



**Fig 1.26 1983 AD, One million watts of P.V**  
ARCO Solar's "Hesperia" plant in southern California. An impressive milestone in the development of large scale photo-voltaic power stations.

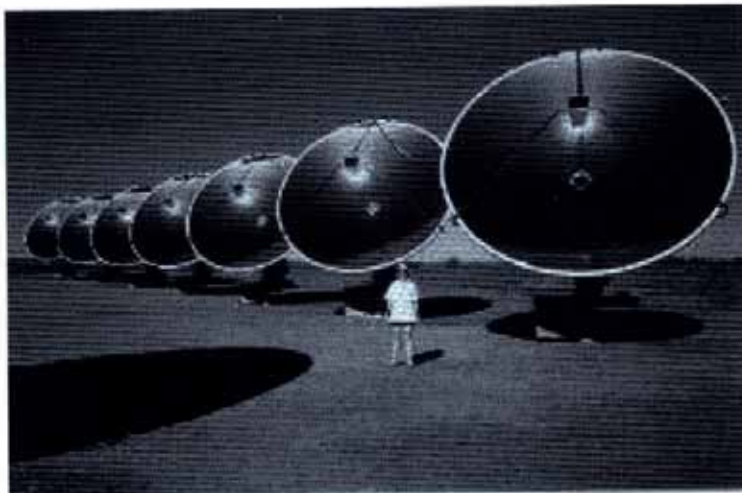
All of these installations built in the early 1980's were pilot plants, partially funded by federal tax credits, to prove the concept of grid connected solar power stations, and, to separate science fiction from science fact. All were considered a success, even though they could not compete with fossil fuels in a strictly commercial sense at this stage. They were the prototypes for much larger and efficient installations around the world in the following years, as the true value of an unlimited, pollution free, energy resource became appreciated. and quantified, in the age of "greenhouse" and global warming. Solar power had arrived, and this time, there would be no turning back!

The early 1980's also heralded the dawn of solar electricity for use in remote area power systems for domestic homestead power, farm water pumping , communications and a myriad of small stand alone power supply applications from marine beacons and railway signals, to electric fence energisers. Anywhere that a device had to work reliably, away from the electricity grid, photo-voltaic power had become the preferred choice, and the volume of cells used on Earth now far outstripped the quantities used in the space programme.

In 1982, Solarex (owned by AMOCO, the American Oil Corp) switched over from mono-crystal to poly-crystal cells in their solar panels, claiming substantial savings in manufacturing inputs. This did not seem to

reduce prices to consumers. Soon after, British Petroleum decided to jump on the solar bandwagon . In 1984 they bought the assets of Tideland Signal Corp of Houston, Texas. In doing so, B.P inherited a number of plants around the world (including Brookvale in Sydney) making mono-crystal cells and solar panels, and hey presto, B.P Solar ! Throughout the 80's the American Oil Corp and British petroleum played puppeteers, dominating solar cell production and marketing through their front companies Solarex and B.P Solar. Many analysts feel this has had a detrimental effect on the advancement of solar power over the past 20 years, with these two major players conveniently setting the de-facto price at \$10 per peak watt of generating capacity.

In Australia, a unique solar power station was built at White Cliffs in 1983. Funded by the Australian national University, this small (25Kw) but highly efficient plant, generated steam via fourteen 20sq metre parabolic concentrators, to run a modified 3 cylinder diesel engine. (thats right, a steam driven diesel engine ! ) The design aim was to develop a high tech solar plant using recycled, low tech components that could be duplicated and maintained by third world personnel.



**Fig 1.27 White Cliffs solar / thermal plant**  
*Parabolic concentrator type , solar steam engine, provided power for the small, opal mining town of White Cliffs NSW*