Energy Policy Considerations

4.1 Energy policy provides the context for the market into which renewable energy is sold, and energy policy settings will influence the competitive position of the renewable energy industry. In turn, renewables pose a challenge for energy policy, which must adapt to include a far broader range of generators, including smaller, intermittent generators.

4.2 In November 2002, in a speech to the Committee for Economic Development of Australia, the Prime Minister announced that energy policy would be a major focus of the Government's current term of office. He stated:

> *We are developing a strategic plan for Australia's long term energy policy […] A critical task […] will be to work on energy market reform now underway, including the findings of the recently released Parer report.*[144]

4.3 The Parer Report made 50 recommendations for significant reforms to national energy policy. The most significant of these was for the establishment of a National Energy Regulator to independently regulate energy markets and infrastructure across Australia.

4.4 Greenhouse gas abatement was one of a number of issues considered by the Parer Report, which recommends the cessation of a range of greenhouse programs (including MRET) in favour of a broad national emissions trading system.

4.5 The Parer Report's recommendations are currently under consideration by the Council of Australian Governments.

4.6 This chapter will discuss relevant policy and alternative approaches which relate to energy policy, including the energy market reform process and issues related to grid management.

Energy policy

4.7 The MRET measure provides for increasing amounts of renewable energy generation, much of which will feed into national electricity markets.

[144] Prime Minister the Hon. John Howard MP, Speech to the Committee for Economic Development of Australia, 20 November 2002

4.8 The major market is the National Electricity Market (NEM), which commenced operation on 13 December 1998, as part of deregulation in the Australian electricity industry. A key objective of the NEM is to promote competition at each stage of the electricity production and supply chain.

4.9 The NEM supplies an interconnected electricity grid that runs through Queensland, New South Wales, the Australian Capital Territory, Victoria and South Australia. Tasmania will become part of the NEM in 2005 through the establishment of the *Basslink* connection with Victoria. Western Australia and the Northern Territory electricity markets operate independently of the NEM.

4.10 Increased penetration of renewable energy into Australian electricity markets will have important implications for the efficient administration and operation of the national electricity market and its regulatory framework governed by the National Electricity Code.

4.11 A number of renewable electricity generation sources such as wind and PV are characterised by intermittent generation. These sources, unlike coal and gas, are not scheduled into the national grid. In addition, there are other potential sources, such as wave and tidal energy that may be remote from Australia's major electricity transmission and distribution infrastructure.

4.12 The Parer Review into energy market reform in Australia had as part of its terms of reference:

> *… assessing the relative efficiency and cost effectiveness of options within the energy market to reduce greenhouse gas emissions from the electricity and gas sectors, including the feasibility of a phased introduction of a national system of greenhouse emission reduction benchmarks.*[145]

4.13 The Parer Report,[146] released in December 2002, found that greenhouse measures targeting the energy sector were: poorly targeted; uncoordinated and competed with each other and created uncertainty for the energy industry and the wider economy.

4.14 The Report[147] recommended the introduction of a national emissions trading system and the subsequent cessation of a broad range of existing Australian Government as well as State and Territory government measures, including MRET.

4.15 This recommendation caused considerable concern within the renewable energy industry. In consultations, interested parties advised that investment in new renewable energy projects stalled as soon as MRET was perceived to be under threat. Country Energy commented:

[145] Council of Australian Governments Energy Market Review Final Report. 2002. *Towards a Truly National and Efficient Energy Market*. Canberra, p229

[146] Council of Australian Governments Energy Market Review Final Report. 2002. *Towards a Truly National and Efficient Energy Market*. Canberra, p229

[147] Council of Australian Governments Energy Market Review Final Report. 2002. *Towards a Truly National and Efficient Energy Market*. Canberra, p242

However the COAG recommendation has fuelled greater uncertainty in a market place with an already high regulatory risk factor when getting projects off the ground. The recommendation to terminate the existing MRET and the NSW Greenhouse Benchmark scheme has the potential to cancel many planned projects. Existing project owners are also concerned that the termination of MRET and NSW benchmarks could leave them with stranded non-financial producing assets.[148]

4.16 AusWEA made a similar comment:

However the modest target and market uncertainty introduced as a result of some of the Parer Energy Market Review recommendations has made it increasingly difficult for many wind developers to achieve financial closure on projects. AusWEA is therefore concerned that these factors are acting as a barrier to the widespread adoption of new wind generation as an energy source.[149]

4.17 A number of other interested parties agreed with the Parer Report's recommendations. These parties tended to be liable parties or large energy users. The Australian Industry Greenhouse Network (AIGN), for instance, stated:

