

TECHNOLOGY DEVELOPMENT PROJECT FACT SHEET

RT003: Amonix HCPV Technology

The Amonix High Concentration Photovoltaic (HCPV) system makes use of low cost acrylic plastic lenses to harvest solar energy over a large area and concentrate that energy onto small photovoltaic cells which convert the solar energy into electricity.

In the current design, parquets of 24 acrylic Fresnel lenses concentrate

solar energy 250 times onto high quality silicon solar cells placed at the focus of each lens. A Megamodule™ consisting of 48 of these lens parquets can produce approximately 5.6kWdc of electric power.

The 250 X concentration results in each Megamodule™ using only 1/250 of the area of high cost silicon cell material that would be required in a "flat plate" PV system of the same power output. This HCPV technology, therefore, holds the potential to be one of the lowest cost methods of photovoltaic, sunlight to electricity, conversion technologies available today.

Up to 7 Megamodules™ can be assembled onto a tracking system array, which uses azimuth and elevation motion hydraulic rams to continuously point the whole array in the direction of the sun. As the sun tracks across the daytime sky at a rate of approximately 1 degree every 4 minutes, a computer and solar tracking device cause the array to follow the sun to ensure that the maximum output of energy is obtained from the array.

The picture above shows a 7 Megamodule™ , 39 kWdc array at the APS STAR facility in Tempe, Arizona.

