

Refining the MRET Measure

- 7.1 Having concluded that MRET should continue, the Review Panel considered refinements to make it more effective, noting that the Final Report of the Renewables Target Working Group recommended that 'any changes recommended in the review will need to be consistent with stated objectives, pre-announced and phased in over an appropriate period'.²²⁹
- 7.2 This Chapter considers possible refinements to MRET's main parameters against this background.

Principles adopted for assessing possible changes

- 7.3 In assessing possible changes to MRET, the Review Panel adopted three overriding principles.

Sovereign risk

- 7.4 Although the possibility of changes to MRET as a result of this Review was foreshadowed when the legislation was passed, there have been many investors and other industry participants who have assumed in good faith that there would be no adverse changes made, at least in the period up to when the renewable energy target is reached in 2010.
- 7.5 Any change to MRET that benefits one party would be at a cost to another. Consequently, the Review Panel has adopted a cautious approach to recommending short term changes.
- 7.6 Many submissions acknowledged the need to maintain investment certainty by honouring long term investments made in good faith based on the MRET legislation. The Review Panel concurs with the importance of protecting existing investments and that adequate notice should be provided to electricity users about any changes to MRET that may result in higher electricity prices. Accordingly, the Review Panel considers that there should be no fundamental changes made to the measure prior to 2010.

²²⁹ Final report of the Renewable Target Working Group, *Implementation Planning for Mandatory Targets for the Uptake of Renewable Energy in Power Supplies*, May 1999, p24

Long term viability

- 7.7 An assistance measure such as MRET must be seen as transitional and should never be considered as a permanent measure. This means that in the longer term there needs to be some evidence that the underlying technologies will be commercially competitive. Consequently, the support being provided by MRET needs to be of sufficient magnitude and duration to allow the industry to demonstrate that it can broadly compete with fossil fuel.

Minimising the cost of the measure

- 7.8 In keeping with the original design of MRET, the Review Panel supports the view that any changes that are consistent with the achievement of MRET policy objectives and its enhancement as an industry development tool, should be at least cost to liable parties, electricity end users and the broader Australian community.

Interrelated design considerations

- 7.9 The Review Panel notes the linkages between the level of the target, the shortfall charge and the end date of the measure. These three fundamental aspects of the MRET measure will have the greatest bearing on its success as an industry development and greenhouse abatement measure.
- 7.10 The target sets the overall level of renewable generation to be achieved and the costs associated with achieving it. The shortfall charge influences the maximum price liable parties are prepared to pay for RECs. The end date determines the period for which RECs are available to contribute to return on investment. These three factors combine to govern the nature and extent of industry development, the resulting level of greenhouse gas abatement, and the overall cost of the measure.

Level of the target

- 7.11 Term of Reference (h) requires that the Review Panel consider the 'level of the overall target and interim targets'.
- 7.12 While acknowledging that several submissions called for a percentage target, the Review Panel became convinced during its consultations that any future target should continue to be expressed in terms of a fixed GWh level. By their nature, projections of electricity demand contain a degree of uncertainty. The changes in projected electricity demand that have occurred since 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.

- 7.13 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 electricity generation rather than a percentage of a fluctuating electricity market over which the industry has no control.

Recommendation 6

MRET targets to continue to be expressed in gigawatt hours and not as a percentage of overall electricity demand.

- 7.14 In 1999, the Renewables Target Working Group equated an additional 2 per cent with 'approximately 9000 GWh of new renewables in 2010' in order to raise the proportion of renewable energy in Australia's electricity mix from 10.5 per cent in 1997 to 12.5 per cent in 2010.²³⁰ In 2000, Parliament settled on a fixed target of 9500 GWh.
- 7.15 Since Parliament passed the MRET legislation, projected electricity demand in 2010 has risen, due to higher than expected GDP growth, from around 205 000 GWh²³¹ to around 230 000 GWh.²³²
- 7.16 In its report to the Australian Greenhouse Office, McLennan Magasanik Associates (the AGO/MMA report) noted that due to the banking of RECs in the period prior to 2010, the level of generation in 2010 is likely to be around 1000 GWh lower than the 9500 GWh target.
- 7.17 Banking of RECs combined with the higher than expected growth in electricity demand means that the anticipated market share of renewables arising from the current target in 2010 is expected to be around 10.7 per cent.
- 7.18 Under current MRET settings, the 9500 GWh target is scheduled to continue until 2020. Several submissions²³³ recognised that by 2020 the relative market share of renewables would have dropped to below 1997 levels. Based on recent electricity projections for 2020 of 284 000 GWh,²³⁴ the resulting relative market share of renewables would have fallen to around 9 per cent.²³⁵

²³⁰ Final report of the Renewable Target Working Group, *Implementation Planning for Mandatory Targets for the Uptake of Renewable Energy in Power Supplies*, May 1999, p18

²³¹ Senator the Hon Robert Murray Hill, *Renewable Energy (Electricity) Bill 2000 Explanatory Memorandum*, p9

²³² Based on projections in *Australian Energy: National and state projections to 2019–20*, ABARE, June 2003, Canberra

²³³ For example, Greenpeace, submission 194

²³⁴ *Australian Energy: National and state projections to 2019–20*, ABARE, June 2003, Canberra

²³⁵ Or around 8.6 per cent if, as MMA anticipate, the level of generation in 2020 is around 1000 GWh less than the 9500 GWh target.

Level of the target in 2010

- 7.19 A wide range of views was expressed on the level of the target in 2010. At one end of the spectrum, parties argued for no change to the level of the target. These views were held by many large energy users²³⁶ and related industry associations²³⁷ as well as some electricity retailers.²³⁸
- 7.20 Different rationales were advanced for retention of the current target. In general, large energy users did not support the MRET measure but accepted that it should be retained on the basis of sovereign risk. Other liable parties and related industry associations, as well as the Northern Territory Government, while either supportive or apparently ambivalent towards the MRET measure, argued that it was too early to revise the target.²³⁹
- 7.21 Several parties²⁴⁰ that were supportive of the MRET measure, expressed a preference for the retention of the current target in combination with the introduction of an emissions trading scheme.
- 7.22 However, a majority of parties supported an increase in the level of the target. Calls for an increase in the target ranged between 12 000 and 36 000 GWh in 2010. As a matter of convenience, this range of targets is discussed below in terms of a revised 2, 5 or 10 per cent target.
- 7.23 A range of groups supported an increase in the target to 'meet the original commitment to lift the share of electricity generated from renewables by 2 per cent'.²⁴¹ Support for a revised 2 per cent target came from the Australian Capital Territory, Queensland and Western Australian governments,²⁴² several liable parties²⁴³ that have renewables as a part of their business strategy, and one renewable generator.²⁴⁴
- 7.24 In general, two rationales were used to support a revised 2 per cent target. The primary rationale was that the target should be increased so as to meet the original intent in *Safeguarding the Future*.²⁴⁵ Another rationale was that the adopted baseline methodology for existing renewable sources had reduced the value of incentives for new development.
- 7.25 Based on the most recent projections of electricity demand, a revised 2 per cent target would equate to around 12 800 GWh in 2010.

²³⁶ Australian Fused Materials, submission 18; Comalco, submission 71; Onesteel Ltd, submission 199

²³⁷ Australian Aluminium Council, submission 156; Minerals Council of Australia, submission 231; Plastics and Chemicals Industries Association, submission 192; Australian Paper Industry Council, submission 64; Australia Industry Greenhouse Network, submission 235; Energy Users Association of Australia, submission 201

²³⁸ Ergon Energy, submission 62; Macquarie Generation, submission 112

²³⁹ Electricity Supply Association of Australia, submission 107; Energy Australia, submission 122; Western Power Corporation, submission 132; Woodside Energy Ltd, submission 236; Northern Territory Government, submission 196

²⁴⁰ Australian Gas Light Company, submission 226; National Association for Forest Industries, submission 145

²⁴¹ Queensland Government, submission 249, p1

²⁴² Australian Capital Territory Government, submission 240 (subject to a cost benefit analysis); Queensland Government, submission 249; Western Australia Government, submission 238 (subject to supporting research undertaken by the Commonwealth in consultation with the States)

²⁴³ TXU, submission 218; Stanwell Corporation Ltd, submission 146; Delta Electricity, submission 87; Eraring Energy, submission 29

²⁴⁴ Geodynamics Ltd, submission 215

²⁴⁵ The Hon. John Howard MP, *Safeguarding the Future: Australia's Response to Climate Change*, November 1997

- 7.26 Three State governments, Tasmania, South Australia and Victoria, supported an increased target of between 4 and 5 per cent on the basis that such a target would encourage the development of local manufacturing capacity, improve the competitiveness of renewables and provide employment and regional development opportunities.²⁴⁶
- 7.27 The New South Wales Government did not provide a submission.
- 7.28 An increase to a 5 per cent target was advocated by a broad section of the renewable energy industry,²⁴⁷ generally represented by members of the Australian Business Council for Sustainable Energy (BCSE) and the Renewable Energy Generators of Australia (REGA). This level of target was also supported by a number of financial institutions²⁴⁸ with investment interests in the renewables sector.
- 7.29 Organisations that supported a 5 per cent target generally did so on the basis that this level of renewable generation is required to deliver on MRET's industry development objective. BCSE captured this sentiment in stating that a 5 per cent target is 'necessary to stimulate a viable and sustainable Australian renewable energy industry', 'sufficient to underpin local manufacturing' and will 'lead to significant local jobs, investment and exports'.²⁴⁹
- 7.30 Based on the most recent projections of electricity demand a 5 per cent target would equate to around 19 700 GWh in 2010.
- 7.31 An increase in the target to 10 per cent in 2010 was advocated by a broad coalition, known as the 10x10 campaign, which included supporters from the wind industry, environmental groups, and medical and tourism industry associations (a full list of supporting organisations is at Appendix 3). Several thousand petitions were made by individuals as part of this campaign. In general, those advocating a 10 per cent target did so on the grounds of industry development and various comparisons with renewable energy targets in other countries.
- 7.32 The views of local government were polarised. A number of regional areas expressed concerns over the impact of MRET in relation to the potential for increased wind developments in scenic areas²⁵⁰ and its negative economic impact on energy intensive industries.²⁵¹ These groups tended not to support the industry development aspect of the MRET measure and favoured alternative approaches to greenhouse gas abatement.

²⁴⁶ Tasmania Government, submission 229; South Australia Government, submission 246; Victoria Government, submission 173 supported a 4, 4.5 and 5 per cent target respectively.

²⁴⁷ Rheem Australia Pty Ltd, submission 25; CSR Sugar Ltd, submission 73; Meridian Energy Ltd, submission 83; Snowy Hydro Ltd, submission 86; Southern Hydro, submission 116; Energy Developments, submission 143; Envirogen Pty Ltd, submission 144; Origin Energy, submission 170; NEG Micon Australia Pty Ltd, submission 202

²⁴⁸ AMP Henderson Global Investors, submission 72; ANZ Infrastructure Services, submission 121; Babcock & Brown, submission 124

²⁴⁹ Australian Business Council for Sustainable Energy, submission 165, p6

²⁵⁰ South Gippsland Shire Council, submission 154

²⁵¹ Bunbury Wellington Economic Alliance, submission 119, which represents a partnership between industry and the local authorities of the City of Bunbury and the Shires of Harvey, Dardanup, Collie, Capel and Donnybrook/Balingup.

7.33 At the other end of the spectrum, a number of local councils and regional alliances were supportive of a 10 per cent target in 2010.²⁵²

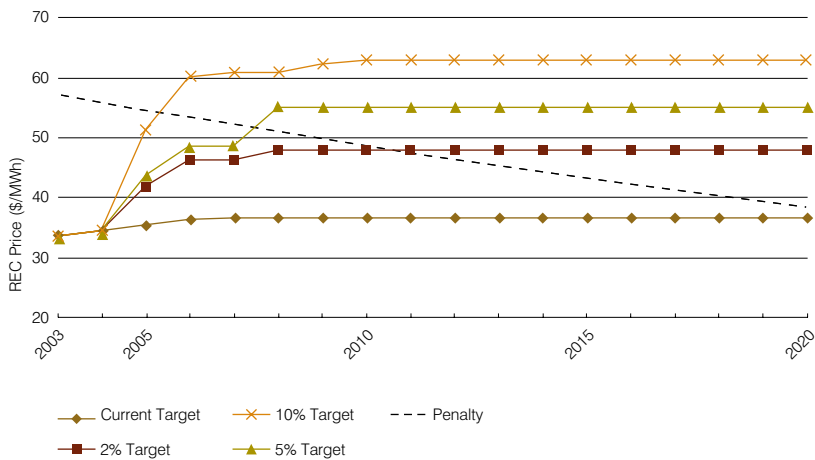
7.34 Based on the most recent projections of electricity demand a 10 per cent target would equate to around 31 200 GWh in 2010.

Impact of higher targets prior to 2010

7.35 A range of estimates has been made on the possible impact of higher targets. The AGO/MMA report found that an increase in the target would result in higher REC prices as more expensive renewable generation options would be required to meet higher targets.

