



ELECTRICITY REFORM

A New Deal for Sustainable Energy



Office of Energy
Government of Western Australia



**Electricity Reform:
A New Deal for Sustainable Energy**

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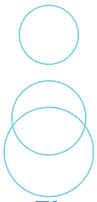
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Sustainable Energy Development Office.



Electricity Reform – A New Deal for Sustainable Energy

Western Australia is developing a reputation as a clean, green State with enormous renewable energy resources and huge potential for growth.

Already, the sustainable energy industry in Western Australia contributes up to \$1.6 billion to the local economy.

However, the industry is facing severe obstacles to continued growth. The single biggest problem is that the current electricity market structure, including the near monopoly of Western Power, is a huge impediment.

The State Government's electricity reform plan will enable Western Australia to properly harness its renewable energy resources to develop a viable and world class sustainable energy industry.

Our vision is to develop reliable, diverse, affordable and environmentally friendly sources of energy so that business, government and householders can play their part in reducing the emission of greenhouse gases.

Electricity reform heralds a new deal for the sustainable energy industry.

Electricity reform initiatives to be implemented by the Government which will benefit the industry include:

- > Restructuring Western Power so that renewable generators can compete on a level playing field
- > New market arrangements to encourage renewable energy
- > Up to \$6 million in subsidies to assist renewable energy producers
- > Financial help to assist smaller contestable customers switch to renewable energy
- > A major new procurement process for renewable energy

A thriving sustainable energy industry is crucial if we are to continue to grow the economy, improve our standards of living and protect the environment.

Electricity reform offers a huge opportunity for this State to develop a sustainable energy industry for a sustainable future. It is time for the whole community to join together in accepting this challenge.

Eric Ripper MLA

Minister for Energy





Why we need electricity reform

Western Australians pay amongst the highest electricity prices in Australia.

The basic problem is that our electricity industry is based around one dominant player – Western Power.

This means that one huge monopoly essentially controls how electricity is generated, distributed and sold.

It means that consumers – both residential and business – don't have a real choice in who they buy their electricity from.

It also means that potential new generators, including renewable energy providers, find it extremely difficult to compete on level terms.

Investment, growth, jobs and lower prices

True competition in the electricity sector is the only way we can encourage investment, economic growth, lower prices and job creation.

The State Government has endorsed a plan to restructure the State's electricity system, creating for the first time a wholesale market where uncontracted electricity can be bought and sold (including by renewable energy producers).

The plan is to create four new State-owned businesses from the existing Western Power in the areas of:

- > Generation (the production of electricity, for example the Muja power station)
- > Networks (the “poles and wires” business which transmits and distributes the electricity to the customer)
- > Retail (the business that sells the electricity to the customer)
- > Regional Power (the business that looks after the interests of regional consumers)

A firm NO to privatisation

Western Power is NOT being privatised. The four new businesses will remain owned by the State Government so we can continue to ensure the safety, security and reliability of electricity supply. The Government's proposed legislation reforms for the industry will contain an anti-privatisation provision requiring that any intended sale of major State electricity assets be subject to disallowance by the Parliament.

Enhanced Consumer Protection

Consumer interests will be given higher levels of protection by the establishment of a strong, independent regulatory system.

A huge benefit for the consumer of having private sector investment in generation is that this enables the State to spend this money on upgrading the electricity network, hospitals, schools and other social infrastructure. Under the current system, capital expenditure of about \$100 million a year is needed for generation over the coming decade.

In terms of the price the public pays for electricity, the uniform tariff and all existing concessions will be retained. This means prices can come down, but cannot go above the Government approved tariff.

Electricity reform is one of a number of Government initiatives to address sustainable energy and greenhouse gas issues. The recently released Western Australian State Sustainability Strategy and the ongoing work of the Sustainable Energy Development Office exemplify the Government's commitments to sustainability in the energy area. The Government is also developing a Greenhouse Strategy which will address greenhouse issues in a comprehensive manner.

