

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: 7.48 kWp
System loss: 14 %

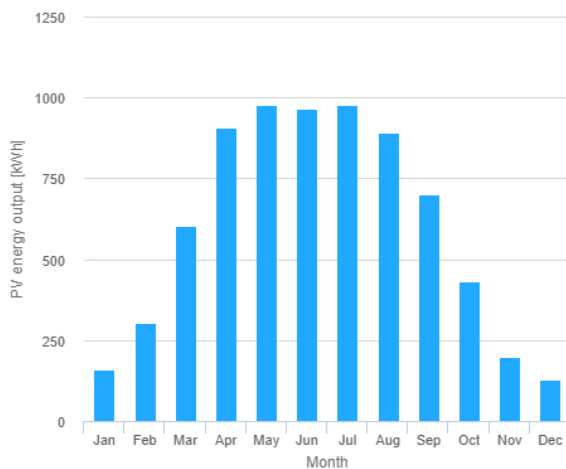
Simulation outputs

Slope angle: 35 °
Azimuth angle: -45 °
Yearly PV energy production: 7240 kWh
Yearly in-plane irradiation: 1240 kWh/m²
Year to year variability: 331.00 %
Changes in output due to:
Angle of incidence: -3.1 %
Spectral effects: 1.7 %
Temperature and low irradiance: -8.1 %
Total loss: -22.1 %

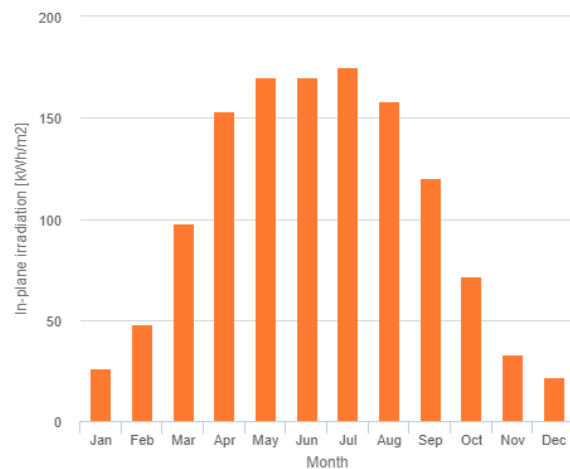
Outline of horizon at chosen location:



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	159	25.9	21.8
February	305	48	86
March	602	97.8	96.6
April	907	153	118
May	978	170	134
June	964	170	86.6
July	978	175	113
August	893	158	79.4
September	700	120	78.7
October	431	71.6	89.3
November	198	33	60.5
December	129	21.7	27.8

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].