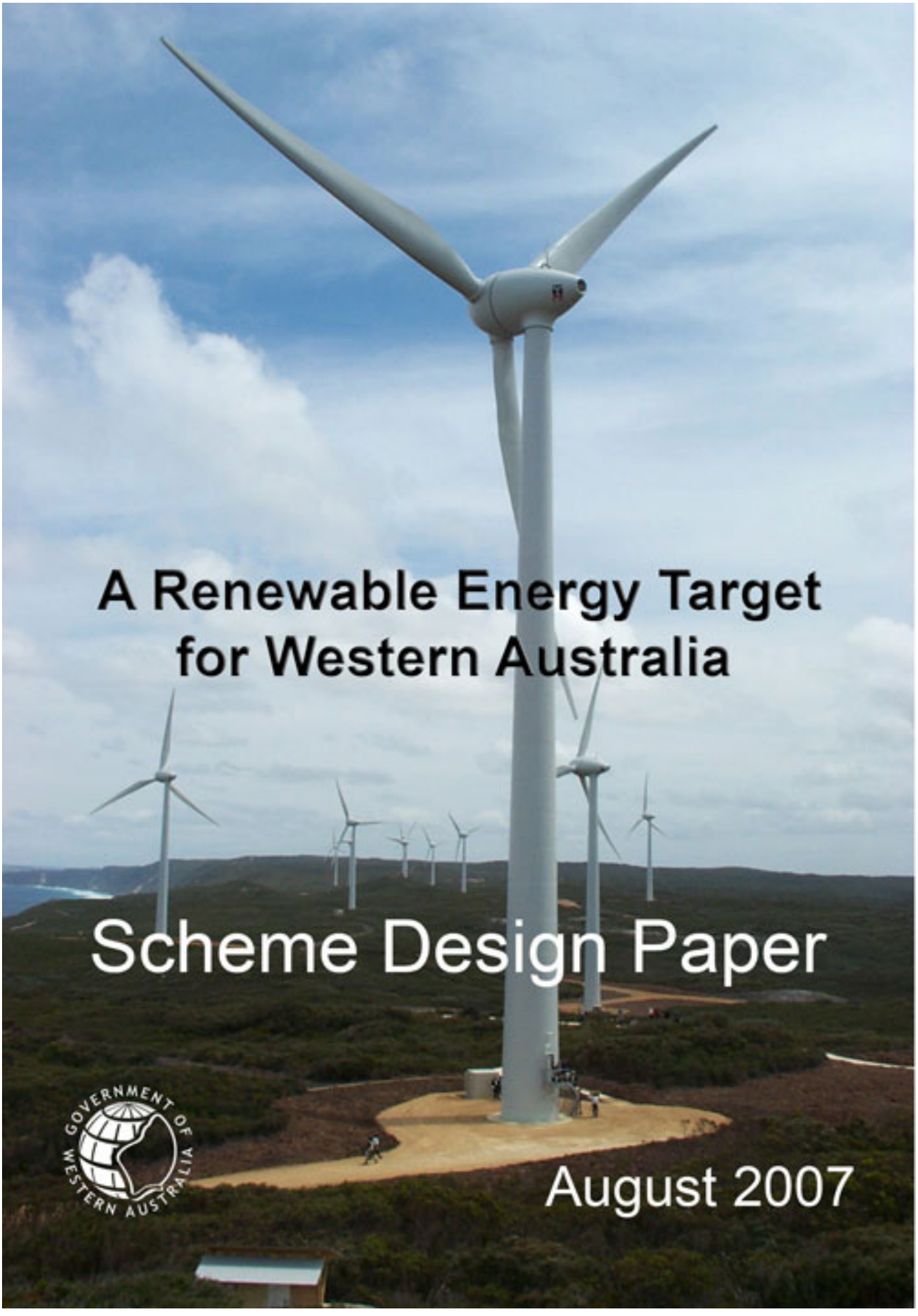
A Renewable Energy Target
for Western Australia
Scheme Design Paper
GOVERNMENT OF WESTERN AUSTRALIA
August 2007

WA RENEWABLE ENERGY TARGET SCHEME DESIGN PAPER

The Western Australian Government is seeking input from stakeholders on the key design aspects for a mandatory scheme ('the WA Scheme') to meet the Government's renewable energy target commitments. Consistency with other schemes in Australia and least cost achievement of the target are priority considerations for the Government.

The aim of the WA Scheme is to facilitate increased investment in renewable energy in the State, recognising that renewable energy sources:

- are available today to deliver greenhouse gas abatement and curtail emissions growth;
- will help position Western Australia for the impacts of a carbon constrained future; and
- contribute to the diversity and security of the State's energy supplies.

This discussion is taking place in a time of considerable uncertainty at the national level. Both the Commonwealth Government and opposition have committed to introduce a national emissions trading scheme. At the same time, the states and territories have committed to introduce an emissions trading scheme by the end of 2010. Decisions about national emissions trading, for example the size of the target and sectoral coverage, will have implications for the design and scope of complementary measures such as renewable energy targets.

The lack of clarity at the national level may act to increase uncertainty on costs and risks associated with a Western Australian renewable energy target. However, in the absence of direction at the national level, the Western Australian Government is committed to taking action to manage the State's greenhouse gas emissions. Consultation on the design of a Western Australian renewable energy target scheme is a key step in that process.

There is also considerable uncertainty about the availability, timing and economics of alternative technology pathways for reducing greenhouse gas emissions from electricity generation. Renewable energy solutions are available for deployment today, but currently at higher costs than conventional sources. Other technology pathways such as Clean Coal and geosequestration hold promise for the future but are not yet being deployed on a large scale.