Building Western Australia's sustainable energy industry

Developing a world class sustainable energy industry is a major priority for the Gallop Government.

The State Government has put in place a number of significant initiatives to encourage renewable energy and energy efficiency.

Sustainable Energy Development Office

The Sustainable Energy Development Office (SEDO) was established within the Office of Energy in November 2001 to help drive the State Government's sustainable energy agenda.

The role of the Office is to increase the use of renewable energy and energy efficient practices and to further develop a sustainable energy industry which can help the economy grow while protecting our environment.



Promoting energy efficiency

Householders

Fact: If each household reduces its energy usage by just one per cent, we could save \$4.5 million in energy bills and 45,000 tonnes of greenhouse gas emissions.

The State Government is actively helping householders save money – and protect the environment – through a series of energy efficiency promotions.

These include:

- > Reach for the Stars: A major consumer promotion of energy efficient star-rated electrical and gas appliances, supported by training and promotional materials for retailers.
- > Energy Smart Line: This telephone hotline (1300 658 158) for members of the public to find out more about how to be energy efficient received more than 4000 calls last year.
- > Energy efficient houses: Measures to help homeowners minimise their energy use include new provisions of the WA building code and promotion of House Energy Rating Schemes to the public and industry.

Government

Fact: Each year, State Government agencies generate 448,000 tonnes of greenhouse gases, consume about 615 gigawatt hours of energy and spend well over \$60 million on power bills.

The State Government has set its own agencies tough targets to reduce their energy consumption to slash greenhouse gas emissions by up to 54,000 tonnes (12 per cent of their current level) within five years.

This is the equivalent of removing 12,000 cars from the road or planting 4.3 million trees.

The State Government believes it must lead by example in the fight to protect the environment.

The Government is providing \$16 million in interest-free loans to agencies wanting to fund energy conservation initiatives.

Business

Fact: Commercial buildings are responsible for almost 15 per cent of Australia's greenhouse emissions. Industry can play a crucial role in reducing greenhouse emissions – as well as saving up to 40 per cent on their energy bills.

The State Government has launched the Australian Building Greenhouse Rating program, which encourages commercial building owners to assess the energy efficiency of their buildings.

The aim of the program is to drive improvement in the greenhouse performance of commercial office buildings by providing building managers and tenants with an indication of a building's greenhouse impact and identifying ways for low performing buildings to be improved.

SEDO has also established an online buying guide, the Energy Smart Directory (www.energysmartdirectory.com), which brings together potential consumers with suppliers of sustainable energy products and services.

Supporting Renewable Energy

The State Government is helping the renewable energy industry grow by making products and services more accessible.

Initiatives include:

- > A \$2 million solar water heater rebate program, with rebates of up to \$1000 available.
- > Administering the Commonwealth Government's Photovoltaic Rebate Program, which provides rebates of \$4 per watt for new solar systems serving households and community buildings.
- > The Renewable Remote Power Generation Program, which aims to increase the uptake of renewable energy technology in remote areas.
- > The Renewable Energy Water Pumping Program, which provides rebates for replacing diesel pumps with solar pumps and windmills.

The State Government's commitment to building a strong and viable sustainable energy industry is already paying dividends. A recent survey has revealed that Western Australia is performing well above the national average.

The survey revealed that:

- > Western Australia contributes nearly 20 per cent of the nation's total renewable energy industry sales
- > Total annual sales by the sustainable energy industry stand at \$640 million
- > The growth rate in sales averaged nearly 30 per cent over the past three years
- > Local exports of sustainable energy technology are worth about \$100 million, ranking Western Australia third behind Victoria and New South Wales as an exporter
- > The local industry is worth between \$1.2 and \$1.6 billion, directly employs 2800 people and generates up to 9,900 jobs in the wider economy.

Existing Market

The shape of reform

The plan is to establish a new market framework and structure to enable new participants, including renewables, to enter the industry.

