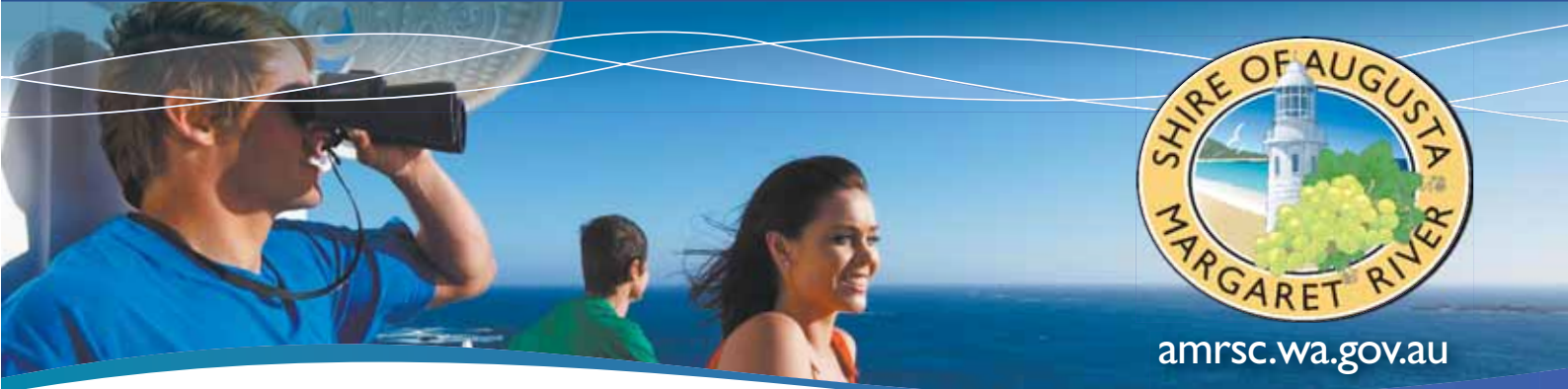


[amrsc.wa.gov.au](http://amrsc.wa.gov.au)

# Western Australia Regional Achievement and Community Awards

## LandCorp Sustainability Award



amrsc.wa.gov.au

### Highlights of Achievements

- The Augusta-Margaret River Shire installed a 21.6kw solar panel system and a 1kw wind turbine at the Margaret River Recreation Centre to reduce carbon emissions and promote sustainability.
- Procured 50% RREP Sustainable Development Office funding.
- The system is recognised as the largest non commercial hybrid renewable energy in Western Australia and features top quality solar panels from Germany, Zephyr wind turbine from Japan (first installation in the Southern hemisphere) and a new product LED streetlight (first of its type in Australia).
- The project raises awareness and educates about renewable energy.
- The hybrid installation can be seen as the benchmark for renewable energy in to the future. The installation has sparked interest within the renewable energy market and companies are now basing installations off the Margaret River model.

### Describe the initiative and its impact within the context of a local, national or world scale.

The Augusta-Margaret River Shire is committed to reducing carbon emissions and has developed its own set of sustainable initiatives.

The Shire recently installed a 21.6 kw hybrid solar panel/wind turbine system on the roof of the local Recreation and Aquatic Centre to show sustainability energy use in practice.

both at home, in the workplace, throughout local schools and environmental groups.

The use of renewable energy in Western Australia is growing in significance, WA has a high average of Solar Radiation and solar panels and renewable energy are an important factor in creating a more sustainable future.

The hybrid installation is the largest non commercial renewable energy system in Western Australia.

The hybrid wind/solar installation is approximately 21.6 kw in size. The solar panels make up 20.6 kw and the wind turbine makes up 1 kw of the overall system. This is enough electricity to power at least 7 large houses with 100% renewable energy.

The wind turbine (Zephyr) is the first of its type to be installed in the Southern hemisphere and the LED light is the first of its size to be installed throughout Australia.