The Government believes that its target of 15% renewable energy on the main South West grid in 2020 provides an appropriate balance between mandating a technology outcome and taking action to position the State for future carbon constraints. Alternative technology pathways, such as Clean Coal and geosequestration, will also require policy frameworks to facilitate their development. Ongoing consideration needs to be given to the interaction of the policy settings on alternative technology pathways for achieving reduced greenhouse gas emissions from electricity generation.

Written comments are sought on the issues identified in this paper. Details of how and when to provide submissions are in Section 5, on the back page of this document. The submission closing date is **11 December 2007.**

An independent consultant's report outlining the impacts of the proposed scheme on the electricity market and the Western Australian economy is available from the Office of Energy website - www.energy.wa.gov.au and the Sustainable Energy Development Office website – www.sedo.energy.wa.gov.au.

The Office of Energy will also hold meetings with major stakeholders to provide an opportunity for key issues to be outlined and options for the mandatory scheme to be discussed further. Interested members of the public are also encouraged to provide feedback on the issues raised in this scheme design paper.

Stakeholder feedback will inform the Government's decision making process on a preferred mechanism for achieving its target of 15% of electricity on Western Australia's main grid, the South West Interconnected System, coming from renewable energy sources by 2020.

The mechanism for achieving the target will need to be flexible with the capacity to respond to emerging technologies, alternative abatement options and national policy initiatives such as emissions trading and renewable energy targets.

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INTRODUCTION

The Western Australian Government seeks to provide reliable, sustainable and competitively priced energy for the benefit of all Western Australians.

Renewable energy generation in the South West Interconnected System has increased from less than 1% of electricity consumption in 2001 to over 5% today. The principle driver of investment in renewable energy in Western Australia to date has been the Commonwealth Government's Mandatory Renewable Energy Target (MRET). However, the Commonwealth Government has stated that it will not extend or increase the target beyond the current level.

It is generally accepted that close to sufficient projects have been committed to meet the target, and it is unlikely there will be further renewable energy projects developed as a result of the MRET. Consequently, lower rates of investment and growth of renewable energy generation in Western Australia are likely.

A number of initiatives already in place support the development of renewable energy:

- Electricity Market reform including the introduction of a wholesale electricity market providing greater opportunities for the renewable energy sector.
- The State Government's commitment to purchase 20% of its electricity requirements from accredited renewable energy by 2009/10.
- Consolidation of information on the new energy market and other regulatory frameworks into the Renewable Energy Handbook, which also contains information on incentives programs and approval processes for developing commercial renewable energy projects.
- Guidelines for Wind Farm Development to assist developers and decision making authorities identify and address relevant planning issues. The aim is to promote a consistent approach to the preparation, assessment and determination of applications for planning approval for land-based wind farms in WA.

In its 2005 election platform, the Government set a target for 6% of all electricity sold on the South West system to be generated from renewable sources by 2010. The recently announced Bridgetown biomass project is expected to see the 2010 target achieved.

In its 2005 election statement, the Government also committed to develop a renewable energy target for 2020. This was given effect in May 2007 with the release of the Premier's Climate Change Action Statement, *'Making Decisions for the Future: Climate Change'.* The statement contains a range of actions designed to position the Western Australian economy for the likely need for deep cuts in greenhouse gas emissions towards the middle of the century. These actions include renewable energy targets for the South West Interconnected System of 15% by 2020, increasing to 20% by 2025.

The Government also wishes to capitalise on the industry development opportunities driven by this target. Western Australia has excellent renewable energy resources and may have niche advantages in the areas of wave, geothermal and biomass derived electricity. The development of a strong renewable energy industry may also

enhance energy security through increased diversity of supply and minimise the State's exposure to carbon constraints in the future.

A brief overview of the proposed scheme design for the 15% in 2020 target is outlined in the following table. More detail on the specific scheme design features is provided in Section 3.

Scheme Overview

Design Parameter	**Proposed Approach**
Mandated target	• The target scheme will be implemented through dedicated legislation
Application of target	• The target will apply to electricity consumption on the South West Interconnected System. • Self-generation will be excluded.
Compatibility with other schemes (p 11)	• That the Western Australian Scheme design be compatible with other schemes to allow it to transfer to a future national scheme and to reduce the burden on industry.
Start date for liable parties (p 11)	• Liabilities are proposed to start from 1 January 2011, to allow industry adequate time to meet the requirements of the program.
Target specification (p 12)	• Fixed targets are proposed as they provide greater certainty for industry.
Technology neutral vs portfolio approach (p 12)	• A renewable technology neutral approach is favoured as this will deliver the target at lowest cost.
Scheme duration (p 13)	• Generators will be allowed to create certificates for 15 years, implying liabilities for the scheme will end in 2035.
Liable parties (p 13)	• Wholesale purchasers of electricity, including retailers, will be required to source an increasing share of their electricity from renewable energy sources. • Liabilities in each year will be in proportion to a purchaser's share of the electricity market. • Liable parties demonstrate compliance by purchasing and surrendering renewable energy certificates.
Exemptions (p 14)	• Self-generation is not included in the scheme. • Energy intensive, trade exposed industry will be exempt from liabilities under the scheme.

