

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

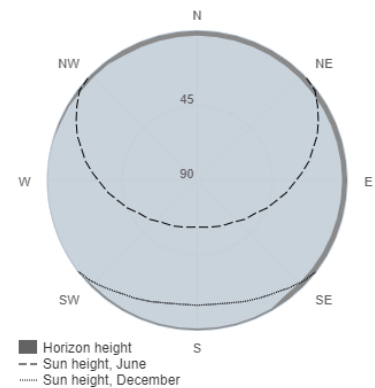
Provided inputs:

Latitude/Longitude: 51.270,0.192
Horizon: Calculated
Database used: PVGIS-SARAH2
PV technology: Crystalline silicon
PV installed: 3 kWp
System loss: 14 %

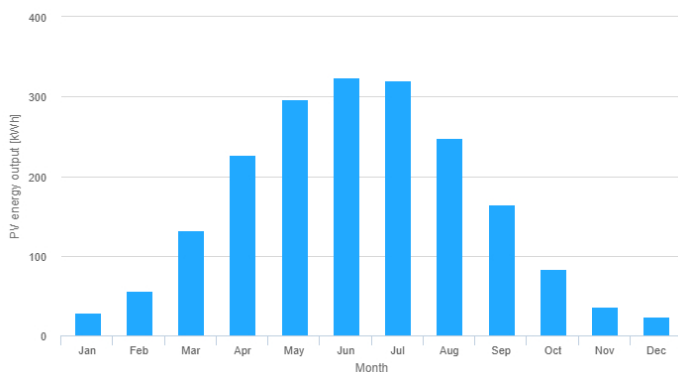
Simulation outputs

Slope angle: 34 °
Azimuth angle: 135 °
Yearly PV energy production: 1942.07 kWh
Yearly in-plane irradiation: 836.87 kWh/m²
Year-to-year variability: 51.24 kWh
Changes in output due to:
Angle of incidence: -5.39 %
Spectral effects: 1.58 %
Temperature and low irradiance: -6.41 %
Total loss: -22.65 %

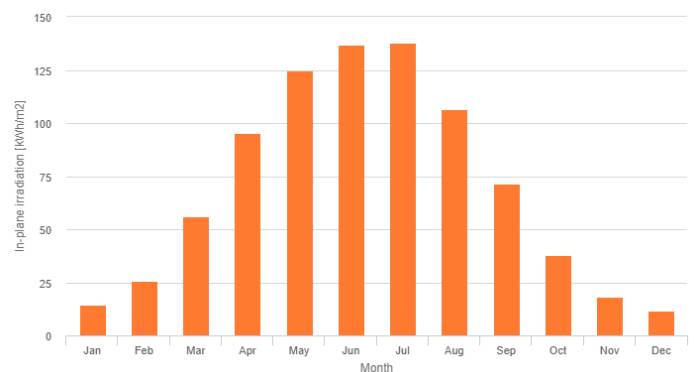
Outline of horizon at chosen location:



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	29.1	14.4	2.3
February	56.6	25.8	5.2
March	132.3	56.2	11.3
April	226.9	95.1	19.9
May	297.2	124.5	29.4
June	324.2	137.1	29.5
July	320.7	137.7	22.5
August	247.7	106.6	18.9
September	164.5	71.5	9.6
October	82.9	37.9	4.1
November	36.6	18.1	1.4
December	23.3	11.9	1.6

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].