Performance of Grid-connected PV

PVGIS estimates of solar electricity generation

Location: 39°39'23" North, 2°54'1" East, Elevation: 85 m a.s.l.,
Solar radiation database used: PVGIS-classic

Nominal power of the PV system: 1.0 kW (crystalline silicon)
Estimated losses due to temperature: 10.7% (using local ambient temperature)
Estimated loss due to angular reflectance effects: 2.6%
Other losses (cables, inverter etc.): 25.0%
Combined PV system losses: 34.7%

	Fixed system: inclination=35 deg., orientation=0 deg. (Optimum at given orientation)			
Month	**Ed**	**Em**	**Hd**	**Hm**
Jan	2.34	72.6	3.40	105
Feb	2.66	74.4	3.90	109
Mar	3.31	103	4.96	154
Apr	3.60	108	5.49	165
May	3.86	120	5.99	186
Jun	3.94	118	6.22	186
Jul	3.98	123	6.35	197
Aug	3.84	119	6.14	190
Sep	3.52	106	5.54	166
Oct	3.08	95.6	4.75	147
Nov	2.35	70.5	3.50	105
Dec	2.15	66.7	3.12	96.9
Year	3.22	98.0	4.95	151
Total for year		1180		1810

	Vertical axis tracking system optimal inclination=53°			
Month	**Ed**	**Em**	**Hd**	**Hm**
Jan	2.84	88.2	4.15	129
Feb	3.21	90.0	4.74	133
Mar	4.11	127	6.14	190
Apr	4.63	139	6.99	210
May	5.20	161	7.96	247
Jun	5.40	162	8.38	251
Jul	5.43	168	8.52	264
Aug	5.03	156	7.93	246
Sep	4.46	134	6.96	209
Oct	3.83	119	5.92	183
Nov	2.86	85.7	4.28	128
Dec	2.62	81.3	3.83	119
Year	4.14	126	6.33	192
Total for year		1510		2310

	Inclined axis tracking system optimal inclination=36°			
Month	**Ed**	**Em**	**Hd**	**Hm**
Jan	2.76	85.5	4.00	124
Feb	3.19	89.4	4.69	131
Mar	4.16	129	6.21	193
Apr	4.70	141	7.12	214
May	5.23	162	8.02	249
Jun	5.38	161	8.36	251
Jul	5.44	169	8.56	265
Aug	5.10	158	8.07	250
Sep	4.53	136	7.08	212
Oct	3.84	119	5.92	184
Nov	2.80	84.0	4.16	125
Dec	2.52	78.3	3.66	113
Year	4.14	126	6.33	193
Total for year		1510		2310

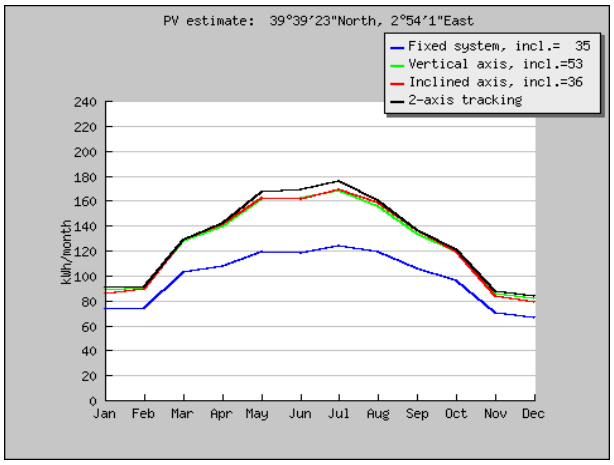
	2-axis tracking system			
Month	**Ed**	**Em**	**Hd**	**Hm**
Jan	2.92	90.4	4.27	132
Feb	3.26	91.2	4.81	135
Mar	4.16	129	6.23	193
Apr	4.73	142	7.18	215
May	5.39	167	8.31	257
Jun	5.65	169	8.82	265
Jul	5.66	176	8.94	277
Aug	5.17	160	8.19	254
Sep	4.53	136	7.09	213
Oct	3.89	121	6.02	186
Nov	2.92	87.5	4.38	131
Dec	2.70	83.8	3.96	123
Year	4.25	129	6.53	198
Total for year		1550		2380

Ed: Average daily electricity production from the given system (kWh)

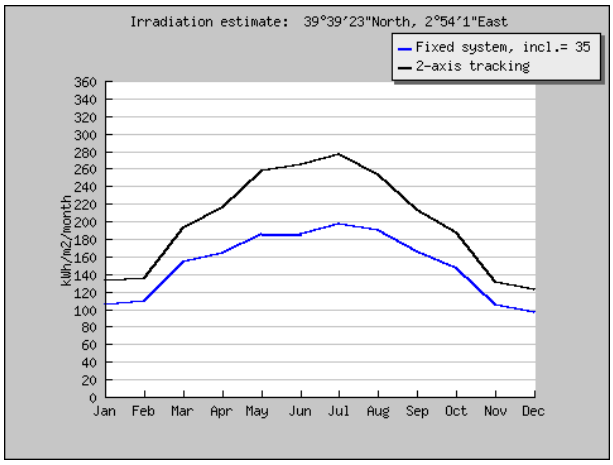
Em: Average monthly electricity production from the given system (kWh)

Hd: Average daily sum of global irradiation per square meter received by the modules of the given system (kWh/m2)

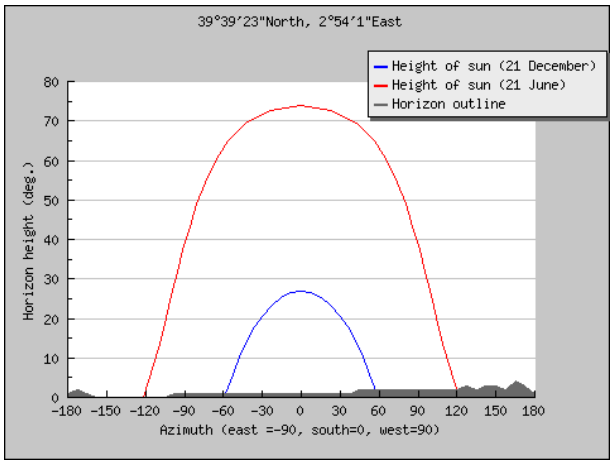
Hm: Average sum of global irradiation per square meter received by the modules of the given system (kWh/m2)



Monthly energy output from fixed-angle PV system



Monthly in-plane irradiation for fixed angle



Outline of horizon with sun path for winter and summer solstice