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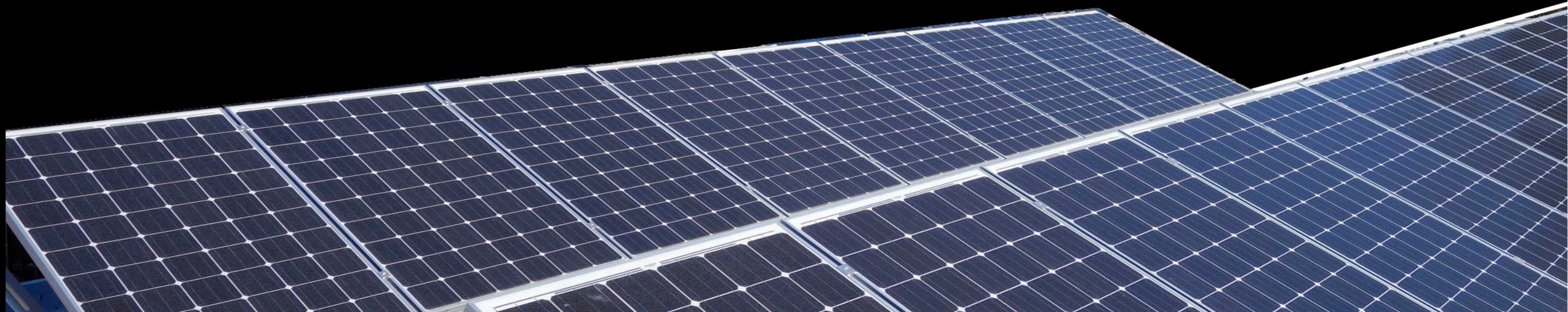
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REVIEW OF THE
RENEWABLE ENERGY
TARGET (RET)

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Review of the Renewable Energy Target

Introduction

The Energy Change Institute (ECI) at the Australian National University is pleased to provide a submission to the Review of the Renewable Energy Target.

The ECI provides authoritative leadership in Energy Change research and education through a broad portfolio ranging from the science and engineering of energy generation and energy efficiency, to energy regulation, economics, sociology and policy.

The ECI comprises more than 200 staff and PhD students from all 7 Colleges of the University, plus around \$100 million in infrastructure and facilities, supported by a major portfolio of external grant funding.

The ECI is both technology and policy neutral.

Preamble

The RET is a government policy tool that has been successfully used to accelerate the deployment of renewable energy across Australia. The reason for doing this is to take early advantage of the large number of collateral benefits to the economy and society that arise from a diversification of our energy base and its geographic location, which include:

- Increased competition in the electricity market which places downward pressure on prices that compensates the increase in prices due to the RET¹. As the learning rates for these new technologies is greater than that for conventional fossil fuels, early market penetration arising from the RET will enable more rapid capture of the benefits of such competition.
- Reducing costs of electricity to energy intensive businesses to improve international competitiveness due to the RET's downward pressure on electricity prices, coupled with the fact that energy intensive businesses are granted an exemption of between 60-90% of the subsidy cost to support the extra renewables.

¹ Sinclair-Knight-Merz, "Estimating the Impact of Renewable Energy Generation on Retail Prices", June, 2013.

<http://images.smh.com.au/file/2013/06/25/4518185/SKM.pdf?rand=1372130430845>;

ROAM Consulting "RET Policy Analysis", April 2014 <https://www.cleanenergycouncil.org.au/policy-advocacy/renewable-energy-target/ret-policy-analysis.html>;

Schneider Electric, "Australia's Large-scale Renewable Energy Target (LRET) Benefits", April 2014.

<http://www.secontact.com/lret> ;

REC Agents Association, "RAA report on impact of the Renewable Energy Target on power prices", February, 2014. <http://www.recagents.asn.au/raa-report-on-impact-of-the-renewable-energy-target-on-power-prices/> ;

Intelligent Energy Systems, "RET Review and Its Impact on the NEM", March, 2014.

http://www.iesys.com/ies/Portals/2/Documents/Insider/IES%20Insider%2016_2014%20RET%20review%20and%20its%20impact%20on%20the%20NEM.pdf

