

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: 9.52 kWp
System loss: 14 %

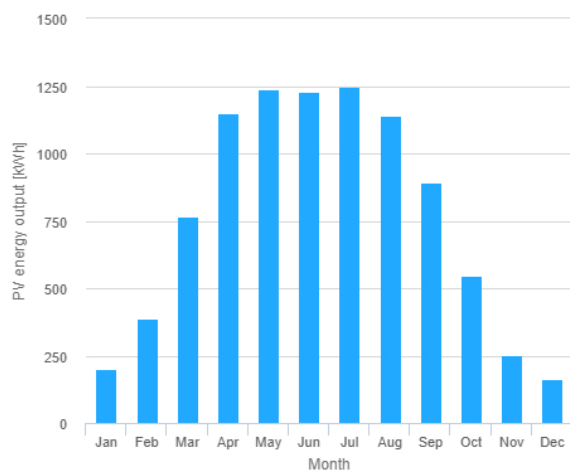
Simulation outputs

Slope angle: 35 °
Azimuth angle: -45 °
Yearly PV energy production: 9220 kWh
Yearly in-plane irradiation: 1240 kWh/m²
Year to year variability: 421.00 %
Changes in output due to:
Angle of incidence: -3.1 %
Spectral effects: 1.7 %
Temperature and low irradiance: -8.1 %
Total loss: -22.1 %

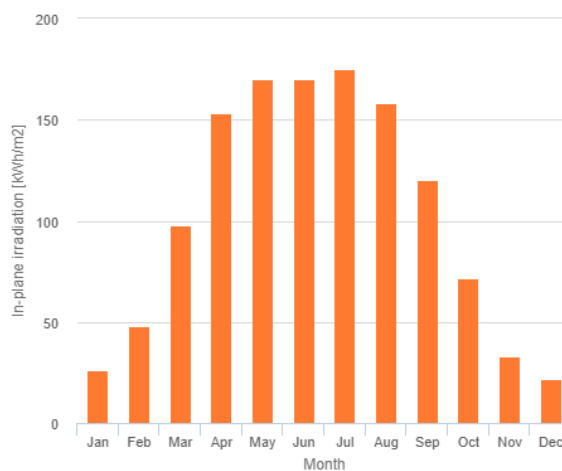
Outline of horizon at chosen location:



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	203	25.9	27.8
February	388	48	109
March	766	97.8	123
April	1150	153	150
May	1240	170	171
June	1230	170	110
July	1250	175	144
August	1140	158	101
September	891	120	100
October	549	71.6	114
November	252	33	77
December	164	21.7	35.4

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].