

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

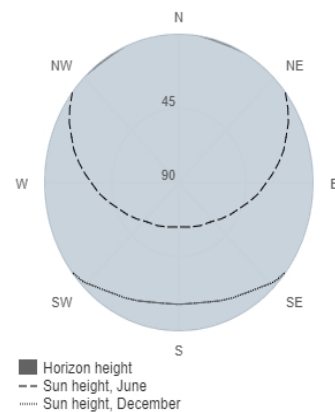
Provided inputs:

Latitude/Longitude: 50.239,15.490
Horizon: Calculated
Database used: PVGIS-SARAH2
PV technology: Crystalline silicon
PV installed: 19.8 kWp
System loss: 14 %

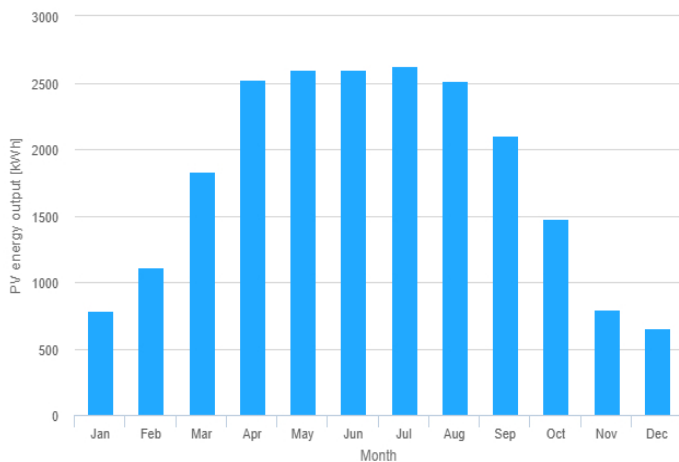
Simulation outputs

Slope angle: 36 °
Azimuth angle: 12 °
Yearly PV energy production: 21614.24 kWh
Yearly in-plane irradiation: 1380.36 kWh/m²
Year-to-year variability: 1198.33 kWh
Changes in output due to:
Angle of incidence: -2.96 %
Spectral effects: 1.55 %
Temperature and low irradiance: -6.68 %
Total loss: -20.92 %

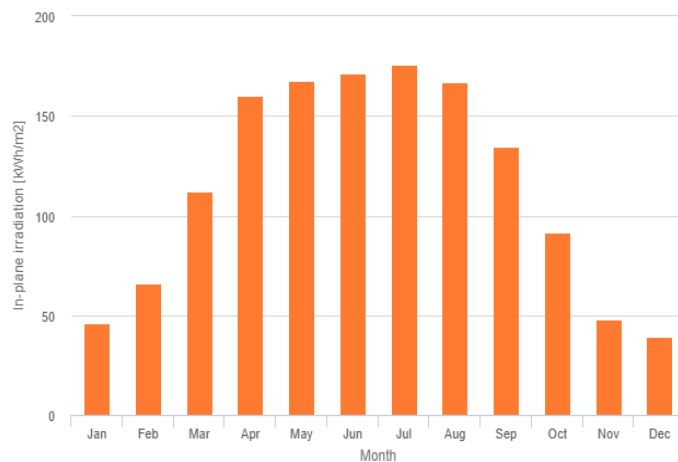
Outline of horizon at chosen location:



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	784.0	45.9	229.1
February	1112.2	66.1	319.3
March	1836.3	112.4	342.0
April	2527.9	160.0	401.1
May	2602.1	167.9	340.4
June	2600.6	171.6	242.1
July	2622.5	175.8	241.1
August	2509.5	166.8	231.3
September	2098.8	134.7	270.8
October	1472.1	91.7	351.8
November	791.4	48.1	168.5
December	656.7	39.3	139.2

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].