

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: 4.42 kWp
System loss: 14 %

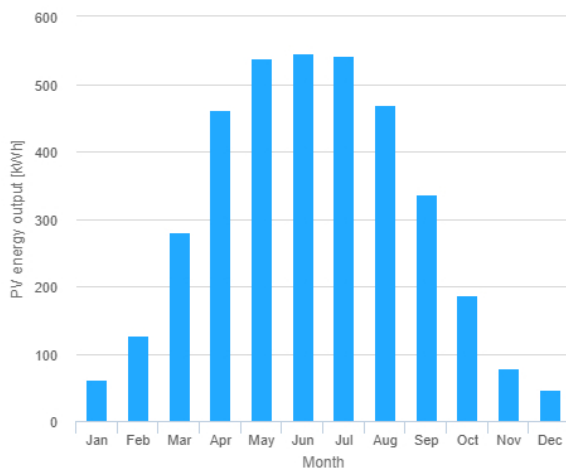
Simulation outputs

Slope angle: 35 °
Azimuth angle: -90 °
Yearly PV energy production: 3680 kWh
Yearly in-plane irradiation: 1070 kWh/m²
Year to year variability: 131.00 %
Changes in output due to:
Angle of incidence: -3.6 %
Spectral effects: 1.6 %
Temperature and low irradiance: -8 %
Total loss: -22.5 %

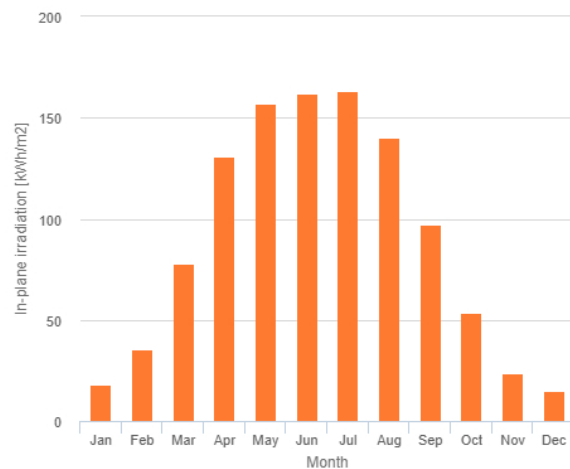
Outline of horizon at chosen location:



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	60.8	18.2	6.07
February	128	35.5	28.9
March	281	77.7	33.5
April	462	131	50.5
May	538	157	70.5
June	545	162	48.3
July	542	163	63.8
August	469	140	34.2
September	337	97.4	30.4
October	187	53.6	31.6
November	78.2	23.5	17.8
December	46.8	14.8	7.88

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].