7.36 For a revised 2, 5 and 10 per cent target, the AGO/MMA report that the REC price unconstrained by the shortfall charge, would increase to a maximum of \$47, \$55 and \$62 per MWh respectively.

Figure 20—Comparison of REC prices for current and higher targets in 2010²⁵³



²⁵² Glenelg Shire Council, submission 230; Portland Progress Association, submission 134; Maroochy Shire Council, submission 190; District Council of Grant, submission 28

²⁵³ Figure 20 source; McLennan Magasanik Associates, *Economic Impacts of Changes to the Mandatory Renewable Energy Target*, p24. Note that REC prices are quoted in 2003 dollars.

- 7.37 Figure 20 demonstrates that for each scenario, the current shortfall charge would be exceeded in around 2009, 2007 and 2005 respectively.
- 7.38 The AGO/MMA report projects that increases in REC prices associated with higher targets would result in higher wholesale electricity prices. Estimated price increases above the current MRET expectations, for the period 2008 to 2012 are set out in Table 7.

Table 7—Estimated increases in wholesale electricity price compared to current MRET (2008 to 2012)²⁵⁴

Target	Increase in wholesale electricity price (\$/MWh)	Percentage increase ¹
Revised 2%	1.41	3.5
5%	3.50	8.8
10%	7.07	17.7

- 7.39 On the assumption that the increased cost of electricity would be spread equally over all units sold, the impact of higher wholesale electricity would vary by customer class. The percentage increase in the price of electricity would be around twice as high for higher volume industrial and energy intensive customers compared with residential and commercial customers, due to the lower electricity price generally paid by these customers.
- 7.40 This expectation needs to be balanced by the fact that these customers are typically in a strong bargaining position to reduce their share of increased costs flowing from MRET. A number of energy intensive, trade exposed businesses have supply interruption clauses which also serve to strengthen their bargaining position.
- 7.41 MMA’s modelling for the AGO indicates for the higher targets that:
- There would be an increase in compliance costs and consequently a small negative impact on the broader economy. Projected losses in GDP for the revised 2, 5 and 10 per cent targets are all less than 0.1 per cent per annum in the period 2008 to 2012 relative to that of the 9500 GWh target.
 - There would be an increase in additional renewable generation capacity of between 2500–7000 MW, and investment in the renewables industry of between \$5–14 billion.
 - There would be a small decrease in employment across the economy of between 400–2100 jobs per annum.

²⁵⁴ Table 7 source; adapted from McLennan Magasanik Associates, *Economic Impacts of Changes to the Mandatory Renewable Energy Target*. Note 1; Assuming a pool price of \$40 per MWh.

- On the basis of cost alone, the wind energy sector would be the main beneficiary. By 2008 to 2012 the sector is expected to increase its market share from 25 per cent under the current target, to around 35, 44 and 53 per cent for the revised 2, 5 and 10 per cent targets, respectively. This anticipated outcome arises from wind having a comparatively large resource base, equivalent to around 5000 MW capacity²⁵⁵ with a long run average cost of between \$80–90 per MWh. The level of uptake of most other sources is either expected to increase moderately, for sectors such as bagasse, municipal solid waste, landfill gas, and solar water heaters, or remain approximately constant for example for hydro and wood waste.
- There would be savings of greenhouse gas emissions of about 1.4 Mt CO₂-e for every one percentage point increase in the target. The revised 2, 5 and 10 per cent targets would increase projected abatement to 9.3, 14.1 and 20.9 Mt CO₂-e per annum, respectively in 2008 to 2012. Several submissions²⁵⁶ suggested that the level of abatement projected under a higher target would significantly bridge the gap between the current 2010 projection of 111 per cent above 1990 emissions and Australia's target of 108 per cent agreed in Kyoto.²⁵⁷
- There would be an increase in the cost of abatement, for example, the projected economy wide abatement cost for a 10 per cent target would be \$57 per tonne of CO₂-e in 2008 to 2012 compared with \$32 per tonne of CO₂-e for the current target.

7.42 A number of parties addressed the question of how a higher target could be achieved. According to Greenpeace, a 10 per cent target could be accomplished through a combination of wind (15 000 GWh), solar water heating (13 000 GWh) and sustainable bioenergy (10 000 GWh).

7.43 BCSE suggested that a 5 per cent target could be achieved in 2010 through the installation of new capacity in the order of 600 to 900 MW per annum between 2004 and 2010.

7.44 The Review Panel has a number of reservations about the industry's ability to achieve such levels of additional generation by 2010, especially if it is to develop in the most sustainable and cost effective manner.

7.45 The first reservation arises from the contracted timeframe that industry would have to achieve a higher target by 2010. The earliest realistic time that Parliament could agree to legislative changes to the Act would be either late 2003 or early 2004. This would leave only six years for industry to respond with any degree of certainty to a higher target.

²⁵⁵ Derived from Figure 4 on page 7 of MMA's report, *Economic Impacts of Changes to the Mandatory Renewable Energy Target*.

²⁵⁶ For example, Origin Energy, submission 170

²⁵⁷ Australian Government greenhouse gas projections released in September 2003 have revised the 2010 emissions projection figure to 110 per cent.

- 7.46 A higher target in 2010 would also require a significant shift in momentum from the relatively small generation base produced by the current interim targets of 2001 to 2004. A significant upsurge in activity would need to follow a period of stalled investments, in part following from the recommendation in the Parer Report for the cessation of MRET in favour of emissions trading.
- 7.47 Furthermore, considerable doubt exists as to whether the protracted financial, environmental approval, community consultation and due diligence processes could be carried out in time to allow an adequate number of projects to be established. This situation applies generally to renewable energy projects, and in particular to the wind industry which, from a low level of installed capacity, would need to achieve a significant market share by 2010. Western Power stated:

*From experience with the construction of renewable energy projects, achieving a 2010 target of more than a true 2% would be difficult. When long project lead times, appropriate community consultation, and transmission line capacity issues are considered, calls for 5 to 10% targets by 2010 appear optimistic.*²⁵⁸

- 7.48 Higher targets for 2010 would only be achieved with increased MRET assistance, resulting in the commissioning of more costly projects. Any increase in the target in the short term would be detrimental to future renewable industry development and run counter to the policy intent of MRET as 'an ongoing basis for commercially competitive renewable energy'.²⁵⁹ An increase in the MRET target prior to 2010 would also increase the overall cost of the measure and potentially expose liable parties and electricity consumers to higher electricity prices.
- 7.49 For many renewable energy technologies, the costs of electricity generation are largely determined at the time a project is designed. A higher earlier target would deny the industry the benefits of technology changes in the pipeline, locking the industry in for at least 20 years to the cost structures prevailing in around 2005.
- 7.50 These reservations about the bankability of proposed renewable projects, without a significant increases in the shortfall charge, are supported by evidence received from the financial sector. For instance the Commonwealth Bank of Australia observed that:

*Analysis of the economic position of many renewable energy projects leads Commonwealth Bank to the conclusion that to fulfil the objectives of the Act, the level of penalty has been set too low (albeit tied to the issue of indexation) with project income positions being relatively weak under typical operating profiles. Such an initial economic position before consideration of potential declines in long term electricity and REC prices does not act to stimulate debt or equity investments, irrespective of a strong commitment to the sector.*²⁶⁰

²⁵⁸ Western Power, Sustainable Energy Branch, submission 70, p4

²⁵⁹ Prime Minister's *Safeguarding the Future* announcement

²⁶⁰ Commonwealth Bank of Australia, submission 58, p3

7.51 Given these considerations, the Review Panel concludes that no change to the target is warranted prior to 2010.

Recommendation 7

Interim targets prior to 2010 and the 9500 GWh target for 2010 to remain unchanged.

Level of the target beyond 2010

- 7.52 In general, interested parties which supported an increase in the 2010 target also supported further increases to 2020. For instance, supporters of the 10x10 campaign also supported a 20 per cent target in 2020. Conversely, interested parties that argued for no change to the target in 2010 also argued for its retention at that level until 2020. There were a number of interested parties²⁶¹ that supported no change to the target prior to 2010 but recognised the need for subsequent increases to stimulate development of new renewable projects.
- 7.53 Under current settings, the structure of the MRET target is unlikely to result in significant investment in the renewables industry beyond around 2007, due to the levelling of the target beyond 2010, and the need for a minimum of 15 years return on investment. Outhred and MacGill argued that the 'flat target between 2010 and 2020 is not compatible with on-going renewable energy industry development beyond about 2005'.²⁶²
- 7.54 BCSE also expressed concerns about the post 2010 period:

The profile of the target needs to be such that it will continue to deliver new renewable energy capacity over the life of the measure. This is an important shortcoming of the existing scheme. While on the surface the scheme is a 20 year initiative, given that 15 years of revenue is typically required to support new investment in projects (as well as manufacturing capacity), the scheme will effectively expire in five years or so.²⁶³

- 7.55 The Review Panel, although not convinced of the need to increase the target prior to 2010, considers that there is a strong case for an increase in the target post-2010. Such an approach would help maintain the momentum created by the first decade of MRET without adversely affecting electricity users in the short term.

²⁶¹ Western Power Corporation, Submission 132; Woodside Energy, submission 236

²⁶² Hugh Outhred & Ian MacGill, submission 164, p8

²⁶³ Australian Business Council for Sustainable Energy, submission 165, p18

- 7.56 MRET's settings will see a very large amount of investment prior to 2007 followed by a rapid reduction. The current target is insufficient to underpin the critical mass of investment needed to develop a domestic industry and to move it sufficiently down the cost curve to be able to demonstrate commercial viability without ongoing government assistance.
- 7.57 A more managed increase in demand after 2010 would help ensure investments are more soundly assessed and that both local and export market development occurs in a more orderly manner.
- 7.58 For wind and solar technologies in particular, and to a lesser extent for biomass installations, a very large proportion of the cost of electricity arises from the capital cost of the facilities and the technology embodied at the project's inception. Once an investment has been made the potential for future cost reduction from a particular facility is very limited.
- 7.59 By delaying any increase in the MRET level until after 2010, the industry will be able to invest in a more managed fashion, maximising the utilisation of new technologies currently emerging as a result of the high levels of investment and R&D currently occurring around the world.
- 7.60 Any increase in the 2010 target would risk locking the industry into presently available technology, which is, on the evidence provided by the industry, unlikely to be commercially competitive in the absence of a penalty on carbon.
- 7.61 Setting a new target inherently involves some degree of subjectivity and judgment. On balance, the Review Panel believes that steady progress towards a target of 20 000 GWh in 2020 will:
- Maintain the momentum established by the 9500 GWh target and provide ongoing certainty and industry development opportunities to the renewables industry.
 - Provide a minimum critical mass of investment needed to enable the industry to demonstrate its commercial viability, including the possible domestic manufacture of components for renewable energy projects.²⁶⁴
 - Provide a domestic demand base to allow the development of further export markets.
 - Provide a more managed investment framework that will promote cost effective technology improvements and industry learning.

²⁶⁴ On the assumptions provided in several submissions this target would require in the order of 3000 wind turbines by 2020, enough to support two blade manufacturing plants.

- 7.62 Based on ABARE's projections of electricity consumption of 284 000 GWh in 2020, the percentage share of renewables in Australia's electricity mix resulting from a 20 000 GWh target in 2020, is expected to be around 12.7 per cent. This translates to an additional 2.2 per cent share compared with 1997 levels, and is broadly in accordance with the Prime Minister's original intention of an additional 2 per cent share for renewables.²⁶⁵
- 7.63 Based on information presented in submissions and consultations, a target of 20 000 GWh in 2020 could also be expected to justify the significant investment required to establish local manufacturing facilities for renewable energy equipment. For instance, AusWEA and BCSE claimed that the minimum annual production volumes required for the manufacturing of wind turbine blades are around 85 to 170 MW of new installed capacity per annum.²⁶⁶
- 7.64 Given that the wind industry is expected to achieve a significant market share of a 20 000 GWh target by 2020, this should enable the wind industry to justify investment in local blade manufacturing facilities.
- 7.65 If local manufacturing of blade facilities and possibly other renewables equipment does take place in future, this would help the industry to improve its competitive position, increase its local content, generate local employment benefits and develop export markets.
- 7.66 The Review Panel commissioned MMA to model the impact of this recommendation, and other recommendations contained in this report. The assumptions and results of that modelling work were then peer reviewed by Energy Strategies.²⁶⁷ The results of these analyses are presented in the sections beginning at 7.116.

Recommendation 8

MRET targets to continue to increase beyond 2010 at a rate equal to the rate before 2010, and to stabilise at 20 000 GWh in 2020.

²⁶⁵ It should be noted that due to the banking of RECs in the period prior to 2020, MMA anticipates the level of generation in 2020 to be around 2000 GWh lower than the 20 000 GWh target. On this basis the additional market share of renewables in 2020 is around 12.0 per cent or around an additional 1.5 per cent market share.