- Avoidance of the risk to investors of stranded assets given that domestic gas prices are forecast to rise in the near future. The early substitution by renewables of proposed new gas-fired power stations diminishes the risk of those assets becoming stranded.²
- New economic opportunities for the Australian energy industry, the learning from which can be applied to export markets, particularly in our region. An example is the application of smart grid technologies to enable the integration of renewables in the NEM over what is arguably one of the largest geographic national electricity grid systems in the world, whose range of environments allows complementary renewable energy resources to match time-varying electricity demand.
- The potential for capitalising on our enormous renewable energy resource base, coupled with the above knowledge, to enable Australia to export electricity to South-East Asia, for example, through a high-voltage DC interconnector with Indonesia³.
- Greater energy security by diminishing our reliance on fossil fuels and other energy sources whose price and supply chains may shift over time, whereas wind and solar resources provide a secure, indigenous supply. The imminent threat to domestic gas supply through the exposure to international gas market prices is but one example.
- The provision of a wider choice of energy sources appropriate to particular geographic locations and customer bases which can enhance regional job creation. As an example, the installation of rural wind farms has helped drought-proof farming income. Around 40% of the expenditure for wind and PV systems is for labour within Australia, and between 2008 and 2012, 15,000 new jobs were created by renewables bringing the total to 24,000⁴.
- Investment in renewables has spin-off into innovation and education, and provides productive synergy with the higher education and research sector. The activity generated by the RET allows Australia to be a major player in the worldwide renewable energy innovation and education endeavour.
- In a world in which our international competitors are adopting increasingly tighter greenhouse gas (GHG) emissions targets, Australia will be at a competitive disadvantage in an international market that will penalise products created using carbon-intensive energy sources. Indeed, we may find our products priced out of markets that use carbon content as a way of creating new trade barriers.

In addition, there are collateral benefits to the environment through the reduction in GHG emissions and water intensity, as carbon- and water-intensive fossil fuel generators nearing the end of their useful lifetime are gradually replaced by renewable sources. Acceleration of this process through the RET will bring significant economic benefits, since - as pointed out by many economic analyses including the Stern review⁵ - *any delay* in reducing GHG emissions will result in *greater* economic cost, as fossil fuel replacement will have to accelerate *more rapidly* in the future to keep global temperatures at tolerable levels.

² M. Smith, "Climate Change Risks and Opportunities: Oil and Gas Sector." Published by the Investor Group on Climate Change and the ANU (2013).

³ A. Blakers et al., "Asia Pacific Super Grid – Solar electricity generation, storage and distribution", DOI 10.1515/Green 2(4): 189–202 (2012).

⁴ Australian Renewable Energy Agency, Annual Report 2012-13.
http://arena.gov.au/files/2013/10/ARENA_Annual_Report_2012-13.pdf

⁵ N. Stern, "The Economics of Climate Change, The Stern Review", Cambridge University Press, ISBN: 9780521700801 (2007).

Australia has adopted a **bipartisan** GHG emissions reduction target of 5% by 2020 based on 2000 levels. There are three broad classes of policy mechanisms available to government to achieve this target⁶:

- Price signals – recognised by economists around the world as the most efficient economic mechanism for driving change in investment and consumption decisions⁷ - as achieved by placing a price on GHG emissions that reflects the true future damage to the economy resulting from climate change.
- Incentive schemes, to address potential market failures in emissions pricing mechanisms. This includes the RET which accelerates GHG mitigation to reduce the difficult-to-signal future cost of market inaction.
- Regulatory mechanisms and performance standards to drive energy change.

In light of the present Government's plan to abolish the price on carbon, it would seem that a logical response to support the new Direct Action policy would be to increase the RET, thereby allowing the RET scheme to undertake most of the heavy lifting in the displacement of fossil fuel electricity sources.

However, to remove the RET – a key plank of the second policy mechanism - would leave regulatory mechanisms and performance standards as the only other policy tools at the Government's disposal to assist Direct Action. This would make the bipartisan 5% emissions reduction target very difficult to achieve.

Answers to Specific RET Review Questions

Questions

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

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

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?

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

The objectives⁶ of the Renewable Energy (Electricity) Act 2000 are:

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

⁶ M. Raupach, M et al., "Assessing emissions abatement options for Australia to 2020 and beyond", CCI/ECI Report, January 2014 (see www.energy.anu.edu.au).

⁷ See OECD Report: "Climate and carbon: Aligning prices and policies", October, 2013.