Design Parameter	Proposed Approach
Eligible parties & certificate creation (p 15)	• Renewable energy generators create certificates for new generation. • Generation after 1 January 2008 anywhere in Western Australia will be eligible. • Certificates are fully tradeable between all market participants.
Eligible sources (p 15)	• Solar water heaters will not be eligible. • Other than this, fuel sources listed in the *Renewable Energy (Electricity) Act 2000* will be eligible. • Existing generators will gain credit for expansion in capacity over a predetermined baseline.
Shortfall charge (p 17)	• The scheme is one of strict compliance with no shortfall allowance. • Penalty will initially be set above the expected marginal cost of a renewable project. • The shortfall penalty will be indexed for inflation, and adjusted to reflect carbon pricing as appropriate.
Banking and Borrowing (p 17)	• Certificates created in early years may be banked to meet liabilities in later years. • Liabilities not met in the year they accrue will attract a penalty. Transferring liabilities to future years (borrowing) will not be allowed.
Administration (p 18)	• The functions of the Office of the Renewable Energy Generator will be used to the extent possible. • The administration of the Western Australian target replicate the structures of the MRET and VRET schemes.
Review Process (p 19)	• It is proposed that the scheme be reviewed after 5 years, or sooner if national policy on renewable energy targets or emissions trading changes.

The Western Australian Government's energy policy objectives are outlined in Section 1 of the paper, which also examines the role of renewable energy in delivering a sustainable energy future. The current status of the renewable energy industry in WA is outlined in Section 2, along with the key drivers in the development of the renewable energy industry to date.

Section 3 discusses options for the design of a mandatory scheme to meet the Government's policy to increase WA's electricity consumption from renewable sources on the South West grid to 15 per cent by 2020. It also sets out criteria for assessing these options.

Section 4 briefly discusses the impacts of meeting the new target. Economic modelling for the target was undertaken by McLennan Magasanik Associates (MMA). The modelling report is available from the Office of Energy and Sustainable Energy Development Office's websites.

The next steps for the work program and details for submitting written responses to the paper are outlined in Section 5.

SECTION 1: A SUSTAINABLE ENERGY FUTURE

Western Australian Policy Context

The Western Australian Government released its Greenhouse Strategy in 2004. The strategy outlined a range of initiatives to reduce greenhouse gas emissions while also taking advantage of opportunities presented by climate change.

In 2005, the Government formed the Greenhouse and Energy Taskforce to provide advice on "practical and economically feasible ways to manage greenhouse gas emissions from the stationary energy sector". The Taskforce report, *'A Cleaner Energy Future',* was presented to Government in December 2006 and released in February 2007. In this report, the Taskforce recommended setting a mandatory renewable energy target for the South West Interconnected System for 2020.

In May 2007, the Premier's Climate Change Action Statement, *'Making Decisions for the Future: Climate Change',* was released. These actions include renewable energy targets for the South West Interconnected System of 15% by 2020, increasing to 20% by 2025.

In line with the Taskforce recommendation, the Western Australian Government considers that renewable energy is an integral part of securing a low carbon future. The introduction of a renewable energy target provides the certainty required by the electricity industry to make long-term investment plans for meeting the State's future energy needs while maintaining economic growth. The targets will contribute to a reliable, sustainable and competitive energy industry for WA, whilst reducing greenhouse gas emissions from electricity generation and help position the State for increasing global carbon constraints.

Key objectives of a WA Renewable Energy Target scheme include:

- developing low cost, greenhouse emissions-free sources of energy;
- increasing the diversity of the State's electricity supply;
- ongoing, reliable and secure energy supplies; and
- driving deployment of currently available renewable energy technologies.

A Western Australian renewable energy target will also contribute to emissions reductions in Western Australia in the early years of a National Emissions Trading Scheme.

Electricity generation infrastructure and other energy supply technologies typically have an operational life measured in decades. The transition to a lower greenhouse intensity electricity supply will also cover an extended period. The Government recognises that stimulating investment in renewable energy sources today will cost more than conventional energy supplies. However the internalisation of pricing for carbon emissions will see the relative costs decrease over time as will developments in renewable technologies, increasing skills and knowledge capacity and economies of scale.

Other electricity generation technologies, such as Clean Coal and geosequestration, may offer greater potential to deliver significant cuts in greenhouse gas emissions in the future. However, these are in very early stages of development and are yet to be proven on a technical or commercial level. Renewable energy technologies, such as

wind and biomass, are proven and available, with the benefit of being able to deliver reliable greenhouse emissions abatement now.

Along with fuel switching, particularly in other states, improving energy efficiency across the economy will initially provide the most cost-effective action to reduce greenhouse gas emissions. The Government will continue to seek ways to stimulate significantly increased energy efficiency. For example, Western Australia is leading development of a mandatory energy efficiency program for national consideration, which would require industry to implement any energy efficiency opportunities with less than a 3-year payback.

However, over time, energy efficiency will become more challenging and come at a higher cost. Efficiency alone can not achieve the reductions in greenhouse gas emissions expected to be required by the middle of the century. A suite of responses is necessary to increase the contribution the energy sector can make to managing the State's future greenhouse gas emissions.

Current National Action

Emissions trading is a market-based instrument widely recognised as an effective and efficient means of achieving economy wide emissions reduction at least cost. It also provides the certainty needed for investors in long lived energy assets. Western Australia is actively participating in the development of a National Emissions Trading Scheme (NETS) in partnership with all Australian State and Territory Governments, which have proposed to implement a scheme by the end of 2010.

In June 2007, the Commonwealth Government, based on recommendations made by the Task Group established by the Prime Minister, announced that it would implement an emissions trading scheme beginning no later than 2012. The Prime Ministers Task Group recommended that the MRET and new and proposed state based renewable energy targets be wound up if emissions trading is introduced. The States and Territories Task Force, however, recognised the role of complementary measures, noting that emissions trading and renewable energy targets could operate in parallel.

Initial modelling for the NETS, released in August 2006, indicated it is likely that the early carbon price will be moderate in order to provide time for the necessary adjustments in both the national and state economies.

This moderate carbon price is unlikely to stimulate the development of renewable and clean energy technologies in the short to medium term. Other instruments will be required to facilitate the market conditions necessary to support investment in renewable energy technologies today. More stringent emissions targets will increase the cost of carbon further supporting low emissions technologies such as renewable energy.

