

**Market Report  
on  
Renewable  
Energy in  
Australia**



## **Introduction**

The economy of Australia is a developed, modern market economy with a GDP of approximately US\$ 1.23 trillion, with strong fundamentals. Its robust nature has helped it avoid the worst of the global financial crisis, without slipping into an economic recession. Australia's close business ties with Asian economies like China, Japan, South Korea, and India have provided the economic cushion to bolster its growth.

With a modern democratic system of governance, and sound legal and regulatory systems, Australia is a country where Indian businesses should feel comfortable in operating. However, the full potential of India-Australia business ties has not yet been achieved. The Australian economy offers a range of opportunities in the services sector for Indian companies to explore possibilities for joint ventures, acquisitions, or import-export relationships with the Australian market.

## **RENEWABLE ENERGY SOURCES**

By definition, renewable energy sources are limited to those that can be replenished indefinitely and are procured from natural resources. There exist individual variants of broader sources such as tidal and wave energy, which are a subset of water-based energy sources. The main products and services supplied by this industry are classified as follows.

### **Hydropower**

Hydro-electricity or hydropower is the most widely used form of renewable energy in the world. It harnesses the energy of flowing water to spin a turbine that is connected to a generator, thus producing electricity. The amount of electricity produced is dependent on the volume and height of the water source that is connected to the turbine. Hydropower generates 16% of the world's electricity and accounts for about 77% of Australia's total renewable energy capacity. According to the International Energy Agency (IEA), the world's top four hydropower generators are the United States, China, Brazil and Canada.

### **Solar power**

Solar power refers to the harnessing of sunlight to generate electricity through the use of lenses and reflectors to concentrate the sun's energy. This energy is subsequently used to heat water or oil, with the resultant steam used to drive a turbine. A variant of solar energy is called solar photovoltaic (PV) energy that directly converts sunlight into electrical energy primarily through the use of solar panels. Australia has the highest average solar radiation of any continent, providing enormous potential for electricity generation. Currently, about 7.6% of all households have solar systems installed in their homes, with this number growing by 60% between 2002 and 2008. The Northern Territory leads the country in solar thermal power generation, with 55% of all households using this form of energy to power their utilities.

### **Wind power**

Wind power involves the generation of electricity through wind forces. This is done using either wind turbines, windmills or wind pumps to capture wind energy and convert it into electrical energy. Sites such as those in South Australia are subject to strong, consistent winds and therefore house about 45% of the country's 52 operating wind farms.

### **Ocean power**

Ocean power involves using the tides, waves and currents of the ocean to produce energy. Each of the sources uses different methods to generate electricity. However, the most common method is to use a turbine to drive an electrical generator. Tidal power stations are usually a part of a dam or barrage built across a narrow bay or river mouth.

