	Epuron	Goldwind	Yes	Construction	166	380	2.3		www.gullenrangewindfarm.com/
Taralga	NSW	RES	CBD Energy	Yes	Construction	107	285	2.7		www.taralga-windfarm.com.au/
Ararat	VIC	RES	-	Yes	Construction	255	450	1.8		www.ararat-windfarm.com/
Wind farms in construction owned or developed by companies in North Sydney Electorate							\$1,115			

Wind Farm Name	State	Developer	Owner/ Operator	North Sydney Electo rate	Status	Capacit y (MW) Maxim um	Capital Cost (\$M)	Calculated \$/MW	Assum ed \$/M W	Reference
Silverton	NSW	Epuron	AGL	Yes	Approved	300	600		2.0	www.agl.com.au/about-agl/how-we-source-energy/renewable-energy/silverton-wind-farm
Conroys Gap	NSW	Epuron	-	Yes	Approved	30	60		2.0	www.epuron.com.au/project-summary/
White Rock Wind	NSW	Epuron	-	Yes	Approved	238	476		2.0	www.epuron.com.au/project-summary/
Collector	NSW	Ratch	-	Yes	Approved	214	428		2.0	//ratchaustralia.com/collector/ratch_collector_about.html
Barn Hill	SA	AGL	-	Yes	Approved	186	372		2.0	http://ramblingsdc.net/Australia/WindSA.html#Barn_Hill_Wind_Farm
Approved Wind Farms owned or developed by companies in North Sydney Electorate							\$1,936			
Rye Park	NSW	Epuron	-	Yes	In planning	378	756		2.0	www.epuron.com.au/project-summary/
Liverpool Range	NSW	Epuron	-	Yes	In planning	1,251	2502		2.0	www.epuron.com.au/project-summary/
Penshurst	VIC	RES	-	Yes	In planning	-	-		2.0	www.res-australia.com/wind-farms/penshurst-wind-farm/introduction
Mt Emerald	QLD	Ratch	-	Yes	In planning	210	500	2.4		http://ratchaustralia.com/ratch_dev_mtemerald.html
Yass Valley Wind Farm	NSW	Epuron	-	Yes	In planning	518	1036		2.0	
Wind farms in the planning process owned or developed by companies in North Sydney Electorate							\$4,794			
<hr/>										
N Sydney Electorate generated investment			actual	\$3,532	potential	\$6,730	Total	\$10,262		
Capital Wind Farm	NSW		Infigen		Operating	140	280		2.0	
Gunning	NSW		Acciona		Operating	47	94		2.0	
Woodlawn	NSW		Infigen		Operating	48	96		2.0	
Challicum Hills	VIC		Pacific Hydro		Operating	53	106		2.0	
Mortons Lane	VIC		Goldwind Pacific		Operating	20	40		2.0	
Portland	VIC		Hydro		Operating	102	204		2.0	
Waubra	VIC		Acciona		Operating	192	384		2.0	
Musselroe	TAS		Hydro Tas		Operating	168	336		2.0	
Woolnorth	TAS		Hydro Tas		Operating	140	280		2.0	

Canunda	SA	Wind Prospect	International Power	Operating	46	92	2.0		
Cathedral Rocks	SA		Energy Australia Pacific	Operating	66	132	2.0		
Clements Gap	SA		Hydro	Operating	57	114	2.0		
Lake Bonney 1	SA		Infigen	Operating	81	162	2.0		
Lake Bonney 2	SA		Infigen	Operating	159	318	2.0		
Lake Bonney 3	SA		Infigen	Operating	39	78	2.0		
Mt Millar	SA	Wind Prospect	Tarong	Operating	70	140	2.0		
Snowtown	SA	Wind Prospect	Trustpower	Operating	99	198	2.0		
Waterloo	SA		Energy Australia	Operating	111	222	2.0		
Capital 2	NSW	Infigen		Approved	90	180	2.0		
Cherry Tree	VIC	Infigen		Approved	50	100	2.0		
Flyers Creek	NSW	Infigen		Approved	115	230	2.0		
Glen Innes Wind Farm	NSW	National Power	One Wind	Approved	75	150	2.0	http://www.nppower.net/	
Woakwine	SA	Infigen		Approved	540	1080	2.0		
Snowtown 2	SA	Wind Prospect	Trustpower	Construction	101	202	2.0	http://www.trustpower.co.nz/our-assets-and-capability/power-generation/snowtown	
Electorates other than North Sydney electorate generated investment					\$5,218				
Coopers Gap	QLD	AGL	-	Yes	On hold	300	600	2.0	http://www.agl.com.au/about-agl/how-we-source-energy/renewable-energy/coopers-gap-wind-farm