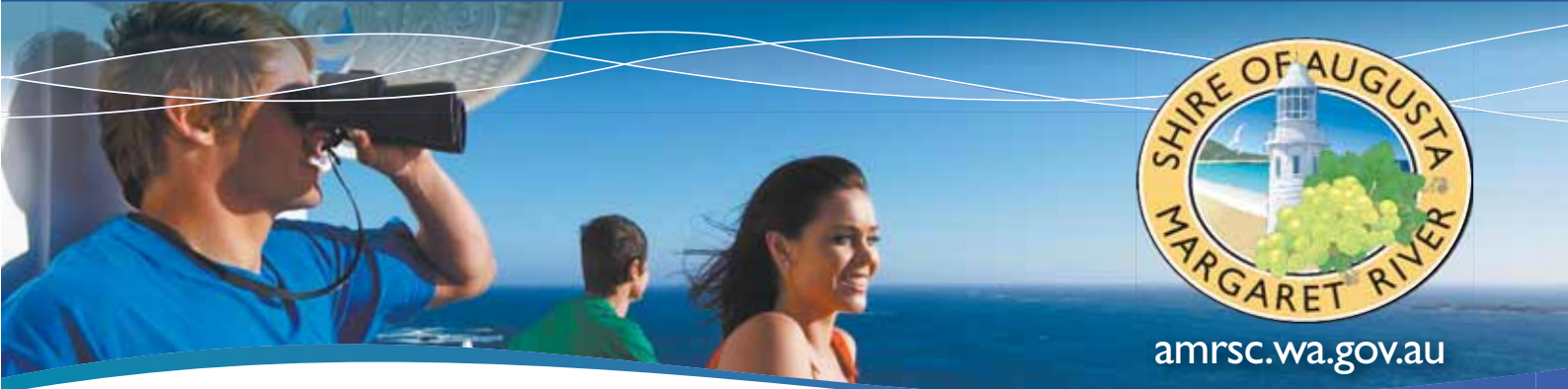
The installation is expected to generate approximately 8% renewable energy for the Recreation Centre and may deliver closer to 10%. The renewable energy system will reduce 37 tonnes of CO2 gas carbon emissions from entering the atmosphere each year which is the equivalent of planting 124 hectares of forest over the project's life span.

The Recreation and Aquatic Centre currently spends approximately \$110,000 per annum on electricity.



Artists impression of solar panels installed on Recreation Centre roof.

Sustainability and climate change have become one of the most important global subjects to date. On a local scale the Shire of Augusta-Margaret River is aiming to educate and encourage the local community to implement energy efficient practices and technologies;



amrsc.wa.gov.au

Suggesting the installation reduced annual energy bills by 8 - 10% per annum then the Council would reduce energy bills by \$10,000 per annum at the Recreation Centre.

The life expectancy for this installation is between 30 - 40 years. In 30 years the Shire would have saved \$300,000 on energy and only paid \$69,000 for the system. Electricity tariffs are set to rise considerably over the next few years. There is a chance that the Shire may save over \$400,000 in electricity. Even if the Shire only reduced energy by 6% per annum, significant savings would still be made and would easily pay back initial project costs.

There is a 25 year warranty on solar panels and wind turbine and a 10 year warranty for inverters and framing. Solar panels are by far the most expensive product being used and have the most extensive warranty.

The products being used are arguably the best available on the renewable energy market. The wind turbine has cost the Council nothing. This was included as part of the submitted Tender. This is the largest hybrid renewable energy installation in Western Australia.



**Solar Panels installed on the Recreation Centre roof.**

Council have recently been given approval from Western Power and Synergy to connect the solar/wind installation to the grid. Council are required to install a new export/import meter to adhere to

the Network Operator's technical requirements at a cost of \$240. This work will be completed by Western Power and the cost will be added on to the next Recreation Centre Synergy bill.

The project concept stemmed from Council's Sustainability Advisory Committee (SAC) and will also look at achieving Council's carbon emission reduction targets as part of Council's Strategic Plan and Cities for Climate Protection milestones.