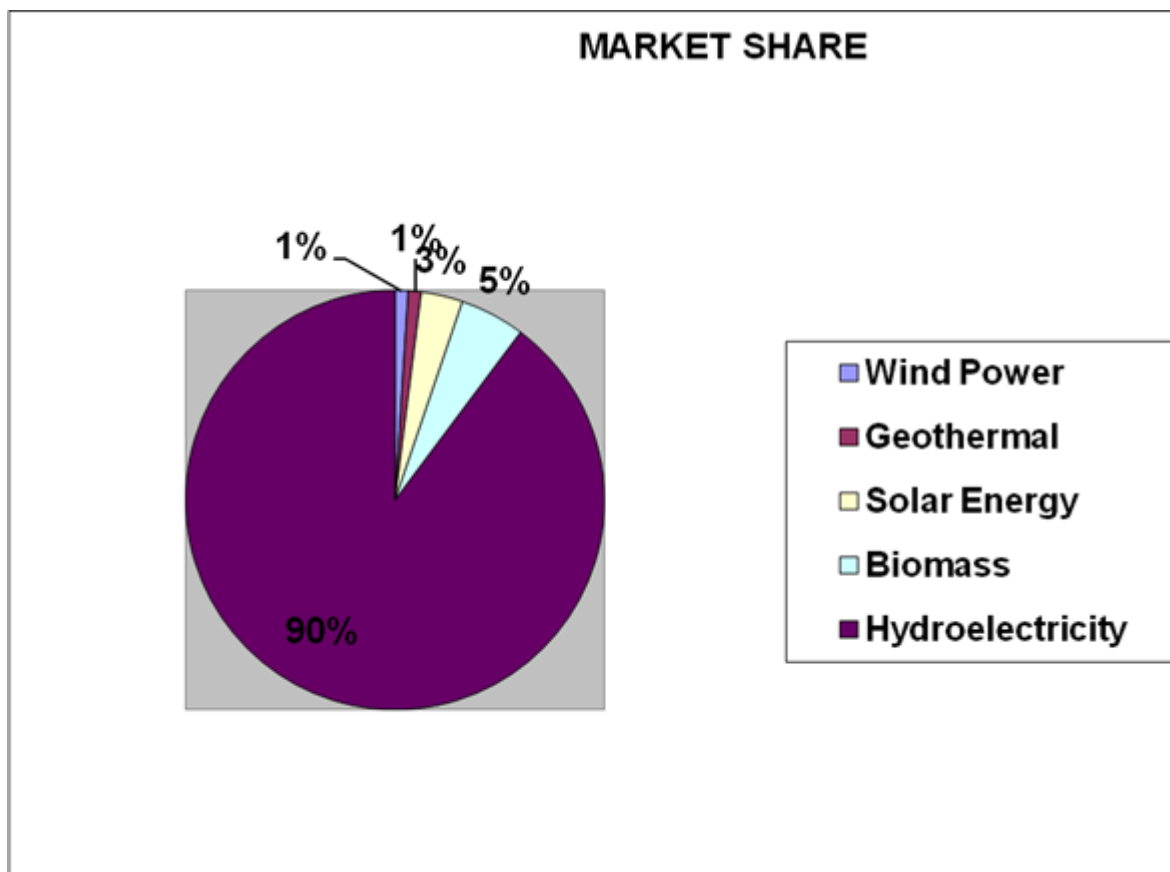
Wave energy is produced through surface waves and pressure variations below the ocean's surface that can generate power. Floating platforms or submerged devices harness this bobbing motion of waves to generate energy. Despite Australia's expansive coastline, this form of energy is highly underused, with only one wave-powered generation plant, at Port Kembla, NSW.

### Geothermal power

Geothermal power is extracted from granite rocks located deep below the earth's surface. Granite rocks are commonly referred to as hot dry rocks, hot fractured rocks or enhanced geothermal systems, and harnessing their energy employs similar technology to the oil and gas industry. Being a resource-rich country, Australia is home to multiple geothermal sites, but operates only one functional station in Birdsville, QLD. However, there are nearly 50 companies working on geothermal exploration and more sites are expected to be functional over the next five years.

### Biomass energy

Biomass energy is sourced from biological material such as plant matter, wood, waste, gas and fuels. The most commonly used form of bio energy is derived from plant matter or urban and garden residue such as food waste, branches, stumps or trees that are incinerated to produce energy. In Australia, bio energy is still in its infancy, accounting for about 7.0% of total renewable capacity, the majority of which is powered through bagasse obtained from sugarcane residues.



Energy production faces unprecedented uncertainty. Increased awareness surrounding the impact of climate change and dependence on fossil fuels has prompted policymakers and scientists to rethink their strategies. The Renewable Energy industry has both

benefited and been a victim of these changing tides, as increased investment and support has been offset by delayed implementation and political populism. The Federal Government's mandatory Renewable Energy Target (RET), which aims to have 20% of the country's electricity generated from renewable sources by 2020, is a good indicator of its commitment to a clean energy future.

Hydropower continues to be the largest source of renewable energy, but has been affected by poor rainfall and drought conditions.

Wind and solar power have exhibited dramatic growth over the decade, but their contribution to overall output remains small. The industry has benefited from significant assistance in the form of grants and concessions, but remains at the mercy of its infancy and expensive cost structure. In the five years through 2011-12 industry revenue is estimated to grow at 8.4% per annum to total \$1.4 billion. Revenue in 2011-12 is expected to post an increase of 5.7% from the previous year.

The prospects of the industry are inextricably tied to the level of government support and the willingness of end users to wear higher costs. Initiatives such as interest free Green Loans and the Renewable Energy Development Fund aid investment in technology that will eventually make clean energy affordable. However, support from consumers and industry is equally important in setting a precedent for change. The next five years will be critical in determining whether Australia's abundant natural resources can indeed be harnessed and set a world example for a decarbonised future. IBIS World estimates that industry revenue will increase by 6.5% per annum until 2016-17 to total \$1.9 billion.

