

Liquid Solar Array Power Generator - LSA

-A Synergy of Sun, Sand and Water-

- The LSA is a simple but revolutionary solar technology that has the potential to produce electricity at costs comparable to fossil fuel generators.
- It is a new way to combine several existing technologies, which is likely to reduce the cost of raw solar electricity in the short term by a factor of four (from the present US\$5/W to US\$1.30/W or A\$7/W to A\$1.70/W), and in the longer term by a factor of eight (in the best locations) to under US\$0.60/W. This corresponds to about 3 US cents / kWhr.
- The LSA system is based on floating solar collectors made mostly of plastic. Each has a very small area of silicon photovoltaic cells at the water surface with a large, thin plastic focussing lens rotating slowly above to track the sun. The water cools the silicon cells, and in bad weather the lens is protected by rotating it fully under the water to avoid damage in high winds.

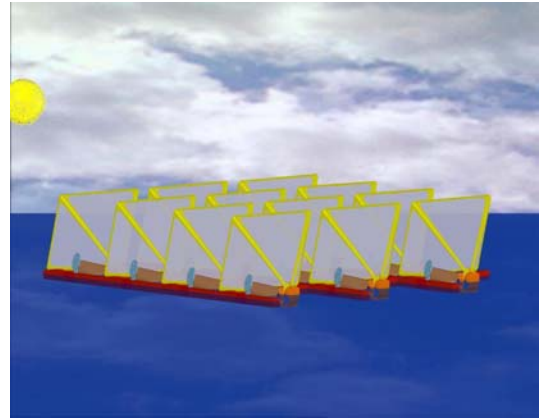
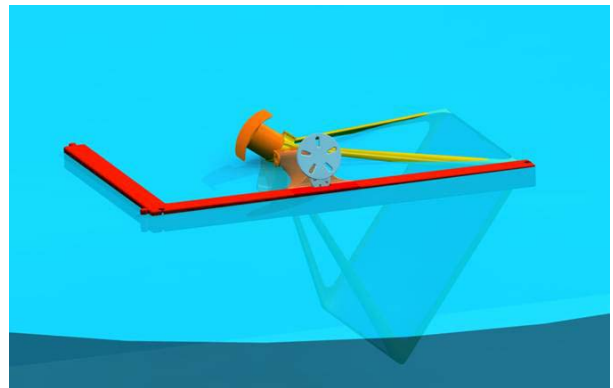
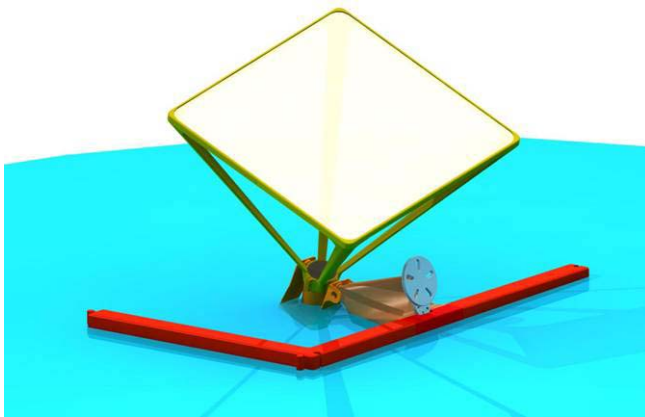


Figure 1 - The LSA System floating solar collector module – operating & protected.



- Almost all the structure is low-mass plastic so costs per square metre are extremely low.
- The fundamental feature is that the energy is collected using a thin sheet of plastic rather than the large area of silicon and glass required in conventional photovoltaic systems.
- The large lens can be as little as two millimetres thick but still survive winds over 100mph, because of its' unique method of weather protection, using water as part of the structure.
- The lens is coated with a special self-cleaning surface, which allows clearing of any dust or salt deposited on the lens during operation by simply rotating the lens via its' sun-tracking mechanism to dip it into the water.
- The system tracks the sun with high efficiency cells, so it produces more power from a given area than conventional flat PV systems, and this power is more uniform over the day.
- A proof-of-concept working model & 3D computer design have demonstrated the practicality of the LSA system.
- All the major specialised components required are available off-the-shelf now, most at mass production levels, so commercial sales could begin in one to three years.
- The LSA system is best suited to large-scale distributed electricity generation in sunny areas where suitable bodies of water are available (or can be constructed). This includes a multitude of coastal areas, reservoirs and lakes within 40 degrees of the equator.
- The LSA achieves economical simplicity of structure, cooling and cleaning through an aquatic situation.
- The estimated system embodied energy payback period is around 15 months.
- The concepts are patented (AU2004243336).

See WWW.Sunengy.com for details. (Sunengy Pty. Ltd. ACN 116 625 600) 20/6/06