

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: 6.8 kWp
System loss: 14 %

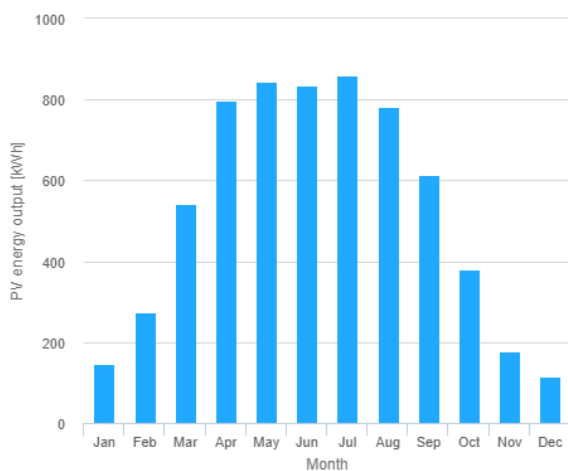
Simulation outputs

Slope angle: 35 °
Azimuth angle: 45 °
Yearly PV energy production: 6370 kWh
Yearly in-plane irradiation: 1210 kWh/m²
Year to year variability: 327.00 %
Changes in output due to:
Angle of incidence: -3.2 %
Spectral effects: 1.7 %
Temperature and low irradiance: -8.5 %
Total loss: -22.5 %

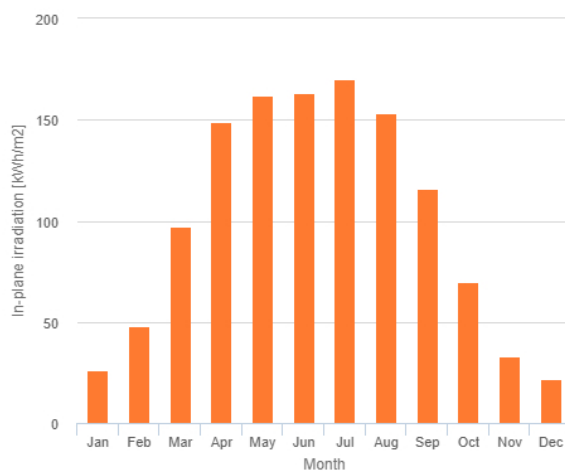
Outline of horizon at chosen location:



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	145	26.1	20.4
February	274	47.7	77.6
March	543	97.3	93.2
April	799	149	121
May	843	162	108
June	834	163	62.6
July	859	170	83.9
August	783	153	74.2
September	614	116	76.7
October	380	69.9	77.4
November	179	32.9	56.1
December	116	21.6	24.3

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].