Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

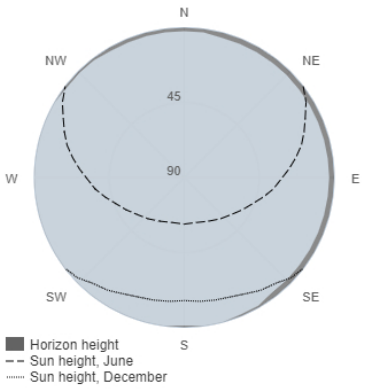
Provided inputs:

Latitude/Longitude:	50.548,9.694
Horizon:	Calculated
Database used:	PVGIS-SARAH2
PV technology:	Crystalline silicon
PV installed:	4 kWp
System loss:	10 %

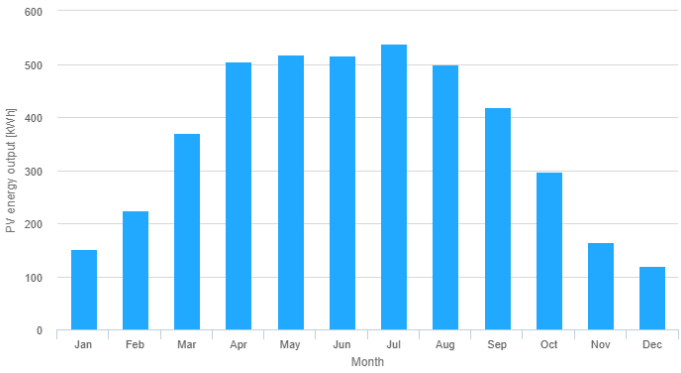
Simulation outputs

Slope angle:	38 (opt) °
Azimuth angle:	0 (opt) °
Yearly PV energy production:	4320.29 kWh
Yearly in-plane irradiation:	1284.62 kWh/m²
Year-to-year variability:	278.16 kWh
Changes in output due to:	
Angle of incidence:	-3.06 %
Spectral effects:	1.86 %
Temperature and low irradiance:	-5.4 %
Total loss:	-15.92 %

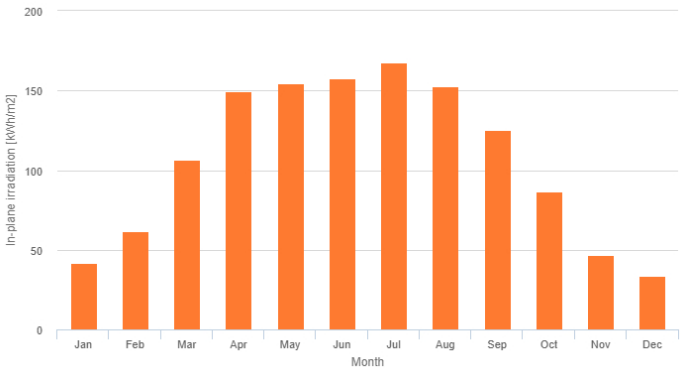
Outline of horizon at chosen location:



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	151.0	41.6	33.9
February	223.7	62.0	66.6
March	369.7	106.3	72.4
April	504.5	149.3	89.0
May	517.4	154.6	82.2
June	516.0	157.8	56.8
July	539.2	167.8	68.4
August	498.3	152.9	47.4
September	418.3	125.2	62.7
October	297.4	86.4	68.1
November	164.5	46.9	53.2
December	120.2	33.8	33.5

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 2023/03/21