

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

Provided inputs:

Latitude/Longitude: 52.408, 16.930
Horizon: Calculated
Database used: PVGIS-CMSAF
PV technology: Crystalline silicon
PV installed: 6.46 kWp
System loss: 14 %

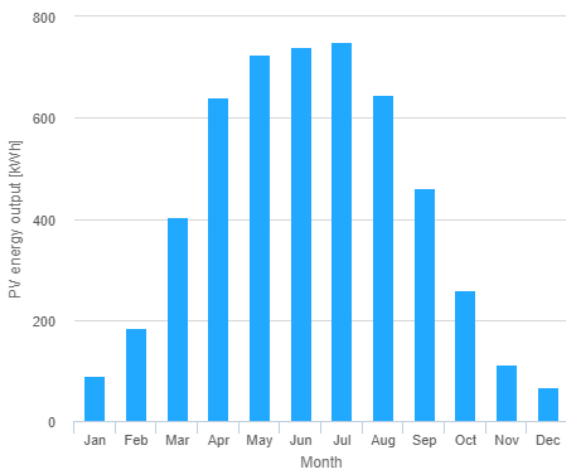
Simulation outputs

Slope angle: 35 °
Azimuth angle: 90 °
Yearly PV energy production: 5080 kWh
Yearly in-plane irradiation: 1030 kWh/m²
Year to year variability: 220.00 %
Changes in output due to:
Angle of incidence: -3.9 %
Spectral effects: 1.6 %
Temperature and low irradiance: -8.7 %
Total loss: -23.3 %

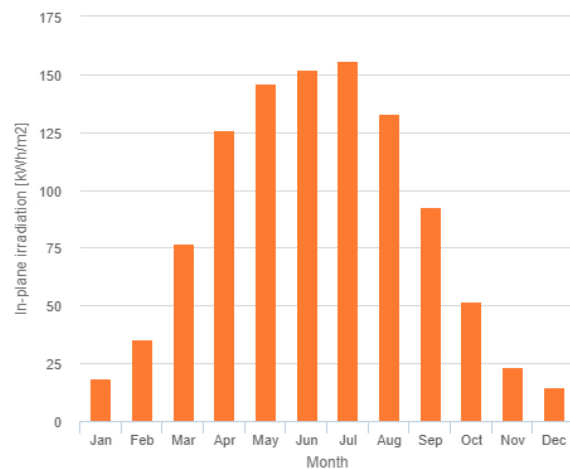
Outline of horizon at chosen location:



Monthly energy output from fix-angle PV system:



Monthly in-plane irradiation for fixed-angle:



Monthly PV energy and solar irradiation

Month	Em	Hm	SDm
January	89.1	18.4	9.52
February	185	35.2	40.1
March	403	76.9	54.3
April	641	126	91.4
May	726	146	83.4
June	741	152	50.6
July	751	156	69.7
August	646	133	53.2
September	462	92.7	50.8
October	259	51.6	42.7
November	113	23.4	27.2
December	67	14.7	10.7

Em: Average monthly electricity production from the given system [kWh].

Hm: Average monthly sum of global irradiation per square meter received by the modules of the given system [kWh/m²].

SDm: Standard deviation of the monthly electricity production due to year-to-year variation [kWh].