

## **Solar: New Revolution in the Solar Panel**



One of the limitations of solar photovoltaic systems is that, a

t the current state of the technology, no more than a quarter of the energy from the sun is converted to electric current. Most of the rest of the energy is lost as waste heat. Doubling the Current Production? This is possible?

### **Doubling the Current Production? This is possible**

Vinod Khosla, the founder of Sun Microsystems and now a technology entrepreneur and alternative-energy venture capitalist, says he found a solution that doubles or even triples the energy yield a gargantuan leap in a field where engineers exult over the most incremental gains.

Mr. Khosla is funding a company called PVT Solar, of Berkeley, Calif, where engineers two years ago began trying to harness that wasted heat. In a sense, it was already being collected, either in the solar modules themselves, or underneath. (Solar arrays are often installed at an angle, to face the sun, thus creating a wedge-shaped space below for heat to collect.)

PVT's founders decided the heat could be harnessed and pumped into the home for climate control, water heating, and other uses. It is a sort of combined-cycle for solar "a marriage of solar photovoltaic technology and solar thermal systems, which gather the sun" energy in the form of heat.

The company is currently testing electronic controllers that play traffic cop for the collected heat, pumping it automatically, using a small fan, to the basement hot-water heater, for example, or to individual rooms, or even to the swimming pool, as needs arise. If the heat is not needed in the building, the fan vents it to the outside.

Because solar panels perform better at cooler temperatures, removing heat from around the panels also has the effect of increasing their production on hot days " adding to the overall

efficiency gains for the system.

And given that the system requires little or no additional infrastructure, it can be deployed with only a small amount of added cost.

The company, which remains skittish about sharing details, is still making refinements, including the possible placement of stones beneath the panels, if rooftops can support them. Stones, the engineers reckon, could absorb the heat and act as storage devices.

Gordon Handelsman, president of the company, said that he has installed “more than ten and less than 20m<sup>2</sup> PVT systems at this stage, though he was so apprehensive about the company’s intellectual property that he took down his Web site after receiving a call from this reporter.

“We make around 100 percent more energy than a regular PV system,” he said.

For his part, Mr. Khosla said that making use of the otherwise wasted heat can boost total system efficiency to over 50 percent. “Now the economics make sense,” he said

Mr. Vino Khosla