The Victorian Government has introduced a mandatory renewable energy target of 10% by 2016 (VRET), with the scheme commencing on 1 January 2007. New South Wales has announced a target of 10% by 2010, increasing to 15% by 2020 (NRET), with legislation proposed to be in place and the scheme commencing in 2007. Queensland has also recently committed to mandate greater use of low emissions generation, including renewable energy.

SECTION 2: WESTERN AUSTRALIA'S RENEWABLE ENERGY INDUSTRY

The 2002 Australian Sustainable Energy Industry Survey (2003) conducted by Mark Ellis and Associates found that the renewable energy industry in Western Australia, including the solar water heater sector, contributed around 1,450 full time jobs, with between 3,300 and 5,100 indirect positions in 2001/02. The survey indicated the industry had maintained excellent growth over the survey period and was identified as a potential significant contributor to the future of the Western Australian economy.

South West Interconnected System

The South West Interconnected System is the main electricity grid in Western Australia and connects Perth, Geraldton, Kalgoorlie and the South West. Approximately 55% (14,467 Gigawatt-hours (GWh) in 2005/06) of the State's electricity is generated on the South West grid.

The majority of Western Australia's renewable generation capacity is provided by wind generation, with over 190 megawatts (MW) of capacity located in regional areas of the state. Landfill gas generators located around the metropolitan area contribute another 24MW of power to the main grid.

Currently renewable energy is used to generate just over 5% of electricity in the South West grid, with an existing Government commitment to increase this proportion to 6% by 2010. Meeting the Government's 2020 target will, however, require significant new investment.

Off Grid Power Generation

Approximately 45% (11 ,944GWh in 2005/06) of the State's electricity is generated in areas outside of the South West Interconnected System, with renewable sources making up approximately 2% of the total. Much of the energy generated outside of the main South West grid is self-generated by resource companies, or is used in energy-intensive, trade exposed industry sectors. Much of this electricity consumption would be exempted from any mandatory target under the proposed scheme design.

Some towns in regional Western Australia benefit considerably from renewable energy with wind farms integrating well with the diesel and gas fired generation used in the regional grids. Wind provides up to 42% of energy requirements on some small systems, such as the ones at Hopetoun and Bremer Bay.

There is only one significant hydro electric power station in Western Australia, located at Lake Argyle, where the 30MW generator provides up to 94% of the electricity used at the nearby Argyle Diamond mine. The Ord River Sugar Mill uses the residue from sugar production to run a 6MW cogeneration plant.

Pastoral stations traditionally relied exclusively on diesel generators, run for limited periods each day, to provide electricity. Around 40% of pastoral stations have added renewable energy systems providing them with a 24 hour power supply while reducing diesel use and servicing requirements. Around 10,000 solar panels, equivalent to 1MW, have been installed since 2001, including a privately owned 0.16MW 'solar farm' in Carnarvon which contributes to the town's grid.

While these examples of renewable energy use indicate potential for increased generation in some areas, the majority of electricity required in regional areas is for energy intensive, trade exposed industry. These companies could have their competitive position adversely affected by increases in electricity costs that would arise from the target. Most of the electricity is also self-generated. Accordingly, the target is confined to the South West Interconnected System.

Western Australia's Renewable Energy Potential

Western Australia is fortunate to have significant renewable energy resources. Extensive areas of the South West have been replanted with hard and soft wood plantations. Management and harvesting of these plantations generates significant quantities of waste that have traditionally been disposed of *in-situ* but can be used to produce energy. In agricultural areas of the state the reintroduction of deep-rooted woody perennials, such as oil mallees to address dryland salinity offers the potential to support biomass based renewable energy. Verve Energy has recently requested expressions of interest from organisations interested in partnering the deployment of its integrated wood technology. The Office is aware of almost 300 MW of biomass projects proposed for the South West of the state.

Western Australia's has extensive wind resources. The coast line from south of the Pilbara around to Eucla are subject to constant prevailing winds and wind generators have been established at a number of sites. Over 500 MW of wind projects are under consideration throughout the state

Western Australia also has good geothermal sources and is in the process of legislating to allow developers to explore for and own rights to geothermal resource in the same way they can for gas and oil resources. The State has excellent wave resources and is home to the development of an innovative wave power technology.

The issues raised in this paper concern how scheme design can best facilitate the market conditions necessary to support the development of renewable energy technologies while maintaining economic prosperity and growth.

A renewable energy target may facilitate other benefits for the State. For example, the cost of supplying electricity to off grid areas of the State is high and is funded by consumers on the main South West electricity grid through the Tariff Equalisation Fund. Renewable energy technologies may reduce the level of support required and could potentially provide additional benefits through assisting with natural resource management and improving energy security.

Current drivers of renewable energy development

In Western Australia, the current drivers of renewable energy development are the Commonwealth Government's Mandatory Renewable Energy Target (MRET) and the Renewable Remote Power Generation Program (RRPGP) and related sub-programs.

Commonwealth Mandatory Renewable Energy Target

MRET imposes a legal liability on electricity retailers and other large buyers of electricity to purchase increasing amounts of renewable energy certificates up to 9,500 GWh of renewable energy per year by 2010, maintained through to 2020.

Western Australia's liability under the scheme comes mainly from the South West Interconnected system and, to a lesser extent, the North West Interconnected System and is approximately 8% of the national total or around 760 GWh in 2010. Under the national scheme, renewable energy certificates do not need to be created within the state in which the liability arises.

A 2003 review of MRET (the Tambling Review) for the Commonwealth Government noted that sufficient capacity to meet the 9,500 GWh target would be installed by 2007. It also stated that the end date of 2020 did not provide the minimum project payback period of 15 years for projects commencing after 2005, both of which led to the expectation that investment would rapidly decline without changes to the scheme.

