FREE ENERGY EUROPE

TESTS: HIGHER YIELDS WITH AMORPHOUS SILICON

RESEARCH:

Independent research by ECN, Petten the Netherlands on a Novem contract.

Source: J.A. Eikelboom and M.J. Jansen, June 2000. *Characterization of PV Modules of New Generations - Results of tests and simulations* the Netherlands Energy Research Foundation, report ECN-C-00-067.

METHOD:

In 1999/2000, ECN tested PV modules of nine different types during indoor and outdoor measurements. From the measurements, the electrical and thermal properties of the modules were determined and the energy yield of these modules under typical Dutch meteorological circumstances was calculated. Note that the test sample is too small (2 panels of each type) to draw any definitive conclusions that go further than an indication.

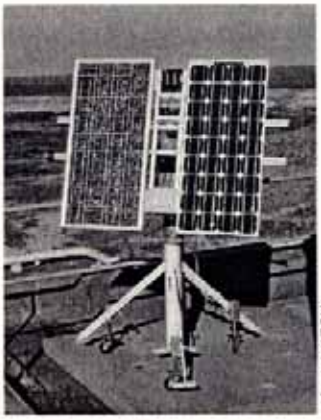

photo by ECN

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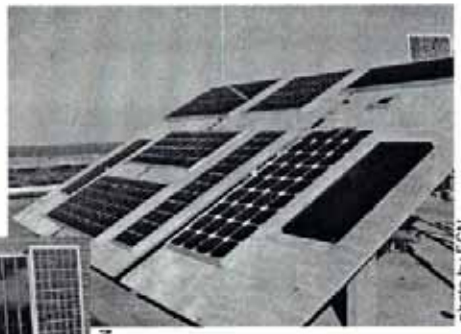

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RESULTS:

Manufacturer		DC yield kWh/kWp	AC yield kWh/kWp	AC yield kWh/m²	Performance ratio
UniSolar	(a-Si)	1164	1038	64	0.95
Free Energy	**(a-Si)**	**1084**	**961**	**40**	**0.88**
BP Solarex	(a-Si)	1001	888	47	0.81
BP Solarex	(mono-cSi)	977	868	117	0.80
ASE	(EFG-Si)	966	857	104	0.79
Kyocera	(multi-cSi)	964	856	105	0.79
Siemens	(mono-cSi)	963	855	110	0.79
Shell Solar	(multi-cSi)	961	853	90	0.78
Siemens	(CIS)	930	824	67	0.76

The table shows that amorphous silicon modules can be expected to produce more energy for the same amount of installed nominal peak-power. The expected annual energy production of 1 kilo-Watt-peak of FEE panels is over 12% higher than that of 1 kWp of the average crystalline silicon panels.