SUNENGY

Affordable Solar Power

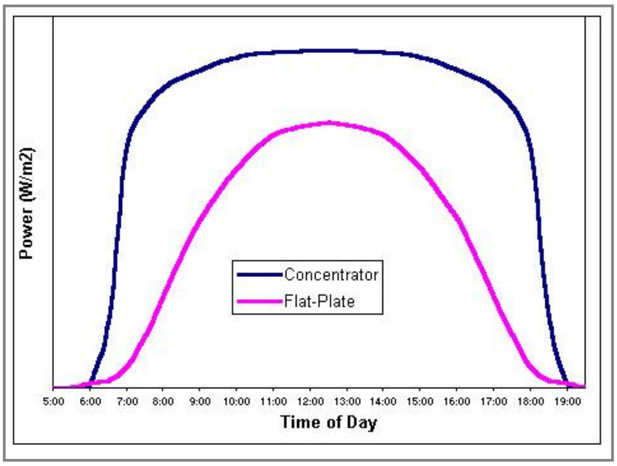
LSA TECHNOLOGY

LSA utilises well established solar and structural component technologies that have current and proven market reliability i.e. all technologies used are not revolutionary but evolutionary. It is LSA's application of these technologies in water that is unique and patented. LSA is a new PV concentrator using relatively lightweight plastic concentrators that float on water, mounted on anchored rafts. A thin plastic focusing concentrator lens rotates slowly to track the sun both daily and seasonally. A minimal amount of silicon photovoltaic cells are housed in a PV container that sits in the water where the cells are kept cool and efficient, through convective heat flow to the surrounding water. In bad weather the lens is protected by rotating it under the water to avoid damage in high winds, so the water becomes the vital structural component, cooler and protector. It is these applications of the water that are the basis for IP protection. The key feature of the LSA is its very low usage of materials and the simplicity of the materials used. Any further improvements in solar energy converter technology can be leveraged to reduce the LSA's cost per watt.

LSA is not bound by any particular solar technology and could potentially be applied not only to generating electricity, but other energy systems as well.

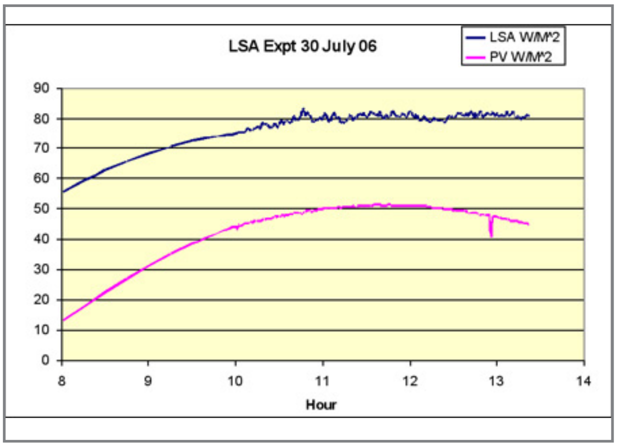
Limitations of conventional solar technology: High structural cost per watt of traditional solar power systems and available supply of silicon for the photovoltaic cells has limited its widespread acceptance.

Superiority over other solar technologies: LSA is a solar concentrator with medium to high efficiency; reduced structural cost through the use of water; lower silicon cost by using concentrators and eliminating overheating through the dual use of water.



Experiment results (as reflected in the two graphs right) comparing flat plate photovoltaic system (pink line) and a LSA system that tracks the sun (blue line).There is significant difference in power produced and longer peak power output.

