

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: 4.08 kWp
System loss: 14 %

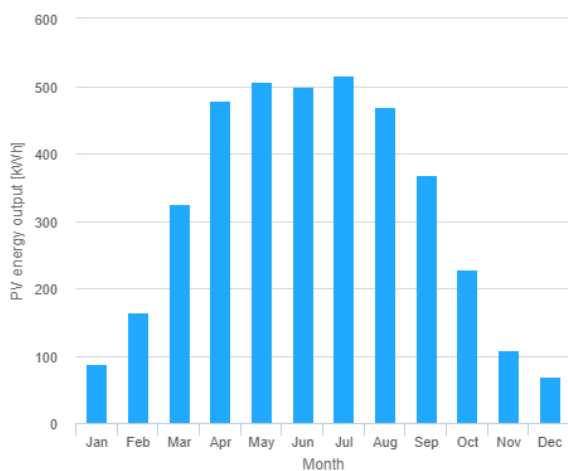
Simulation outputs

Slope angle: 35 °
Azimuth angle: 45 °
Yearly PV energy production: 3820 kWh
Yearly in-plane irradiation: 1210 kWh/m²
Year to year variability: 196.00 %
Changes in output due to:
Angle of incidence: -3.2 %
Spectral effects: 1.7 %
Temperature and low irradiance: -8.5 %
Total loss: -22.5 %

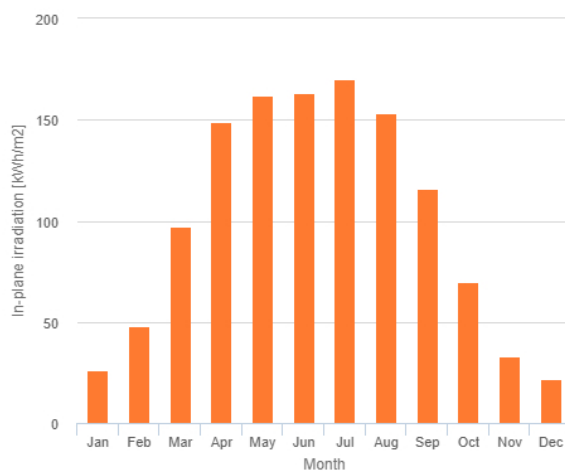
Outline of horizon at chosen location:



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	87.2	26.1	12.2
February	164	47.7	46.6
March	326	97.3	55.9
April	479	149	72.9
May	506	162	65.1
June	500	163	37.5
July	515	170	50.3
August	470	153	44.5
September	369	116	46
October	228	69.9	46.5
November	108	32.9	33.6
December	69.5	21.6	14.6

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].