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19 September 2012

Mr Bernie Fraser
Chair
Climate Change Authority
GPO Box 1944
Melbourne, VIC 3011

Dear Mr Fraser

The Climate Institute presents the attached submission to the Climate Change Authority on its first review of the Renewable Energy Target (RET).

Established in late 2005, The Climate Institute is a non-partisan, independent research organisation that works with community, business and government to catalyse and drive the change and innovation needed for a low pollution economy and culture. Our vision is for a resilient Australia prospering in a zero carbon global economy, participating fully and fairly in international climate change solutions.

The RET plays an important role in facilitating Australia's transition to a zero carbon economy. However, repeated reviews and amendments to the scheme have resulted in stop-start industry development. Although the industry has the capacity to meet the target, changes to the scheme risk further delays in investment.

Arbitrarily reducing the target would impose costs, in policy uncertainty and risk, financial impairment of existing investments, and higher fuel and carbon costs. It would also threaten the diversification of Australia's energy portfolio, necessary in the long term to both energy security and the cost-effective achievement of climate goals. The Climate Institute makes the following recommendations

+ Future RET reviews should be reduced in frequency and limited in scope. The year 2016 should be the earliest major review and the scope should be narrowed to consideration of post-2020 design issues (e.g. expanding the target post-2020).

+ The LRET's current fixed target of 41,000 GWh should be maintained, and the Climate Change Authority should ensure that the target is not vulnerable to reduction in future reviews.

+ The Climate Change Authority should discuss and where possible quantify the long-term costs and benefits on households and other businesses of the RET and the continued exemptions for EITE businesses in the scheme.

For any further information, please contact Olivia Kember, National Policy and Research Manager, on okember@climateinstitute.org.au or 02 8239 6299.

Yours sincerely

John Connor, CEO

The Climate Institute

Submission for the Climate Change Authority Review of the Renewable Energy Target

September 2012

Submission

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Cover Photograph: Michael Hall

Introduction

Established in late 2005, The Climate Institute is a non-partisan, independent research organisation that works with community, business and government to catalyse and drive the change and innovation needed for a low pollution economy and culture.

Our vision is for a resilient Australia prospering in a zero carbon global economy, participating fully and fairly in international climate change solutions.

This submission outlines The Climate Institute's views on the Renewable Energy Target (RET) and its role in helping facilitate Australia's transition to a zero carbon economy.

Note the submission does not focus on the operation of the small-scale renewable energy target (SRES). The SRES should not be changed if it undermines broader investor confidence in the RET overall or undermines the long-term cost effectiveness of achieving the existing 2050 emissions reduction target and other deployment benefits.

Summary

The Climate Institute is concerned with these two principal objectives of the Renewable Energy Target:

a) to encourage the additional generation of electricity from renewable sources; and
b) to reduce emissions of greenhouse gases in the electricity sector;

We also discuss a strategic approach to analysing the costs and benefits of the scheme.

DRIVING INVESTMENT IN CLEAN ENERGY

The Renewable Energy Target (RET) is driving investment in clean energy but ongoing review fatigue is taking its toll.

The RET has helped fuel investment of $18 billion in renewable energy since 2001, of which around $10 billion was invested since 2009. However, repeated reviews and amendments to the scheme have resulted in stop-start industry development.

The growth of large-scale renewable generation has now almost stalled. Investment in large-scale renewable energy fell from around $2.5 billion in 2010 to less than $1 billion in 2011, and $165 million in the first half of 2012. The register of public generation developments shows that, while 16,000 MW worth of projects have been publicly announced, including some 13,400 MW of wind, almost none is advanced and only 600 MW of wind are committed.

Market participants and project financing professionals generally agree that key factors for this are not only the slump in the LGC price, but also the investment uncertainty created by the biennial RET review process itself, which has reopened the possibility of further major changes to the RET framework. This uncertainty is exacerbated by policy uncertainty in the energy sector more broadly. Although the industry has the capacity to meet the target, changes to the scheme risk further delays to investment.

Recommendation: Future reviews should be reduced in frequency and limited in scope. The year 2016 should be the earliest major review and the scope should be narrowed to consideration of post-2020 design issues (e.g. expanding the target post-2020).

A number of commentators have suggested that the RET's target should be lowered and/or changed from a fixed GWh target to a floating 20 per cent target. Advocates of this view do not quantify the costs associated with a reduced LRET, such as the costs of policy uncertainty, financial impairment of existing investments, and higher fuel and carbon costs.

