Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

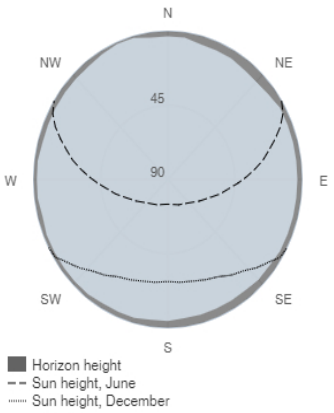
Provided inputs:

Latitude/Longitude:	38.459,24.128
Horizon:	Calculated
Database used:	PVGIS-SARAH2
PV technology:	Crystalline silicon
PV installed:	400 kWp
System loss:	14 %

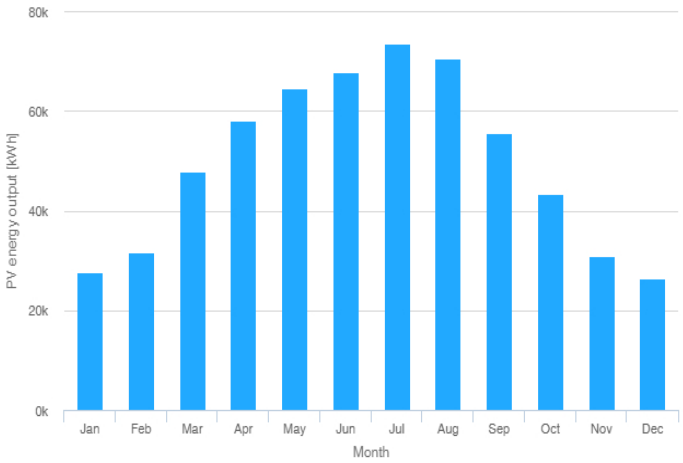
Simulation outputs

Slope angle:	20 °
Azimuth angle:	0 °
Yearly PV energy production:	598046.9 kWh
Yearly in-plane irradiation:	1912.11 kWh/m²
Year-to-year variability:	13259.41 kWh
Changes in output due to:	
Angle of incidence:	-2.83 %
Spectral effects:	0.61 %
Temperature and low irradiance:	-7 %
Total loss:	-21.81 %

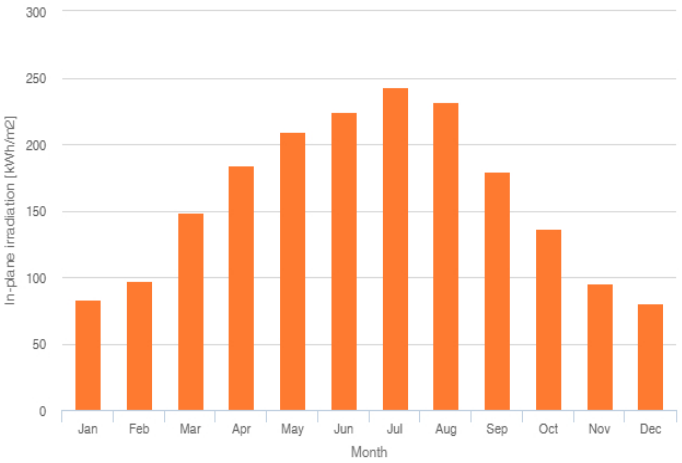
Outline of horizon at chosen location:



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	27574.0	83.5	4967.7
February	31639.3	96.8	4085.6
March	47796.6	148.2	4739.1
April	58172.4	184.1	5863.2
May	64537.2	209.4	3465.6
June	67876.4	223.9	3360.6
July	73552.2	242.9	2501.0
August	70604.5	231.6	1810.3
September	55640.3	179.8	3383.3
October	43346.1	136.8	5847.8
November	30949.5	95.1	4473.3
December	26358.4	80.0	3297.9

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].

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Report generated on 2022/05/25