## **CURRENT SCENARIO**

The world's energy crisis has necessitated an aggressive shift toward renewable energy. For the first time in modern history, in 2009 investment in clean energy technologies surpassed that of conventional energy, with about US\$190 billion being allocated to renewable energy generation. Australia has embraced this transformation, given its abundance of natural resources, but continues to lag behind the rest of the world in terms of dependence on fossil fuels for its overall electricity output. The passing of the Renewable Energy Target (RET), which aims to generate 20% of Australia's total electricity from renewable sources by 2020, is testament to the importance of reducing dependence on coal and decarbonising the country's energy supply in the face of the increasing threat of climate change. In the five years through 2011-12, industry revenue is estimated to grow by 8.4% per annum to total \$1.4 billion. Revenue in the current year is expected to increase by 5.7%.

## **RECENT DEVELOPMENTS**

On 11 July 2011, the Australian Government announced its plan to formally introduce a carbon tax commencing on 1 July 2012. Its proposal was an extension of previous initiatives such as the RET, aimed to transition the country into a clean energy economy and reduce its dependence on fossil fuels such as coal, which currently accounts for more than 80% of the national electricity output. The carbon price is essentially a tax on carbon dioxide emissions priced at \$23 per tonne, rising at 2.5% over the next three years.

About 60% of Australia's carbon pollution is expected to be covered by the carbon tax; most notably, that of electricity generation, stationary energy, business transportation and waste and industrial processes. Agricultural emissions and emissions from light on-road vehicles are excluded from the tax. The country's 500 biggest polluters will be primarily affected by the tax and will be required to purchase a permit for every tonne of

carbon pollution. This is expected to bode well for the Renewable Energy industry as large industrial organisations and electricity generators will seek to reduce their dependence on coal-fuelled energy sources in order to reduce the impact of the carbon tax or passing down the added costs onto consumers. Public support for this proposal has been extremely divided, given its eventual impact on household staples such as electricity and gas, modest as they may be.

In 2010, there were **305 renewable power generation projects** of greater than **100 kilowatts** in size operating around the country. This represents an installed capacity of **10,629 megawatts**, or about **16%** of total installed capacity, including both renewable and fossil fuel sources. In terms of generation, however, **renewable sources** only contribute about **6.0%** of total electricity, with coal being the dominant fuel source at 80.8%. As a comparison, about **18%** of **China's** electricity is generated from **renewable** sources, followed by the **European Union** (15%) and the **United States** (12%). The majority of Australia's renewable energy is supplied through **hydropower**, accounting for **77%** of total generation, followed by **wind power, bagasse, solar and ocean energies**. Renewable energy production increased by about **6.0%** per annum between **2002-03 and 2007-08**, with the strongest growth coming from biofuels, wind and solar energy. Hydro-electricity was adversely affected due to periods of low rainfall and crippling droughts that significantly reduced water catchments.

### **SOLAR AND WIND ENERGY**

Solar energy represents one of the fastest growing segments of the renewable market, with a 60% increase in the number of households using either solar water heaters or solar panels. **In 2009, 7.6% of the country** had **solar systems** installed in their homes, with the **Northern Territory** leading the way at **55% of all households** having solar power. There is currently more than **100 megawatts** of installed capacity from solar power that is sufficient to power **26,000 homes** for a year. The industry has also been aided by the growth in domestic manufacturers of photovoltaic (PV) products such as heaters and panels, with at least **17 major Australian** owned companies participating in the market and nearly 1,000 accredited installers. The SRES has been a major driver of this growth, as evidenced by the dramatic rise in RECs created for solar water heaters that totalled nearly 1.5 million, or 25%, of all RECs issued in 2008. Another major factor in its growth is the ease in connecting solar PV systems to the domestic grid, which has a comparably forgiving load factor and does not put excessive stress on the network.

While wind power represents only a small portion of the total renewable output, Australia's geography has **enormous potential** for wind power. The recent decline in water catchments due to the **continued drought** has exposed the need to diversify clean energy generation from the primary source: hydro-electricity. Investment in wind farms such as **Infigen's** SA operation has resulted in total operating wind capacity increasing by 31% in 2009 to 1,712 megawatts. Currently, about **740,000** households in Australia are **powered by wind energy**. Wind power also has the advantage of being the most cost-effective method of energy generation after hydropower, with average costs of delivered power falling by about 80% over the past two decades. However, wind farms have been faced with some impediments from local residents and landowners. Objections raised vary from aesthetics, to a concern for the effect on local birdlife, to noise.