The fixed target of 41,000 GWh provides a clear pathway for investment in renewable energy. There is no justification for lowering the target, nor for changing it from a fixed amount of GWh to a percentage of electricity generation. Shifting to a percentage-based target was considered and rejected by the Tambling Review in 2003, which noted: "The changes in projected electricity demand that have occurred since the MRET was announced demonstrate that a percentage-based

target would require the corresponding generation level to be regularly revised. This would adversely impact on market certainty. Risk is a key factor in investment decision making, so that any changes to MRET that would reduce market certainty would also reduce the prospect of attracting the required financial backing for projects. … a fixed target is more compatible with market certainty, with MRET's industry development objective, which defines a level of renewable energy generation rather than a percentage of a fluctuating electricity market over which the industry has no control." These points remain valid.

Arbitrarily changing the target based on current market forecasts may also lead to unforseen outcomes. Depending on a range of plausible assumptions, an LRET of 27,000 GWh target, as supported by Origin Energy, for example, could lead to the proportion of renewable electricity in 2020 falling below 20 per cent. If hot, dry conditions persist with the emergence of a new El Nino event and this reduces hydroelectric generation to 12,000 GWh, as in 2007-2009, an LRET of 27,000 results in only 18 per cent of electricity coming from renewable generation in 2020. (It is important to note that Origin's calculations exclude small-scale solar generation from total generation, but count it toward the target. The results above include 8,000GWh solar for total electricity generation of 258 TWh.) This is not a prediction, but an illustration that any number of assumptions can be chosen to suit a particular political argument to change the GWh target.

Recommendation: Maintain the LRET's current fixed target of 41,000 GWh and ensure that the target is not vulnerable to reduction in future reviews.

REDUCING EMISSIONS

The RET has reduced and will reduce emissions in the short to medium term. However, in the context of a carbon price it is less its short-term abatement but its strategic role in long-term emission reductions that is important. Under all plausible energy policy scenarios where Australia contributes to global efforts to reduce emissions consistent with avoiding dangerous climate change, our nation's energy sector will need to be decarbonised before the middle of the century. This will require a broad range of low, zero and negative emission technologies to be deployed over the coming decades.

Overall, complementary policies have an essential role to play in the transition to a zero emissions economy. This transition is a marathon, not a sprint. Success requires setting policy that provides incentives for Australian firms to start investing in way consistent with long-term goals. In the absence of policies consistent with avoiding dangerous climate change, business will delay the required investments in low-carbon technologies and carbon sequestration. The longer the delay in low-carbon investments the higher the economic costs of meeting longer term emission targets, for example, as investors commit to long-lived assets that are excessively emissions-intensive. As a result, the nation risks deadweight losses from 'stranded assets' and will have to spend on more costly abatement later on. Finally, while many elements of a technology's costs will be determined by global factors, domestic 'learning by doing' has and will continue as new technologies are adopted. This will reduce the long-term costs of emission reductions.

Once global carbon markets are more developed the advantages of complementary measures might be outweighed by emerging domestic and international considerations. However, this is unlikely to occur before 2020.

A STRATEGIC VIEW OF COSTS AND BENEFITS

As the International Energy Agency argues, ensuring energy availability over the long term demands a strategically diversified energy portfolio, including different energy sources and different supply pathways for each source.

Because renewables are less exposed to the supply risks associated with fossil fuels, they can increase energy availability by reducing the impact of supply disruptions. Similarly, renewable energy sources are not exposed to the uncertainty and volatility of fuel prices. The IEA notes that "[r]enewables are a strategic option to reduce dependence on these sources that are subject to price uncertainty and its economically detrimental effects." By increasing the penetration of renewables in Australia's electricity supply, the RET enhances Australia's energy diversity, availability and long-term affordability.

These benefits need to be considered when discussing the short-term impacts of the RET on consumers. (In the context of other components of electricity pricing and other drivers of price rises the costs of the RET are small. For example, modelling by the AEMC puts the combined costs of the LRET and SRES at less than 1.0c/kWh in the years to 2020 in a scenario with carbon pricing.)

It must be noted that the cost of the RET to consumers is also higher because of the partial exemption of emissions-intensive trade-exposed (EITE) industries from their RET obligations. For example, analysis by The Climate Institute has found that EITE firms pay only eight per cent of the RET's costs while consuming around 25 per cent of Australia's electricity. Households, meanwhile, consume 29 per cent of electricity but pay 35 per cent of the costs of the RET. Over the life of the RET, this transfers approximately $7 billion in costs from EITE businesses to non-EITE businesses ($4.4 billion) and households ($2.7 billion).