To do this, the network (wires) business will be separated from Western Power's generation and retail businesses.

This means independent power producers, such as renewable energy companies, won't have to negotiate with Western Power – the competitor – for access to its transmission and distribution networks.

Western Power's monopoly position will be mitigated by splitting generation from retail. This means the State-owned retail business could buy power from any generation company, including renewable producers.

To make sure all new entrants can use the electricity grid on an equal basis, an Access Code will be established.

Retailers and generators will be able to buy and sell electricity in a wholesale market with independently regulated rules. These market arrangements will be conducive to both large and small renewable energy generators.

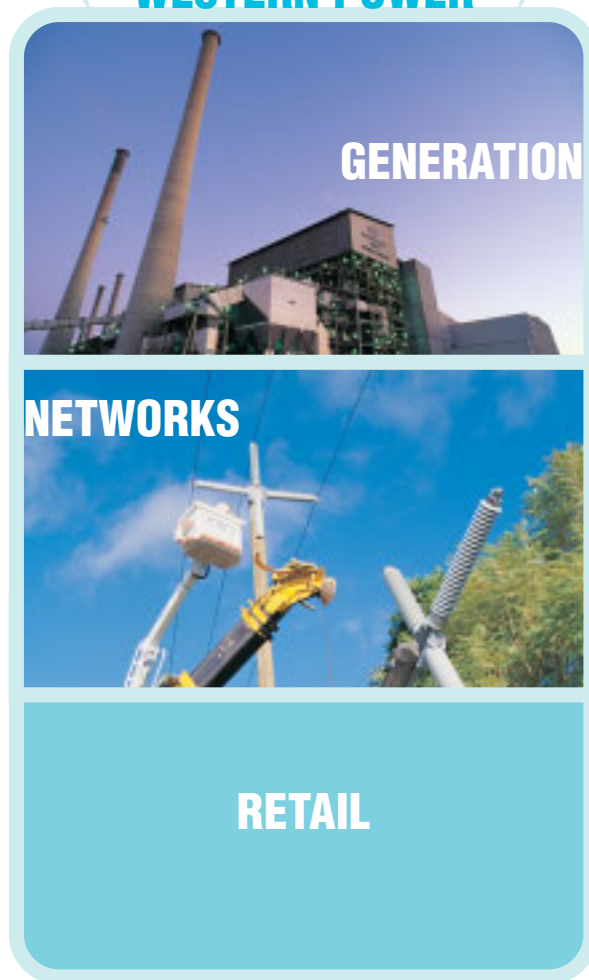
An independent system operator will run the market and also ensure reliability and security of supply.



Under current conditions private generators must use Western Power networks and compete against an integrated entity.