### **INDUSTRY OUTLOOK**

The world's energy situation is precariously balanced. Increased awareness of the issues surrounding climate change and greenhouse gas emissions, coupled with increasing consumer support for clean energies, has paved the way for the Renewable Energy

industry to make a significant impact. The success of the industry will continue to depend on government and consumer support that affects technology, the price of energy services and the extent to which renewable energies are eventually embraced by the public. The government's **20% Renewable Energy Target (RET)** is certainly a step in the right direction, but implementation remains fraught with uncertainty. The industry's future is inextricably linked to political and scientific progress in reaching the 20% goal, as hastening the transition to a low-carbon economy is ultimately profitable for the country as a whole. In the five years through 2016-17, industry revenue is forecast to increase by **6.5% per annum** to total \$1.9 billion.

While government support is critical for ensuring the future of renewable technologies and rendering them accessible, consumer support in embracing them on a micro-level forms an equally important link. The **rapid growth of solar water heaters and solar panels by households** is an encouraging step in that direction, but can be coupled with other forms of change. On a broader level, reducing petrol consumption through cars and vehicles can also be highly valuable in ensuring curtailing dependence on fossil fuels. Energy use is rising among households, while access to clean energy remains a discretionary expense subject to the frailties of the economy. Prioritising access to renewable energy can advance social and economic progress in the long term, as it has the ability to strike the elusive balance between profitability and sustainability.

In the current climate of economic frugality, the rate of growth for renewable energies may seem slow. The vicious circle of politics, government funding and costs will not be overcome unless a consensus is reached. Although in the short term the economics of renewables is uncompetitive compared with coal-fuelled electricity, the **real benefits lie in the long term**. The balance is expected to change over time, unless the cost of carbon under the CPRS drives up the price threshold for the introduction of renewable technologies. In particular, two of the most abundant sources for addressing Australia's energy requirements, solar thermal and geothermal, are not expected to contribute significantly to the energy mix until at least 2040. It is therefore of **critical importance** that existing sources, such as **wind, hydro, biomass and solar PV**, are developed despite the costs, as they ultimately secure the country's energy future while providing jobs and strengthening the economy.

## **INVEST AND INNOVATE**

One of the biggest hindrances to the future of renewable energies is its relative cost compared with conventional fuels such as coal. Many renewable segments are still much more expensive than coal-fired electricity – unless coal is fully costed for its carbon dioxide emissions and the decades of public investment in infrastructure are disregarded. The imposition of a carbon tax or the CPRS, along with continued funding support, would allow many renewable energy technologies to economically compete with fossil fuels within the next five years. This also has the added advantage of providing employment and export opportunities for the industry and the economy as a whole. Australia is in a unique position to develop and innovate its rich mine of renewable resources, but is ultimately dependent on government, industry and consumer support to maintain its competitive edge. Current government initiatives such as the RET, interest-free Green Loans, Solar Flagships program, Renewable Energy Development Fund and Remote Power Generation program are promising for the future of this industry.

## **BARRIERS TO ENTRY**

The barriers to entry in the Renewable Energy industry are **high**. Primarily posing a threat to future entrants is the **initial cost** of establishing the infrastructure required to generate renewable power. Large hydro and wind farm projects require **significant capital** to set up adequate facilities in order to make it a viable energy source.

Additionally, costs relating to grid connection, upgrades and access can be prohibitive for some potential new players. Further, a high level of expertise is also required to enter the industry, given its focus on **research and development**, especially with regards to finding and assessing potential renewable sites. There do, however, exist **opportunities** for **niche entrants**, given the barrier differences in entering various segments. For example, entry into the **solar PV segment** poses **fewer impediments** when compared to entry into the large hydro or wind segments due to comparatively smaller capital requirements. Overall, average costs are declining due to advances made in discovering newer technologies but still remain higher than conventionally generated electricity.