Finally, by 2020, Australia needs a broad range of commercial-scale low-emission technologies in operation if it is to achieve long-term climate goals most cost-effectively. The RET is not the only policy working towards this goal. The carbon price, the Clean Energy Finance Corporation, the Australian Renewable Energy Agency, CCS flagships, the Carbon Farming Initiative and various energy efficiency programs should enable deployment of a range of technologies over this timeframe.

It may be argued that the level of diversity facilitated by these policies is insufficient. Even if that is the case it is not clear that amending the LRET to increase diversity is the best solution. Amending the LRET, for example by introducing technology banding, would significantly increase policy uncertainty, and undermine the market-based mechanism at the core of the scheme.

Recommendation: The Climate Change Authority should discuss and where possible quantify the long-term costs and benefits on households and other businesses of the RET and the continued exemptions for EITE businesses in the scheme.

Section 1

Tracking the RET's progress against its objectives

The Climate Institute is concerned with these two principal objectives of the Renewable Energy Target:

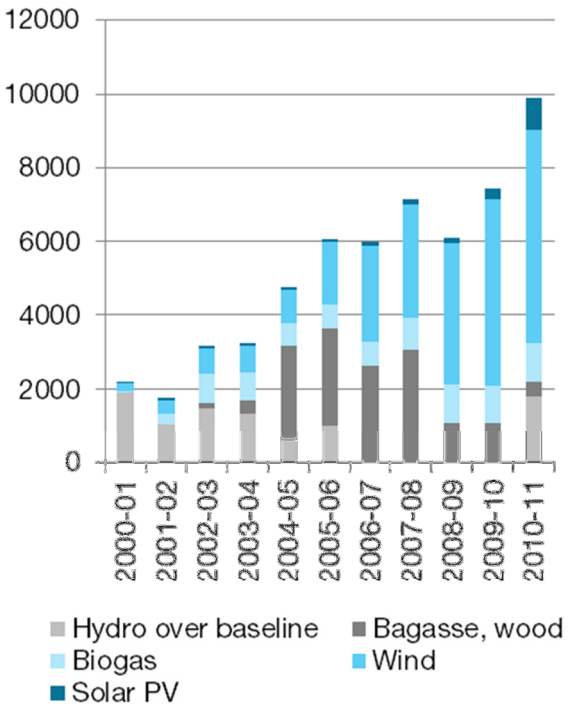
a) to encourage the additional generation of electricity from renewable sources; and
b) to reduce emissions of greenhouse gases in the electricity sector

1.1 Object 1: Increasing renewable energy generation

The RET is driving investment but ongoing review fatigue is taking its toll.

The RET has driven increased installation and generation of renewable energy. Wind generation has more than doubled in the last five years, from about 2.5TWh in 2007 to nearly 7TWh in 2011. Driven by both the RET and state-based feed in tariffs, rooftop solar PV grew from a base of effectively zero five years ago to nearly 1TWh in 2011.[1] In total, renewable energy was responsible for 10 per cent of Australia's electricity generation in 2011.[2] Subtracting the RET baseline amount results in 3.5 per cent of electricity generation being created through the RET. This progress has been fuelled by investment of $18 billion in renewable energy since 2001, of which around $10 billion was invested since 2009.[3]

Figure 1. *Renewable electricity generation (excluding hydro and biomass below baseline)*[4]



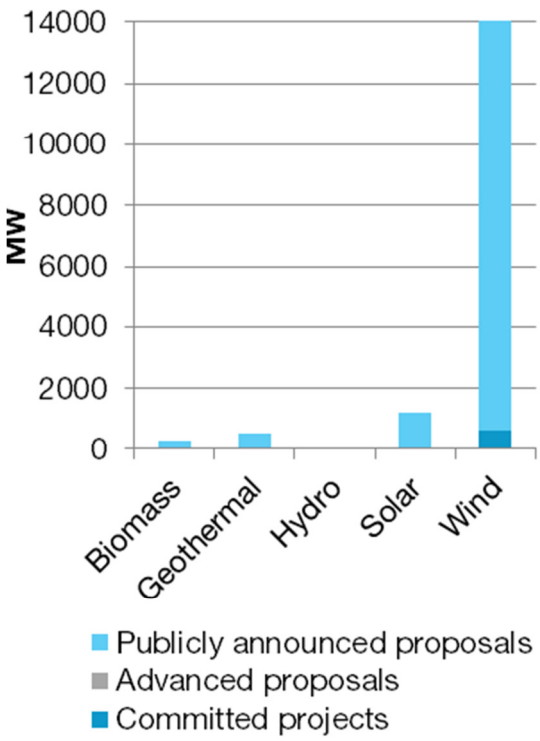
However, repeated reviews and amendments to the scheme have resulted in stop-start industry development.