As energy prices start to soar, smart energy use and renewable energy technologies will become heavily relied upon. The project sets a benchmark for the community, promoting the use of clean renewable energy rather than the use of standard energy sourced from non-renewable resources.

In February 2009, Council adopted the following goals as part of the Cities for Climate Protection program:

- A 20% reduction in corporate emissions on 2007 levels by 2017; and
- A 20% reduction in community emissions on 2006 levels by 2017.

These goals have been incorporated in to Council's recently adopted 10 year Strategic Plan.

The hybrid installation is a high profile visual statement that looks at encouraging renewable energy use and reducing Council's reliance on standard electricity. This will be a means of achieving Council's recently adopted emission reduction targets.

The iconic image will benchmark Margaret River as a sustainable energy use tourist destination and will become the second largest solar/wind installation throughout Western Australia.

The Shire's solar panel installation will be a significant project for the community and other Councils and will help in the campaign against climate change.

Since the hybrid system was installed the Council has received an increase in applications for wind turbines and solar panel systems in both residential and rural areas.



amrsc.wa.gov.au

## Discuss the impact on community behaviour.

Margaret River is known as one of the biodiversity hotspots of Australia and places a strong significance on protecting the environment.

The objective of the project is to educate the community and develop an iconic image which promotes Margaret River as a sustainable energy use tourist destination.

The installation has been located alongside a main travel/tourist route and aims to encourage the use of renewable technologies and solar passive design for both the community and visitors alike. The installation is an icon of sustainability and is well suited to this region.

An interactive sustainability display including visual display has been set up inside the Recreation Centre complex and is set to include an LCD screen and website links to highlight energy generation from the renewable energy installation and a series of community sustainability workshops have been organised to mark the achievements of the project. These workshops will feature the benefits of adopting renewable energy and will look at ways the community can reduce energy use and create solar passive homes and workplaces.

The interactive sustainability display will comprise of the following:

### Real Time Visual Display

Real-time visual display of energy generation and energy consumption for the Recreation Centre would operate from the data interface of the solar array and would include the following equipment:

- 42" flat panel x 3;
- Computer system to host the display software;
- AC monitoring equipment;
- Associated interfaces and software; and
- Internet site for schools, visitors etc.

### Demonstration Models

A set of desktop demonstration models for solar and wind energy generation would consist of the following equipment:

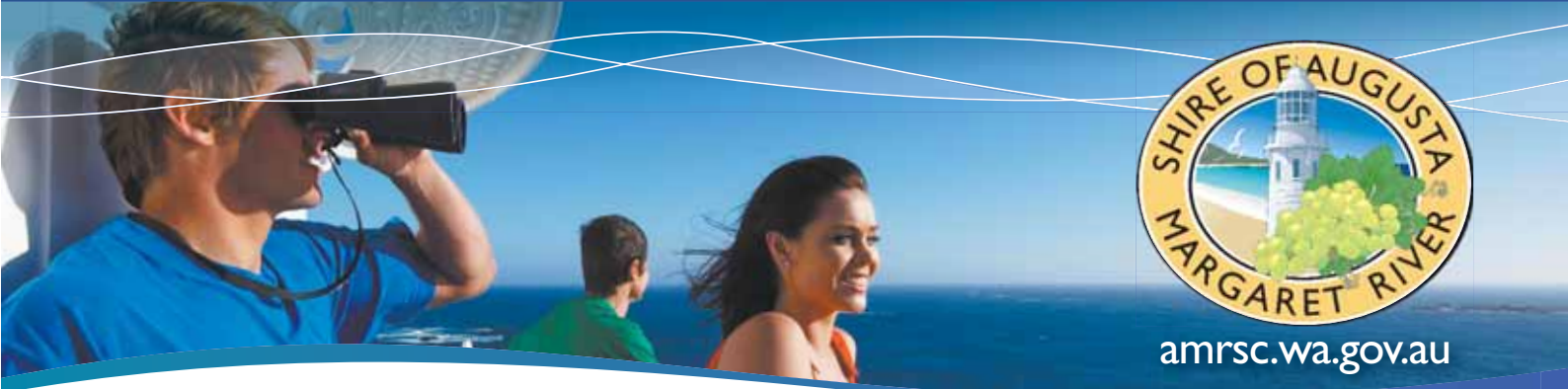
- 100 Watt solar panel;
- Lamp;
- Small wind turbine;
- Fan;
- Enclosure;
- Bicycle generator;
- Energy efficient lighting; and
- Other models TBD.