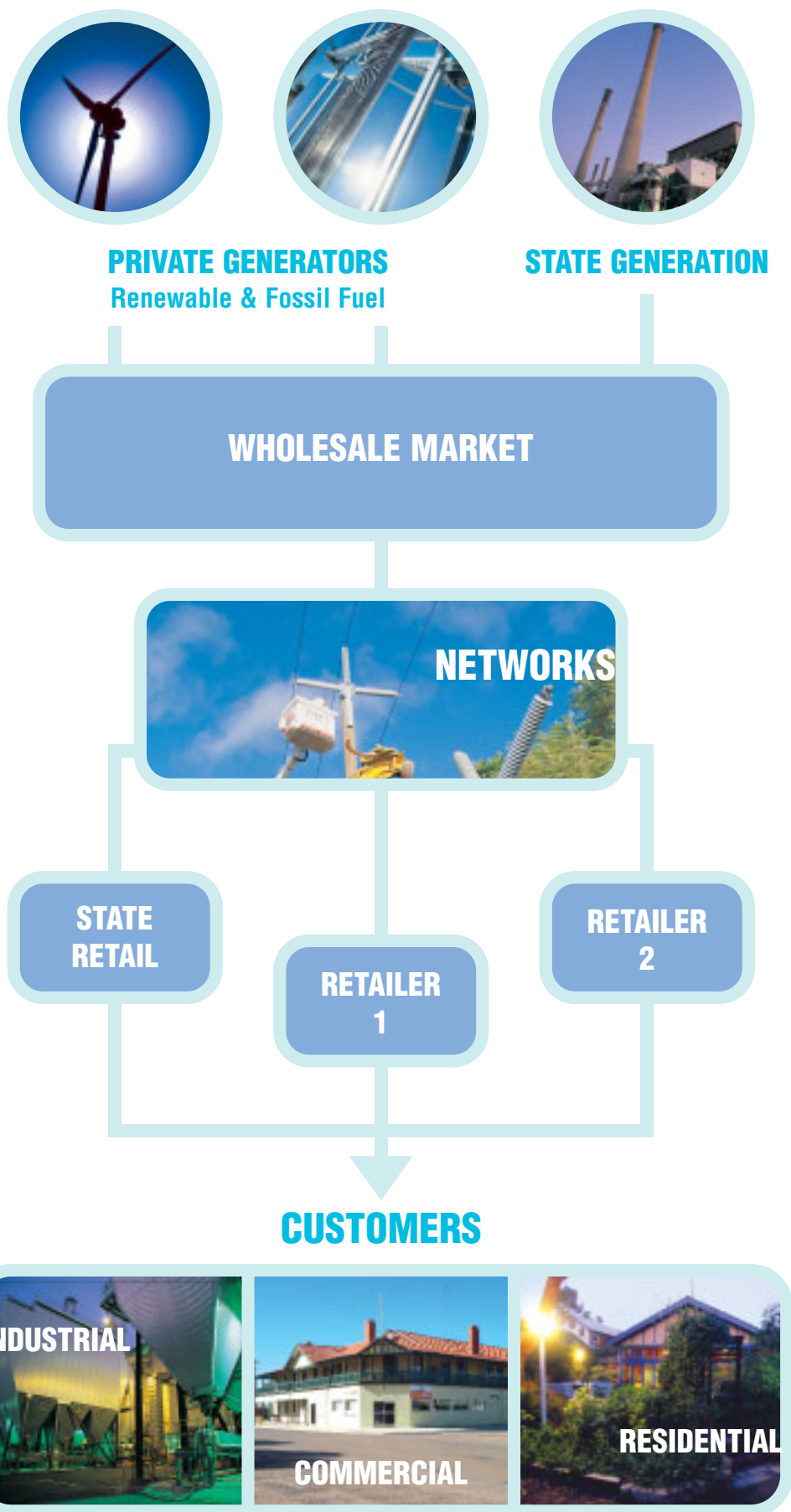
WESTERN POWER



CUSTOMERS



New Market



The benefits

In the new market place ALL generators (including renewable) have access to market and networks.

There will be an independent wholesale market.

All customers will be treated equally through a separate system of networks.

Retailers will be able to buy wholesale electricity and sell to customers. An increased number of retailers will provide customers with a choice (including renewable energy options).



The new electricity market: a boost for renewable energy

Creating a new electricity market is the key to improving sustainable energy opportunities in the State's electricity sector.

At the moment, renewable energy producers are extremely hampered by the rigid market arrangements and Western Power's size, structure and market domination.

In contrast, the new electricity market has been carefully designed so that renewable providers can compete on a level playing field.

The market has also been designed to allow demand management to participate as an alternative to generation – providing market signals that encourage energy efficiency and measures that reduce energy consumption at peak times.

This will help build a competitive sustainable energy industry in Western Australia, assist in capturing the benefits of the State's abundant high quality renewable energy resources and help the State meet its mandatory renewable energy targets with renewable energy produced locally.

The creation of four separate entities from Western Power, including the separation of generation and retail, means private sector renewable energy project developers will be able to openly compete for generation market share.