- **2001**– Introduction of the Mandatory Renewable Energy Target aimed at increasing renewable energy generation by 2 per cent of electricity demand by 2010 and contributing to the Howard Government's commitment to its Kyoto Protocol target.
- **2003** – **Tambling Review** of MRET recommended expanding target to 20,000 GWh by 2020 and extending scheme beyond 2020.

- **2004** – Commonwealth Government declined to expand or extend target.
- **2006** – Victoria legislates the Victorian Renewable Energy Target (VRET), effectively duplicating MRET
- **2007** – Both major parties made election **promises to expand the target**.
- **2009** – **Expansion of the target** to 20 per cent (45,000GWh) and institution of the Solar Credits Multiplier. State and commonwealth policy decisions drove a boom in small-scale solar investment, principally through state feed-in tariffs, with the solar multiplier a contributing factor. The boom effectively crowded out other forms of renewable energy and created a huge oversupply of RECs. In 2010, 40 million RECs were created, compared with a target of 9.5 million.[5]
- **2010** – **Split of targets** into LRET (fixed 41,000GWh) and SRES in 2010. An excess of solar-generated RECs was carried over into the market for LRET certificates (LGCs) contributing to a lower than appropriate LGC price. The solar multiplier has been progressively reduced and winds up in June 2013. State governments, meanwhile, have also wound back their various feed-in tariffs.
- **2012** – **first biennial RET Review** opens up scheme to comprehensive change.
- **2014** – **next biennial RET Review**
- **2016** – **biennial RET Review**
- **2018** – **biennial RET Review**
- **2020**– **biennial RET Review**

The growth of large-scale RE generation has now almost stalled. Investment in large-scale renewable energy fell from around $2.5 billion in 2010 to less than $1 billion in 2011, and $165 million in the first half of 2012[6]. The register of public generation developments shows that, while 16,000 MW worth of projects have been publicly announced, including some 13,400 MW of wind, almost none is advanced and only 600 MW of wind are committed.

Figure 2. *Current status of public generation developments in the NEM*[7]



Source: AEMO, Electricity Statement of Opportunities 2012

Market participants and project financing professionals generally agree that key factors for this are not only the slump in the LGC price, but also the investment uncertainty created by the biennial RET review process itself, which has reopened the possibility of further major changes to the RET framework.[8] Although the industry has the capacity to meet the target, changes to the scheme risk further delays to investment. This uncertainty is exacerbated by policy uncertainty in the energy sector more broadly (see section 2.1, Investment certainty and industry development, below).

As noted by the Investment Reference Group report to the Minister for Resources and Energy:

> *'There is no inherent demand for RECs as there typically is for traditional commodities traded by energy market participants (such as gas and electricity). The potential impact of policy uncertainty in this type of market environment is instrumental because policy*

and regulatory parameters directly influence the supply, demand and therefore price of the commodity. The less stable the policy framework, the greater the risk to market participants because unpredictable changes to price cannot be effectively hedged against. [9]

The biennial RET reviews risk continuing this stop-start pattern. The reviews' frequency and breadth of scope, as well as the length of time spent in anticipation of the review and the Commonwealth Government's response, create a high degree of uncertainty. As noted above, uncertainty about the 2012 review outcomes has had a dampening effect on REC prices, and LRET investment this year has so far fallen well short of 2011 investment, itself a reduction of nearly 70 per cent from the previous year. If future reviews have a similar impact, achieving the target becomes unlikely, or at least much more difficult.

Recommendation: Future reviews should be reduced in frequency and limited in scope. The year 2016 should be the earliest major review and the scope should be narrowed to consideration of post-2020 design issues (e.g. expanding the target post-2020).

1.2 Object 2: Reduce GHG emissions in the electricity sector

RET has reduced and will reduce emissions in the short term. However, in the context of a carbon price it is less its short-term abatement but its strategic role in long-term emission reductions that is important.

Australia's electricity sector is responsible for around 200 million tonnes of carbon dioxide equivalent (Mt CO_2-e) or 35 per cent of the country's greenhouse gas emissions. The Renewable Energy Target has played a noticeable role in reducing the emissions from the sector. DCCEE estimates that abatement from the target averaged 9 Mt CO_2-e per year between 2008-12.[10]

More importantly, generation enabled through the RET will contribute to reduced greenhouse gas emissions throughout the next decade and beyond. DCCEE has projected that abatement from the target will reach 30 Mt CO_2-e in 2020. Modelling by SKM MMA and ROAM for Treasury/DCCEE show that the LRET acts to flatten electricity emissions as it drives all generation growth until around 2020, when the target stops increasing. In scenarios without carbon pricing, the RET lowers the starting point for emissions growth from 2020 onward. In scenarios with carbon pricing, the RET starts a trend of emissions reductions that the carbon price continues.[11]

Modelling by ROAM, however, shows that the LRET is not achieved in the absence of carbon pricing, as the least-cost option is then to pay the penalty price rather than install additional wind capacity (see section 2.3, Interaction with the carbon price).[12]

It should be noted that the modelling for Treasury relied on higher forecast demand than AEMO currently projects. With lower demand the impact of the RET on electricity emissions is greater, as renewable generation displaces more existing fossil fuel generation.