²⁶⁶ Australia Wind Energy Association, submission 198, p16; Australian Business Council for Sustainable Energy, submission 165.

²⁶⁷ The MMA report, *Impact of a 20,000 GWh target for the MRET Scheme*, and the Energy Strategies peer review, *Comments on 'Impact of a 20,000 GWh target for the MRET Scheme'*

End date

- 7.67 Term of Reference (i)(ii) requires that the Review Panel consider the 'scheduled end date of 2020'. Views ranged from support for no change to the scheduled 2020 end date to support for an open ended time frame.
- 7.68 Large energy users²⁶⁸ generally agreed that the existing commitment to 2020 should be honoured on the basis of regulatory certainty but that there is no justification to extend the 2020 end date.
- 7.69 Most electricity retailers²⁶⁹ supported no change to the 2020 end date based on the need for investor certainty. 'Certainty is an important element for investors. The end date of 2020 is well understood by project proponents and financiers, facilitating appropriate investment decisions'.²⁷⁰
- 7.70 Several electricity retailers²⁷¹ suggested an extension of the measure to between 2025 to 2030 in recognition of the increasing difficulty of financing renewable projects, which typically require a minimum 15 year debt repayment term. In these circumstances, projects commissioned after 2010 would have a payback period that exceeds the 2020 end date.
- 7.71 Conservation groups²⁷² generally supported an extension of the 2020 end date to send a positive message to industry, thereby increasing certainty, reducing risk and resulting in increased availability of finance.
- 7.72 The renewables industry²⁷³ and financial institutions²⁷⁴ generally supported an extension of the 2020 end date due to concerns that industry development under the 2020 end date will surge prior to 2007 but cease by around 2008, as project developers rush to commission new projects within the 15 year window prior to 2020. Many in the industry saw this aspect of MRET's design of the MRET measure as a significant flaw.
- 7.73 A number of interested parties²⁷⁵ supporting an extension to the end date, proposed the concept of establishing a new baseline for existing capacity after 15 years in order to support ongoing expansion of new renewable energy capacity. For instance BCSE, which supported a 2035 end date, suggested that:

²⁶⁸ Comalco Ltd, submission 71; Australian Aluminium Council, submission 156; Energy Users Association of Australia, submission 201

²⁶⁹ Ergon Energy, submission 62; Energy Australia, submission 122; Origin Energy, submission 170; Western Power Corporation, submission 132; Country Energy, submission 206

²⁷⁰ Origin Energy, submission 170, p15

²⁷¹ Macquarie Generation, submission 112; Delta Electricity, submission 87; Eraring Energy, submission 29

²⁷² Australian Conservation Foundation, submission 210; Conservation Council of South Australia, submission 168; Friends of the Earth Australia, submission 228; Greenpeace, submission 194

²⁷³ Southern Cross Windpower, submission 20; Sustainable Solutions, submission 26; Bundaberg Sugar Ltd, submission 27; Eraring Energy, submission 29; Australian & New Zealand Solar Energy Society, submission 57; CSR Sugar, submission 73; Renewable Energy Systems, submission 77; Meridian Energy, submission 83; Environment Business Australia, submission 88; Mirus Wind, submission 91; Wind Farm Developments, submission 103; Hydro Tasmania, submission 104; Renewable & Sustainable Energy Roundtable, submission 105; Renewable Energy Generators of Australia, submission 108; Southern Hydro, submission 116; Bioenergy Australia, submission 138; Australian Business Council for Sustainable Energy, submission 165; Enviromission, submission 191; Alternative Technology Association, submission 197; Australian Wind Energy Association, submission 198; NEG Micon, submission 202; Sustainable Energy Association WA, submission ;Pacific Hydro, submission 224

²⁷⁴ Commonwealth Bank of Australia, submission 58; CVC REEF, submission 100; ANZ Infrastructure Services, submission 121; Babcock & Brown, submission 124

²⁷⁵ Australian & New Zealand Solar Energy Society, submission 57; Meridian Energy, submission 83; Southern Hydro, submission 116; Outhred & MacGill, submission 164; Australian Business Council for Sustainable Energy, submission 165; Pacific Hydro, submission 224

To support the continued installation of renewable energy projects to 2020, projects installed prior to 2020 would be guaranteed 15 years to be able to produce RECs up to 2035. These projects would be allocated a baseline after 15 years. Projects installed prior to 2005 would be able to earn RECs until 2020 after which they would be assigned baselines. This means that the REC scheme continues to support the development of new renewable energy capacity to 2020.²⁷⁶

- 7.74 BCSE's proposal also accommodates sovereign risk considerations, because pre-1997 generators and investments made prior to 2005 would continue to receive RECs until 2020, allowing a minimum of 15 years availability of RECs to recoup investment outlays. For such projects to receive RECs after the end of 2020, they would need to generate above a new baseline set in 2020. Similarly, projects commenced after 2005 would receive RECs for 15 years beyond which they would only receive RECs for generation above a new baseline set at the end of year 15.
- 7.75 A 15 year baseline would be compatible with the views expressed during the Review that a minimum of 15 years is needed to recoup investments in typical renewable energy projects. The allocation of new baselines would provide an incentive for generators that have received 15 years of REC revenue to invest in cost effective efficiency improvements. This would generate additional renewable energy and would make room for new projects without needing to increase the target or the cost of the measure.
- 7.76 The Review Panel is aware of the difficulty of trying to develop a program designed to last for many years. However, appropriate grandfathering arrangements, for example, by allowing existing projects to continue receiving RECs for a period of 15 years, would ensure that investments made in good faith are protected, even if a future government should decide to phase out the MRET measure.
- 7.77 The Review Panel concludes that the scheduled 2020 end date under current settings is not consistent with MRET's industry development objective because investment will stall after 2007. Moreover, an increase in the target to 20 000 GWh in 2020 requires an extension of the end date in order to allow industry development to continue up to and beyond 2020.

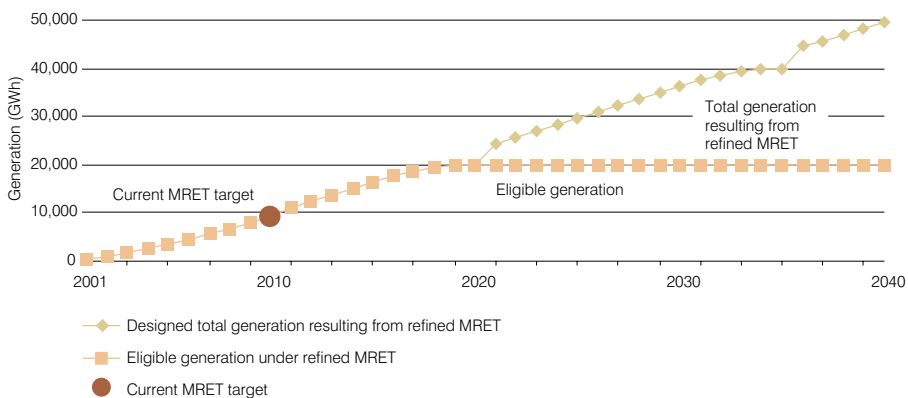
²⁷⁶ Australian Business Council for Sustainable Energy, submission 165, p5

Recommendation 9

The end date of the measure to be extended beyond 2020 so that renewable energy from projects commencing after 2005 receive RECs for a full 15 year period.

- 7.78 The extended end date and the allocation of 15 year baselines will promote investment in new generation capacity and efficiency improvements in existing assets, while retaining the benefit of generation from existing capacity, from which investors have recouped their capital.
- 7.79 Consequently, once new projects have received 15 years of REC revenue and new baselines have been set, only generation above those baselines would be eligible. Removal of significant renewable capacity from MRET after 2020 will enable new projects to go forward beyond that time, without the need for further increases in the MRET target.
- 7.80 The combined impact on renewable generation, of the Review Panel's recommendations regarding the 20 000 GWh target in 2020, the extension of the end date, and the 15 year guarantee on REC revenue, is demonstrated in Figure 21. It shows that increases in the target beyond 2010, will maintain the momentum of MRET's first decade of operation.
- 7.81 Figure 21 is divided into two segments: the lower segment represents generation under the Review Panel's recommended 20 000 GWh target beyond 2020; and the upper segment represents generation removed through new baselines.

Figure 21—Designed additional generation under refined MRET measure



- 7.82 It should be noted that this graph reflects theoretical renewable energy generation under the refinements recommended by the Review Panel. This figure therefore builds upon and extends Figure 6 (the current MRET model).
- 7.83 In 2021, the first year of operation of the new baselines, projects commissioned before the end of 2005 would only be able to create RECs for generation above baselines. This effectively excludes generation below baselines from eligibility, and creates an equivalent level of demand for new projects to enter the market.
- 7.84 For each subsequent year, as projects commissioned 15 years earlier are allocated baselines, demand for new projects would grow to offset generation that has been excluded by the new baselines.
- 7.85 In this way, demand for new projects and efficiency improvements to existing projects would continue to increase at a steady level beyond 2020, represented by the 'total generation' line in Figure 21. At the same time, the costs associated with the measure would be contained at a lower level represented by the 'eligible generation' line.
- 7.86 Accordingly, the Review Panel's recommended refinements to MRET can be expected to provide significant scope for new projects and refurbishments to be undertaken beyond 2020, without the need for further increases in the MRET target.
- 7.87 Under the proposed refinements, existing generators will have an ongoing incentive to exceed their 15 year baselines, bringing forward plant refurbishments and upgrades to improve generation efficiencies. This incentive will encourage existing generators to continue to generate additional renewable energy, adding to the overall base of competitive renewable generation.
- 7.88 The resulting total level of competitive renewable generation will be around 36 000 GWh per annum in 2035.²⁷⁷ This level of competitive generation, additional to MRET-assisted generation of around 20 000 GWh, will bring Australia's total renewable energy generation to around 56 000 GWh per annum by 2035.
- 7.89 Accordingly, the recommended refinements to MRET can be expected to provide ongoing industry development and certainty well into the future.

Recommendation 10

Pre-existing generators and projects commissioned before the end of 2005 to receive RECs until 2020, after which they should be set new baselines.

²⁷⁷ Comprised of 16 000 GWh of generation existing before 1997 and additional 20 000 GWh expected from the revised MRET measure by 2035.

Level of the penalties

- 7.90 Term of Reference (d) requires that the Review Panel consider 'the level of penalties provided under this Act'. The main penalty under the MRET measure is the renewable energy shortfall charge, which is set at a rate of \$40 per MWh.²⁷⁸ The shortfall charge is not indexed to inflation and not tax deductible.²⁷⁹
- 7.91 There are a number of other penalties under the Act, for example improper creation of RECs, failure to pay a shortfall penalty or failure to provide an energy acquisition statement²⁸⁰ that will be considered first before moving onto the shortfall charge.
- 7.92 Very few views were received in relation to the level of penalties under the Act apart from the shortfall charge. A number of renewable energy generators²⁸¹ expressed concerns regarding the inadvertent creation of invalid RECs, for example due to human error, metering errors or rounding errors.
- 7.93 According to ORER:

*Whilst there have been some errors or misunderstandings of requirements under the Act, these appear not to have arisen from intentional or premeditated transgressions. Accordingly, no penalties have been imposed to date.*²⁸²

- 7.94 The Review Panel is of the view that, while it is entirely appropriate for penalties to apply to the intentional improper creation of certificates, ORER is adopting a degree of flexibility in the application of penalties in relation to inadvertent, improper creation of RECs. Therefore, no change to the level of the penalty in relation to the improper creation of RECs is warranted. The Review Panel also considers that other penalties are set at an appropriate level.

Renewable energy shortfall charge

- 7.95 The shortfall charge has the dual purpose of encouraging additional electricity generation from renewable sources (with consequential greenhouse gas reductions) and constraining the REC price and, thereby, the overall economic impact of the measure.

²⁷⁸ Section 6, *Renewable Energy (Electricity) (Charge) Act 2000*

²⁷⁹ Under current company tax rates a profitable liable party would, on a purely financial basis, be indifferent between purchasing RECs of around \$57 or paying the shortfall charge. Based on an annual inflation rate of 2.5 per cent, the effective shortfall charge, in 2003 dollars, would equate to \$48.07 in 2010 and \$37.55 in 2020.

²⁸⁰ Sections 24, 70 and 99 of the *Renewable Energy (Electricity) Act 2000* respectively.