What do these changes mean for consumers

The electricity reform process will retain existing benefits, such as the uniform tariff for residential customers, while providing new benefits and choices for consumers, including:

- > An increasing range of electricity suppliers, including renewable energy suppliers, offering a range of products to match consumer requirements
- > Providing financial help for smaller customers to switch to renewable energy
- > Increased opportunities and incentives for electricity suppliers to provide energy services, such as advice and energy efficient appliances, where they can contribute to reduced electricity supply costs
- > More information to consumers about greenhouse emissions, renewable energy and ways to reduce environmental impact.



The new market

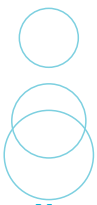
The new market will contain a number of features which will be a huge boost for renewable energy.

Bilateral contracts: Bilateral contracts are a direct contract between a buyer and a seller for electricity. The new market provides for more flexible and workable bilateral contracts and will have special types of contracts that will benefit renewable generators such as wind farms, which may not be able to accurately predict their output.

Residual Trading Market: This is a market where generators can sell uncontracted energy and buyers can purchase energy without a bilateral contract. This will allow generators to sell spare capacity whenever available at a market determined price.

Balancing Market: This is a market where generators will be able to both buy and sell electricity as required and without penalty for being out-of-balance. The balancing market will include a special arrangement specifically for uncontrolled renewable energy generators such as wind farms. These generators will be able to sell any surplus electricity in the balancing market at all times at a market determined price. This will enable wind farms to sell any uncontracted energy in a simple manner and without needing to submit prices into the balancing market.

Special provisions will ensure that retailers are able to charge rates above the uniform tariff for renewable energy, thus allowing renewable energy to be priced to reflect its higher generation cost and environment benefits. Provisions will also ensure that retailers provide net metering arrangements for very small renewable generators.



New market opportunities for renewable energy

The electricity reform process will provide substantial new market opportunities for renewable energy.

New procurement process for renewable energy: Renewable Energy Certificates (RECs) are a kind of electricity “currency”. Every megawatt hour of renewable energy produced amounts to a single REC. The private sector renewable energy industry will be given a new opportunity to compete to supply 100,000 RECs per year to meet Western Power’s renewable energy requirements. 100,000 RECs is equivalent to a project about one third larger than the Albany wind farm – WA’s largest wind farm. This procurement process complements the 90,000 RECs procurement process already underway.

Licensing conditions: A license condition will be placed on electricity retailers requiring retailers to test the local market when procuring renewable energy or Renewable Energy Certificates (RECs) to meet their Mandatory Renewable Energy Target requirements. This means the local industry is given the opportunity to compete with renewable energy from elsewhere in Australia.

Increased customer base: At the moment, renewable energy generators have exclusive access to customers that consume between 50 and 300 megawatt hours per year. The Government is keen to maintain some form of preferential market access for renewable energy and will explore options for achieving this when the general contestability level drops to 50 megawatt hours per year on 1 January 2005.

Metering subsidy: Those customers who want to choose renewable energy often need to upgrade their electricity meter – and this can be a considerable financial barrier. A new State Government subsidy will ensure that smaller renewable energy customers contribute no more than three percent of their previous annual electricity costs towards the cost of installing this metering. This represents a subsidy of around \$470 for a typical 50 MWh per year customer (for example, a small corner shop). The subsidy will be provided for three years. By then, it is expected that the cost of metering will have reduced considerably.

Maximising renewable energy on the grid: A new study will determine how to maximise the renewable energy capacity of the South West Interconnected System, particularly in regard to wind power. The study will determine the best way to deal with the limitations of the existing network and will draw on world’s best practice in developing a strategy that will provide maximum opportunities for renewable energy generation on the network.