CO-BENEFITS OF THE RET

Countries around the world are implementing policy to encourage renewable energy generation for a number of reasons. The co-benefits of the Renewable Energy Target include:

Reducing exposure to fuel price volatility

- The investment signal sent by the RET discourages investment in non-renewable generation, reducing consumer exposure to fuel price rises and price volatility. For example, the forecasts for domestic gas prices in eastern Australia are anywhere between $5/GJ and $12/GJ by 2020.

Building the renewable energy industry

- The renewable energy industry employs around 8,000 people (FTE) directly, and many more indirectly.[13] Wind and bioenergy account for more than half of these, with a further 2,000 FTE jobs in small-scale solar. Each wind industry job supports two more indirect jobs.[14]
- Estimated cumulative investment in wind generation to 2011 is $7 billion. This includes $4.25 billion spent in Australia, on tower manufacture, site works, local transport and employee support services.[15]
- The growing domestic renewable energy industry enables Australia to capitalise on the global growth in clean energy investment, which reached $280 billion in 2011.[16]

Building regional economies

- Large-scale renewable energy projects are typically located in Australia's regional and rural areas, bringing investment into those communities and providing a range of employment opportunities.
- Construction of a typical 50 MW wind farm could contribute around$45 million to the local/regional economy, as well as $152 million to the state and $225 million to the national economies.[17]
- Local contributions include wages to employees, local procurement of materials and services, community contributions, and payments to farmers for hosting turbine towers. This last can help farmers 'drought-proof' their businesses by providing a predictable supplementary source of income.[18]

Improving public health

- The burning of fossil fuels releases tiny particles in to the air, increasing the risk of cardiopulmonary disease if inhaled. Work published in The Lancet suggests that thousands of lives could be saved from a switch to clean energy.[19]
- Coal-fired power in Australia burdens the community with a human health cost—from lung, heart, and nervous system diseases—estimated at $2.6 billion annually.[20]

Section 2

Key considerations for operation of scheme to 2020

2.1 Investment certainty and industry development

The energy supply sector is characterised by a high level of uncertainty, within which the bipartisan-supported LRET is a force for predictability.

The Opposition has stated it will repeal the existing carbon pricing mechanism, increasing policy risk perceptions in Australia. Financiers of electricity sector investments are factoring ongoing uncertainty around pollution policy into risk premiums for electricity sector investments, imposing additional costs on investors[21] and ultimately on consumers.[22]

The fixed target of 41,000 GWh provides a clear pathway for investment in renewable energy. AGL has estimated that the LRET reduces the costs of climate policy uncertainty from $8/MWh in 2020 to around $1.50.[23]

A number of commentators have suggesting that the RET's target should be lowered and/or changed from a fixed GWh target to a floating 20 per cent target. There is no justification for lowering the target, nor for changing it from a fixed amount of GWh to a percentage of electricity generation. Shifting to a percentage-based target was considered and rejected by the Tambling Review in 2003, which noted that:

> *"The changes in projected electricity demand that have occurred since the MRET was announced demonstrate that a percentage-based target would require the corresponding generation level to be regularly revised. This would adversely impact on market certainty. Risk is a key factor in investment decision making, so that any changes to MRET that would reduce market certainty would also reduce the prospect of attracting the required financial backing for projects. The Review Panel considers that a fixed target is more compatible with market certainty, with MRET's industry development objective, which defines a level of renewable energy generation rather than a percentage of a fluctuating electricity market over which the industry has no control."*

These points remain valid.