²⁸¹ Hydro Tasmania, submission 104; Electricity Supply Association of Australia, submission 107

²⁸² Office of the Renewable Energy Retailer, submission 178, p3

- 7.96 Prior to the passage of the MRET legislation, considerable analysis was undertaken on the appropriate level of the shortfall charge, which was calculated to represent the best estimate at that time of the level of subsidy an efficient renewable energy generator would require to compete with prevailing NEM prices for conventional generation.
- 7.97 Experience to date has shown that the \$40 per MWh figure selected was correct for the 9500 GWh per annum target, as generally REC prices have remained below this figure and very few liable parties have chosen to pay the shortfall charge. The modelling outlined in the AGO/MMA report shows that under current settings, the shortfall charge is likely to remain effective for the life of MRET.
- 7.98 In theory, expanding the target might require an increase in the shortfall charge as it would imply investment in higher cost projects, although this would also depend on timing as, due to technology improvements and other efficiencies, renewable generation costs for any given target level will reduce in time.
- 7.99 A diverse range of views was received on the future value of the shortfall charge, including no change and indexing the charge to the Consumer Price Index (CPI). A minority advocated a significant increase in the base figure. In general, liable parties and large energy users²⁸³ favoured no indexation while generators²⁸⁴ and providers of finance²⁸⁵ believed that indexation would be necessary if projects are to be bankable. For instance, ANZ Infrastructure Services suggested that:

The problem with a constant nominal penalty is a conflict in the medium to longer term between increasing REC demand over time and a decreasing supply of RECs from new projects as increasingly less viable projects (due to higher transmission costs and less energetic wind environments assuming the best prospects are developed first) are faced with lower real revenue streams. ... [I]ndexation of any penalties will improve the economics of individual projects and increasing their likelihood of viability.²⁸⁶

²⁸³ Ergon Energy, submission 62; Comalco, submission 71; Electricity Supply Association of Australia, submission 107; Macquarie Generation, submission 112; Energy Australia, submission 122; Stanwell Corporation, submission 146; Australian Aluminium Council, submission 156; Energex Retail, submission 167; Western Power Corporation, submission 132; Origin Energy, submission 170; Chamber of Minerals & Energy of WA, submission 118; Plastics and Chemicals Industries Association, submission 192; Energy Users Association of Australia, submission 201; Energy Retailers Association of Australia, submission 204; Country Energy, submission 206; TXU, submission 218; Australian Gas Light Company, submission 226; Minerals Council of Australia, submission 231; Australian Industry Greenhouse Network, submission 235

²⁸⁴ Australian and New Zealand Solar Energy Society, submission 57; Bundaberg Sugar, submission 27; Meridian Energy, submission 83; Hydro Tasmania, submission 104; Renewable and Sustainable Energy Roundtable, submission 105; Renewable Energy Generators of Australia, submission 108; Southern Hydro, submission 116; Pacific Solar, submission 125; Bioenergy Australia, submission 138; Alternative Technology Association, submission 197; Australian Wind Energy Association, submission 198; NEG Micon Australia, submission 202; Australian Sugar Milling Council, submission 203; Sustainable Energy Association WA, submission 211; Geodynamics, submission 215; Pacific Hydro, submission 224

²⁸⁵ AMP Henderson Global Investors, submission 72; Commonwealth Bank of Australia, submission 58; CVC REEF, submission 100; ANZ Infrastructure Services, submission 121; Babcock & Brown, submission 124; Corrs Chambers Westgarth, submission 163; Next Generation Energy Solutions, submission 213

²⁸⁶ ANZ Infrastructure Services, submission 121, p5–6. Note that the two parts of this quote appear in the reverse order in the original submission.

- 7.100 Despite recommending a higher target, BCSE²⁸⁷ advocated neither a lift in the shortfall charge nor indexing it, a view at odds with many of its members.
- 7.101 Generally the advocates of no indexation believed that a declining shortfall charge in real terms would act as an incentive for the renewable energy industry to reduce its costs. Many of these also recommended no increase in the target, consistent with the widely held view that \$40 per MWh was adequate for the achievement of an additional 9500 GWh renewable energy by 2010. Those favouring at least maintenance of the charge in real terms were concerned that the return on investment would be inadequate in future years and as such would result in insufficient new projects being established to allow any increased target to be met. One of the major investors in the industry, Babcock & Brown, expressed this concern:

Currently the MRET results in projects having declining real revenues combined with costs which continue to increase with inflation. If this was to continue in the longer term, investment returns will continue to erode, thus making investment in renewable energy projects unattractive.²⁸⁸

- 7.102 The impact of the shortfall charge on the operation of the MRET measure is not completely clear, or therefore predictable, for a range of reasons:
- Most liable electricity retailers were adamant in their submissions and during consultations that they would prefer to buy RECs rather than pay the shortfall charge. In a contestable energy market they believed customer support for the concept of renewable energy would see their market share erode if they were seen not to be supporting renewables.
 - While this determination was understandable, it was also clear that some liable parties such as energy intensive industries would not have the same market sensitivities, although it was acknowledged that they could be subject to pressures through campaigns by community organisations. It was clear also that if the price being demanded for RECs increased too far above the shortfall charge, some liable parties might weigh the relative costs of compliance against paying the shortfall charge. It would take only a few to elect to pay the shortfall charge for others to have less compunction about following them. This would defeat the purpose of the MRET measure.

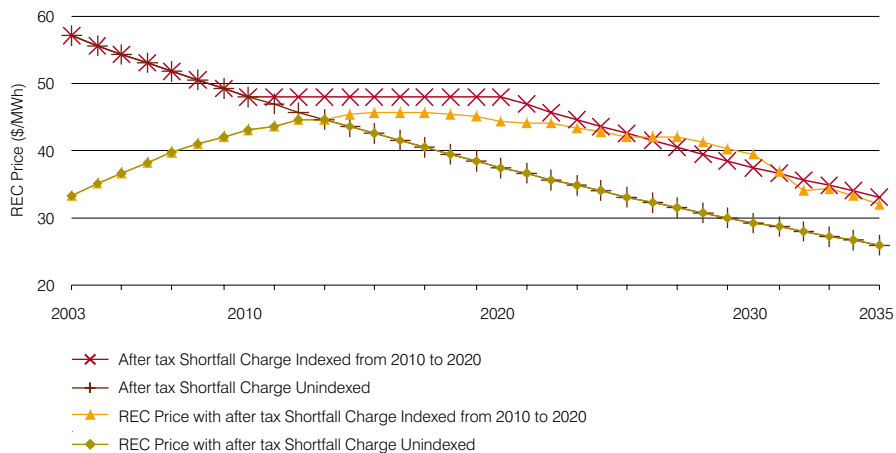
²⁸⁷ Australian Business Council for Sustainable Energy, submission 165

²⁸⁸ Babcock & Brown, submission 124, p5

- The influence the shortfall charge has on the REC price is difficult to determine because experience to date shows that there have been many more RECs (both created and yet to be registered) than are required to meet current targets. The market is not fully transparent so that prices being paid are variable, and are governed by a range of factors such as technology and location, with some retailers prepared to pay a premium for what they perceive as cleaner forms of generation located in their own State or Territory.
- The ability of both eligible generators and liable parties to bank RECs makes future generation levels and prices more difficult to predict. Although most generators create and sell RECs as soon as they can for cash flow reasons, larger companies may choose to hold them and not flood the market, thereby reducing the price. On the other hand, liable retailers averse to the risk of needing to pay the shortfall charge or concerned about future price increases have purchased RECs well in excess of their current requirements.
- A further feature of the industry is that many projects will not start without a Power Purchase Agreement (PPA) in place. While project owners would like longer agreements, typically these are for five to seven years and will specify a total electricity purchase price, and therefore an implied REC value, for this period. As a rule liable parties, mostly the larger retailers, have considerable purchasing power relative to the smaller, project financed, new entrants to the renewable generation industry. As a result, there are market disciplines which will act to keep the REC price in PPAs down. However, these pressures might disappear (at the margin) in the future, in the event that there is insufficient investment in the renewables industry, and liable parties find themselves short of RECs to surrender in a particular year.
- It is unclear how the market will operate once an initial PPA for a project terminates, and the owners are only about half way through repaying their capital. They will be keen to renew their PPA which might leave them vulnerable to price pressures from the market power of retailers. On the other hand, they will be likely to be competing with new renewable projects coming on stream where the technology improvements may not have been sufficient to outweigh their higher marginal cost, flowing from the need to be based on lower grade or more expensive energy.

- 7.103 To assist the Review Panel in reaching conclusions on the issue of future shortfall charges, MMA was asked to model a number of scenarios. In seeking this information, the Panel recognised that modelling of future REC prices requires a range of assumptions to be made. One of the problems with modelling in this instance is that the required REC price calculated at any point in time is the difference between the cost of the marginal renewable generator and the marginal fossil fuel generator. There are significant uncertainties in estimating both of these figures, so calculating the difference only compounds the risk of error.
- 7.104 Further complicating the reliance on models is the need to make assumptions about market behaviour. In particular, this applies to banking and how far above the shortfall charge the REC price would need to rise before liable parties would elect to pay the shortfall charge rather than purchase RECs. MMA has attempted to model how banking would operate but has taken the conservative assumption that the shortfall charge will be paid by liable parties once it is below the marginal REC price.
- 7.105 Based on these assumptions and the comprehensive model which has been developed by MMA, it is apparent that the estimated REC price for a target of 20 000 GWh in 2020 would exceed the unindexed shortfall charge after 2012 (see Figure 22). If this does eventuate, and if retailers choose to pay the shortfall charge, then new investment would rapidly decline. Should the shortfall charge be indexed to CPI between 2010 and 2020, the MMA modelling shows that investment would continue, as the calculated REC price will stay below the shortfall charge.

Figure 22—REC prices with the shortfall charge indexed and unindexed²⁸⁹



²⁸⁹ Figure 22 source; McLennan Magasanik Associates, *Impact of a 20,000 GWh target for the MRET Scheme*, p22. It should be noted that this graph has been modified to reflect the Review Panel's recommendation on indexation of the shortfall charge. Shortfall charges are shown in after tax dollars.

- 7.106 The Review Panel sought to have this modelling work peer-reviewed by Energy Strategies because it provides such an important input to determining treatment of the shortfall charge. This review concluded that:

*[while neither] the renewable energy costs or the market prices modelled by MMA are considered wrong or inappropriate [...] given the level of uncertainty about [these] parameters, I would be unwilling to make a firm conclusion that an increased MRET target after 2010 can only be achieved by indexing the shortfall charge.*²⁹⁰

- 7.107 In the light of this conclusion, the Review Panel considered the option of leaving the shortfall charge unindexed and relying on the proposed trigger (outlined in the next section of this Report) for a further review when for two consecutive years liable parties elected to pay the shortfall charge rather than surrender RECs for more than 15 per cent of their liabilities. Alternatively, it would be open to recommend a further review of the situation in around five years.
- 7.108 The Review Panel was reluctant to recommend indexation if it could be avoided for the reasons outlined in many submissions including that it would remove some of the incentive for the industry to pursue cost efficiencies.
- 7.109 On balance however, overriding the concerns about the negative impact of indexation, was the strong desire to see the proposed refined MRET succeed in stimulating the level of investment required. Investor uncertainty and attitude to risk, coupled with financial models for projects showing inadequate returns, were universally nominated as the most serious investment impediments. The Review Panel could not, in the light of this evidence, recommend a course of action which the best model available to it indicated might not achieve the required objectives, meaning a further review would need to be scheduled or be precipitated by a trigger mechanism indicating the scheme was failing. As the Australian Financial Markets Association (AFMA) highlighted in their submission:

*It should be noted that any review introduces regulatory risk, and the impact of this on the willingness of participants to engage in long term contracts is significant. This then impacts on the effectiveness of MRET to stimulate new investment.*²⁹¹

²⁹⁰ Energy Strategies peer review, *Comments on 'Impact of a 20,000 GWh target for the MRET Scheme'*, p5. Note that the two parts of this quote appear in the reverse order in Energy Strategies' report.

²⁹¹ Australian Financial Markets Association, submission 161, p6

- 7.110 In identifying the need for some changes after 2010, it was also relevant to consider how a potential investor would view a proposal that required a REC price in excess of the shortfall charge. While they might gamble on liable parties continuing to buy RECs for market sentiment reasons, they would gain far greater comfort if there was a cost incentive as well. A characteristic of Australian renewable energy investment opportunities is that there appears to be a large number of potential projects which will be required for an MRET target above 9500 GWh and below 20 000 GWh that would require REC prices within the margin between an indexed and an unindexed shortfall charge.
- 7.111 The downside of any recommendation to lift the shortfall charge is that there will inevitably be a temptation by project proponents and owners to seek to raise REC prices more than would have been the case if they were more constrained. The Review Panel acknowledges that this might be a danger but considers that, in a competitive market, with the unique characteristics outlined above, the effect of a small increase in the shortfall charge will not be great. The cost of renewable electricity relative to the cost of fossil power will determine the impact MRET has on the economy, influenced only at the margin by the level of the shortfall charge.

Recommendation 11

The shortfall charge to remain fixed at \$40 per megawatt hour until 2010 and to be indexed to the Consumer Price Index between 2010 and 2020.

- 7.112 The result of combining this recommendation with the MRET target of 20 000 GWh from 2020 onwards, and confining eligibility for creating RECs to 15 years after 2005, is shown by the MMA model to achieve a steady increase of renewable energy in Australia (see Figure 23 below). The ten year period of indexing the shortfall charge should be sufficient to ensure investments can proceed with an adequate certainty that liable parties will not find it advantageous to pay the shortfall charge rather than support the growth of the renewable energy industry.