Opportunities for demand management and energy efficiency: The new market will provide new opportunities for demand management and energy efficiency to “participate” in the market. To assist market participants – whether generator, retailer or consumer – to better understand these new opportunities, a study will be commissioned to explore the potential for demand management and energy efficiency to be used in the market. The study will draw on success stories from elsewhere to highlight the potential of this important aspect of the market.

State Government push for stronger mandatory target

The Mandatory Renewable Energy Target (MRET) is a Commonwealth scheme to increase the amount of renewable energy produced in Australia.

By the end of the decade, electricity retailers across Australia must purchase an additional 9,500 gigawatt hours of renewable energy – the equivalent of 120 Albany wind farms (Western Australia’s largest wind farm).

This is done by retailers purchasing Renewable Energy Certificates (RECs) from renewable energy generators, with RECs being equivalent to 1 megawatt hour of electricity. Importantly, RECs can be purchased from anywhere in Australia, ensuring that there is an efficient Australia wide market for RECs.

The State Government believes the MRET scheme is a sound, market-driven way of providing renewable energy in a cost-efficient manner as well as reducing greenhouse gas emissions.

However, it is now recognised that the current target will fall well short of the original objective of providing an additional two percent renewable energy. The Western Australian Government has advocated for the original target to be restored, which would increase the existing requirement for renewable energy by about 48 per cent.

Electricity reform will make Western Australia a popular place for MRET investment (from within and outside the State), due to our excellent renewable energy resources.



The path to the new market

The renewable energy sector will be one of the big winners out of the State Government's electricity reforms.

However, while the restructure of Western Power will be in place by July 2004, the new market arrangements will not be fully implemented until July 2006.

The State Government is therefore pushing ahead with a number of interim arrangements to ensure that this transition period provides strong opportunities for renewable energy generators.

New balancing service

One of the major concerns of independent renewable energy providers in the current market is the limitations of the current balancing arrangements. (The balancing arrangements are the mechanism used to purchase power shortfalls ("Top-Up") or sell surpluses ("Spill") so that generation can be balanced with the customer's power requirements.)

A new Top-Up and Spill service will be introduced in early 2004 to replace the existing balancing arrangement offered by Western Power. The Top-Up and Spill service will overcome a number of the key deficiencies of the existing balancing service and will be of benefit to both renewable energy and fossil fuel generators.

Key features of the new Top-Up and Spill service:

- > Top-Up and Spill prices will be equal for imbalances less than 10 MW. This removes the current differential that exists between Top-Up and Spill prices – a major concern for renewable energy generators. The 10 MW band limit will also be of benefit to smaller renewable generators as they will be able to conduct all or a significant portion of balancing requirements within this band.
- > A simple schedule of prices will apply and will be determined in advance. Prices will be structured in a transparent manner, using cost neutral pricing principles.
- > There will be no penalties for being out of balance.
- > Uncontracted energy will be able to be "Spilled" at the scheduled Spill price. This means that generators will be able to sell all surplus energy at the Spill price. This will be of interest to generators that have not contracted all their potential output.

There will be two additional provisions to specifically assist renewable energy generators.

- > The balancing band where Top-Up and Spill prices are equal will be increased from the standard 10 MW to the capacity of the plant for uncontrolled generators such as wind farms. This will enable wind farms to always have access to a balancing arrangement where Spill and Top-Up costs are identical.
- > Western Power will provide a part supply tariff to allow renewable energy generators to sell a mix of "black" and "green" energy in a simple manner. This will be of interest to renewable generators wishing to sell more electricity than the plant can produce or wishing to provide a mix of renewable and non-renewable energy.

In order to provide comfort to renewable energy generators using the existing balancing arrangement, the Government will ensure that no existing renewable energy generator will be worse off under the new balancing arrangement.

Renewable energy production subsidy

The State Government will provide up to \$6 million through a special subsidy to assist renewable energy generators – particularly smaller players. This is expected to be a huge boost for the renewable sector in the transitional period, adding around 30 per cent to the value of each REC produced.

