

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: 3.74 kWp
System loss: 14 %

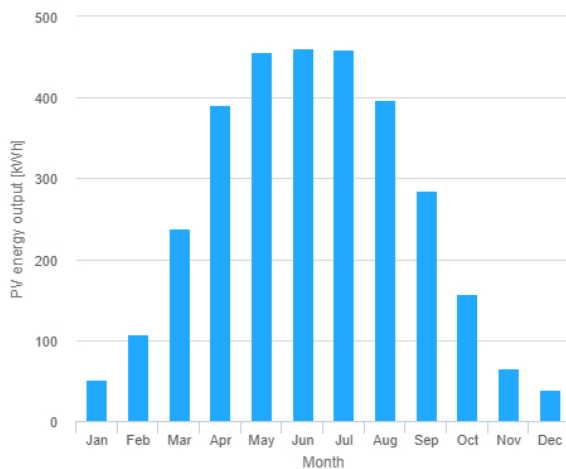
Simulation outputs

Slope angle: 35 °
Azimuth angle: -90 °
Yearly PV energy production: 3110 kWh
Yearly in-plane irradiation: 1070 kWh/m²
Year to year variability: 111.00 %
Changes in output due to:
Angle of incidence: -3.6 %
Spectral effects: 1.6 %
Temperature and low irradiance: -8 %
Total loss: -22.5 %

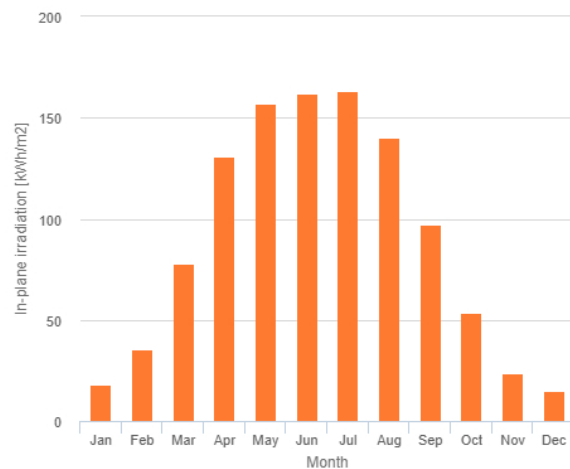
Outline of horizon at chosen location:



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	51.4	18.2	5.14
February	108	35.5	24.4
March	238	77.7	28.3
April	391	131	42.7
May	456	157	59.7
June	461	162	40.9
July	459	163	54
August	397	140	28.9
September	285	97.4	25.8
October	158	53.6	26.7
November	66.1	23.5	15.1
December	39.6	14.8	6.66

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].