Origin Energy have called for the LRET to be lowered to 27,000 GWh in 2020, claiming that to persist with the existing 41,000 GWh target would deliver more than 20 per cent from renewable electricity and increase costs to consumers. Origin has argued that under AEMO's forecasts of reduced demand, 27000 GWh delivered through the LRET, along with an estimated 15,000 GWh from non-LRET hydro generation and 8 GWh delivered by solar PV under the SRES, would produce 20 per cent of the year's electricity generation (assumed to be 250 TWh).[24] There are a number of flaws within this argument. First, Origin's assumptions around future demand, hydro generation and PV generation are all uncertain. Hotter, drier conditions produced by the emergence of an El Nino event, for example, could drive up demand and drive down the proportion of hydroelectric generation. Moreover, Origin's calculations appear to be somewhat

selective about the role of rooftop solar. AEMO's demand projections are based on electricity sent out from large-scale generators, and as such exclude small-scale solar generation (and solar hot water). Total demand is higher by the amount produced by small-scale solar. It is inaccurate to count the renewable electricity generated by solar toward the target without also including it within total electricity generation. Finally, Origin's revised target increases the possibility that renewable electricity in 2020 will fail to reach 20 per cent: if, for example, dry conditions reduce hydroelectric generation to 12,000 GWh, as was seen during 2007-2009, and the 8,000 GWh of solar generation is recognised as part of the total, an LRET of 27,000 results in only 18 per cent of electricity coming from renewable generation.

TRUenergy makes an argument similar to Origin's. TRU uses modelling by ACIL Tasman of an LRET that reaches 28,000 GWh in 2020 and then remains that level to 2030. (ACIL Tasman also reaches its revised target by assuming low growth in demand, excluding small-scale solar generation from the projection of electricity generation in 2020 but counting it toward the target, and assuming an optimistic level of hydroelectricity generation in 2020.[25])

ACIL Tasman's analysis claims that under this scenario, the costs of the RET are reduced by half. However, the reduction in RET costs depends on amending the LRET in such a way that would actively *discourage* additional renewable energy generation.

Under ACIL's revised LRET, new renewable generation would collapse after 2015, and cease completely by 2017. There is no recovery projected by 2030. Investment in wind would fall by an estimated 3,300 MW, to be replaced by 1,000 MW more CCGT. This revised LRET would result in additional renewable energy generation in 2030 of only 10 per cent.

We also note that TRUenergy's position on reviews of the Renewable Energy Target has changed significantly through time. In 2010 the company stated:

> *"… a stable policy framework is the single most important policy-related determinant of a participants ability to manage risk and invest efficiently. The current review of the RET is as potentially destabilising to market participants as the introduction of the scheme itself."*[26]

Neither Origin nor ACIL Tasman quantified the costs associated with a reduced LRET, such as the costs of policy uncertainty, financial impairment of existing assets, and higher fuel and carbon costs.

Analysis by Bloomberg New Energy Finance found that an LRET of 27,000 would see the price of LGCs fall by about $5/MWh, and the cost of achieving the target in 2020 fall 26 per cent, from $13.6 billion to $10.1 billion. Investment would also drop by about 50 per cent, from $19.5 billion to $9.8 billion. Savings of $3.5 billion would occur at the price of $9.7 billion in lost investment.[27]

Analysis by AGL found that reducing the target to 27,000GWh does not, in fact, lower costs to consumers. Instead, lower LGC costs are more than offset by higher wholesale electricity costs, due in part to the higher costs of policy uncertainty (discussed above) but also to the higher costs of gas.[28]

In addition, shifting to a lower or floating target imposes material costs on companies that have already made significant investments through the RET. Pacific Hydro has calculated that a reduced target similar to Origin's would see REC prices fall 60 per cent, cutting revenue streams and diminishing the value of existing renewable energy plant, and forcing project proponents to write off much of the value of project development costs.

Recommendation: Maintain the LRET's current fixed target of 41,000 GWh and ensure that the target is not vulnerable to reduction in future reviews.

2.2 Cost impacts and cost effectiveness

The RET produces a range of significant strategic benefits:

- Improved energy security and diversity
- Longer-term cost reductions in meeting emission targets
- Progress toward decarbonisation of the electricity sector

To achieve these benefits, the scheme imposes a cost to energy users, which must be considered in the context of:

- many more significant drivers of electricity price increases
- the small impact on households
- the potential to reduce the impact on households by reforming subsidies for emissions-intensive trade-exposed industries (EITEs).

The International Energy Agency notes that renewable energy technologies contribute significantly to energy security, defined as "the provision of sufficient and reliable energy supplies to satisfy demand at all times and at affordable prices, while also avoiding environmental impacts."[29]

The IEA argues that ensuring energy availability over the long term demands a strategically diversified energy portfolio, including different energy sources and different supply pathways for each source. Because renewables are less exposed to the supply risks associated with fossil fuels, they can increase energy availability by reducing the impact of supply disruptions. Similarly, renewable energy sources are not exposed to the uncertainty and volatility of fuel prices. The IEA notes that "[r]enewables are a strategic option to reduce dependence on these sources that are subject to price uncertainty and its economically detrimental effects." By increasing the penetration of renewables in Australia's electricity supply, the RET enhances Australia's energy diversity, availability and long-term affordability.