## **MAJOR BUSINESSES**

Hydro-Electric Corporation – 24.1%  
Snowy Hydro Limited – 53.6%  
Others – 22.3%

## **REGULATION & POLICY**

The **Office of the Renewable Energy Regulator (ORER)** is the **primary legislator** of regulations pertaining to this industry. The Renewable Energy (Electricity) Act 2000, Renewable Energy (Electricity) Charge Act 2000 and the Renewable Energy (Electricity) Regulations Act 2001 are the main pieces of legislation that cover the legal framework of the workings of this industry. In 2009, the Mandatory Renewable Energy Target (MRET) bill was approved, which commits the government to ensuring that 20% of the country's electricity supply comes from renewable energy sources by 2020.

RET operates by imposing a legal liability to support renewable energy electricity generation on large wholesale purchasers of electricity. An example of a liable party under the legislation would be an electricity retailer purchasing wholesale electricity to meet retail sale obligations to customers. The liable parties are directly responsible for supporting an increase in the amount of electricity generated from renewable energy sources, which is implemented through the surrender of **renewable energy certificates (RECs)** in proportion to their acquisitions of electricity. RECs are an electronic form of currency created on the REC Registry by eligible providers and are generally equivalent to: 1 MWh of renewable electricity generated above the power station baseline; or 1 MWh of renewable electricity deemed to be generated by small generation units; or 1 MWh of electricity deemed to be displaced by the installation of solar water heaters.

A recent amendment to the RET involved dividing it into two sections with power from domestic renewable energy installations such as rooftop solar panels no longer being included in the mandatory 20% target. This means that retailers will have purchase their energy certificates from two separate markets – one for large scale projects and another for domestic technologies. This resulted from a previous flood of RECs in the domestic market, which drove down its price and affected the financial viability of large scale projects such as wind farms. Consequently, several large investments were put on hold such as the Roaring 40s, Musselreef Wind Farm and Pacific Hydro.

## **INDUSTRY ASSISTANCE**

The Renewable Energy industry receives a high level of assistance from both government and private industry. The government's **Mandatory Renewable Energy Target (MRET)** is an example of a policy designed to increase renewable electricity generation by **9500 gigawatt** hours by the end of 2010. This is expected to be complemented with more than **\$20 billion** of investment in **renewable technologies** and create around **28,000 jobs**. The creation of **financial incentives** through RECs is

another example of rewarding renewable energy providers to continue to invest and expand their offerings. Organisations such as the **Clean Energy Council** have been established to support the industry by being its voice to the wider community and articulating the need to move away from fossil fuels and decarbonise the country's energy supply.

Other forms of assistance primarily include government initiatives such as **interest-free Green Loans, Solar Flagships program, Renewable Energy Development Fund** and **Renewable Remote Power Generation** program. Additional state government programs include **rebates** for **the installation of solar water heaters** and **panels** and various tariffs to assist the growth of energy savings. In the longer term, the introduction of the much fraught emissions trading scheme will have a major impact on the future of this industry.

## **HOW TO DO BUSINESS IN AUSTRALIA?**

Australia is an open economy with a liberal foreign investment outlook. The country has many international companies holding assets in the country and operating without much of a hindrance from the government. The regulatory body overseeing foreign investments in Australia is the Foreign Investment Review Board (FIRB).

More detailed information on foreign investments can be accessed at FIRB: [www.firb.gov.au](http://www.firb.gov.au)

Company Registration:

A company can apply with the Australian Business Registrar to obtain the Australian Business Number (ABN) and all companies which are to be registered with ASIC (Australian Securities and Investment Commission) would get a Australian Company Number (ACN). Further information about ABN can be obtained from: <https://abr.gov.au/>

Further information about ACN can be obtained from: <http://www.asic.gov.au/asic/asic.nsf/byheadline/Australian+Company+Numbers?opendocument>

Further information on doing business in Australia is available at:

Claton Utz - [http://www.claytonutz.com/docs/DBIA\\_English.pdf](http://www.claytonutz.com/docs/DBIA_English.pdf)

Grant Thornton - [http://www.grantthornton.com.au/files/doing\\_business\\_in\\_australia.pdf](http://www.grantthornton.com.au/files/doing_business_in_australia.pdf)

Government of Australia – [www.business.gov.au](http://www.business.gov.au)

## **INDIAN INVESTMENTS IN AUSTRALIA**

**Suzlon Energy Australia Pty. Ltd.** a subsidiary of the parent company Suzlon Energy Ltd. based in India, was established in 2004. The company was established to provide EPC delivery, operations and maintenance services to wind farm projects in Australia. The company has been providing Wind Turbine Generators to projects in Australia. Suzlon has been providing technical assistance to NEC for its projects.

