

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: 8.16 kWp
System loss: 14 %

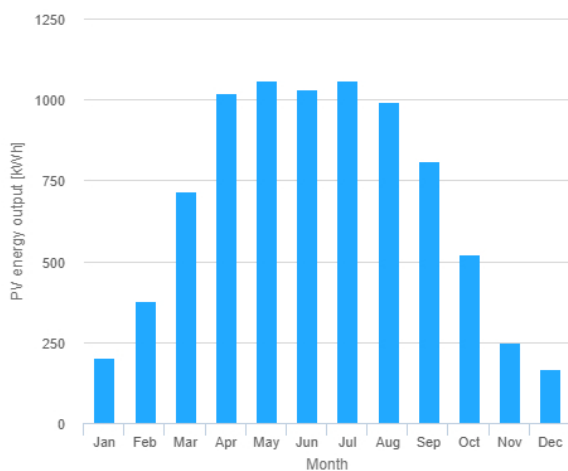
Simulation outputs

Slope angle: 35 °
Azimuth angle: 0 °
Yearly PV energy production: 8200 kWh
Yearly in-plane irradiation: 1290 kWh/m²
Year to year variability: 428.00 %
Changes in output due to:
Angle of incidence: -3.1 %
Spectral effects: 1.8 %
Temperature and low irradiance: -8.2 %
Total loss: -22.2 %

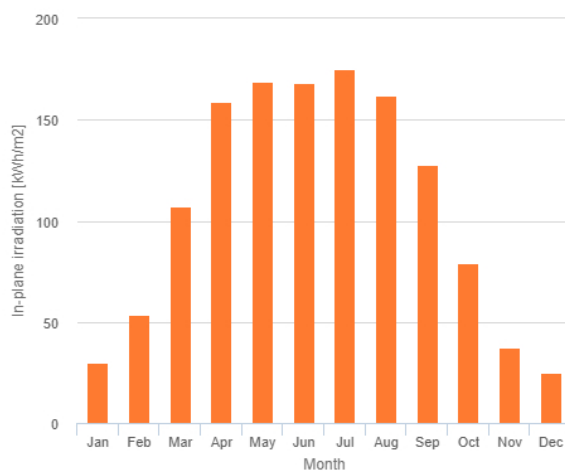
Outline of horizon at chosen location:



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	204	29.7	30.2
February	376	53.8	113
March	716	107	128
April	1020	159	148
May	1060	169	144
June	1030	168	84.3
July	1060	175	111
August	992	162	97.3
September	811	128	101
October	521	79.1	113
November	251	37.6	82.5
December	167	25	38.2

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].