As a matter of principle, AIGN considers greenhouse policy measures which mandate the use of a specific fuel source, technology or production technique are inefficient, inequitable and costly. As such, they can be expected to have adverse impacts on the competitiveness of Australia's trade exposed energy intensive industries and, once implemented, to restrict policy flexibility over time. The AIGN notes the COAG Energy Market Review agreed with this view and saw it as a key underpinning of their recommendation for the immediate abolition of the MRET measure.[150]

4.18 This view was supported by the Electricity Users Association of Australia (EUAA):

148 Country Energy, submission 206, p3

149 Australian Wind Energy Association, submission 198, p29. Others who expressed similar views included NT Greens, submission 120; Envirogen, submission 144; Environment Victoria, submission 195

150 Australian Industry Greenhouse Network, submission 235. It should be noted that the Australian Industry Greenhouse Network agreed with the Parer Review's recommendation that if MRET were abolished, appropriate compensation should be paid to affected parties.

It would be desirable if the MRET scheme were to be abolished, with appropriate grandfathering, and replaced with a less costly and more efficient nationally consistent means of addressing greenhouse gas abatement. A separate process to this review should examine the nature of such a scheme more closely. However, flexibility in meeting greenhouse abatement targets, including through demand management, energy efficiency and embedded generation, should be maximised so as to ensure the lowest possible costs.[151]

4.19 Since its inception, the MRET measure has been recognised as one of a number of beyond 'no regrets' measures required to meet Australia's Kyoto target.[152]

4.20 Various estimates have been made of the cost by 2010 of MRET as an abatement measure. These vary depending on assumptions relating to renewable energy certificate prices, electricity prices, and the opportunity cost of utilising less-efficient resources to achieve abatement.

4.21 A sample of economy wide estimates is: $32 per tonne (AGO/MMA[153]), around $60 per tonne (ESAA[154]) and $44–$73 per tonne (ACIL Tasman[155]).

4.22 It is widely recognised that MRET is not a least-cost approach to greenhouse abatement. During the initial development of MRET, the Renewables Target Working Group noted that:

Given that the [MRET] measure has multiple objectives, it is not a least cost greenhouse abatement measure. It is recognised that the measure may involve net economic costs in the short- to medium-term and hence go beyond a no-regrets approach.[156]

4.23 Other submissions also recognised this point, for example, Origin Energy's submission states:

compared with abatement options such as fuel switching from coal to gas-fired generation, end-use efficiency and further reductions in land-clearing, renewable generation is not least cost.[157]

4.24 The Review Panel agrees with the Parer Report's finding that the MRET is not the lowest cost approach to the reduction in greenhouse gas emissions, at least in the shorter term.

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[151] Energy Users Association of Australia, submission 201, p17. Others who supported the Parer recommendations included Kimberly Clarke, submission 47; Alinta Gas, submission 56; Prom Coast Guardians, submission 60; Simcoa, submission 147; Australian Aluminium Council, submission 156; Yallourn Energy, submission 180

[152] Renewable *Energy (Electricity) Bill 2000*, Second Reading Speech, *Parliamentary Debates*, Senate, 22 June 2000, p.18030

[153] McLennan Magasanik Associates, *Economic Impacts of Changes to the Mandatory Renewable Energy Target*

[154] Electricity Supply Association of Australia, submission 107

[155] Australian Aluminium Council, Australian Coal Association, Minerals Council of Australia, submission 152

[156] *Final Report of the Renewables Target Working Group*, p6

[157] Origin Energy, submission 170, p2. On the other hand Origin points out that, MRET 'provides a least cost, market based approach to encouraging additional renewable generation.'

4.25 While these least cost abatement options can be pursued, more expensive options may need to be taken up if higher emissions abatement targets are established beyond 2012. The next round of abatement from fossil fuels may involve new clean coal technologies and measures such as geological sequestration. Depending on the cost of such future technologies, renewable energy may provide an attractive alternative.

4.26 At the present time, in the absence of any regime that places a penalty on carbon, the cost structure of most renewable technologies will mean their expanded application will place a net impost on economic growth relative to conventional electricity generation, albeit a modest one under current MRET settings.

4.27 Evidence submitted to the Review demonstrates that renewable energy technologies, particularly wind power and photovoltaic, are already on a steep cost reduction curve as size and efficiency of installations increase. At the same time, as the industry expands and the risks are better understood and managed, financiers are lowering the premium they have previously factored into the cost of capital.