The company now plans to invest **\$1.3 bn.** to start a **600 MW** wind project in Yorke Peninsula in South Australia. The project would generate power for 200,000 homes in the Adelaide region and would reduce **2.5 million** tonnes of carbon dioxide emissions in a year. The Premier of South Australia while announcing the project commended the project to provide long term energy supplies to the region, whilst providing local employment creation and add to South Australia's wind energy capacity. The state has 534 turbines installed with 1,550 MW of electricity generation, accounting to 21% of



total state electricity generation. The project would ensure the meeting of the target of 33% electricity generation through renewable energy.

## **SCOPE FOR INDIAN COMPANIES**

The Renewable Energy industry primarily services the domestic market. However in February 2008, the **Renewable Energy and Energy Efficiency Partnership** (REEEP) was established to explore the potential of regional export markets such as China, India, Indonesia and other South Asian economies. REEEP is supported primarily by governments (*Australia, Austria, Canada, the European Union, Germany, Ireland, Italy, Netherlands, New Zealand, Norway, Spain, the US and the United Kingdom*) and by contributions from the private sector. There exist strong opportunities for commercial export of wind, biomass, biogas, biodiesel and ethanol production, solar thermal and PV, small hydro and geothermal energies in these markets from Australia. Given the growing energy needs of markets such as India and China and their contribution to greenhouse gas emissions (*India ranks fifth in the world after China*), there is increasing pressure for these markets to consider renewable alternatives to fossil fuels. While these countries themselves have abundant access to renewable resources, investment in development of these resources has been slow and protracted. Australia is therefore in a unique position, both geographically and technologically, to service these emerging markets. However, it is likely that it will concentrate on achieving efficiencies domestically before it is in a position to viably export renewable energy.

Australia presents itself with an opportunity for Indian companies to invest for the longer term in this country. It also provides a platform for technology transfer to Indian companies who are engaged in this sector. Australian universities, the likes of UNSW which is a leader in photovoltaic technology can provide technical expertise. A student of the university of Chinese origin and now an Australian citizen started manufacturing photovoltaic solar panels in China and is exporting the same to Australia. The company is emerging as one of the biggest manufacturers of photovoltaic panels in the world.

The government is keen to impose taxes or a price on carbon intensive industries and provide incentives to clean energy projects. The state governments also provide various incentives for households to install solar panels on the rooftops and the electricity produced is fed into the grid and the household is paid according to a tariff fixed by the electricity distribution company of the state. The government stopped taking in applications for the Green Car Innovation Fund, owing to the damage incurred by the floods in Queensland, the fund been utilised by companies to develop technologies for development of clean energy cars. The fund would contribute \$1 for every \$3 invested by the company. The prospect of exporting solar photovoltaic panels from India to Australia also holds promise to Indian manufacturers in providing an alternative source apart from the traditional Chinese companies. Australian companies which were involved in the manufacture of solar photovoltaic cells are shutting shop failing to keep pace with the increasing competition from Chinese manufacturers who are exporting to Australia.

## **TARGET AUDIENCE**

Ministry of New and Renewable Energy – [www.mnre.gov.in](http://www.mnre.gov.in)

IREDA – [www.ireda.in](http://www.ireda.in)

Energy Alternatives India – [www.eai.in](http://www.eai.in)

Solar Energy Society of India – [www.sesi.in](http://www.sesi.in)

Zenith Energy – [www.zenithenergy.com](http://www.zenithenergy.com)

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### SOME USEFUL LINKS

Clean Energy Council – [www.cleanenergycouncil.org.au](http://www.cleanenergycouncil.org.au)  
Department of Climate Change and Energy Efficiency - [www.climatechange.gov.au/what-you-need-to-know/renewable-energy.aspx](http://www.climatechange.gov.au/what-you-need-to-know/renewable-energy.aspx)  
Office of the Renewable Energy Regulator - [www.orer.gov.au](http://www.orer.gov.au)  
Alternative Technology Association – [www.ata.org.au](http://www.ata.org.au)  
Green Car Innovation Fund – [www.ausindustry.gov.au/Manufacturing/GreenCarInnovationFund](http://www.ausindustry.gov.au/Manufacturing/GreenCarInnovationFund)

