

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: 7.82 kWp
System loss: 14 %

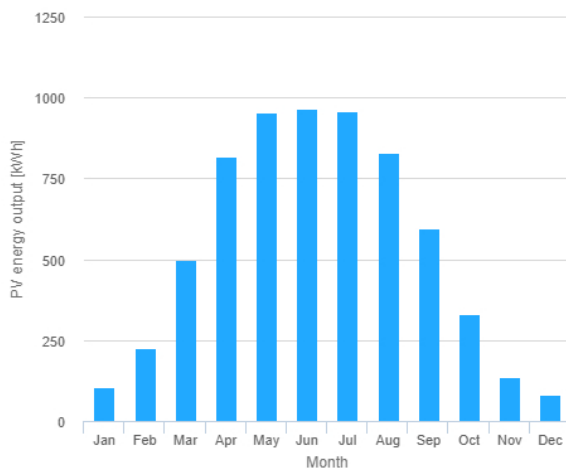
Simulation outputs

Slope angle: 35 °
Azimuth angle: -90 °
Yearly PV energy production: 6500 kWh
Yearly in-plane irradiation: 1070 kWh/m²
Year to year variability: 232.00 %
Changes in output due to:
Angle of incidence: -3.6 %
Spectral effects: 1.6 %
Temperature and low irradiance: -8 %
Total loss: -22.5 %

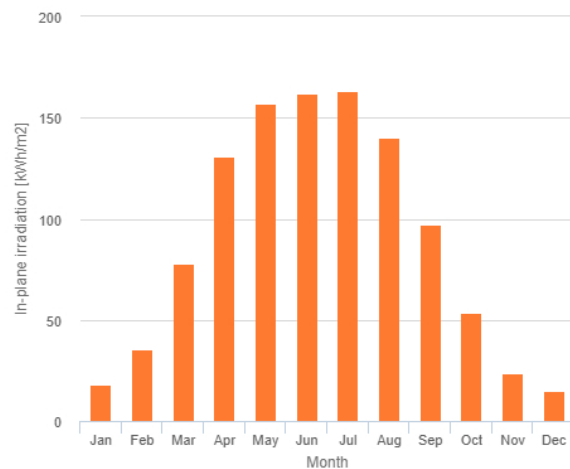
Outline of horizon at chosen location:



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	107	18.2	10.7
February	227	35.5	51
March	497	77.7	59.3
April	817	131	89.4
May	953	157	125
June	964	162	85.5
July	959	163	113
August	831	140	60.5
September	596	97.4	53.9
October	331	53.6	55.9
November	138	23.5	31.5
December	82.9	14.8	13.9

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].