Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

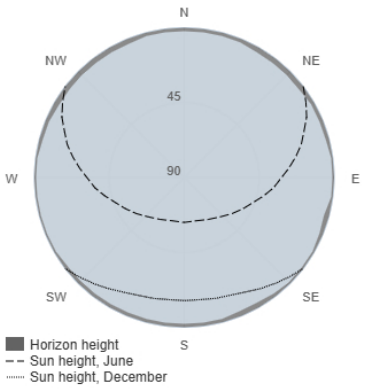
Provided inputs:

Latitude/Longitude:	49.615,13.608
Horizon:	Calculated
Database used:	PVGIS-SARAH3
PV technology:	Crystalline silicon
PV installed:	22.5 kWp
System loss:	14 %

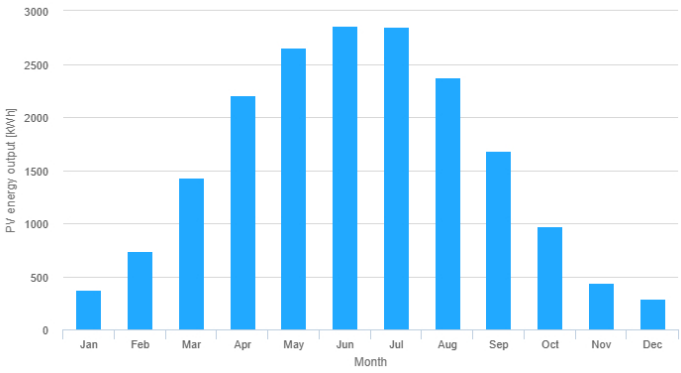
Simulation outputs

Slope angle:	15 °
Azimuth angle:	-112 °
Yearly PV energy production:	18876.66 kWh
Yearly in-plane irradiation:	1068.01 kWh/m²
Year-to-year variability:	864.59 kWh
Changes in output due to:	
Angle of incidence:	-4.53 %
Spectral effects:	1.53 %
Temperature and low irradiance:	-5.77 %
Total loss:	-21.45 %

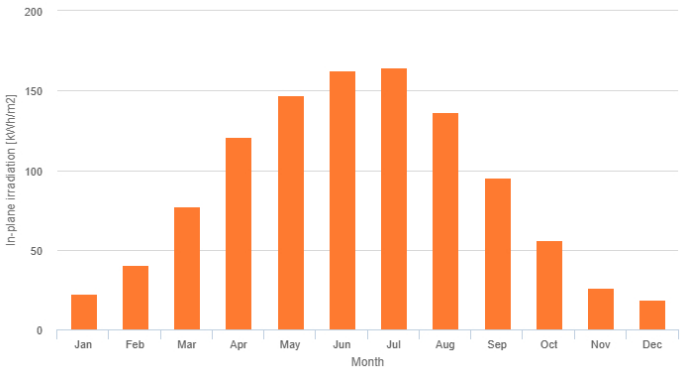
Outline of horizon at chosen location:



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	376.7	22.5	54.9
February	737.9	40.6	84.7
March	1429.9	77.5	194.6
April	2208.3	121.0	313.0
May	2655.3	147.3	369.9
June	2856.4	162.6	279.4
July	2851.1	164.4	279.0
August	2373.3	136.3	232.8
September	1685.0	95.3	185.1
October	972.9	55.8	129.3
November	438.5	26.4	48.2
December	291.5	18.4	37.0

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].

Report generated on 2024/12/02