The Review found that most renewable energy technologies have had a decreasing cost trajectory over the past decade, which is likely to continue. It also noted that the anticipated stalling of investment from 2007 will restrict research and development activity, the commercialisation of technology and the development of a local (Australian) renewable energy manufacturing industry. It was suggested that support for these areas may result in technological developments that could reduce the cost of renewable energy generation further over the next decade.

The key recommendation of the Tambling Review report was to maintain and increase the target 'as a sensible insurance policy against significant greenhouse gas abatement measures being introduced in the future'.

Renewable Remote Power Generation Program

The Renewable Remote Power Generation Program (RRPGP) has been the other main driver of renewable energy development in Western Australia.

The RRPGP provides rebates for renewable energy systems replacing fossil fuel generation in 'off-grid' and 'fringe of grid' areas. Funding is provided by the Commonwealth Government and returns to the States the diesel fuel excise paid for public generation in off-grid areas of each State over four years from 2001 to 2004.

The RRPGP has a range of sub-programs providing funding for renewable energy powered water pumping, small to medium scale renewable energy generators in the fringes of and off-grid areas and an off-grid energy efficiency program. It also provides funding for large renewable energy based power systems (with a rebate value greater than $500,000) replacing fossil fuel based power systems in off-grid areas.

This has been a key source of funding for the majority of the off-grid projects outlined earlier in the paper.

SECTION 3: MANDATORY SCHEME DESIGN

The expansion of the use of renewable and low emissions energy sources within the electricity supply sector is an effective step toward securing a low carbon future for Western Australia.

While market-based measures are accepted as the most efficient means of determining how and where renewable energy technologies are developed and used, in practice, broad scale adoption of grid connected renewable energy generation currently requires some form of market intervention.

The introduction of a mandatory renewable energy target for Western Australia requires that renewable technologies are used to meet a certain proportion of electricity sales, however the choice of type of technology and price is determined by the market.

The proposed scheme design is consistent with the approach adopted by both the Commonwealth's MRET and the VRET scheme. This will enable the WA Scheme to be implemented in a timely manner, minimising compliance and administrative costs and allowing the program to merge into a broader national scheme should one emerge.

The detailed design of the WA Scheme will be finalised following feedback from stakeholders on the issues raised in this section and further analysis by the Government.

Assessment Criteria

Where possible, the Western Australian Government seeks to maximise consistency with the existing MRET and VRET schemes. The scheme will also need be able to respond to emerging technology needs, the development of alternative abatement options, and integrate with future national policy initiatives such as emissions trading and renewable energy targets.

Other criteria to be used in assessing the options for the design of the WA Scheme include the:

- ability to deliver the Western Australian renewable energy targets;
- contribution to the State's economic interests, in particular maintaining a secure, efficient and affordable supply of energy;
- ability to facilitate investment in Western Australia's renewable energy industry;
- ability to support cost effective technology improvements, drive the renewable energy industry toward commercial viability and encourage innovation and the development of further export markets;
- ability to provide the electricity industry with the time and scope to adopt new renewable technologies;
- flexibility to transition to a multi-state renewable energy scheme or expanded MRET scheme, should the Commonwealth Government change its position in the future; and
- interaction with existing support programs for renewable energy.

Key Design Issues

The key issues outlined in the following sections should be considered in conjunction with the criteria listed above.

3.1 - Compatibility with other schemes

Where possible and appropriate, the Western Australian Government will seek to make the requirements of the WA mandatory renewable energy target scheme the same or similar as the existing Commonwealth MRET, VRET and/or NRET schemes. This will facilitate the migration of the WA Scheme to any future national scheme.

The NSW Government has indicated it will consult with the Victorian Government on the possibility of the VRET and NRET operating as either a single scheme or closely aligned complementary schemes.

Should a multi-state scheme be developed, or MRET expanded, the WA Government would investigate options for integrating the WA Scheme.

The WA Scheme will operate in parallel with the MRET and may continue to operate in parallel with any future national scheme. Although it is proposed that eligible generators should be able to create certificates in either MRET and the WA Scheme, certificates used to demonstrate compliance in one scheme would not be able to be used to meet liabilities under another scheme.

3.1.1 Comments are sought from stakeholders on:

3.1.2 Issues to take into account regarding the integration of a WA Scheme into a potential future multi-state or expanded MRET scheme.

3.1.2 How the markets for renewable energy certificates under MRET or other state schemes are likely to interact with the WA Scheme.

3.2 - Start date for liable parties

Once the structure of the WA Scheme has been determined, sufficient time will be required to develop the legislative framework. Liable and eligible parties will require sufficient time to identify appropriate sites, negotiate agreements and develop the projects. There is also evidence of lengthy delays in the supply of electricity generating equipment, including renewable technologies, with timeframes of up to two years required for the supply of wind turbines. Imposing liabilities too soon could limit competition in the certificate market.

Starting the scheme from 2011 will allow project developers adequate lead time to identify projects, establish contracts with retailers and construct and commission new generation facilities.

3.2.1 Comments are sought from stakeholders on the suitability of a 1 January 2011 start date for liabilities under the WA Scheme.

3.3 – Target specification

The way in which the renewable energy target is expressed has implications for the cost of achieving the target, as does the level of interim targets.

While it is common for targets to be expressed in terms of a percentage of total use, fixed targets, generally expressed in terms of Gigawatt-hours (GWh), are a more tangible way of articulating a scheme's obligations. The Victorian, New South Wales and Commonwealth governments set percentage targets but converted these to a fixed quantum.