Shortfall charge revenue

- 7.113 The revenue derived from payment of the shortfall charge currently goes into consolidated revenue. Several submissions expressed a preference for this revenue to be directed towards further industry development in the renewables sector.
- 7.114 Suggestions for suitable industry development activities included: purchasing RECs with the shortfall charge revenue;²⁹² funding renewable energy technology R&D;²⁹³ and recycling of the shortfall charge revenue to compliant liable parties.²⁹⁴

²⁹² Sustainable Solutions, submission 26

²⁹³ Renewable & Sustainable Energy Roundtable, submission 105; NT Greens, submission 120; Bioenergy Australia, submission 138

²⁹⁴ Greenpeace, submission 194

7.115 Such mechanisms would not offer significant benefits in terms of industry development, as there would be no certainty as to the level of funds available for any of these activities. The Review Panel therefore concludes that such an unpredictable and unbudgeted revenue stream is not practicable as a means of industry development in Australia.

Modelling of key recommendations

7.116 The MMA report suggests that various impacts flow from the expectation that liable parties will choose to pay the shortfall charge in preference to purchasing RECs. The Review Panel commissioned MMA to model the impacts of its recommendations to increase the level of the target to 20 000 GWh by 2020 and to index the shortfall charge from 2010 to 2020. The outcomes are summarised in Table 8.

Table 8—Projected impacts of a 20 000 GWh target in 2020 and indexation of the shortfall charge between 2010 and 2020^{295, 295a}

Impact	Year		
	2010	2020	2030
Total Additional Generation (GWh pa)	12 000	18 000	35 000
Compliance Costs ¹ (\$/MWh)	1.90	3.22	2.36
Wholesale Electricity Prices ¹ (\$/MWh)	42.3	43.4	42.8
Greenhouse Gas Abatement (Mt CO ₂ -e per annum)	9.4	15.9	23.9
Cost of Abatement ¹ (\$/tonne CO ₂ -e)	37	34	23
Investment ¹ (Cumulative NPV in 2003 \$M)	4715	7269	14 462
Indicative Employment in Renewables ² (FTE per annum)	7000	7000	7000
Indicative GDP ¹ (Cumulative NPV in 2003 \$M)	-850	-5100	-8800

²⁹⁵ Table 8 source; McLennan Magasanik Associates. Notes: 1. All dollar values are presented in 2003 dollars; 2. In addition to the employment in the renewables sector of between 1900–3100 FTE per annum generated by the current MRET.

^{295a} Errata: Sixth line—for Cost of Abatement (\$/tonne CO₂-e), delete '37', '34' and '23' in second column and insert '35', '33' and '22'. Insert superscript '3' after 'Total Additional Generation', 'Compliance Cost', 'Greenhouse Gas Abatement', 'Cost of Abatement', 'Investment', and 'Indicative GDP' and insert 'Note 3' at footnote 295: 'These figures represent values compared to a no MRET scenario.'

7.117 Implementation of the Review Panel's refinements to MRET is clearly shown by the modelling to stimulate the development of a sustainable and commercially competitive renewable energy industry, over the medium to longer term. The benefits would be an increasing level of competitive renewable generation, more sustainable investment in renewables, additional greenhouse gas abatement, all at a low cost to the economy.

Competitive renewable generation

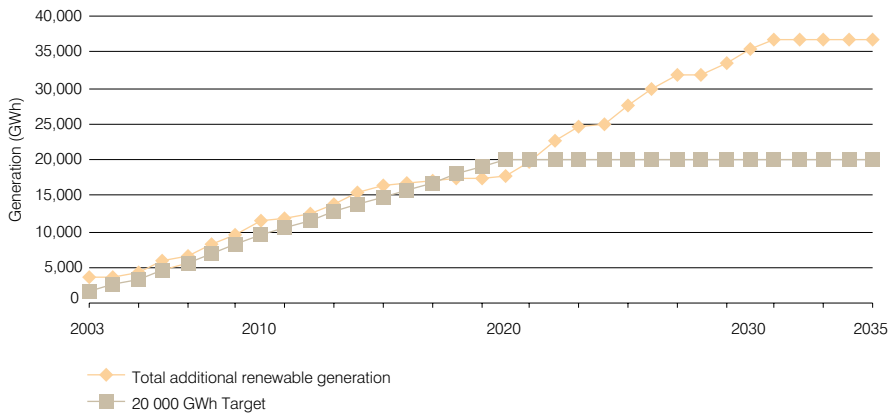
7.118 The MMA analysis supports the notion that generation excluded from eligibility by the allocation of 15 year baselines, will continue without the need for continued REC revenue. MMA states that:

Many renewable generators are expected to operate for 20 years or more. These generators can continue to earn revenue from wholesale electricity markets after their eligibility to earn RECs expires. Declining technology costs as well as improvements in efficiency of generation means that these plants could effectively be replaced from 2020 at a cost which does not require a subsidy. There is still an incentive to increase the level of output as any additional output above what they were originally generating is eligible to earn RECs.²⁹⁶

7.119 The economic modelling indicates that from 2021, increasing amounts of generation will become commercially competitive with conventional generation. By around 2030, an additional 17 000 GWh per annum of commercially competitive renewable generation can be expected to occur, represented by the level of generation above the target in Figure 23.

²⁹⁶ McLennan Magasanik Associates, *Impacts of a 20,000 GWh Target for the MRET Scheme*, p24

Figure 23—Total renewable generation for 20 000 GWh target²⁹⁷



7.120 It should be noted that this figure varies slightly from Figure 21, which represents the theoretical case rather than the outcomes of MMA’s modelling.

Investment profile

7.121 The proposed refinements to MRET can also be expected to result in a more sustained investment pattern in the renewables sector.

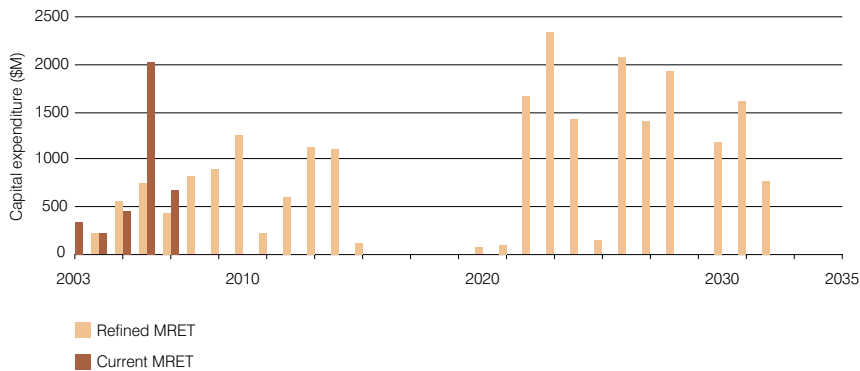
7.122 Figure 24 shows expected trends in investment in the renewables sector, between 2003 to 2035 for the refined MRET compared with the current MRET. By comparison with the current MRET, which shows a lumpy investment pattern, the investment trend for the refined MRET shows a significantly smoother and more sustained pattern.

7.123 Figure 24 shows that the pattern of investment under the refined MRET would be spread evenly over the next 10 to 12 years. MMA commented that this ‘is likely to be more favourable to the development of a sustainable renewable energy industry’.²⁹⁸

²⁹⁷ Figure 23 source; adapted from McLennan Magasanik Associates, *Impact of a 20,000 GWh target for the MRET Scheme*, p23

²⁹⁸ McLennan Magasanik Associates, *Impacts of a 20,000 GWh Target for the MRET Scheme*, p31

Figure 24—Annual investment in renewable generation (\$M, 2003 dollars)²⁹⁹



7.124 The modelling shows that between 2015 to 2020 there would be a considerable shortfall in investment under the indexed scenario. This correlates to a period of modest generation shown in Figure 23. MMA commented that this gap in investment results from generation being higher than the interim targets in the preceding period. MMA further comments that:

However, in reality the pattern of growth of generation is not likely to match exactly the modelling results due to other constraints not considered. Therefore, there is likely to be a smoother pattern to investment than indicated by the model results.³⁰⁰

REC prices

7.125 Under the recommended scenario, as illustrated in Figure 22, following an initial rise, REC prices are expected to level off and then decrease beyond 2020. MMA explains the trend thus:

Prices increase initially as the demand for RECs increases above the annual targets. It is less costly for liable parties to purchase more RECs early to be redeemed at a later date. Prices also increase in the period to 2015 as lower yield wind generation and biomass projects with higher fuel costs are required to meet the targets. Prices eventually peak and fall as technology costs continue to decline and outweigh the increase in cost from sourcing more marginal wind generation.³⁰¹

²⁹⁹ Figure 24 source; adapted from McLennan Magasanik Associates, *Impacts of a 20,000 GWh Target for the MRET Scheme*, p31

³⁰⁰ McLennan Magasanik Associates, *Impacts of a 20,000 GWh Target for the MRET Scheme*, p31

³⁰¹ McLennan Magasanik Associates, *Impacts of a 20,000 GWh Target for the MRET Scheme*, p21

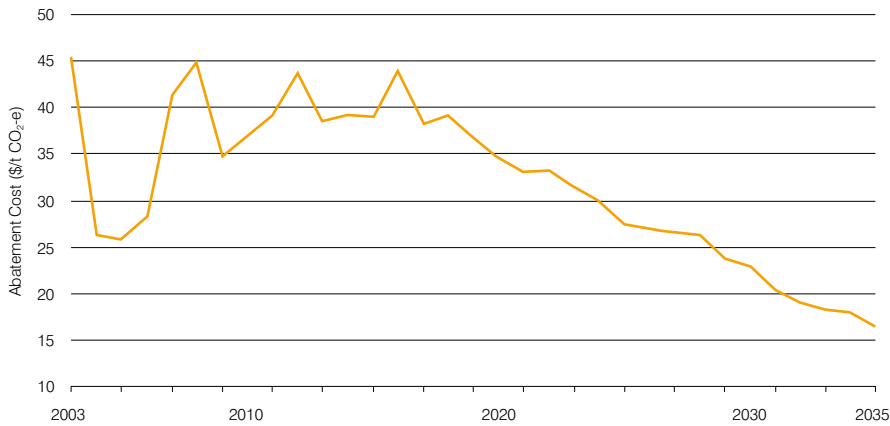
- 7.126 If this declining trend continues beyond 2035, the price gap between renewable and conventional generation will continue to reduce suggesting that, in the longer term, generation from renewable sources will become competitive with conventional sources.

Greenhouse gas abatement

- 7.127 The proposed refinements to MRET can be expected to significantly increase the level of greenhouse abatement compared to the current MRET. By 2010, under the indexed scenario, the refined measure is expected to abate an additional 1.5 Mt CO₂-e per annum, despite the increase in the target occurring after 2010. This is because banking allows the early introduction of capacity above that required by the level of the target.
- 7.128 This additional abatement would help to narrow the gap between Australia's projected emissions in 2010 and its 108 per cent emissions target agreed at Kyoto.
- 7.129 In 2020 and 2030, the refined MRET can be expected to result in an additional 15.9 and 23.9 Mt CO₂-e abatement per annum, more than doubling and trebling the level of greenhouse gas abatement projected under the current MRET, respectively.
- 7.130 From 2003 to 2035, the cumulative level of abatement expected by the revised MRET would be around 350 Mt CO₂-e. This might be a conservative estimate as the model takes a short term view on what generation source the renewables replace. In the longer term the additional renewable power stations could be assumed as replacing future coal-fired units which might have been built in a business-as-usual scenario. The MMA report shows this would result in additional abatement of 10 Mt CO₂-e per annum by 2025.³⁰²
- 7.131 Figure 25 demonstrates that under the recommended scenario, the economy-wide cost of abatement, is expected rise and then stabilise over the short to medium term to around \$40 per tonne of CO₂-e. After 2020, the cost of abatement is expected to steadily decline, reaching a level of \$16 per tonne of CO₂-e in 2035. At this level, the revised MRET may be a low-cost approach to greenhouse gas abatement.

³⁰² McLennan Magasanik Associates, *Impacts of a 20,000 GWh Target for the MRET Scheme*, p42

Figure 25—Forecasts of abatement costs (\$ per tonne CO₂e)³⁰³



Economic impacts

- 7.132 Under the recommended scenario, the average cost of compliance resulting from the Review Panel’s refinements to MRET is expected to be around \$2.03 per MWh, or about 2 per cent of average electricity prices to end-users. As a result of higher electricity prices, the overall negative impact on the economy would be a total change in GDP over the period 2003 to 2035 of less than 0.08 per cent annually.^{303a}
- 7.133 In 2010, around an additional 7000 jobs per annum can be expected, more than doubling the present workforce in the renewables industry. However, with the anticipated decline in GDP, the economy-wide level of employment is expected to fall but only marginally.