**i) Identifying Key distributors/ installers in the Australian market to partner with** - United Energy – [www.ue.com.au](http://www.ue.com.au)  
Adelaide Solar City – [www.adelaidesolarcity.com.au](http://www.adelaidesolarcity.com.au)  
ACTEW AGL – [www.actewagl.com.au](http://www.actewagl.com.au)  
Solar Shop Australia – [www.solarshop.com.au](http://www.solarshop.com.au)  
Cyclopic Energy – [www.cyclopicenergy.com](http://www.cyclopicenergy.com)  
Conergy – [www.conergy.com.au](http://www.conergy.com.au)  
Energy Matters – [www.energymatters.com.au](http://www.energymatters.com.au)  
AGL Energy – [www.agl.com.au](http://www.agl.com.au)

**ii) Information on list of Renewable energy and RE conferences/ exhibitions throughout the year, esp. 2010**

Clean Energy Council Conference 2010 3 – 5 May Adelaide Convention Centre  
[http://www.bcse.org.au/cec/mediaevents/cec\\_conference\\_2010](http://www.bcse.org.au/cec/mediaevents/cec_conference_2010)

All Energy Australia 2010 7 – 7 October 2010 Melbourne Exhibition and Convention Centre <http://www.all-energy.com.au/>

Australia Green – Green Build, Design and Technology Show 29<sup>th</sup> – 30<sup>th</sup> Jan. 2010 Sydney Exhibition and Convention Centre [www.australiagreen.com.au](http://www.australiagreen.com.au)

**iii) Contact with the banks funding small and large RE projects**

ANZ Bank - <http://www.anz.com/about-us/corporate-responsibility/customers/responsible-business-lending/creating-financial-solutions/>

**iv) Strong collaboration with the National and local utilities**

AGL Energy – [www.agl.com.au](http://www.agl.com.au)  
United Energy – [www.ue.com.au](http://www.ue.com.au)  
Suppliers of Electricity in Western Australia - [http://www.energy.wa.gov.au/2/3217/64/electricity\\_and.pm](http://www.energy.wa.gov.au/2/3217/64/electricity_and.pm)  
Synergy Energy - [www.synergyenergy.com.au](http://www.synergyenergy.com.au)  
Actew AGL – [www.actewagl.com.au](http://www.actewagl.com.au)  
Aurora Energy – [www.auroraenergy.com.au](http://www.auroraenergy.com.au)  
Country Energy – [www.countryenergy.com.au](http://www.countryenergy.com.au)  
Origin Energy – [www.originenergy.com.au](http://www.originenergy.com.au)  
Energy Australia – [www.energy.com.au](http://www.energy.com.au)  
Integral Energy – [www.integral.com.au](http://www.integral.com.au)

**v) Fiscal / Monetary incentives available for the RE industry (manufacturing, research or installations)**

A list of government rebates and incentives are available at the following URL:  
<http://www.energymatters.com.au/government-rebates/>

Renewable Energy Equity Fund – provides venture capital for renewable energy companies - <http://www.environment.gov.au/settlements/renewable/reef/index.html>

**vi) Evaluate opportunities of conducting joint R&D projects with leading universities**

Research Institute for Sustainable Energy – [www.rise.org.au](http://www.rise.org.au)

Commonwealth Scientific and Industrial Research Organisation – [www.csiro.au](http://www.csiro.au)

Photovoltaic and Renewable Energy Department at UNSW – [www.pv.unsw.edu.au](http://www.pv.unsw.edu.au)

Solar Energy at the ANU – [www.solar.anu.edu.au](http://www.solar.anu.edu.au)

**vii) Contact and interactions with the Authorities involved in policy development, regulations etc. –**

Office of the Renewable Energy Regulator [www.orer.gov.au](http://www.orer.gov.au)

Department of Resources, Energy and Tourism - [www.ret.gov.au](http://www.ret.gov.au)

**viii) Information on and contact with the leading RE associations in Australia**

CleanEnergy Council – [www.cleanenergycouncil.org.au](http://www.cleanenergycouncil.org.au)

Alternative Technology Association – [www.ata.org.au](http://www.ata.org.au)

Renewable Energy Gateway Australia – [www.rega.org.au](http://www.rega.org.au)

Australia New Zealand Solar Energy Society – [www.anzses.org](http://www.anzses.org)

Western Australia Sustainable Energy Association – [www.wasea.com.au](http://www.wasea.com.au)

Australian Geothermal Energy Association – [www.agea.org.au](http://www.agea.org.au)

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