

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: 5.44 kWp
System loss: 14 %

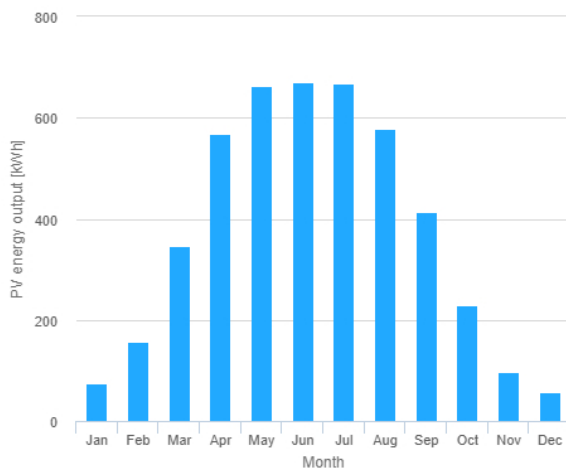
Simulation outputs

Slope angle: 35 °
Azimuth angle: -90 °
Yearly PV energy production: 4520 kWh
Yearly in-plane irradiation: 1070 kWh/m²
Year to year variability: 161.00 %
Changes in output due to:
Angle of incidence: -3.6 %
Spectral effects: 1.6 %
Temperature and low irradiance: -8 %
Total loss: -22.5 %

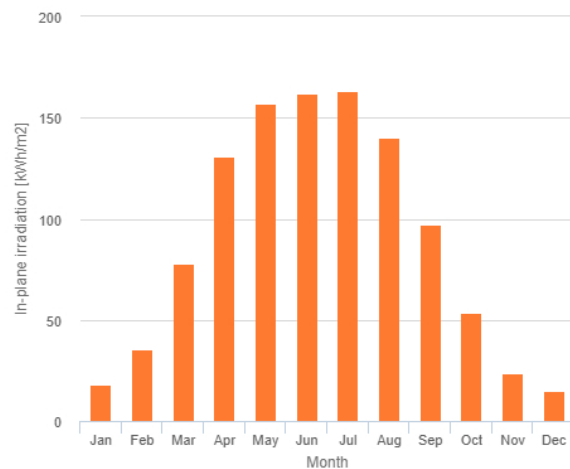
Outline of horizon at chosen location:



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	74.8	18.2	7.47
February	158	35.5	35.5
March	346	77.7	41.2
April	568	131	62.2
May	663	157	86.8
June	671	162	59.5
July	667	163	78.6
August	578	140	42.1
September	414	97.4	37.5
October	230	53.6	38.9
November	96.2	23.5	21.9
December	57.7	14.8	9.69

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].