Future reviews

- 7.134 Term of Reference (i)(iv) requires the Review Panel to consider the ‘need for future reviews’.
- 7.135 Reviews of government policy, including the MRET, are a common accountability device, and an important way of ensuring that government objectives are being met. However, uncertainties regarding the outcome of the current Review, combined with the Parer Report recommendation that MRET cease to operate, have negatively impacted on the investment environment within the renewable energy sector. This in turn has delayed the development of projects which might, under other circumstances, have proceeded.

³⁰³ Figure 25 source; adapted from McLennan Magasanik Associates, *Impacts of a 20,000 GWh Target for the MRET Scheme*, p30

^{303a} Errata: Third line—after ‘end-users’ insert ‘compared to a no MRET scenario’. Fifth line—delete ‘less than 0.08 per cent annually’ and insert ‘a maximum of 0.08 per cent in any one year, compared to a no MRET scenario’.

7.136 In consequence, the Review Panel is aware that any decision on future reviews must balance the need for accountability and performance assessment of the measure with the need to avoid unnecessary uncertainty within the industry.

7.137 A number of submissions discussed the need for future reviews. Some emphasised the uncertainties that would be created by future reviews, and submitted that there should be no further reviews. CVC REEF, for instance, stated:

Whilst there is no doubt a good case for reviews of virtually all decisions at various times, the constant fear of negative changes to the environment in which projects are to operate works strongly against investment, especially in the case of a renewable energy project, which typically has a high up-front cost and therefore requires a predictable income over long periods.³⁰⁴

7.138 Among those who supported future reviews, various dates were suggested, from three-year intervals, to a future review in 2010. On balance, five-yearly intervals appeared to be the most popular choice.³⁰⁵

7.139 Even among those who supported future reviews, there were concerns that reviews may hinder investment by creating regulatory uncertainty. A number of interested parties suggested that the terms of reference of any future review should be limited, in order to reduce the level of regulatory uncertainty associated with the review. Delta Electricity, for example, stated:

Ongoing regulatory review introduces uncertainty [...] to deal with this uncertainty it would be preferable that any future reviews not be permitted to reduce the scope of the measure in terms of the target or shortfall charge.³⁰⁶

7.140 Some interested parties took the view that, rather than scheduling reviews by date, the reviews should be triggered by certain circumstances. The Tasmanian Government, for instance, suggested:

Given that the market will provide the appropriate signals that the intention of the legislation is working, indicators such as failure to reach target levels over a defined period may be used as the trigger for a review.³⁰⁷

7.141 The Review Panel considers that the latter approach, where reviews occurs as a result of logical triggers, is preferable to specifying a particular date, which may in reality be unconnected with changes which would necessitate a reconsideration of MRET. The Review Panel considers that there are two circumstances which should trigger a review.

³⁰⁴ CVC REEF, submission 100, p3

³⁰⁵ Australian and New Zealand Solar Energy Society, submission 57; Western Power, submission 70; Pemberton, submission 96; Renewable and Sustainable Energy Roundtable, submission 105; National Association of Forest Industries, submission 145; Greenpeace, submission 194; NT Government, submission 196

³⁰⁶ Delta Electricity, submission 87, p3

³⁰⁷ Tasmanian Government, submission 229, p11; Environment Victoria, submission 195, made a similar point but did not elaborate on which circumstances should trigger a review.

- 7.142 The first would be a decision to implement an economy-wide emissions trading or carbon tax scheme. Once the detailed design and principles of such a scheme are known, the review would consider any adjustments to MRET needed for it to coexist with the new scheme, to provide for a smooth transition to the new scheme.
- 7.143 The fundamental objective of such a review must be to provide continued certainty for existing investments, so that the new policy environment does not result in disadvantage for projects developed under MRET.
- 7.144 The second review trigger would be a circumstance where a significant proportion of the overall MRET liability was persistently being met by liable parties paying the shortfall charge instead of surrendering RECs. This trigger should only be activated if the number of liable parties choosing to pay the shortfall charge was high enough that the objectives of MRET were in danger of being undermined.
- 7.145 The Review Panel envisages that such a trigger should be activated if, in two successive MRET liability years, there was a 15 per cent or higher shortfall of RECs surrendered. This figure has been chosen because current arrangements allow liable parties to carry over a shortfall of 10 per cent. This trigger would be 5 per cent beyond that leeway, indicating a more serious lapse in compliance.
- 7.146 The decision to trigger these reviews should remain with the Minister. This would provide greater flexibility than any statutorily-entrenched review provisions.
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Recommendation 12

A review of the Act to be initiated by the Minister if a decision is taken to implement a defined, economy-wide carbon penalty, or in the event of more than 15 per cent of the overall liabilities being met by shortfall charge payments over two consecutive years.

Baselines

- 7.147 Renewable energy generation (particularly in the form of hydro generation, bagasse co-firing, generation from landfill gas, and solar hot water systems) has taken place in Australia for many years. The MRET measure was developed to encourage an additional 9500 GWh by 2010. Pre-existing generation falls outside the scope of MRET.
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- 7.148 At the same time, pre-existing generators that increase their output by improved efficiency or the installation of new plant, are eligible for RECs for their additional generation.
- 7.149 The Renewables Target Working Group, which developed MRET in 1999, sought a mechanism to reward pre-existing generators for investing in new plant, without providing them windfall gains. They considered a number of options, ranging from having two categories of RECs (one for new generation and another for pre-existing generation) to having pre-existing generators apply for RECs to offset new investment operations.
- 7.150 The model eventually settled on was the application of a 'baseline' that represented the pre-1997 generation. Pre-existing generators would only be able to obtain RECs for generation above that baseline. The Working Group noted:

The advantage of this approach is its simplicity. It could overcome the difficulties associated with attempting to distinguish between maintenance, upgrades, expansions and refurbishments and would also have the advantage that the generator would bear the risks of investment since the generator would receive no renewable energy certificates in years where output fell below the threshold level.³⁰⁸

- 7.151 The Working Group noted that this simplicity was not without its disadvantages, but suggested that an average over a period of years would be a reasonable approximation:

The output from renewable energy generation plant varies from one year to the next due to a number of climatic and other factors, with factors affecting one renewable plant being different to those affecting another [...] Therefore, it is proposed that an average output over a period of three years could be used as the basis for calculating existing levels of renewables.³⁰⁹

- 7.152 This model was effectively carried forward into the MRET measure. The rules for the application of baselines under MRET are contained in Schedule 3 to the *Renewable Energy (Electricity) Regulations 2001*. In short they state that, for generators that commenced generation before 1 January 1997, a baseline could be determined by taking the average of the annual electricity generated by the generator during 1994, 1995 and 1996 (known as the 'reference period').

³⁰⁸ *Implementation Planning for Mandatory Targets for the Uptake of Renewable Energy in Power Supplies*, p62. The panel notes that the Working Group was unable to achieve consensus on this issue.

³⁰⁹ *Implementation Planning for Mandatory Targets for the Uptake of Renewable Energy in Power Supplies*, p64

7.153 Other methods of determining the baseline can be used if appropriate—for instance, if a generator did not generate electricity continuously during the reference period, or if major changes to the generator were implemented during the reference period. Under these circumstances, ORER has a range of options including:

- extrapolating from 24 months of relevant data
- modelling the output of the generator to produce a baseline
- setting a 'special baseline' taking into account a range of factors set out in item 3.3 of Schedule 3 of the Regulations. This might, for instance, result in setting a baseline utilising longer term data for a more accurate measure of long term generation levels.

7.154 Importantly, the regulations do not require ORER to disclose the baseline to anyone other than the generator. ORER has, consequently, taken the decision to regard baselines as private information:

Some participants have requested that extra information, such as baselines and eligible generation from each power station, be displayed on the [REC] registry. As this information is not specified in the Act as information to be made publicly available, it is regarded as private information, and accordingly is covered under the strict secrecy provisions under Part 12 of the Act.³¹⁰

Concerns expressed regarding baselines

7.155 While baselines are not published, a number of analysts have calculated baselines independently, and on the basis of these calculations, some interested parties have expressed criticism that the baselines are too low, and therefore offer a windfall to pre-existing generators, and in particular pre-existing hydro generators. BCSE stated:

[BCSE] analysis reveals that baselines for some pre-existing large-scale hydro generators appear to be set at levels well below their long run average system yield. This means they will be able to generate RECs without undertaking any new generation investment.³¹¹

³¹⁰ The Office of the Renewable Energy Regulator, submission 178, p6

³¹¹ Australian Business Council for Sustainable Energy, RECs, *Baselines and Industry Development*, p3. Submissions supporting changes to baselines included; Australian Consumers Association, submission 10; Chapple, submission 34; Australian and New Zealand Solar Energy Society, submission 57; Wind Prospect, submission 74; Australian and New Zealand Solar Energy Society Qld Branch, submission 90; Mirus Wind, submission 91; CVC REEF, submission 100; NT Greens, submission 120; ANZ Infrastructure, submission 121; Envirogen, submission 144; National Association of Forest Industries, submission 145; Outhred & Macgill, submission 164; Conservation Council of South Australia, submission 168; Rethmann Australian, submission 176; Blakers and Senator Brown, submission 184; Conservation Council of WA, submission 200; Energy Users Association of Australia, submission 201; Australian Conservation Foundation, submission 210; Sustainable Energy Association of WA, submission 211; Environmental Defenders Office, submission 219; The Australian Democrats, submission 248

- 7.156 Opposing this view, a number of interested parties supported the current arrangements. ORER,³¹² for instance, expressed the view that the current baselines are at approximately the levels expected by the Renewables Target Working Group.
- 7.157 The large hydro operators, who would be most affected by any change to baselines, support current arrangements. Hydro Tasmania commented that the current baselines are appropriate, and based on sound methodology:

*The baseline setting methodology was a carefully derived process by independent consultants to the ORER, with this approach being applied uniformly to all existing hydro-electric generators ... Several forms of verification were used to ensure that the final baselines were representative of 1997 generation levels.*³¹³

- 7.158 Snowy Hydro concurred:

*Snowy Hydro believes that our existing plant baselines are appropriate and are representative of our long term generation average. These baselines were set through a rigorous and robust consultation process.*³¹⁴

- 7.159 The Renewable Energy Generators of Australia (REGA) supported this view:

*Baselines are absolutely critical in ensuring that the 1997 level or 16,000GWh of existing renewable electricity does not decline and thus, together with the additional 9,500GWh, consequently need to be made up by more expensive renewable options [...] REGA argues that this package of arrangements must remain in place.*³¹⁵

- 7.160 On balance, the Review Panel considers that the baselines methodology is appropriate and is operating as intended. It was developed over a long period, and has been operating for a number of years (therefore suggesting sovereign risk issues for pre-existing generators who have made investments based on their current baselines). Consequently, the Review Panel does not recommend any changes to baselines.

³¹² The Office of the Renewable Energy Regulator, submission 178, p7

³¹³ Hydro Tasmania, submission 104, pp34–35

³¹⁴ Snowy Hydro, submission 86, p3

³¹⁵ Renewable Energy Generators of Australia, submission 108, p9

'Unders and Overs'

7.161 An issue closely related to baselines is the issue of 'unders and overs.' In short, this issue emerges because in years when pre-existing generators exceed their baseline they obtain RECs, but in years when they do not reach their baseline, they are not penalised. Table 9, which is hypothetical and does not represent any actual party, indicates how the problem occurs.

Table 9—Hypothetical 'unders and overs'

Year	Baseline (MWh)	Generation (MWh)	RECs received
1	1000	1500	500
2	1000	500	0
3	1000	1750	750
4	1000	250	0
5	1000	1500	500
6	1000	500	0

7.162 In this example, the generator has an annual baseline of 1000 MWh, and over the six year period had average annual generation of 1000 MWh. Yet, although over the period no additional generation has occurred, the company has obtained 1750 RECs. Interested parties opposing this eventuality suggested that in years where generation falls short of the relevant baseline (years 2, 4 and 6 in this example), the generator should incur a liability.

7.163 In this case, the total 1750 MWh shortfall in years 2, 4 and 6 would have incurred a liability, which would then have been offset by the 1750 RECs obtained in years 1, 3 and 5, leaving the generator with a total of zero RECs, to reflect the nil total excess generation.

