

Performance of Grid-connected PV

PVGIS estimates of solar electricity generation

Location: 45°0'41" North, 7°49'21" East, Elevation: 290 m a.s.l.,
 Nearest city: Chieri, Italy (0 km away)

Nominal power of the PV system: 1.0 kW (crystalline silicon)
 Estimated losses due to temperature: 7.8% (using local ambient temperature)
 Estimated loss due to angular reflectance effects: 2.6%
 Other losses (cables, inverter etc.): 14.0%
 Combined PV system losses: 24.4%

Fixed system: inclination=38 deg., orientation=0 deg. (Optimum at given orientation)				
Month	Ed	Em	Gd	Gm
Jan	2.36	73.0	2.88	89.3
Feb	2.58	72.2	3.20	89.7
Mar	3.60	112	4.58	142
Apr	3.74	112	4.82	145
May	3.82	118	5.03	156
Jun	4.26	128	5.69	171
Jul	4.53	140	6.10	189
Aug	4.37	135	5.89	183
Sep	3.93	118	5.17	155
Oct	2.98	92.4	3.83	119
Nov	2.26	67.8	2.82	84.5
Dec	1.96	60.8	2.40	74.5
Year	3.37	103	4.37	133

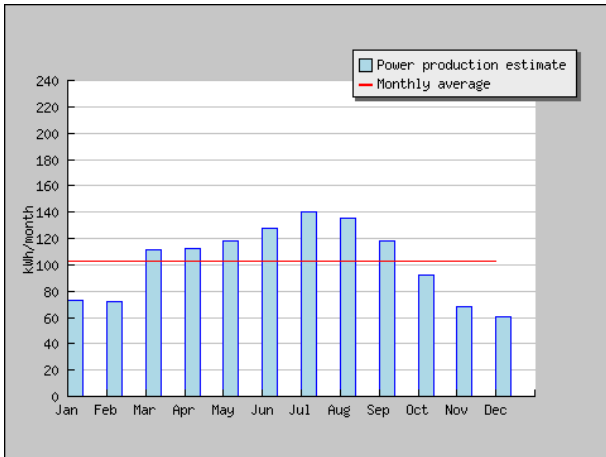
Ed: Average daily electricity production from the given system (kWh)

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

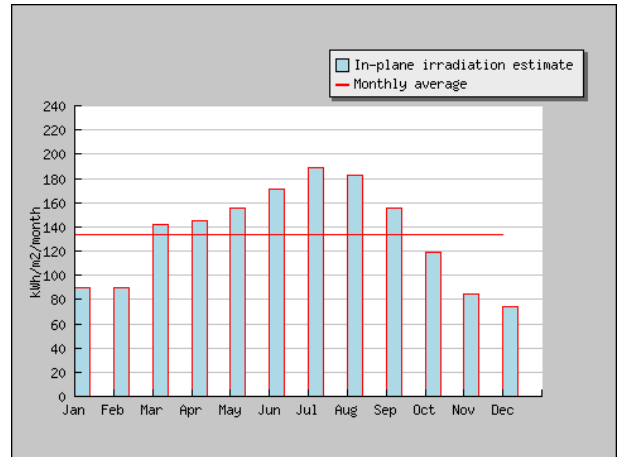
Gd: Average daily sum of global irradiation per square meter received by the modules of the given system (kWh/m2)

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

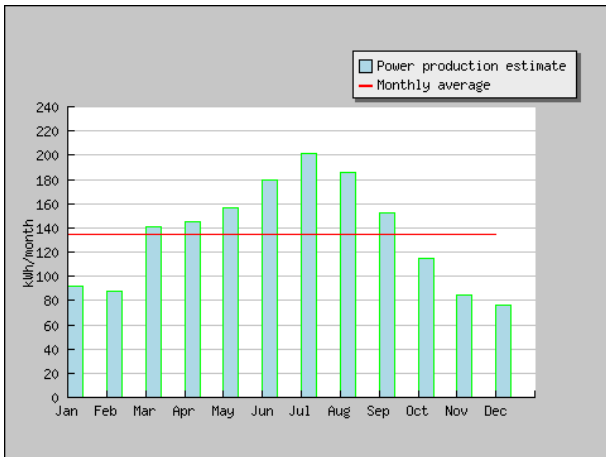
2-axis tracking system				
Month	Ed	Em	Gd	Gm
Jan	2.97	92.0	3.62	112
Feb	3.15	88.1	3.89	109
Mar	4.53	141	5.72	177
Apr	4.83	145	6.17	185
May	5.06	157	6.59	204
Jun	5.97	179	7.87	236
Jul	6.49	201	8.63	267
Aug	6.00	186	7.99	248
Sep	5.08	152	6.62	199
Oct	3.69	114	4.71	146
Nov	2.80	84.1	3.48	105
Dec	2.45	76.0	3.00	93.0
Year	4.42	135	5.70	173



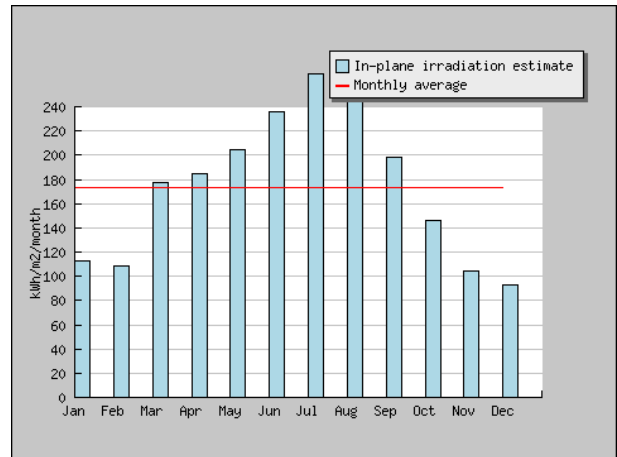
Monthly energy output from fixed-angle PV system



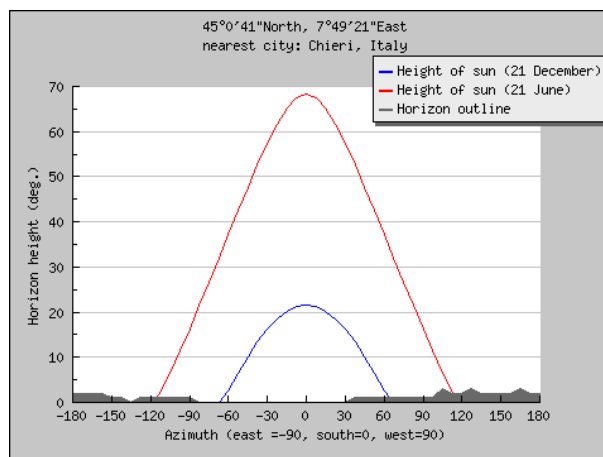
Monthly in-plane irradiation for fixed angle



Monthly energy output from 2-axis tracking system



Monthly in-plane irradiation for 2-axis tracking



Outline of horizon with sun path for winter and summer solstice

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