

Development of Low Cost Solar Air Conditioning

Over the past years Endless Solar Corporation Ltd has built its reputation supplying high quality solar hot water products using Evacuated Tube technology. Endless Solar designs and sells high performance, cost effective solar thermal products to suit the needs of a range of customers including industrial and commercial. The company started with a group of residential products and has energy modelling capabilities (using TRNSYS), along with research and development activities.

Recently, Endless Solar received an offer of funding from the Australian Federal Government under the Climate Ready Program. This funding has been offered by AusIndustry to assist the company to develop a solar-driven air conditioning design. The goal of the research is to develop a prototype that will also provide solar heated potable water and solar driven space heating. The end product is expected to address the effects of climate change by reducing the electrical power required for household cooling and heating.

AusIndustry is part of The Department of Innovation, Industry, Science and Research. Their website states that: "The Climate Ready program (\$75m over 4 years) is a competitive grants program providing grants from \$50,000 up to \$5m on a matching funding basis to support research and development, proof-of-concept and early-stage commercialisation activities to develop solutions to climate change challenges." AusIndustry has accepted that the plans put forward by Endless Solar have the potential to provide significant national benefits to Australia. These include:

- Reducing greenhouse gas emissions resulting from the generation of electricity used to drive cooling and heating devices
- Reduced peak loading on electricity grids, with the potential for improved utilisation of investment in grid capacity
- The use of more environmentally friendly refrigerants
- The opportunity for Australia to take a leadership position in solar air conditioning with possible licensing, knowledge transfer and export
- Roll out of new skills into Australia's existing trades



- Providing a way for individuals to reduce their community's carbon footprint by using a reliable, long life, low energy, source of thermal comfort

To achieve these goals Endless Solar has signed a research services agreement with The Australian National University (ANU) – one of Australia's most respected research universities. ANU is pre-eminent in the field of solar research, and the main objective of this project is to develop an effective, low cost, working prototype that can be quickly put into production. Both Endless Solar and ANU have high hopes for the outcomes of this joint research and development project.

The greenhouse gas emissions linked to air conditioning are growing rapidly. It is estimated that around 7% of Australia's total greenhouse gas emissions come from producing the electricity that is needed to drive our nation's air conditioners. Approximately 1 million split-system air conditioners are sold every year in Australia alone, with an installed base of over 6 million units. Air conditioning is responsible for most of the peak loading of electricity grids. The cost of building generation and electricity grid infrastructure to meet demand at the peaks (for example on hot summer afternoons) is huge.

Once the designs have been proven and products produced, the main outcomes of this Endless Solar/ANU project will be:

- Significant cost savings for households
- Major capacity management benefits to energy providers
- Large reductions in greenhouse gas emissions
- Integration of several Australian inventions into a world-leading product
- New opportunities for Australia's plumbing, HVAC and associated industries
- Further spinoff technology and applications

Endless Solar is optimistic about the potential of this research and development project and has plans to leverage its reputation for solar expertise and customer service and to rapidly build distribution channels for these anticipated new products. Endless Solar is growing rapidly and has plans to list on an Australian stock exchange in the next few months.



For more information contact: Stephen Standish, Managing Director
Endless Solar Corporation Limited
P: 02 9281 5526
www.endless-solar.com.au