

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: 3.4 kWp
System loss: 14 %

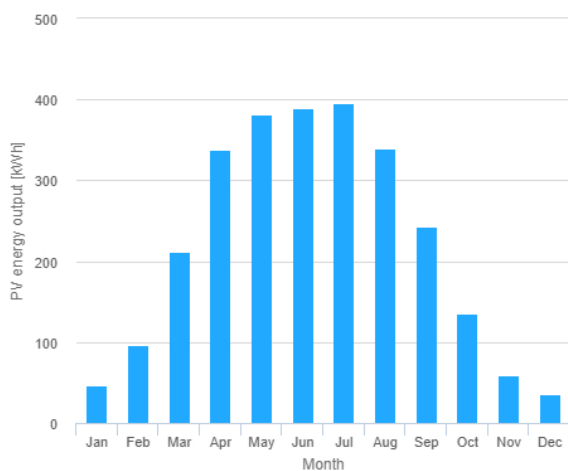
Simulation outputs

Slope angle: 35 °
Azimuth angle: 90 °
Yearly PV energy production: 2680 kWh
Yearly in-plane irradiation: 1030 kWh/m²
Year to year variability: 116.00 %
Changes in output due to:
Angle of incidence: -3.9 %
Spectral effects: 1.6 %
Temperature and low irradiance: -8.7 %
Total loss: -23.3 %

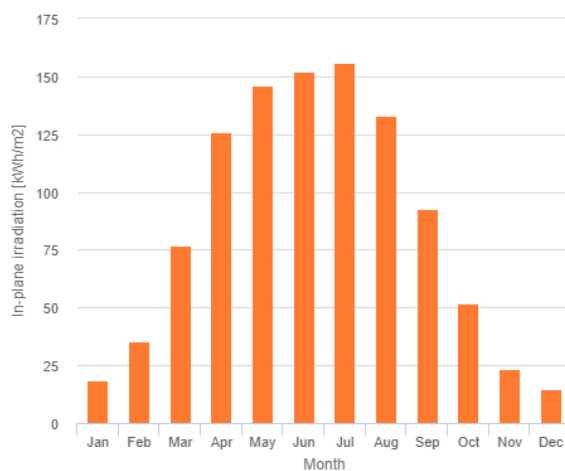
Outline of horizon at chosen location:



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	46.9	18.4	5.01
February	97.3	35.2	21.1
March	212	76.9	28.6
April	338	126	48.1
May	382	146	43.9
June	390	152	26.7
July	395	156	36.7
August	340	133	28
September	243	92.7	26.7
October	136	51.6	22.5
November	59.6	23.4	14.3
December	35.3	14.7	5.63

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].