<http://www.oecd.org/environment/climate-carbon.htm>;

IMF Report, Ruud A de Mooij, Michael Keen, Ian W H Parry, "Fiscal Policy to Mitigate Climate Change: A Guide for Policymakers", September, 2012. <http://www.imfbookstore.org/ProdDetails.asp?ID=DFPMEA&PG=1&Type=BL>;

F. Jotzo, 'Reducing emissions: Keep Australia's carbon price', Nature 502:38 (2013).

Since 2008 Australia has seen a reduction in electricity demand, but an even greater reduction in GHG emissions (see figure 1 - upper panel). This reduction in GHG emissions *intensity* is in part due to the RET which has encouraged the replacement of fossil fuel generation by renewables (see figure 1 - lower panel).

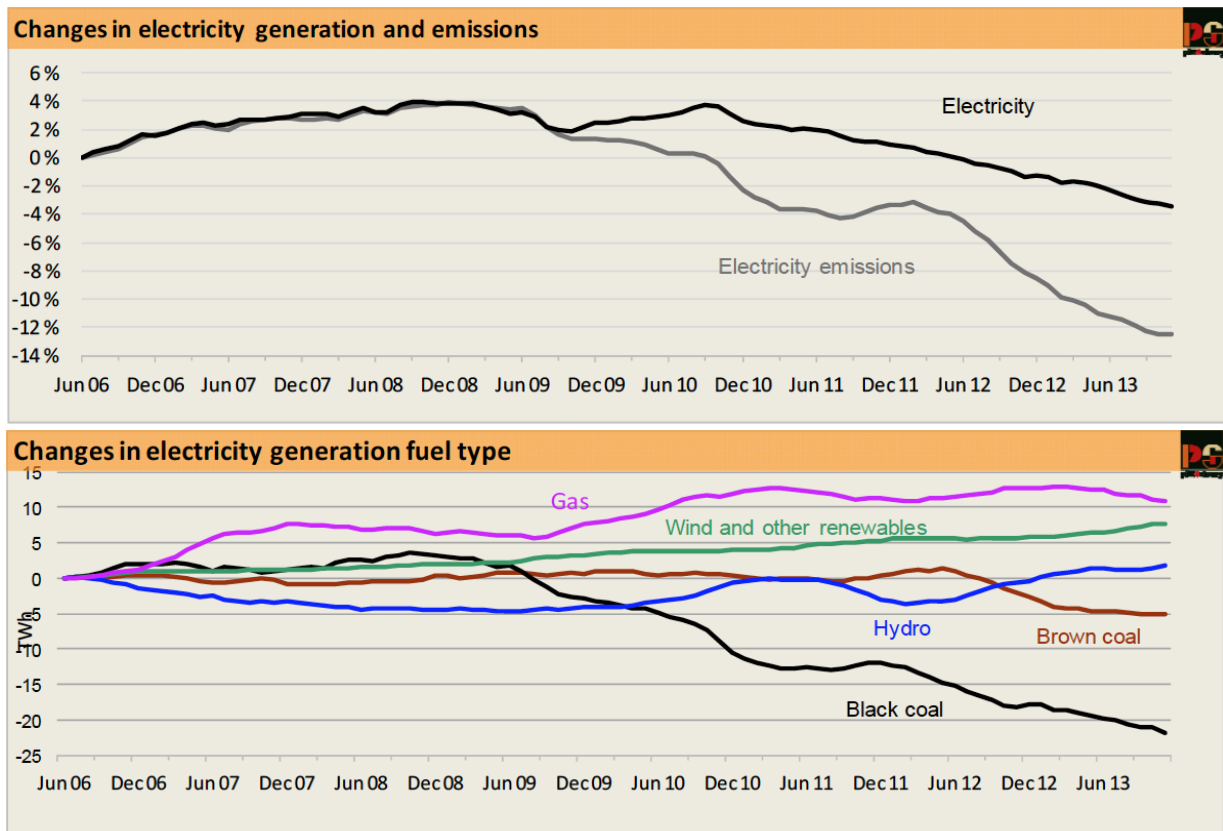


Figure 1. (Upper) Changes in electricity generation (black line) and emissions (grey line). (Lower) Changes in electricity generation fuel type.⁸

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

As indicated above, the RET is an incentive mechanism which accelerates the introduction of renewables, and which *complements* GHG pricing and regulatory/performance standards by addressing market failure e.g. the difficult-to-signal future cost of market inaction.

3. 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?