Daily/seasonally tracking improves the efficiency and provides more peak hours of solar energy generation compared to flat plate PV cells

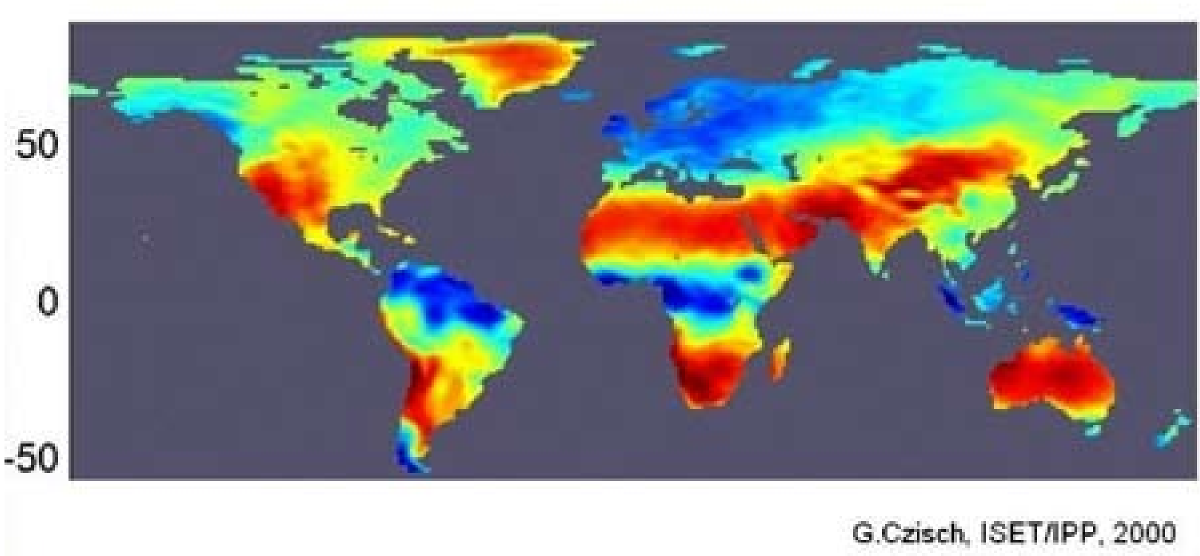


Structural advantage: The structure can be made from very light-weight, durable and inexpensive components that are widely available. One can expect lower maintenance as the unit is protected from extreme weather forces. Minimal land & setup cost and minimal mass, 12-14 kg per sq. m of collector. The process gives good efficiency and near constant output all day. Being modular, LSA is scalable from 1kW to Giga-watts. The use of small quantities of silicon implies rapid deployment of large capacity at lower cost.

Installation locations: LSA units can be commissioned on protected waterways from high scale hydropower dams or mine pits to low scale village dams or ponds (as illustrated below). The water can be fresh, salt or slightly caustic; LSA installations reduce evaporation and there is no toxicity in materials used. Best cost efficiency is achieved in areas that have from 2,000 hours of bright sunlight per year.



Regions from yellow (2,000hrs) through to dark red (3,500hrs) have ideal sunlight conditions.



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Development Process

Stage 1: Design, Prototypes & IP Protection - **Completed**

- Development of LSA technology to establish its feasibility and potential positioning in the renewable energy marketplace
- To construct and test prototype components of the LSA
- To source funding to protect LSA intellectual property
- International patent approvals progressively being granted.

Stage 2: Pilot Site Development – **Commenced** - Timeframe 6 months

- Build 3x.28 scale, lightweight prototypes for testing - **Completed**
- Establish an Advisory Board - **Completed**
- Further modeling to build 130x full size, 100+ watt units in arrays and rafting for testing and demonstration.
- Resource pilot site in Australia and overseas.

Stage 3: Technical and Commercial Development - Timeframe 12 months

- R&D facility, engage PV & Mechanical/Marine engineers, technicians and consultants in CAD, plastics, logistics, manufacture and HR
- Upgrade existing and/or further units to higher output
- Engage licensed partners in component manufacture and distribution.
- Pre-production modeling and materials selection.
- Finalise design detail

Stage 4: Production & Commercialisation - Timeframe 6 months

- Construct tooling for mass production component manufacture being retained assets (budget to be negotiated and potentially partially amortised with component manufacturers)
- Carry out small volume production run of 1,000 units
- Testing and re-work
- IEC62108 approval

The evolution of prototypes from small handheld, large stationary, stepper model, .28 scale model to the .16 scale SLS initial plastic design.