Furthermore, as the cost curves for wind and solar PV have proven, deployment of renewable technologies drives both technical improvement and substantial cost reductions. Global factors will be the primary driver of technology cost reductions but local learning by doing has and will continue to occur as technologies are adopted in the Australian market. Independent modelling commissioned by The Climate Institute has found that the RET brings down the cost of achieving a long-term pollution target by $5 to $6 billion in electricity investment due to fast-tracked market experience and innovation.[30]

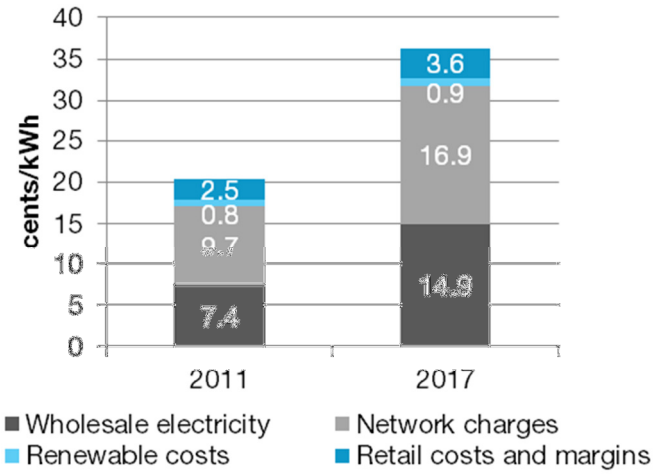
In the long term the LRET contributes to the decarbonisation of the electricity sector, reducing the risk of polluting assets being stranded under high carbon prices, or continuing to operate in conflict with national emissions reduction obligations where international trading complements but does not replace domestic emission reductions.

The RET also generates immediate benefits, including $19.5 billion forecast to be spent directly in renewable energy investment by 2020[31] and the reduced costs of policy uncertainty noted above, worth $266 million in 2020. To these can be added the fuel and carbon costs avoided by renewable generation and the employment and income generated by industry development (see box 'Co-benefits of the RET' p. 10).

The RET has been criticised for raising electricity costs for consumers.[32] In the context of other components of electricity pricing and other drivers of price rises the costs of the RET are largely insignificant. Modelling by the AEMC puts the combined costs of the LRET and SRES at less than 1.0c/kWh in the years to 2020 in a scenario with carbon pricing.[33] Modelling by Port Jackson Partners of price drivers in NSW similarly find the costs of the RET to be less than 1.0c/kWh at least to 2017. In contrast, wholesale costs accounted for 7.4c/kWh, transmission and distribution costs

for 9.7c/kWh, and retail for 2.5c/kWh in 2011 and each of these components is projected to continue to increase substantially in the next five years.[34]

Figure 6. *Projected increases in NSW residential electricity prices*



Source: Port Jackson Partners,2011

It must be noted that the cost of the RET to consumers is also higher because of the partial exemption of emissions-intensive trade-exposed (EITE) industries from their RET obligations. Analysis by The Climate Institute has found that EITE firms pay only eight per cent of the RET's costs while consuming around 25 per cent of Australia's electricity. Households, meanwhile, consume 29 per cent of electricity but pay 35 per cent of the costs of the RET. Non-EITE businesses pay 57 per cent of the costs of the RET while accounting for only 46 per cent of total electricity demand. Over the life of the RET, this transfers approximately $7 billion in costs from EITE businesses to non-EITE businesses ($4.4 billion) and households ($2.7 billion).[35]

Recommendation: The Climate Change Authority should discuss and where possible quantify the long-term costs and benefits on households and other businesses of the RET and the continued exemptions for EITE businesses in the scheme.

2.3 Interaction with carbon price

When the Howard Government introduced the MRET no national carbon price was in place. The passage of the Clean Energy Future package now sees the RET operate in the different environment, raising questions as to whether the RET is necessary in the context of the emissions trading scheme. The role of complementary measures to a carbon price in Australia is an ongoing political and policy discussion.

Although COAG has agreed a set of complementary principles to help guide policy-making in this area, these principles fail to articulate either the long-term goals of climate policy or the specific expectations surrounding the trajectory of Australia's carbon price. Nor do the principles deal clearly with policy objectives beyond abatement.

These gaps render the principles too vague to usefully and rigorously test whether a specific policy is complementary to a carbon price or not.