Fixed targets provide greater certainty to both liable and eligible parties in terms of what the ongoing requirements will be and in guaranteeing an income stream. Percentage based targets increase administrative complexity requiring constant revising of targets based on consumption forecasts.

The use of interim targets, with the mandatory requirement increasing gradually from 2011 to its maximum in 2020, could be used to manage the cost impacts of a WA Scheme. Banking provisions will allow increases in generation capacity to be matched to incremental growth in liabilities, smoothing renewable energy certificate prices over time.

The MRET national target initially increases at a slightly lower rate in the early years than in the later years, before reaching the maximum of 9500GWh in 2010, which is to be maintained until 2020. The VRET increases in a linear manner from 2007 until 2016 before diminishing from 2022 at the same rate. The proposal for the New South Wales Target (NRET) is for an annual linear increase from 2008 to 2020, before remaining static until 2030 when the scheme ends.

3.3.1 The views of stake holders are sought on the use of a target expressed as a fixed quantum of gigawatt hours for each year, with a linear annual increase up to 2020.

3.3.2 Comments are also sought on the use of alternative liability growth paths, such as a lower initial rate of increase folowed by a faster rate of growth.

3.4 - Technology neutral vs portfolio approach

The most cost effective target mechanism is one that is technology neutral, providing an overall target level with the market determining the most efficient way of meeting it. An alternative is for the target to be based on a portfolio approach.

The proposed scheme provides broad-based support for investment in new renewable energy generation across the state. Financial support mechanisms may complement the scheme, in order to leverage additional outcomes from the scheme. This could be to support specific types of technologies, or help support investment that delivers other Government objectives, such as regional development or salinity mitigation. The Government's Low Emission Energy Development Fund will be an important source of additional financial support for the projects that are identified as innovative and economically strategic for Western Australia.

Alternatively, a portfolio approach could be used, requiring various specified renewable energy technologies be used to meet proportions of the overall target. This approach can be used to stimulate investment in those renewable energy technologies that are not yet sufficiently developed to compete with established renewable technologies or unlikely to attract investment due to higher costs.

MRET, VRET and NRET have all adopted a technology neutral, and therefore least cost approach, to achieving their targets.

A portfolio approach, while stimulating a broader range of renewable technologies, is likely to be a more costly way of meeting the target, as well as imposing higher administration costs. It would also mean that the WA Scheme would differ appreciably from the MRET, VRET and NRET schemes, making it harder for Western Australia to fit into a possible future national approach.

3.4.1 Comment is sought on the proposal for the target to be based on a technology neutral approach.

3.5 - Scheme duration

The structure of the scheme is critical to maintain an ongoing incentive for industry investment. The precipitous finish of the MRET scheme encouraged early construction of plant to enable projects to take advantage of the full length of the scheme.

The Tambling review of the *Renewable Energy (Electricity) Act 2000* found that a revenue stream of 15 years is important in allowing renewable energy project proponents to secure project finance at reasonable commercial rates. This approach has been adopted by the VRET and NRET schemes.

Setting a target for 2020 means that liabilities would end in 2035. This would provide investment in generation capacity up to 2020 with at least 15 years of income certainty.

3.5.1 Views of stakeholders are sought on the time frame over which generators wil be able to create certificates, and the appropriateness of the 2035 end date.

3.6 - Liable parties

Liable parties are those required to meet the legislative requirements of the renewable energy target scheme. Liabilities for the target will be confined to sales on the South West Interconnect System.

Under MRET, liabilities accrue to sales on grids greater than 100MW in capacity. In Western Australia, only the South West Interconnected System and the North West Interconnected System are covered. The majority of sales on the North West system are not liable as the generators are exempted under criteria discussed in the following section.

The MRET scheme requires retailers and large wholesale purchasers of electricity to contribute to meeting the target based in proportion to their purchases adjusted for transmission losses. Liable parties calculate their requirement by applying the renewable power percentage, published by the Office of the Renewable Energy Regulator, to their annual liable purchases.

Liable and eligible parties under the MRET scheme have already developed considerable expertise in implementing the requirements of the scheme. The Victorian scheme also applies liability to retailers and wholesale purchasers. Using existing mechanisms and consistency with similar schemes will reduce the administrative and compliance cost of implementing the target.

3.6.1 The views of stakeholders are sought on the intention to apply liability to retailers and large wholesale purchasers consistent with the requirements of the MRET and VRET schemes.

3.7 - Exemptions

Currently, renewable energy is more expensive than conventional technologies. While liability is set at the retailer level, it is expected that the costs associated with achieving the target will be passed through to the end use customer.

Under MRET self generators are exempt where the:

- generator is located within 1 kilometre of the end use point; or
- network on which the electricity is transmitted is used solely for the transmission and distribution of electricity between the point of generation and point of use.

Many Western Australian resource based industries, such as mineral processors, generate their own power and do not meet the grid capacity criterion. Thus most of their electricity use is exempted from the requirements of the MRET scheme.

Western Australia has many industries that compete in international markets and which may be adversely affected by a change in cost structure to which their competitors are not subject. Energy-intensive, trade-exposed industries can be particularly sensitive to changes in the cost of energy. Measures to increase renewable energy generation should not detract from Western Australia's international and domestic competitiveness. It is the intent of the Western Australian Government to design a scheme that protects the economic interests of Western Australia.

There are a number of options for defining trade-exposed, energy–intensive industry. The number of megawatt hours (MWhs) per tonne of product has been proposed by some industry sectors. Victoria has allowed specific companies or industry classes to be exempted without specifying criteria. A definition often mentioned as appropriate is energy use as a proportion of costs. Energy use as a percentage of revenue could also be considered.