The RET target is to achieve 41,000 GWh renewable electricity energy generation by 2020. It has been argued that this fixed energy target represents an increased percentage of the electricity generation by renewables given that (as shown in Figure 1) the total amount of electricity generated is falling. There are several responses to this.

First, the fall in electricity demand may reverse and rebound, fuelled by, for example, higher levels of economic activity.

Second, the removal of the carbon price will mean that the RET will have to do more of the heavy lifting when it comes to achieving the 5% GHG reduction target by 2020.

⁸ Source: Pitt and Sherry – "Carbon Emissions Index", December 2013 (Figs 7 & 8).
<http://www.pittsh.com.au/assets/files/Cedex/CEDEX%20December%202013%20Rev01.pdf>

Third, the Stern review⁵ and others have argued that earlier GHG reduction has a positive economic benefit, as the costs of accelerating GHG mitigation in the future are greater than a similar reduction in the present.

Fourth, a more recent understanding of the climate science has indicated that an emissions reduction target of 15% by 2020 is required to keep the world on target for a maximum 2 degree temperature rise given the large, already-committed GHG budget⁹.

All these reasons argue for at the very least retaining the renewable electricity target of 41,000 GWh, if not increasing it.

Indeed, in the international context, Australia's target is less than our international comparators who will gain a competitive advantage in an international market that will place a premium on products created using carbon-free energy sources.

Questions:

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

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

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

Should the LRET and SRES schemes be recombined?

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

Are the current exemption arrangements appropriate?

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

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

The RET – through the introduction of tradeable Large-scale Generation Certificates And Small-scale Technology Certificates – has contributed significantly to the acceleration of the deployment of renewable energy. Many of the wind farm and rooftop PV investments that have been made in recent times would not have occurred without the additional incentive provided by the RET. Given the spill-over benefits of early adoption of renewable sources articulated in the preamble, this should be seen as a positive outcome of the scheme.

Further, the RET allows renewables to directly compete with old-build (sunk-cost) gas and coal fired power stations as they move towards the end of their useful lives. The additional investment in new renewable energy resources encouraged by the RET is partly offset by savings in fossil fuels, operational costs and avoided capital expenditure from not needing to build new gas- and coal-fired generators to replace aging power stations.

⁹ Climate Change Authority, "Reducing Australia's Greenhouse Gas Emissions—Targets and Progress Review", final Report, February, 2014.
<http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/files/Target-Progress-Review/Targets%20and%20Progress%20Review%20Final%20Report.pdf>

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

Abolishing the RET would make the 5% by 2020 emissions reduction target almost impossible to achieve, and create enormous industry uncertainty that would considerably disrupt investment in the energy sector. This is not a defensible option.

On the contrary, the RET level should be increased in line with the current understanding of our progress towards meeting the global carbon budget⁹ that maintains global warming below 2 degrees. A gradual increase in the target - signalled well in advance - will provide certainty to industry.

We propose that the RET be continuously managed as a rolling target with a period of six years. That is, each year from now, the target will be extended six years hence by one year (starting in 2021) and will reflect an increasing target above 41,000 GWh.

The impact of such changes would be to enhance the positive economic benefits outlined in the preamble, to bolster Australian low-carbon export capability (thereby avoiding trade barriers based on carbon content), and to avoid significant long-term costs arising from climate change by the early adoption of low-carbon energy production.

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

In the short to medium term, small scale solar (wind is relatively uneconomic at small scale) requires either a carbon price or the RET. Removal of both will damage the industry and significantly impede the take up of rooftop PV.

In the longer term, the rapid learning rate for PV will diminish the need for the SRES. Currently with the RET, rooftop solar is already a viable proposition in most capital cities in Australia over the 20+ year lifetime of most PV systems - even without a favourable feed-in tariff. Rooftop PV will become even more competitive in the grid-connected retail market as the rapid learning rate drives down costs.

In stand-alone applications, PV will become increasingly competitive with fossil fuel alternatives such as diesel, for which the diesel fuel rebate is a market distortion that should be removed.

4. Should the LRET and SRES schemes be recombined?

The two schemes could be recombined, but there is no strong disadvantage either way.

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

There is clear evidence¹ that the element of competition introduced by the RET has caused downward pressure on wholesale electricity prices. This has helped to balance any increase in electricity prices arising from the introduction of the RET, which is estimated at 4-5%¹⁰ of present electricity bills and rising only very slightly over time. The net result of the RET is a negligible effect on retail electricity prices in the short term, with potentially a net reduction in the long term¹¹.

