

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: 9.86 kWp
System loss: 14 %

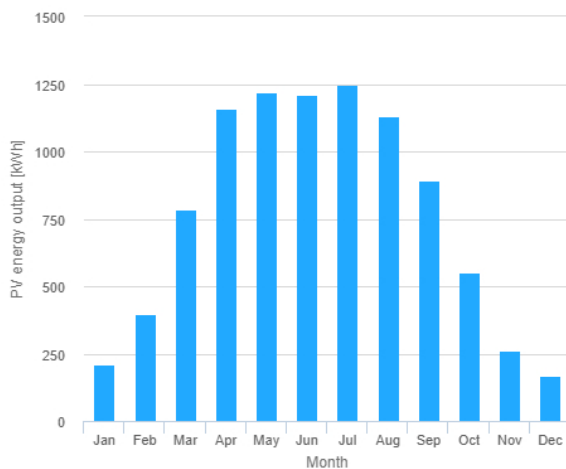
Simulation outputs

Slope angle: 35 °
Azimuth angle: 45 °
Yearly PV energy production: 9240 kWh
Yearly in-plane irradiation: 1210 kWh/m²
Year to year variability: 474.00 %
Changes in output due to:
Angle of incidence: -3.2 %
Spectral effects: 1.7 %
Temperature and low irradiance: -8.5 %
Total loss: -22.5 %

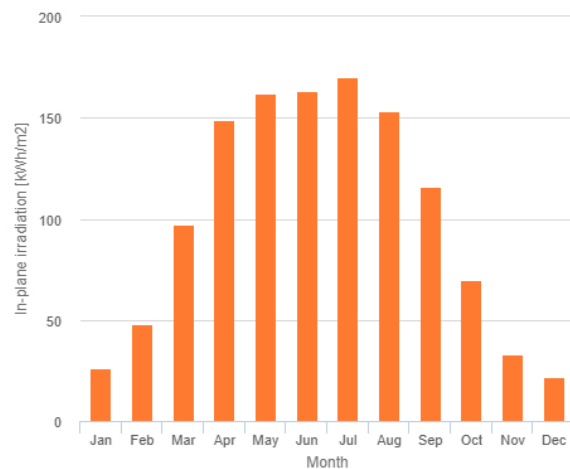
Outline of horizon at chosen location:



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	211	26.1	29.5
February	398	47.7	113
March	787	97.3	135
April	1160	149	176
May	1220	162	157
June	1210	163	90.7
July	1250	170	122
August	1130	153	108
September	891	116	111
October	551	69.9	112
November	260	32.9	81.3
December	168	21.6	35.3

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].