

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

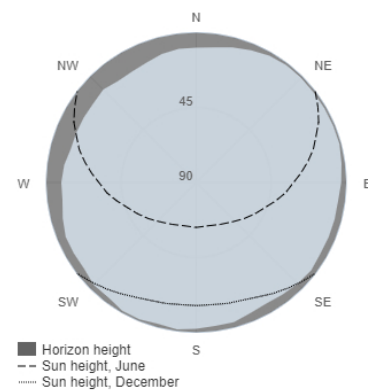
Provided inputs:

Latitude/Longitude: 49.606, 19.109
Horizon: Calculated
Database used: PVGIS-SARAH
PV technology: Crystalline silicon
PV installed: 49.5 kWp
System loss: 14 %

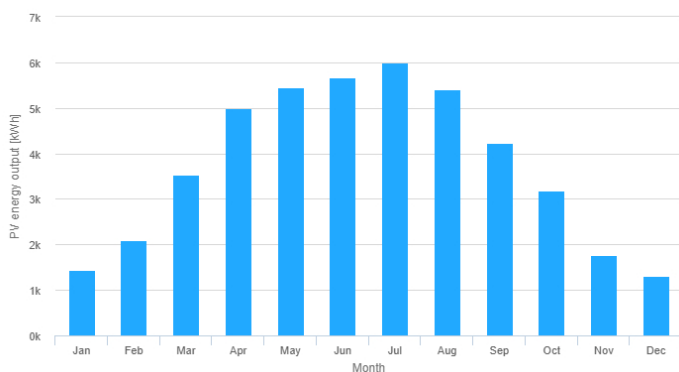
Simulation outputs

Slope angle: 20 °
Azimuth angle: 25 °
Yearly PV energy production: 45049.11 kWh
Yearly in-plane irradiation: 1170.81 kWh/m²
Year-to-year variability: 2241.75 kWh
Changes in output due to:
Angle of incidence: -3.4 %
Spectral effects: 1.76 %
Temperature and low irradiance: -8.05 %
Total loss: -22.27 %

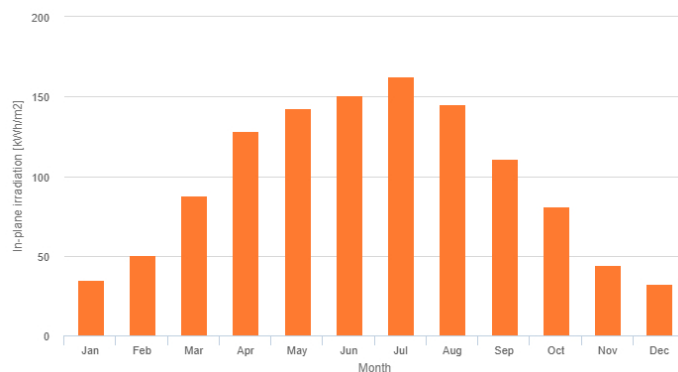
Outline of horizon at chosen location:



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	1433.6	34.6	524.6
February	2097.7	50.3	532.5
March	3540.3	87.7	673.8
April	4986.9	128.6	738.2
May	5444.8	142.5	1006.9
June	5669.1	151.1	589.3
July	5992.8	162.7	731.0
August	5399.8	145.4	674.5
September	4228.5	110.7	661.2
October	3180.6	80.9	708.3
November	1768.9	44.2	469.4
December	1306.1	32.2	316.0

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].