

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

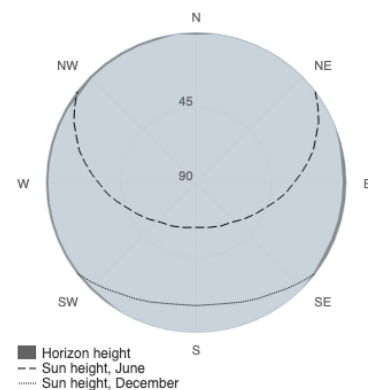
Provided inputs:

Latitude/Longitude: 
Horizon: Calculated
Database used: PVGIS-SARAH3
PV technology: Cryst Sil 2025
PV installed: 4 kWp
System loss: 10 %

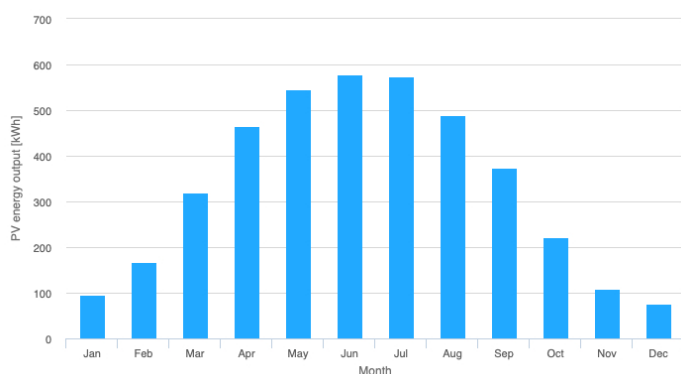
Simulation outputs

Slope angle: 4 °
Azimuth angle: -1 °
Yearly PV energy production: 4016.2 kWh
Yearly in-plane irradiation: 1204.9 kWh/m²
Year-to-year variability: 176.10 kWh
Changes in output due to:
Angle of incidence: -4.09 %
Spectral effects: 1.55 %
Temperature and low irradiance: -4.94 %
Total loss: -16.67 %

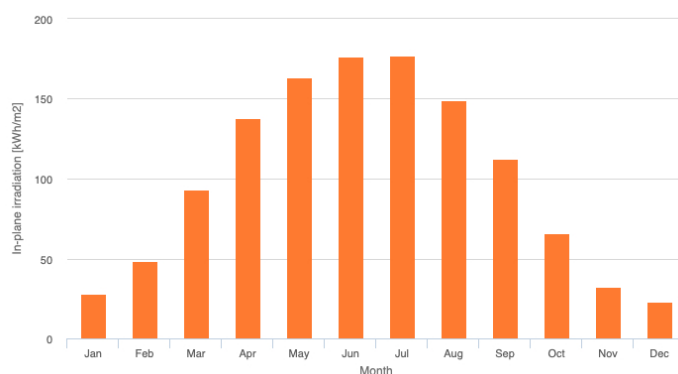
Outline of horizon at chosen location:



Monthly energy output from fix-angle PV system:



Monthly in-plane irradiation for fixed-angle:



Monthly PV energy and solar irradiation

Month	E_m	H(i)_m	SD_m
January	95.8	28.1	12.7
February	167.3	48.2	29.0
March	319.0	93.0	47.0
April	465.5	137.8	60.8
May	546.1	163.1	67.7
June	578.1	176.4	57.3
July	574.7	176.8	50.0
August	488.4	148.9	38.8
September	374.5	112.3	37.9
October	222.0	65.5	28.4
November	108.6	32.1	15.5
December	76.2	22.7	7.7

E_m: Average monthly electricity production from the defined system [kWh].

H(i)_m: Average monthly sum of global irradiation per square meter received by the modules of the given system [kWh/m²].

SD_m: Standard deviation of the monthly electricity production due to year-to-year variation [kWh].