4.28 Regardless of whether Australia ratifies the Kyoto Protocol, it is conceivable that within the lifetime of the MRET scheme, some regime may be introduced that places a penalty on carbon dioxide emissions. This may take the form of emissions trading (as proposed by the Parer Report), or a carbon levy, or some other scheme. However in all cases these would impose a cost penalty upon electricity generated from fossil fuels.[158]

4.29 The Review Panel considers that there is a role for MRET even though it may not currently be the most cost effective abatement measure. Future national greenhouse targets, in the period following 2008 to 2012 may be more stringent than Australia's 108 per cent Kyoto target. For this reason, the overall cost of abatement is expected to increase in longer term and that may result in renewables eventually becoming a more cost effective abatement.

4.30 If a critical mass of domestic demand can be established in Australia, then Australian companies can take advantage of technological changes that will enable renewable energy cost reductions, and will reduce the perception of financial risk that is currently a feature of the industry. If this critical mass can be established by a scheme such as MRET it can help generate industry growth by enabling investment in facilities for manufacturing and technology development to meet local needs.

[158] In early 2002, Australian Bureau of Agricultural Resources and Economics and McKibbin projected the cost of a future emissions trading scheme of \$6–12/tonne CO_2-e in 2010 and \$16–24/tonne CO_2-e in 2020, Australian Bureau of Agricultural Resources and Economics, COP7: *The economic implications of the Kyoto Protocol for Australia* and McKibbin, *Modelling Results for the Kyoto Protocol.* These analyses estimate the international carbon price if the Kyoto Protocol enters into force. The projections are based on the assumption that Australia's current emissions target remains at 108 per cent of 1990 levels until 2020 and that the United States remains outside an international trading system.

4.31 Some interested parties consider the overriding objective of MRET to be developing the renewable energy industry. In many ways MRET needs to be seen as an insurance against a time when renewable technologies become competitive with other electricity generation, thereby allowing Australia to be well down the learning curve and thus be an active participant in what is likely to be a large international industry.

4.32 While accepting the need for some relatively modest ongoing cost to support the industry to develop in the near-term, the Review Panel believes it is incumbent on proponents to demonstrate as quickly as possible their longer term unassisted viability. It also needs to be demonstrated that there is validity in claims that significant exports will be possible from renewable technologies that (other than solar energy) are predominantly overseas developed and controlled.

4.33 On the other hand, development of the renewable energy industry can also make a significant contribution to regional development, salinity control and noxious weed mitigation through purpose grown energy plantations and by underpinning cash flows of otherwise marginal agriculture activities (for example, through rental income from wind farm operators).

4.34 MRET participants deserve certainty and the development of the renewable energy industry should not continue to be held back by perceptions of sovereign risk. Further, MRET scheme provides the time for operators of the NEM to gain experience in incorporating transmission from renewable sources.

4.35 The Review Panel does not recommend the abolition of MRET. Instead, the scheme should continue with some modifications to ensure that its objectives are achieved.

Recommendation 1

The MRET measure to continue to operate.

National energy market

4.36 The NEM provides a wider policy context within which MRET must operate. The objectives of the NEM are:

- a competitive market
- choice of supplier (generators and retailers)
- equitable access to the transmission and distribution network
- non-discriminatory treatment of new and existing market participants, energy sources and technologies, and intrastate versus interstate trading of electricity.

4.37 The NEM is governed by a number of instruments and authorities:

- the National Electricity Code of Conduct
- National Electricity Market Management Company (NEMMCO)
- National Electricity Code Administrator (NECA)
- Australian Competition and Consumer Commission (ACCC)
- State-based regulators
- Australian Government as well as State and Territory governments.

4.38 The NEM was central to the considerations and recommendations of the Parer Report, which is currently being considered by the Australian Government. Its key findings, as they relate to the NEM, included:

- the energy sector governance arrangements are confused, there is excessive regulation, and perceptions of conflict of interest
- there is insufficient generator competition to allow [the] pool system to work as intended
- electricity transmission investment and operation is flawed, and the current regions do not reflect the needs of the market
- the NEM is currently disadvantaging some regional areas.[159]

4.39 One of the benefits of MRET is the experience that is being gained by NEMMCO, which operates the NEM, in the issues arising from the integration of renewable energy, with its particular characteristics, into the NEM. For example, NEMMCO commissioned a report entitled *Intermittent Generation in the National Electricity Market*, which was released in March of 2003. The report identified a number of issues confronting the NEM as it accepts higher levels of intermittent generation from renewable sources such as wind.