One view is that as the RET is targeting the obstacles to investment in domestic renewable energy, the carbon price is unlikely to address these barriers within this decade and therefore the policies are clearly complementary. Another view might be that as the RET has an emissions reduction objective and the costs of its abatement are in the short term more expensive than those achieved through the carbon price, the price alone is sufficient and the RET merely imposes additional and unnecessary costs to meet a given emissions target.

This second argument assumes:

- The market will set the optimum carbon price to achieve a given target. This is implausible in the short term and questionable in the medium term. Australia's carbon price will strongly influenced by prices in the EU emission trading scheme (EU ETS). Current prices in the EU ETS are low due to a range of political and economic factors and do not reflect a price

trajectory consistent with avoiding dangerous climate change. This last point reflects the fact that the EU has not set a binding emission target beyond 2020. Although the EU's long term objective is to reduce domestic emissions by 80 to 95 per cent by 2050, the ETS has no price signals consistent with this objective.

- Non-price barriers to the uptake of cost-effective emission reductions opportunities do not exist. However, there are well-documented non-price barriers to the uptake of low pollution technologies at both ends of the cost curve. As noted in a recent report by the Grattan Institute, 'early investors face high costs, low returns and the risk of competitors free-riding on their initiative' as well as the uncertainty inherent in a carbon price dependent on decisions by governments.[36] Similarly, modelling by ClimateWorks identified capital constraints, information deficiencies and market structure and supply barriers to the uptake of significant financially attractive abatement opportunities.[37] ClimateWorks found that the measures complementary to the carbon price contained in the Clean Energy Future package can unlock abatement of 98 Mt CO_2-e by 2020, and a further 148 Mt CO_2-e could be unlocked by further complementary measures such as emissions performance standards for power stations.[38]

Overall, complementary policies have an essential role to play in the transition to a zero emissions economy. This transition is a marathon, not a sprint. Success requires setting policy that provides incentives for Australian firms to start investing in way consistent with long-term goals. In the absence of policies consistent with avoiding dangerous climate change business will delay the required investments in low-carbon technologies and carbon sequestration. The longer the delay in low-carbon investments the higher the economic costs of meeting longer term emission targets, as investors commit to long-term assets that are excessively emissions-intensive. As a result, the nation risks deadweight losses from "stranded assets" and will have to spend on more costly abatement later on.

Once global carbon markets are more developed the advantages of complementary measures might be outweighed by emerging domestic and international considerations. However, this is unlikely to occur before 2020.

Finally, the RET and the carbon price are mutually reinforcing policies.

The carbon price enables the achievement of the LRET by improving the competitiveness of renewable energy generation within the National Energy Market. Analysis by Bloomberg New Energy Finance finds that both LGCs revenue *and* the carbon price are necessary for future renewable energy investment. According to Bloomberg, in the absence of the carbon price the combined revenue from LGCs and electricity sales is unlikely to cover the long-term costs for wind projects built from 2015 onward.[39] In this situation, rather than build unprofitable assets companies may instead choose to pay the penalty for failing to achieve the target. The AEMC has estimated that the additional costs to consumers of an LRET but no carbon price are around $20 billion by 2030.[40]

2.4 Diversity of renewable energy sources

The LRET is designed to facilitate lowest-cost renewable energy. This has favoured hydro, wind, and to a lesser extent biomass. As shown in Figure 2, above, the vast majority of publicly announced and committed projects in the NEM are wind farms.

This underscores a central point. By 2020 Australia needs a broad range of commercial-scale low-emission technologies in operation if it is to achieve long-term climate goals most cost-effectively. The RET is not the only policy working towards this goal. The carbon price, the CEFC, the ARENA, CCS flagships, the Carbon Farming

Initiative and various energy efficiency programs should enable deployment of a wide range of technologies over this timeframe.

Some 1200 MW of large-scale solar generation have also been publicly announced, but are likely to be dependent on support from the former Australia Solar Institute (now part of the Australian Renewable Energy Agency (ARENA) and the Clean Energy Finance Corporation (CEFC).

The CEFC also has the potential to encourage deployment of commercial-scale PV, along with substantial energy efficiency improvements.[41]

It may be argued that the level of diversity facilitated by these policies is insufficient. Even if that is the case it is not clear that amending the LRET to increase diversity is the best solution. Firstly, there are several other financing mechanisms to promote diversity, principally the ARENA and the CEFC. These bodies will support a wide range of emerging technologies and will likely play a role in changing the composition of energy sources deployed through the LRET. Secondly, amending the LRET, for example by introducing technology banding, would significantly increase policy uncertainty, and undermine the market-based mechanism at the core of the scheme.

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