7.164 BCSE described the issue of unders and overs in the following terms:

*One of the features of MRET is that accredited generators can produce RECs when their output is above their baseline in any given year ... However, in years when the system output is below the baseline RECs do not have to be handed back. In other words RECs produced in a high rainfall year (the 'overs') do not have to be handed back in years of low rainfall when system output is below the baseline (the 'unders') even though the average production over several years may be at (or even below) the established baseline.*³¹⁶

7.165 As with the more general issue of baselines, suggestions that the 'unders and overs' issue should be changed met with opposition from the large hydro companies concerned, whose main argument was that 'unders and overs' were an intended part of the baselines process. Hydro Tasmania outlined a number of consequences which it considers may flow from penalising 'unders':

- *Undermining upgrade business cases by seriously diluting the investment signal for these projects [because the return on investment would be uncertain].*
- *Increasing the costs to the Australian economy as more expensive additional renewable energy will need to be sourced to replace the foregone additional renewable energy production from existing generators.*
- *Reducing the liquidity in the market in the early years of the measure.*
- *Increasing the likelihood of losing existing renewable energy production, eg decommissioning, through reduced REC revenue.*
- *Increasing administrative complexity.*³¹⁷

7.166 Snowy Hydro expanded on the likely consequences for business planning:

*By way of example, a prolonged drought sequence will result in a significant REC account deficit to Snowy Hydro ... If weather conditions do in fact enable us to shift our account into credit Snowy Hydro will, regardless of our eligibility, be unlikely to create and trade RECs in either spot or forward markets due to the trading risks imposed on us by an 'unders & overs' methodology.*³¹⁸

³¹⁶ Australian Business Council for Sustainable Energy, RECs, *Baselines and Industry Development*, p13

³¹⁷ Hydro Tasmania, submission 104, p36

³¹⁸ Snowy Hydro, submission 86, p15

- 7.167 The Review Panel agrees that 'unders and overs' were a predictable and expected outcome of the design of the MRET system. The very nature of an average baseline suggests that in some years, production will be above the average, while in other years it will be below. In 'under' years, hydro systems are effectively penalised by being unable to derive any income from RECs. This provides an incentive for the large hydro operators to maintain their output levels above their baseline.
- 7.168 Hydro Tasmania, Snowy Hydro and Southern Hydro have embarked upon substantial investment and upgrade programs that are funded at least partially by RECs income. Any proposal to penalise 'unders' would clearly have significant sovereign risk issues for companies that have invested on the basis of the current scheme.
- 7.169 The Review Panel considers that the impact of 'unders' will decrease over time as efficiency improvements are made, which will tend to raise generation towards baseline levels even in periods when resource availability is low.

Gaming

- 7.170 There was a diverse range of views raised by a limited number of parties in relation to the issue of 'gaming'. Several parties³¹⁹ argued that the current gaming arrangements operate adequately. Others suggested that industry should be further consulted before any gaming provisions are inserted³²⁰ while others suggested that the proposed changes in the Renewable Energy (Electricity) Amendment Bill 2002 be adopted.³²¹
- 7.171 On balance, the Review Panel concludes that the changes in the Amendment Bill, which would allow the Regulator to suspend the accreditation of a power station if a number of preconditions for gaming were met, should be implemented.

Caps, portfolios and emissions intensity

- 7.172 The MRET scheme does not discriminate between Eligible Renewable Energy Sources. Although RECs may be allocated in slightly different ways (for instance, solar hot water RECs are deemed rather than being created against metered electricity output), the basic principle remains that one REC is equal to one MWh of electricity, and that RECs have equal value against MRET liabilities, regardless of their source.³²²
- 7.173 Under these arrangements, the RECs market determines the source of energy purchased, and facilitates the most efficient mix of renewable energy generation. In effect, the least expensive renewable energy options will be taken up most readily. This drives efficiency in the renewable energy industry.

³¹⁹ Including CSR, submission 73

³²⁰ Origin Energy, submission 170

³²¹ Victorian Government, submission 173

³²² The panel recognises that wood waste RECs are trading at a discount, but this expresses a market preference and is not inherent in the scheme's design.

- 7.174 Since the time of MRET's initial design, some parties have expressed concern that the REC market may result in a small number of relatively low-cost technologies dominating the market, effectively shutting out newer, currently more expensive technologies, such as PV, which may offer substantial long term greenhouse and economic benefits.
- 7.175 Two possible means of tailoring MRET assistance for particular energy sources are 'caps' and 'portfolios.' A cap would provide a maximum market share for any single technology, while a portfolio would specify proportions of the market which were to be allocated to particular technologies. CVC REEF outlined the rationale behind caps and portfolios:

*The current MRET target, and in particular the interim targets, provide virtually no incentive or encouragement to innovative renewable energy businesses [...] some form of portfolio allocation of REC's under the Act is essential to provide the level of stimulus necessary to allow [...] promising indigenous technologies to flourish along with the businesses built upon largely imported equipment that will necessarily meet the bulk of the target in any case.*³²³

- 7.176 The Senate ECITA Committee considered the issue of caps and portfolios in its August 2000 report on the Renewable Energy (Electricity) Bill 2000. At that time, there was a wide expectation that biomass energy, particularly bagasse, would become the dominant energy source under MRET. Wind and solar energy were thought to be at risk of being shut out of the market.
- 7.177 While the ECITA Committee was attracted to the idea of a 50 per cent cap on any single technology,³²⁴ it commented that such a scheme would be difficult to administer. These difficulties were described in the AGO's evidence before that Committee:

*It is our view that proposals for a cap or a portfolio approach in which we would predetermine the technological composition should be rejected ... We would argue that no-one would have the skills to accurately project the technology and fuel composition of this measure 10 or 20 years in advance.*³²⁵

- 7.178 The Review Panel notes that the AGO's views regarding the difficulty of predicting the mix of technologies under MRET have been aptly demonstrated by events. The three years since that time have seen hydroelectricity and solar water heaters emerge as larger sources of RECs than biomass, including bagasse. The wind industry has expanded rapidly.

³²³ CVC REEF, submission 100; p2. Other submissions supporting, at least in principle, caps or portfolios included Australian National University, submission 7; Dyer, submission 8; CSIRO Energy Technology, submission 93; Pemberton, submission 96; NT Greens, submission 120; Enecon, submission 128; Coote, submission 136; Conservation Council of SA, submission 168; Victorian Government, submission 173; Senator Brown and Blakers, submission 184; Greenpeace, submission 194; Environment Victoria, submission 195; NT Government, submission 196; Conservation Council of WA, submission 200; Australian Conservation Foundation, submission 210; Queensland Conservation Council, submission 223; Pacific Hydro, submission 224

³²⁴ Renewable Energy (Electricity) Bill 2000, Renewable Energy (Electricity) (Charge) Bill 2000, *Report of the Senate Environment, Communications, Information Technology and the Arts References Committee*, p18, para 1.54, citing the SEIA submission discussed on p16, para 1.48 bullet point 3.

³²⁵ Mr Phillip Harrington, AGO, cited in Renewable Energy (Electricity) Bill 2000, Renewable Energy (Electricity) (Charge) Bill 2000, *Report of the Senate Environment, Communications, Information Technology and the Arts References Committee*, p18, par 1.52

7.179 Any attempt to tailor MRET assistance to support higher cost technologies is likely to lead to less efficient and higher cost outcomes. REGA, for instance, stated:

*[...] it is inefficient and contrary to the Government's objectives for the MRET to endeavour to select renewable technologies, rather than letting them develop according to their economic efficiency and thus result in the least cost approach required by the Government.*³²⁶

7.180 Indeed, the current system received high praise from NEG Micon, which stated that:

*The measure works elegantly in its current form, in that it allows all renewable options to compete in a market environment, and this drives improvements in efficiency of all projects.*³²⁷

7.181 MRET, as a market-based mechanism, does not discriminate between renewable energy types based on emissions intensity. Once a source is an eligible renewable energy source, and once ORER accredits a generator, every MWh of electricity produced (above baselines for pre-existing producers) is eligible for a single REC. However, these RECs do not reflect a uniform amount of abatement. The amount of abatement which may be attributed to each REC depends on a number of factors:

- **The emissions directly associated with generation**—some forms of renewable energy, such as wind and solar, do not emit any greenhouse gases while generating electricity. Others, however, such as generation from combustion of biomass, or generation from combustion of landfill methane, do still result in emissions of greenhouse gases.³²⁸

³²⁶ Renewable Energy Generators of Australia, submission 108, p6. Other submissions opposing portfolios included Australian Consumers Association, submission 10; Westpac, submission 30; Commonwealth Bank of Australia, submission 58; Ergon Energy, submission 62; Eastern Star Gas, submission 63; Western Power, submission 70; Comalco, submission 71; CSR Sugar, submission 73; Wind Prospect, submission 74; Meridian Energy, submission 83; Snowy Hydro, submission 86; Gleeson, submission 94; Australian Inland, submission 99; Wind Farm Developments, submission 103; Hydro Tasmania, submission 104; Electricity Supply Association of Australia, submission 107; Macquarie Generation, submission 112; Southern Hydro, submission 116; ANZ Infrastructure, submission 121; Energy Australia, submission 122; Western Power, submission 132; Envirogen, submission 144; National Association of Forest Industries, submission 145; Stanwell, submission 146; Simcoa, submission 147; Forestry Tasmania, submission 149; Connell Wagner, submission 153; Australian Aluminium Council, submission 156; Australian Business Council for Sustainable Energy, submission 165; Origin Energy, submission 170; Alternative Technology Association, submission 197; Australian Wind Energy Association, submission 198; Energy Users Association of Australia, submission 201; NEG Micon, submission 202; Energy Retailers Association of Australia, submission 204; WA Sustainable Energy Association, submission 211; TXU, submission 218; Australian Gaslight Company, submission 226; Tasmanian Government, submission 229; Minerals Council of Australia, submission 231; Australian Industry Greenhouse Network, submission 235; WA Government, submission 238; CSR/MCSA/BSL, submission 239

³²⁷ NEG Micon, submission 202, p9

³²⁸ While this is so, it is important to note that these emissions are lower than for fossil fuels, and that these sources involve emission of carbon from within a relatively short carbon cycle, as opposed to the emission of carbon which has been locked in coal or gas for millennia.

- **'Life Cycle' emissions**—there exists a growing field of analysis that attempts to examine the full impact of a generation source across its entire life cycle, including such factors as the energy consumed in manufacturing the generation equipment, energy used in extracting the fuel source, and so forth. While this factor is included for completeness, the Review Panel is not aware of any life cycle analysis which is sufficiently advanced to become the basis for substantial policy decisions.
- **Displaced emissions**—the overall abatement impact of renewable energy also depends on the type of fuel which is being displaced as a result of the renewable energy. For instance, if renewable energy sources displace generation from brown coal or lignite, the avoided emissions would be very significant. If traditional black coal is displaced, avoided emissions would be somewhat less. If high-efficiency coal or gas is displaced, avoided emissions may be lower still. It is also possible, depending on the location of new renewable energy developments, that they might in fact displace other renewable energy. To make matters more complex, the type of energy being displaced might change very rapidly according to the state of the NEM at any point in time.

7.182 In addition to these factors, any move to have MRET take account of emissions intensity would have to deal with conversion issues, given that MRET is measured in MWh and emissions abatement is measured in tonnes of CO₂-e. The NSW Benchmarks Scheme might provide some lessons here, but even the NSW Benchmarks Scheme applies a uniform conversion factor (the NSW Pool Coefficient) that essentially assumes that both the emissions arising from renewables and the emissions displaced are uniform. An MRET scheme adapted to recognise differing emissions intensities would not be able to make the same assumption.

7.183 It is also apparent that, while the notion of linking MRET to emissions intensity might appear superficially attractive, it is likely to be too administratively complex to effectively be managed. This was also the consensus view of those who made submissions on this issue. ANZ Infrastructure Services, for instance, stated:

In principle, we would support a recognition of relative greenhouse intensities in determining the abatement value of generation from various sources but we are also aware of the significant practical difficulties associated with this approach, for example determining whether or not the loss of sequestration from flooded forested areas and CO₂e production by the biomass associated with hydroelectric generation should be taken into account.³²⁹

7.184 The Victorian Government expressed a similar view:

As a long term greenhouse pollution abatement measure, MRET should target investment relative to the greenhouse intensities of particular technologies, and the greenhouse intensity of the electricity they displace. This would facilitate the transition into a carbon constrained future by establishing the mechanism whereby relative greenhouse value is assessed and externalities are accounted for.

It is, however, recognised that there may be significant administrative burdens with this approach and it is therefore not recommended at this stage unless these can be overcome.³³⁰

- 7.185 The Review Panel concurs with the view that, regardless of the possible merits of recognising relative greenhouse gas emission intensities, the administrative complexities of such a system would be prohibitive.
- 7.186 The Review Panel concludes that the introduction of caps, portfolios or emissions intensity would compromise the efficiency of the MRET measure and would be complex and difficult to administer. Any fundamental change of this nature would raise significant sovereign risk issues for those companies that have invested on the basis of the existing MRET scheme.
- 7.187 In reaching this conclusion, it also needs to be recognised that it is open to any level of government to operate a support scheme for a particular technology alongside MRET (for example solar photovoltaic and solar water heaters) where particular objectives are identified.

³²⁹ ANZ Infrastructure Services, submission 121, p6

³³⁰ Victorian Government, submission 173, p17. Other submissions supporting recognition of emissions intensity but acknowledging the administrative complexity of the proposal included Hydro Tasmania, submission 104; Energy Retailers Association of Australia, submission 204. Other supporters of adjusting MRET to recognise emissions intensity included Macquarie Generation, submission 112; Geodynamics, submission 215. Submissions opposing any recognition of emission intensities included Stanwell, submission 146; Tasmanian Government, submission 229.