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[159] *Towards a Truly National and Efficient Energy Market* (Council of Australian Governments Energy Market Review Final Report) p9, Exhibit 1

4.40 NEMMCO has commented on the current difficulties associated with incorporating intermittent generation into the NEM. They included:

- forecasting the electricity supply to be provided by intermittent generators
- an increase in reliance on 'frequency control ancillary services,' which are used to ensure supply during peak periods, and which may be used more frequently if the base load of power contains intermittent, and therefore less reliable, generators
- variability of intermittent generation contributing to increased variability of voltage throughout the grid
- changes to the process of controlling the flow of power through the grid during the day
- financial issues regarding the physical connection of renewable generators to the grid.

4.41 Renewable energy also has implications for transmission and distribution infrastructure, particularly to take account of the intermittent generation associated with wind energy which is expected to account for a significant proportion of the MRET measure. For example, ElectraNet South Australia provided a submission to the Parer Review entitled *Wind Generation In Australia—Opportunities and Challenges*, which identifies large infrastructure costs which must be borne in order to upgrade the network to take the amount of wind energy which could potentially be generated from the coast of South Australia.

4.42 The report notes that new entrants to the market are likely to be charged heavily for their connection to the network, while existing generators (overwhelmingly fossil fuel generators) 'are not required to contribute any money to the costs of the main transmission network, and have only paid relatively shallow connection costs.'[160]

4.43 The report concludes that the technical issues relating to increased intermittent generation must be addressed by NEMMCO. It suggests that the cost of connecting renewable energy generators to the network, and the cost of upgrading the network to allow it to carry the increased load, should be matters for consideration by governments, and by NECA.

4.44 In June 2001, the ACCC and NECA released a joint statement announcing their commitment to review the current regulatory framework governing new investment in transmission infrastructure.

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[160] *Wind Generation In Australia—Opportunities and Challenges*, p22

The statement noted that the existing arrangements for the planning and approval of regulated network investment have been widely criticised and that there is a need to streamline and simplify the arrangements whilst encouraging a nationwide approach to planning and strengthening the transmission network. For its part, the ACCC stated that it would review the regulatory test to ensure that it does not result in a complex and lengthy process that delays the development of regulated investment.[161]

4.45 An ACCC released discussion paper in February 2003[162] commented that the process for a regulatory test does not consider a number of issues that are relevant to renewable energy generators, making it difficult for them to pass the transmission assets test, which is a 'cost-benefit style test to assess the economic benefits of a proposed project'.

4.46 The discussion paper suggested that the review of the transmission asset test should include: due consideration of equity impacts for new entrants; wider economic benefits such as avoided costs in reducing greenhouse emissions or improved regional development opportunities; and private transmission ownership arrangements, including joint ownership.

4.47 The NEM would be better able to cope with intermittent generation from wind if there was a greater understanding of wind patterns, and more effective geographic planning of wind generation sites. A NEM-wide strategic view would allow greater capacity to investigate and capture these benefits.

4.48 Internationally, many sophisticated models have been developed to allow for forecasting of wind generation. The core expertise required to operate these models exists in Australia. However, wind generation forecasts involve in-depth weather modelling that is beyond the current capabilities of most generators.

4.49 Access to in-depth local wind data is required to develop local models. Currently this data is held in small pockets by individual wind developers. Because the local data is of high commercial value, companies are reluctant to share their data.

4.50 The commercial sensitivity of individual developers' data is recognised, but the lack of a comprehensive wind mapping database remains a significant barrier to industry development, and impedes resolution of outstanding NEM management risks and electricity market confidence. The lack of nationwide data also holds back research to support increased wind development within the NEM and effective long term planning.

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161 Australian Competition and Consumer Commission Call for submissions, Review of the regulatory test, February 2003

162 Australian Competition and Consumer Commission Discussion paper, Review of the regulatory test, 5 February 2003

4.51 The Review Panel considers that wind generators, industry groups, NEM management, leading research institutions and appropriate government bodies should co-operate to address:

- the capture of cost synergies and reduction of barriers for wind generators providing of wind data and generation forecasts for effective NEM management
- the lack of strategic, aggregate and controlled management information to NEMMCO
- the availability of independent advice on the sustainable and appropriate management of wind energy to NEM regulators and management, wind generators, governments and market participants
- the need for a knowledge management facility that would build industry capacity and conduct independent research to maximise wind resource benefits for Australia. This could include support for the modelling of network connection options.

4.52 The AGO should seek to initiate this co-operative process as a matter of urgency.

4.53 As the energy policy reform process continues, it will be important that the NEM develop a capacity to accept increased quantities of renewable energy. The renewables industry has its own part to play in this process and would benefit from exploring ways of greater sharing of information to enable improved NEM forecasting.

Recommendation 2

Australian Government and State and Territory Ministers to investigate impediments to the inclusion of more renewable energy in National Electricity Markets.