Key details of the subsidy arrangement include:

- > The subsidy will be set at 1 cent/kWh for the first 30 GWh of output per project per year. This ensures that all types and sizes of renewable energy stand to benefit, while providing greater assistance to smaller operators, which have faced particular difficulties up until now.
- > The subsidy will apply until 30 June 2007 or for a maximum of three years per project, whichever is sooner.
- > The subsidy is to assist new (commissioned after 1 November 2003) renewable energy plant that will not benefit from the current Western Power RECs procurement process and which will not be eligible for funding under the Renewable Remote Power Generation Program. For administrative processes the subsidy will not be available for very small generators (producing less than 50 MWh per year).



Case studies

There is unprecedented activity and optimism in Western Australia's sustainable energy industry.

Much of this optimism has been encouraged by the State Government's electricity reform plans, which will create a market structure that will facilitate viable renewable energy projects in Western Australia.

This State has an abundance of renewable energy resources with plentiful wind, solar and biomass potential. This wealth of renewable energy resources provides Western Australia with the prospect of producing some of the most cost competitive renewable energy in the world.

The Western Australian Sustainable Energy Association (WA SEA) estimates there is currently more than 1,000 MW of new renewable energy projects currently under consideration or development.

If a good portion of these projects come to fruition it would represent a substantial increase in the amount of renewable energy generated in WA.

According to WA SEA, projects under development include:

- > 17MW of land fill gas (for example, AGL Energy Services' Gosnells Landfill Power Generation Project)
- > 10MW of hydro (for example, Pacific Hydro's Ord Diversion Dam project)
- > 130 MW of biomass (for example, Blair Fox's poultry litter fired power station)
- > 700 MW of wind (for example, Stanwell Corporation and Griffin Energy's Emu Downs Wind Project)

Cogeneration

One of the most exciting energy developments in Western Australia is Alinta's plans for a series of cogeneration plants.

Alinta plans to deliver cheaper and cleaner power to WA consumers through an arrangement with Alcoa to develop energy-efficient co-generation power plants. The co-generation process uses otherwise wasted exhaust heat from electricity generation to produce steam, which is then used in Alcoa's industrial processes.

Co-generation plants produce less than half the CO₂ emissions of traditional electricity supply.

Alinta has publicly stated that full implementation of electricity reform is essential if the full co-generation project – involving 1200 megawatts of electricity and \$1 billion in investment – is to go ahead.

“The Government's commitment to reform is an important factor in providing AlintaGas with the confidence to undertake a project with Alcoa to jointly develop up to 10 energy efficient cogeneration power plants at Alcoa's alumina refineries in WA.”

*AlintaGas Chief Executive Robert Browning,
November 25, 2002*

Western Power and renewable energy

Western Power's renewable energy activities will be given a bright new future under the State's electricity reform plans.

Western Power has a major investment in renewable energy through a range of innovative programs, including the Albany wind farm.

The State Government has moved to ensure these projects continue to flourish after the restructure of Western Power, while maintaining the integrity of a competitive market.

Western Power's renewable energy business will operate as a “ring fenced” organisation within the new State Generation business. It will continue to be State-owned.

The ring fencing arrangement, combined with separating the generation, networks and retail businesses, will ensure that the new organisation competes on a level playing field with the private sector, thus overcoming one of the main criticisms of Western Power's current renewable energy activities. The Government will be able to direct the renewable energy activities of State Generation if required to ensure that it does not crowd out or otherwise inhibit the development of a thriving private sector renewable energy industry.

This approach will ensure that the State's skills, expertise and investment in renewable energy will continue to provide benefits to the environment and people of Western Australia.



Bringing the message home

Soon, every Western Australian will be able to measure how much they contribute to global warming and how much of the power they consume is produced from clean sources.

The State Government has asked Western Power to include this detail on their billing statements.

The average Western Australian household bill is about \$800 a year and results in around five tonnes of greenhouse gases – about the same as an average car.