### Educational Materials

A set of approximately 10 educational materials that outline:

- Climate Change;
- Existing generation (coal / gas) and transmission networks;
- Solar energy – basic business case that addresses existing rebates;
- Wind energy;
- Tidal energy;
- Geothermal energy;
- Building energy efficient homes;
- Solar water heating;
- Energy efficient lighting and appliances; and
- Running an energy efficient house.

The overriding principle of the project is to promote the triple bottom line; socially, economically and environmentally sensible and sustainable design elements.



[amrsc.wa.gov.au](http://amrsc.wa.gov.au)

## Describe the management structure and processes including leadership and team skills that lead to the initiative's successful outcome.

The project, an initiative of Shire officers and the Sustainability Advisory Committee (SAC), was a great step forward for the Shire in using and promoting renewable energy sources in the South West region.

The Sustainability Advisory Committee established in 2007 aims to promote sustainable environmental practices. The committee advises Council and its officers on how to encourage more sustainable practices from residents and businesses and sources sustainable energy reduction projects.

The project concept originated in early 2008 and derived from the Sustainability Advisory Committee. On 29 November 2007, SAC committee provided the following comments:

*"We need to develop a community project which includes energy conservation and power generation. It is vital that Council engage with the community and promote an example of sustainability. There is a responsibility to do this not just for our Shire but for the entire State."*

A report was taken to Council 14 May 2008, requesting support for continued development of the project. A tender request was advertised in local and State wide newspapers during July/August 2008 to all interested solar companies. Community members from the SAC group developed a strong business case for the project and Council were in full support of the project.

### **The purpose of the Sustainability Advisory Committee (SAC) is to:**

1. Promote sustainable environmental practices within the Shire of Augusta Margaret River and across the community; advise Council officers and Council how to increase community engagement with sustainable environmental practice.

2. To provide a forum for community representatives, councillors and council officers to focus on sustainability issues.

### **The objectives of SAC are to:**

1. To advise the Shire of Augusta Margaret River officers and Council on sustainable environmental issues including:

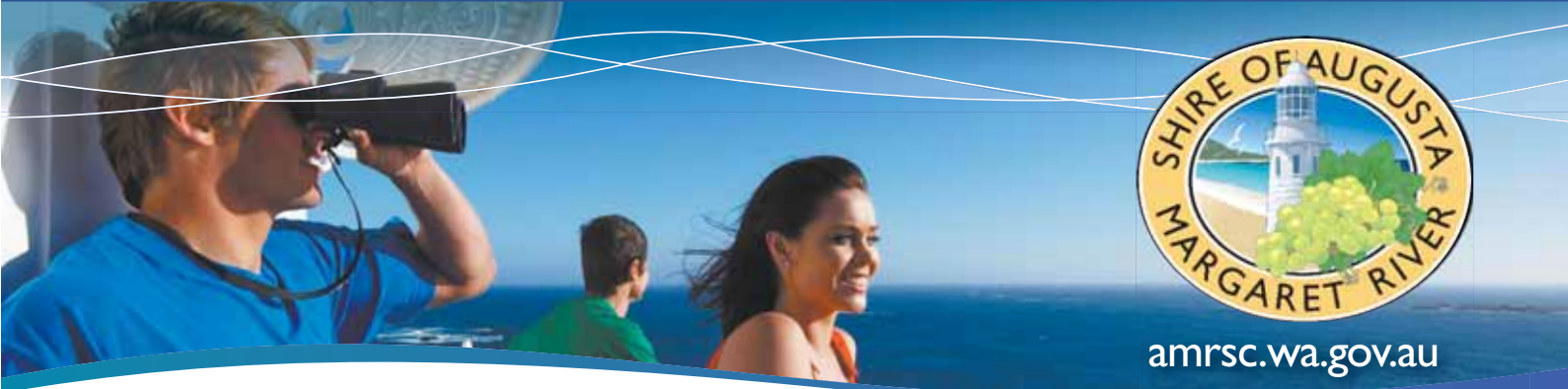
- Air quality;
- Biodiversity;
- The built environment;
- Community engagement;
- Land degradation;
- Transport;
- Water;
- Waste management.