Transparency of the MRET Market

7.188 Term of Reference (i)(i) requires the Review Panel to consider the 'level of participation in and transparency of the Mandatory Renewable Energy Target measure'. As a market based policy, the MRET measure is reliant upon an appropriate level of market transparency.³³¹ The Review Panel received a wide range of responses on this issue, generally based around five issues, which were:

- transparency of baselines of pre-existing generators
- the timeframe for the creation of RECs
- the need for an MRET trading floor
- further information to be available from the Regulator
- the transparency of cost pass-through to end users.

Transparency of baselines

7.189 Many of the concerns expressed about baselines, related to both their secrecy as well as their size. During consultations, a number of interested parties remained sceptical of the established baselines, and sought their publication. Macquarie Generation stated in their submission:

*The non-disclosure of the baselines developed for pre-existing generators, particularly hydro generators, only serves to detract from the transparency of the measure. Macquarie Generation is concerned that the baselines for hydro generators may not accurately reflect a level that will result in entirely new renewable generation. The fact that these baselines have not been published only serves to increase the concerns of the market as to their appropriateness.*³³²

7.190 The Review Panel also noted the willingness of the large hydro players to disclose their baselines if this disclosure would help to remove controversy regarding current baseline levels. On balance, the Review Panel considers that such disclosure would be beneficial.

Recommendation 13

The Act to be amended to enable publication of baselines by the Office of the Renewable Energy Regulator.

³³¹ This point is discussed at some length in submission 169 (Australian Financial Markets Association).

³³² Macquarie Generation, submission 112, p4

- 7.191 In the period following 2020, when new baselines are established for projects that have ended their period of REC eligibility, the Act should allow ORER to exercise discretion in the timing and form of the announcement of generators' baselines so as not to compromise their commercial interests.

Timeframe for creation of Renewable Energy Certificates

- 7.192 Currently, RECs (other than deemed RECs) may be created any time after eligible generation occurs, at which time they are placed on the public register. Most generators, particularly smaller generators who are reliant on income from RECs in order to run their businesses, create RECs as soon as technically feasible. This allows the generator to receive payment, by trading in those RECs, as soon as possible.
- 7.193 However, the possibility remains that some generators may seek to constrain supply in the REC market (therefore driving up prices) by creating RECs on a strategic basis. If the generator is large, the potential exists for it to have a significant impact on the market.
- 7.194 Hydro Tasmania is a big player that has acknowledged that it has performed a substantial amount of eligible generation against which it has not yet created RECs.³³³ It, therefore, has the potential to have a significant impact on the market, for instance, if it created and sold all of those RECs at one time. It should be noted at this point that no evidence has been presented to suggest that Hydro Tasmania has ever had any intention of distorting the market in this way, however the potential remains for large generators to do so.
- 7.195 Submissions varied regarding the timeframes for the creation of RECs. Six months was a common proposal:

*Presently there is no time limit for the production of RECs following the production of renewable energy. Requiring accredited generators to produce RECs within six months of the end of the calendar year to which the energy relates is a reasonable requirement. This would improve the transparency and efficiency of the market and is also consistent with the approach taken in the NSW greenhouse benchmarks scheme.*³³⁴

³³³ Senate Environment, Communications, Information Technology and the Arts Committee, *Provisions of the Renewable Energy (Electricity) Amendment Bill 2002*, p19, par 2.49

³³⁴ Australian Business Council for Sustainable Energy, submission 165, p31

7.196 A number of submissions preferred a longer timeframe:

Origin favours the introduction of a time limit following actual generation for the creation of RECs to increase market transparency. We suggest that accredited generators be required to produce RECs within 12 months of the actual generation. Such a change would add robustness to the operation of the Act, as uncertainty regarding the quantum of eligible energy that has not yet created RECs, would be removed.³³⁵

- 7.197 Market transparency and efficiency would be improved by requiring generators to create RECs within a reasonable time of the generation occurring. However a scheme based on the elapse of a time period from the date of generation is likely to be very difficult to administer. Systems to confirm and audit the dates of eligible generation may well be impossibly complex for ORER to operate. Without such control the rules would be ineffective.
- 7.198 Instead, the establishment of common deadlines that must be met by all generators would be preferable. Section 20 of the Act requires that, before 14 February in any year, a generator must submit to ORER an 'Electricity Generation Return' which includes the amount of electricity generated in that compliance year.
- 7.199 The Review Panel considers that, with respect to any energy reported in the Electricity Generation Return on or before 14 February in any year, RECs should be created no later than 34 weeks subsequently. This allows for the 30 weeks already applying for possible adjustments by NEMMCO to metering figures, and an additional four weeks leeway to allow for the administrative processes associated with REC creation. Using non-leap years as a standard, this would result in a final creation date of 10 October in any year.
- 7.200 The Review Panel considers, however, that generators who currently have not created RECs with respect to past generation should not be disadvantaged by this recommendation. Accordingly, generators should be given an appropriate amount of time to create RECs against past generation, for instance, until the next reporting date, before this recommendation comes into force.

Recommendation 14

Electricity generation reported to ORER in Electricity Generation Returns for any compliance year to cease to be eligible generation after 10 October of that calendar year.

³³⁵ Origin Energy, submission 170, p14

An MRET trading floor

- 7.201 Virtually all trading of RECs is currently undertaken on a bilateral basis—that is, they are directly traded between a generator and a liable party. In addition, some are traded via an agent—this is particularly the case for solar water heaters, where the solar water heater retailer often acts as an agent, purchasing RECs from the consumer and selling them on to liable parties.
- 7.202 Some interested parties suggested that this process of bilateral trading leads to poor transparency in the market, with no commonly understood value attached to a REC. These parties suggested that a 'trading floor' for RECs would be more appropriate:

Another significant issue is the lack of a transparent and public market for RECs. The market for RECs should be akin to the Australian Stock Exchange, where bids, offers, trades and prices are all publicly available.³³⁶

- 7.203 The Review Panel raised this issue with a number of traders working for generators and liable parties. Because the traders were disclosing aspects of their trading strategies, much of the discussions were commercial-in-confidence, however there was general consensus that even if a trading market existed, most trades would still be conducted off-market in bilateral arrangements. As a result, even such a market existed, it would be likely to be very thinly traded, and the market 'REC' price may bear little relevance to the prices in bilateral trades.
- 7.204 The Review Panel is not averse to the concept of a market trading floor for RECs, and is aware that markets exist for derivative REC instruments, such as futures and options. Clearly, interested parties have seen the need for such markets, which is why they have emerged. In the same way, if interested parties generally see the need for a RECs spot market, and if sufficient volume is likely to be traded to make the venture worthwhile, such a trading floor would emerge without any need for interference from the Government.

Published information

- 7.205 The Act requires ORER to make certain information available on the internet. For example, s.137 requires the Register of Registered Persons to be available on the internet, s.139 imposes the same requirement on the Register of Accredited Power Stations, s.141 on the Register of Renewable Energy Certificates, and s.141B on the Register of Applications for Accredited Power Stations.
- 7.206 Section 134 allows, but does not require, ORER to publish a list of the liable parties that have a shortfall each year, and the total amount of the shortfall each year.

³³⁶ Eastern Star Gas, submission 63, p1

- 7.207 However, ORER is bound by Part 12 of the Act, Secrecy, which imposes penalties of up to 2 years imprisonment for improper disclosure of information obtained under the Act. As a result, its ability to provide what might otherwise be useful information is severely constrained.
- 7.208 A number of interested parties submitted that more information on the scheme should be available on either ORER or the REC Registry websites. Ergon Energy, for example, submitted:

[...] that the ORER publish on specified dates each year following the annual reporting process, 4 key pieces of additional aggregated data:

- a) Total eligible generation that occurred in the market in that year;*
- b) Total number of RECs created that year;*
- c) Total actual market liability for the year; and*
- d) Total number of RECs surrendered to offset that liability.³³⁷*

- 7.209 The Victorian Government also sought additional information about liable parties which have a shortfall in any compliance year. It submitted:

Currently the names of liable parties that fail to meet their obligations under MRET are made public. Information about the extent of any shortfalls is not currently made available—although this has the potential to add value to the ‘shaming clause’ in the legislation.³³⁸

- 7.210 This suggestion might go some way towards meeting the concerns expressed by some liable parties, in that those inadvertently left with a very small shortfall would not receive the same degree of ‘shame’ as those which missed by a considerable margin.
- 7.211 The secrecy provisions were inserted into the Act for sound reasons, in order to provide adequate protection for commercially sensitive data which is given to ORER. Any move to increase the release of data must be carefully considered for its further impact on the RECs market, and on the NEM.
- 7.212 However, the data sought by Ergon and the Victorian Government does not appear likely to compromise the commercial confidentiality of either renewable energy generators or liable parties. Accordingly, the Review Panel considers that the Act should be amended to allow the release of this information.
- 7.213 Finally, the Review Panel notes that a number of parties commented that the ‘user-friendliness’ of both ORER and the REC Registry websites could be enhanced.

³³⁷ Ergon Energy, submission 62, p8

³³⁸ Victorian Government, submission 173, p21

Recommendation 15

The Act to be amended to enable ORER to publish:

- a) Total eligible generation that occurred in the market in that year*
- b) Total number of RECs created that year*
- c) Total actual market liability for the year*
- d) Total number of RECs surrendered to offset that liability*
- e) Individual shortfalls and the proportion of those shortfalls relative to their liability.*

Transparency of cost pass through

7.214 In most cases under the current MRET, while the liable party under the scheme is an electricity retailer, the actual costs of the scheme are paid by the end user of the electricity, usually in the form of a higher electricity tariff charged by the retailer. While some retailers provide their customers with information regarding the MRET-related component of their bill, many do not, and nowhere in the Act are they required to do so.

7.215 Some interested parties expressed views concerning the transparency of cost pass through under MRET. Those are:

- that cost pass through should be transparent to consumers
- that cost pass through should reflect the true costs of the retailer
- that cost pass through should not be applied to sales of Green Power.

7.216 The issue of transparency to consumers was raised in a number of submissions, including the Energy Users' Association of Australia, which stated:

[MRET] also has the additional disadvantage of being paid for by end-users, who have limited access to the scheme as renewable energy generators and find it lacks transparency, especially in relation to prices and costs.³³⁹

7.217 Retailers choosing to provide their consumers with information about the components of their electricity bill, including MRET, should be supported. It is likely that if sufficient consumer interest is apparent, retailers will do so. Accordingly, while offering every encouragement to retailers to provide this information, the Review Panel does not propose to recommend that this become mandatory.

³³⁹ Energy Users Association of Australia, submission 201, p16

7.218 A number of the interested parties who raised this transparency issue, did so because they considered that retailers were charging customers an MRET premium. Mr Michael Shaw, for instance, stated:

I received a fact sheet from the retailer explaining how the MRET charge was calculated. It was based on a RECs charge of \$40/MWh. I now know that retailers buy RECs for considerably less than \$40.³⁴⁰

7.219 This issue does not appear to be limited to residential customers. OneSteel submitted:

At present energy retailers can pass on REC's at a cost that has a margin above their obtainment cost that appears in excess of expected administrative handling costs. REC's can be passed on at near penalty rates.³⁴¹

7.220 The Review Panel notes that MRET is not without compliance costs, and that retailers may be inclined to pass these on to consumers. However, the competitive nature of electricity markets in Australia tends to suggest there are few opportunities for profiteering.

7.221 In regulated markets, the price to consumers is regulated, so any passed through costs must satisfy the appropriate regulator. In contested markets, prices can only be increased if the market will allow the company to remain competitive at the higher price. Retailers, therefore, cannot profiteer from MRET, because their ability to raise prices is constrained by market competition.

Green Power

7.222 Some interested parties raised concerns that MRET-related costs are being passed through to Green Power customers by retailers, despite such customers already paying a premium for their electricity. Sustainable Solutions submitted:

it also seems that Liable Parties may be applying their MRET levy to all electricity sales, including Green Power. Since revenue from the Green Power premium is intended to be an alternative to MRET, this approach is increasing the cost of Green Power by forcing Green Power customers to contribute to the cost of compliance with MRET. My understanding is that the MRET liability is based on all electricity sold by a Liable Party so, if this is correct, Liable Parties may well be entitled to charge the MRET levy to green Power customers at present. But this unfair burden on Green Power customers should be removed.³⁴²

³⁴⁰ Shaw, submission 80, pp2-3

³⁴¹ OneSteel, submission 199, p5

³⁴² Sustainable Solutions, submission 26, p11

- 7.223 The difficulty with this issue, as noted in the Sustainable Solutions submission, is that liabilities under MRET are allocated with respect to all energy sold, including Green Power.
- 7.224 The take-up of Green Power to date has been very low (in the order of two to three per cent). It is likely that this is largely due to the premium paid by Green Power consumers. In these circumstances, removing MRET costs from Green Power customers, and raising the costs to other customers, may make Green Power more attractive by reducing the premium paid by Green Power consumers.
- 7.225 While the Review Panel supports the increased uptake of Green Power, price increases to meet MRET liabilities are a matter for liable parties to consider, in light of their regulatory obligations (in regulated markets) or market conditions (in contested markets).