The final report of the States and Territories' National Emissions Trading Taskforce (NETT) is due for completion in the next few months. The NETT is proposing that trade exposed emissions intensive industries be compensated through a free allocation of permits. Although a precise definition (and the associated thresholds) are yet to be finalised it is likely that the types of activities that will be compensated include such activities as aluminium and other non-ferrous metal smelting, steel manufacturing, cement manufacturing and LNG production, to name a few.

The principles adopted by NETT could be used as the basis for exemptions from the Western Australian target scheme noting that, for some industry sectors, electricity consumption may form a small part of a company's total energy use.

The exclusion of certain parties from liability increases the costs for other electricity consumers. This potentially provides a comparative advantage in the domestic market to the parties with exemption. This therefore makes it critical that the criteria for exemptions are reasonable and are justifiable.

3.7.1 Stakeholder views are sought on how the competitiveness of trade exposed energy intensive industry can be best maintained, and how exemptions should be administered.

3.7.2 Comment is also sought on other factors that should be considered in determining the criteria for exemption.

3.8 - Eligible parties & certificate creation

Liability for the Western Australian target is proposed to be limited to retailers and wholesale purchasers operating on the South West Interconnected System. However, a key aim of the target is to encourage investment in renewable energy in regional areas of the state. The cost of supplying energy to remote communities is high and is subsidised by users on the South West system. Allowing remote generation to contribute to meeting the target will provide additional stimulus for the use of renewable energy in the regions and increase the sustainability of supply in these areas.

Western Australia currently has 30 regional grids outside of the South West Interconnected System as well as a number of privately owned transmission and distribution networks and permanent settlements that generate their own electricity.

In order to stimulate further development of renewable energy projects in these areas, it is proposed that renewable energy generation outside of the South West Interconnected System will be eligible to generate certificates under the scheme.

Renewable energy generators create certificates for each megawatt hour of eligible generation. Liable parties demonstrate compliance by purchasing and surrendering these certificates. Certificates will be fully tradeable between all market participants.

3.8.1 Stakeholder comments are sought on generation outside of the South West Interconnected System being eligible to contribute to the target.

3.9 Eligible Sources

The *Renewable Energy (Electricity) Act 2000,* which underpins the MRET scheme, lists renewable energy sources which are eligible to create renewable energy certificates. This list has also been adopted for the Victorian scheme. The NRET scheme proposes to use a similar list of technologies, however, it also states that there will be flexibility to recognise new technologies if appropriate. Uniformity with eligible sources of existing schemes will reduce administration costs.

Under MRET, the following are listed as “eligible renewable energy sources”:

(a) hydro;
(b) wave;
(c) tide;
(d) ocean;
(e) wind;
(f) solar;
(g) geothermal-aquifer;

(h) hot dry rock;
(i) energy crops;
(j) wood waste;
(k) agricultural waste;
(l) waste from processing of agricultural products;
(m) food waste;
(n) food processing waste;
(o) bagasse;
(p) black liquor;
(q) biomass-based components of municipal solid waste;
(r) landfill gas;
(s) sewage gas and biomass-based components of sewage;
(t) any other energy source prescribed by the regulations.

It is desirable that projects which are able to proceed are not unduly delayed. In this context, the eligibility date for new renewable energy generators to participate in the scheme is critical.

The scheme design should not create barriers to the early development of renewable energy projects. The scheme design modelling was based on a 1 January 2008 eligibility date. However, extending eligibility to projects resulting from processes underway before the announcement of the target and intended to meet other requirements, such as MRET liabilities and/or GreenPower, may compromise the scheme and specific exclusions may be required for these projects.

While the scheme aims to encourage investment in new renewable energy projects, the importance of maintaining and increasing the output of existing generators must be considered. MRET used baselines to encourage this outcome. Western Australia has little hydro generation, the main beneficiaries of the MRET baseline criteria.

Although the potential for increased output from existing systems may be limited, the use of baselines for the Western Australian scheme may be warranted for other existing technologies such as the use of biomass for co-firing or co-generation, landf ill/sewage gas and wind generators. VRET uses a capacity test to assess the eligibility of an existing generator to participate in the scheme.

A key objective of the scheme is the development of new renewable energy generation. Solar water heaters are eligible under the MRET scheme as they act to displace electricity generation. Gas-boosted solar hot water systems are eligible for a state government subsidy. New building requirements will also act to encourage the use of solar water heaters. It is considered that solar water heaters receive adequate support under existing policies and that their inclusion in the Western Australian scheme is not warranted, consistent with the decision made for the VRET and N RET.

Stakeholder views are sought on the folowing:

3.9.1 Establishing generator eligibility to participate in the WA Scheme from 1 January 2008.

3.9.2 The treatment of baselines for existing renewable energy generators, in particular, how to set them and other issues for consideration

3.9.3 The exclusion of solar water heaters.

3.10 - Shortfall charge

An effective compliance regime is needed to ensure that liable parties meet their obligations under the scheme.

The MRET scheme applies a shortfall charge to liable parties that fail to surrender sufficient RECs to meet their obligations. However, it also provides some flexibility to liable parties allowing them to carry forward shortfalls of up to ten per cent of their liability for a year. To remove any potential conflict with the Commonwealth MRET scheme, Victoria has adopted a strict compliance regime that does not allow for any shortfall allowance. A similar criterion is proposed for the WA Scheme.

The shortfall charge under MRET is $40 per MWh. The charge is not indexed to inflation in real terms, devaluing the charge over time. Victoria and New South Wales have chosen to index the shortfall charge in their schemes. The penalty rate under the Victorian scheme commences at $43 per MWh.

In its submission to the Tambling Review, the Western Australian Government supported the introduction of a mechanism linking the penalty to an appropriate measure of inflation to maintain its value in real terms.