2. To identify strategies which increase real and sustainable behaviour change in residents, businesses and other members of the community (including tourists) to improve environmental outcomes.

3. To recommend to the Shire of Augusta Margaret River Council on policy, advice and appropriate courses of action which promote sustainability which is (1) environmentally responsible, (2) socially sound and (3) economically viable.

SAC is made up of community members with an interest and expertise in sustainable building design, engineers, architects and environmental champions, appointed by the Council following public advertisement.

The Margaret River Climate Action Group (MRCAG) has also supported the project. The following extract is a submission of support from MRCAG for the renewable energy installation and the new interactive sustainability display:



amrsc.wa.gov.au

*Margaret River Climate Action Group (MRCAG) is a community based group that promotes a low carbon future to reduce the risk of irreversible climate change. MRCAG is working with the Augusta-Margaret River Shire (AMRSC) to raise community awareness of renewable energy and the benefits of energy efficiency as well as arrange of other carbon reduction initiatives.*

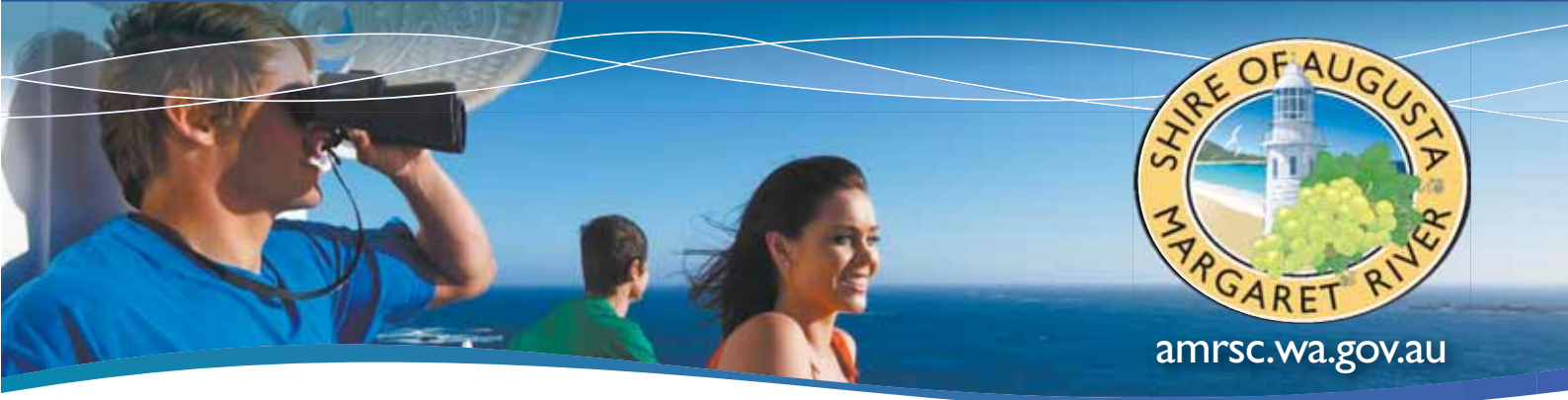
*MRCAG supports the AMRSC application for a SEDO RREP Grant and community grant to build an energy information centre adjacent to the recently completed wind-solar renewable energy facility. MRCAG has purchased several energy meters for home use – these will be loaned to residents and it is anticipated that they will be made*