¹⁰ Australian Electricity Market Commission, "2013 Residential Electricity Price Trends", December 2013. <http://www.aemc.gov.au/Media/docs/2013-Residential-Electricity-Price-Trends-Final-Report-723596d1-fe66-43da-aeb6-1ee16770391e-0.PDF>

¹¹ ROAM Consulting "RET Policy Analysis", April 2014 <https://www.cleanenergycouncil.org.au/policy-advocacy/renewable-energy-target/ret-policy-analysis.html>

Wind is increasingly competitive with new-build gas and coal power stations with or without a carbon tax and continues to be so leading up to 2020 and beyond¹². Over the same time period, large-scale solar PV will become competitive, eventually displacing wind as the cheapest form of electricity production in the decades to come because of its rapid learning rate which is delivering continuous improvements in energy conversion efficiency and significant reductions in the cost of solar PV systems¹¹. Since all current fossil fuel generators will have reached the end of their useful lives before 2050, they will have to be steadily replaced over the next 35 years. Installation of PV and wind will allow this to occur at no additional cost and with near-zero greenhouse gas emissions.

6. Are the current exemption arrangements appropriate?

Removing exemptions would free up the market place and remove market distortions.

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

Reforms to the RET should be undertaken gradually and with clear market signals well in advance of any changes in order to create a climate of investor certainty in the energy market.

Questions:

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?

The RET will increase the penetration by renewables into energy markets and – as a result of geographic and source-type complementarity – enable a significant fraction of the energy demand profile to be met by renewables. This demand matching can be made more complete by encouraging demand shifting.

Chief amongst these is the urgent need for indicative time-of-use pricing to reflect the high cost of electricity during periods of high demand. Only by making retail prices more indicative of the wholesale spot price will customers be sent the necessary price signals to (a) adjust their consumption patterns to reduce demand during peak times (b) introduce smart meters and demand management systems to shift peak demand and (c) introduce other energy efficiency measures such as insulation that will remove the need, for example, to switch on additional heating or air conditioning.

¹² Bureau of Resources and Energy Economics, “Australian Energy Technology Assessment”, December 2013. <http://www.bree.gov.au/publications/australian-energy-technology-assessments>

Question:

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 administration of the RET is – by general policy standards – a very efficient and effective mechanism that works well in the market place. Very little administrative simplification is required.

Questions:

Should any other energy sources be included in the LRET? Should any non-renewable (but low emissions) energy sources be included?

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

Should any new displacement technologies be eligible under the SRES?

1. Should any other energy sources be included in the LRET? Should any non-renewable (but low emissions) energy sources be included?

The LRET was legislated to encourage deployment of *renewable* energy, and should apply to any zero-emissions technologies which, like solar and PV, directly replace carbon-emitting technology: this includes tidal, wave, geothermal, and perhaps nuclear were this to be accepted by the public and allowed by government policy.

The RET should not be used as a surrogate carbon-emitting energy subsidy – for example to subsidise the use of lower (but still significant) carbon-emission gas technology over coal. Low-emission energy sources can be supported by carbon pricing mechanisms or more stringent regulatory standards.

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

We are not aware of other zero-carbon emission technologies that are currently economically competitive at such a small scale.

3. Should any new displacement technologies be eligible under the SRES?

No – for the same reason as articulated above. Only zero-emission technologies should be eligible – not reduced-carbon displacement technologies. This reflects the intent of the RET legislation.

Question:

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

Industry requires certainty for future investment planning. Revising the RET too frequently will mitigate against low-cost investment, so a minimum 5 year intervals between statutory reviews of the RET would be desirable.

We propose that the RET be continuously managed as a rolling target with a period of six years. That is, each year from now, the target will be extended six years hence by one year (starting in 2021) and will reflect an increasing target above 41,000 GWh.

Question:

What administrative and regulatory arrangements should be put in place to ensure that the reinstatement of native forest wood waste is consistent with the sustainable management of native forests?

Native forest wood waste was excluded previously from the RET to avoid encouraging the native forest timber industry, and to preserve the highly valuable native forest estate. This remains a major concern, so only plantation forest products should be eligible under the RET.

Wood burning should not be permitted to benefit from the RET. It is well known that logging substantially reduces the carbon content per hectare of a forest (averaged over a rotation cycle), and this reduction is much larger than the benefit to be gained from burning wood to displace coal.