The penalty rate offers a safety valve in the event that renewable energy generation costs are higher than anticipated or if eligible generators are able to exercise market power. However, setting it too low increases the risk that the target will not be met.

The Government proposes setting the shortfall penalty marginally above the expected cost of a renewable energy project in the short term. The penalty will be indexed, but also subject to review in light of support for renewable energy technologies that could emerge from future emissions trading policies.

The views of stakeholders are sought on:

3.10.1 The appropriateness of a shortfal alowance for liable parties.
3.10.2 The use of an indexed shortfal charge for the WA Scheme. 3.10.3 Other factors that should be considered in setting penalty rates.

3.11 - Banking and Borrowing

Under the MRET scheme, if a liable party holds a greater number of RECs than is to be surrendered to meet that year's liability, they can choose to sell the additional certificates or they can be 'banked' for use in the following year.

Banking provisions assist to overcome the lumpy nature of investment in renewable energy capacity and allow retailers to effectively manage ongoing liabilities. However, it is important that banking maintains market competition and investment signals to participants. This can be accomplished through transparent certificate creation mechanisms.

Recent amendments to the MRET scheme require that certificates be created within at least 24 months of the eligible generation taking place and, in some cases, as short as 12 months. VRET has adopted the same requirement. This removes the capacity of generators to delay creating certificates and create market uncertainty.

Under the MRET scheme, liabilities for a particular year must be met with certificates created in or before that year. Allowing liable parties to use certificates created in

future compliance periods to meet their obligations in earlier compliance periods, known as ‘borrowing’, is not permitted.

It is proposed that the WA Scheme will utilise the same approach to banking, borrowing and the creation of certificates as MRET and VRET.

3.11.1 Stakeholder views are sought on the adoption of the MRET/VRET banking and borrowing rules for the Western Australian scheme.

3.12 - Administration

The Office of the Renewable Energy Regulator (ORER) oversees the implementation of the Commonwealth Government's mandatory renewable energy target. Similar functions will need to be performed for the implementation of a WA Scheme.

The ORER’s role includes:

- accrediting renewable energy power stations to allow them to participate in the scheme;
- overseeing the creation and registration of valid renewable energy certificates;
- assessing Annual Energy Acquisition Statements, Renewable Energy Shortfall Statements and Annual Electricity Generation Returns;
- imposing any penalties for non-compliance within the provisions of the legislation;
- allowing liable parties to redeem any renewable energy shortfall charges if shortfalls are made up within three years; and
- undertaking audits of participants including renewable energy power stations, agents and liable parties.

Using the capacity of the ORER where possible, such as for the accreditation of power stations and the validation of certificates, would reduce the cost to industry in complying with the WA Scheme requirements. The introduction of a state based mandatory renewable energy target scheme however means that there will be some roles that must be undertaken by the State.

There is sense in collaborating where appropriate across similar schemes in order to avoid duplication and reduce costs. Under the WA Scheme, the State would seek to develop cooperative arrangements with ORER or state based authorities wherever possible. This will simplify any potential future integration with MRET or a multi-state scheme (see section 3.1).

A State administrator would provide the functions required to implement the mandatory renewable energy target scheme in Western Australia. At a minimum the administrator will need to:

- determine liabilities and the annual renewable energy power percentage to achieve interim targets;
- establish and maintain monitoring and reporting mechanisms for the scheme;
- establish and maintain a mechanism for retiring renewable energy certificates; and
- monitor compliance by scheme participants.

Additional functions similar to those performed by ORER may also be required.

3.12.1 Stakeholder comments are sought regarding:

- ***The role(s) of the State Administrator in relation to the functions performed by the ORER.***
- ***Who should be responsible for accreditation and validation of certificates?***
- ***Design features necessary to minimise transaction and administration costs.***
- ***How administration should be structured to ensure transparent and efficient market operation.***

3.13 - Review Processes

An independent review of the MRET commenced in 2003, two years after commencement, with specific matters for consideration outlined in the *Renewable Energy (Electricity) Act 2000.* These covered:

- progress towards MRET objectives;
- wider economic, social and environmental impacts;
- energy, environment and industry policy considerations;
- refining the MRET measure; and
- eligibility and operational measures.

Under the Victorian legislation, an independent review of the operation of the *Victorian Renewable Energy Act 2006* must be undertaken before the end of December 2011, with consideration of similar issues. The NSW Government proposes review of the scheme to be undertaken at the 'halfway point' in 2013.

It is suggested that the WA Scheme would include a review in the fifth year of operation or sooner if national policy on issues such as the expansion of the MRET or national emissions trading changes.

3.13.1 Stakeholder's comments are sought on the appropriate review period for a WA Scheme.

SECTION 4: IMPACTS OF 15% RENEWABLE ENERGY TARGET

The Government commissioned modelling to provide advice on a number of aspects of a Renewable Energy Target for Western Australia. This included the setting of the target level, quantifying the potential impacts of a target on energy market participants, energy users and other stakeholders required to facilitate growth in the renewable energy sector.

This was undertaken by McLennan Magasanik Associates (MMA) and their report can be accessed from the Office of Energy website – www.energy.wa.gov.au - to be read in conjunction with this scheme design paper. The report is also available from the Sustainable Energy Development Office website - www.sedo.energy.wa.gov.au.

SECTION 5: NEXT STEPS

Written submissions or comments relating to this paper should be provided by 11 December and sent to:

Manager – Renewable Energy Target
Sustainable Energy Development Office
Office of Energy
Level 9, 197 St Georges Terrace
PERTH WA 6000

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All submissions may be made public at the Office of Energy's website (www.energy.wa.gov.au) unless marked confidential.

Feedback from the stakeholder consultations and submissions to the scheme design paper will inform the development of the final scheme design.