

SOLAR ENERGY IN TURKEY

SOLAR ENERGY POTENTIAL

Turkey is located in a relatively advantageous geographical position. The solar energy potential evaluations made by EIE, based on the data measured by the State Meteorological Services during 1966-1982 revealed :

- The annual average total insolation duration as 2640 hours (7,2 hours/day)
- Average annual solar radiation as 1311 kWh/m²-year (3,6 kWh/m²-day)

Monthly solar energy potential of Turkey is given in Table 1. Solar energy potential according to the geographical regions is given in Table 2.

However it has been recognized that the existing meteorological data is lower than the actual solar energy data of Turkey. EIE and DMI have been taking new measurements since 1992 to determine the more accurate solar energy data. Although the measurements have not been completed yet, the collected data indicates that the actual solar energy radiation values are 20-25% higher than the existing data.

A model was developed with the data from the 8 measurement stations of EIE and with the data from the DMI measurement stations. Accordingly, the solar radiation and insolation values are calculated for 57 cities of Turkey. The study is published as a report.

Table-1 Monthly Average Solar Potential of Turkey			
Source: General Directorate of EIE			
MONTHS	MONTHLY TOTAL SOLAR ENERGY		SUNSHINE DURATION
	(Kcal/cm²-month) (kWh/m²-month)		(hours /month)
January	4,45	51,75	103,0
February	5,44	63,27	115,0
March	8,31	96,65	165,0
April	10,51	122,23	197,0
May	13,23	153,86	273,0
June	14,51	168,75	325,0
July	15,08	175,38	365,0
August	13,62	158,40	343,0

September	10,60	123,28	280,0
October	7,73	89,90	214,0
November	5,23	60,82	157,0
December	4,03	46,87	103,0
TOTAL	112,74	1311	2640
AVERAGE	308,0 cal/cm ² -day	3,6 kWh/m ² -day	7,2 hours/day

Table-2 Regional Distribution of Solar Energy Potential of Turkey

Source: General Directorate of EIE

REGION	TOTAL SOLAR RADIATION (kWh/m ² -year)	SUNSHINE DURATION (hours/year)
Southeastern Anatolia	1460	2993
Mediterranean	1390	2956
East Anatolia	1365	2664
Central Anatolia	1314	2628
Aegean	1304	2738
Marmara	1168	2409
Black Sea	1120	1971