STANWELL CORPORATION LIMITED

MEDIA RELEASE

Renewable energy to power up the outback

Stanwell Corporation Ltd has invested in the development of the first-ever experimental solar power station to provide clean, green renewable energy to outback Queensland.

With 2002 coined “The Year of the Outback” tourism initiatives are focussing attention on Australia's outback, helping to preserve a romanticised notion of outback life.

But in reality many remote communities must do without everyday amenities that city dwellers take for granted, such as mains electricity. In Western Queensland alone there are more than 25 towns that rely solely on diesel generators for their electricity supply.

The **Stanwell Solar Concentrator Project** is addressing this situation by building an innovative solar thermal power station. If the project is successful, remote towns and settlements could easily replace or reduce their fossil fuel use with renewable solar energy. In turn this reduces greenhouse gas emissions and contributes to the two percent renewable energy target set by the Federal Government.

“The major advantage of the solar concentrator is that there are zero emissions – there’s no pollution in the air, waterways or ground water,” says Des Covey, Stanwell’s Solar Concentrator Project Manager.

Stanwell’s Solar Concentrator located outside Rockhampton in Northern Queensland.

As the first stage of the project, Stanwell Corporation, with financial assistance from the **Queensland Sustainable Energy Innovation Fund**, has already built and tested a solar concentrator at Stanwell Power Station, near Rockhampton.

The concentrator uses a striking sloping parabolic trough solar collector, with an array of 16 flexible mirrors fitted to a steel frame. It concentrates relatively diffuse solar energy, which is focussed onto a collector tube, producing high temperature, high-pressure steam for electricity generation. Operation is fully automatic with electronic control circuits tracking the sun and adjusting the orientation of the mirrors.

Unlike other solar thermal power generators, the concentrator does not use a synthetic oil filled energy transfer system. Its energy transfer medium is water and steam, which avoids the environmental and fire hazards posed by synthetic oils.

The concentrator can generate steam at pressures up to 5,000 kilopascals (50 atmospheres). Covey and his team have also gathered valuable information on the effects of humidity and cloud on performance, improved techniques for attaching the mirrors to the steel frame, heat loss and maximum collector temperatures.

But there's still much to be discovered. "We're learning as we go. At the moment, we're finding out about mirror degradation and breakages," says Covey.

Stanwell's solar technicians are now refining the system to increase the collection efficiency and thus improve the cost effectiveness. Currently the concentrator can covert 30 per cent of the sun's energy to electricity, but the goal is 50 or 60 per cent. If cost efficiency can be improved, stand-alone power stations, comprising 100 solar concentrators, could be built to power remote settlements.

Ideally, a town's entire electricity supply would come entirely from solar power. However, a likely configuration is a hybrid power station, producing electricity from solar energy on sunny days and using conventional fossil fuel, such as LPG, to generate steam during cloudy days and nights.

For towns connected to Queensland's power grid, solar power generation could ensure stability of supply during peak demand periods on hot sunny days, when large amounts of power are used for refrigeration and air conditioning.

This project may signal an end to the energy hardships faced by many remote Queensland communities. Their abundant outback sun may provide all the power they need.

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