*available through the planned energy information centre.*

*AMRSC has demonstrated a strong commitment to promoting renewable energy by investing \$69,000 in a hybrid wind-solar system with support from SEDO through the RREP programme. MRCAG aims to build on this investment by contributing to the creation and running of the energy information centre. We believe a subsequent community grant from SEDO will enable AMRSC to reach a wider community audience with a compelling mix of technology demonstration; education and information resources to help households and business understand the costs and long term economic and environmental benefits of renewable energy.*



**The 1 kw wind turbine (Zephyr) is the first of its type to be installed in the Southern hemisphere**



amrsc.wa.gov.au

### Source of initiative funding:

The total cost of the project was \$182,850 (exc. GST). The Shire generated \$22,425 in Renewable Energy Certificates (REC's) from the installation and were approved a 50% grant under the Rural Renewable Energy Program (RREP) of \$91,425 from Sustainability Energy Development Office (SEDO).

Council approved \$69,000 funding separate to the SEDO 50 percent grant and the project was adopted

7-0 by Council.

Council appointed solar company Swan Energy to install the system. The Shire met several times with Swan Energy and managed to agree upon a final design for the installation; one that was structurally sound and visually dominant. The Recreation Centre has been generating renewable energy from the wind and sun since completion date, June 2009.

### Clarify if voluntary or paid involvement for individual/team involved:

Voluntary involvement by members of the Shire's Sustainability Advisory Committee and Councillors.

Shire staff member Sustainability/Planning Officer Jared Drummond was the project manager.



amrsc.wa.gov.au

## Summarise achievements - past, current and future:

The major innovations and environmental outcomes include:

- The use of both solar and wind power generation means that power will be generated 24 hours per day.
- The wind turbine is more advanced than other domestic wind turbines. It has a tail that picks up wind from any direction and generates between 1-3 kw/h.
- The system uses large 7.3 kw inverters: this means that the system will run more efficiently than standard systems found elsewhere.
- The angle of solar panels has been tilted to achieve optimum levels of panel efficiency. The panels follow the curve of the roof and look aesthetically pleasing.
- The system is recognised as the largest non commercial hybrid renewable energy in Western Australia and features top quality solar panels from Germany, Zephyr wind turbine from Japan (first installation in the Southern hemisphere) and a new product LED streetlight (first of its type in Australia).
- The Recreation Centre generates over 500 tonnes of CO<sub>2</sub> per annum. The installation will generate approximately 8% renewable energy and may deliver close to 10% following an inventory review of large energy components at the Recreation Centre (i.e. heat pumps, air conditioners, pool etc.) The system will reduce 37 tonnes of CO<sub>2</sub> gas carbon emissions from entering the atmosphere each year. It is estimated that the combined solar/wind energy will reduce carbon emissions by an equivalent of 124 hectares of forest absorbing carbon.
- Financial returns of between \$80,000 and \$1,000,000.
- Carbon offset for 1.5% of AMRSC power use.
- Raises community awareness of renewable energy.
- Promotes the use of renewable energy within the Shire.
- Education resource for community groups and schools.
- The project creates an iconic image to draw more tourism to the region.
- The hybrid installation can be seen as the benchmark for renewable energy in to the future. The installation has sparked interest within the renewable energy market and companies are now basing installations off the Margaret River model.
- The project has a positive business case. The renewable energy system will reduce energy bills by approximately 10% per annum which is an annual savings of approximately \$10,000 per annum. With electricity prices set to soar, the Council are set to save a significant amount of money on energy bills over a 25 year plus period.



**Augusta-Margaret River Shire CEO Gary Evershed, James Rhee from Swan Energy and Sustainability/ Planning Officer Jared Drummond display an LED Light.**