Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

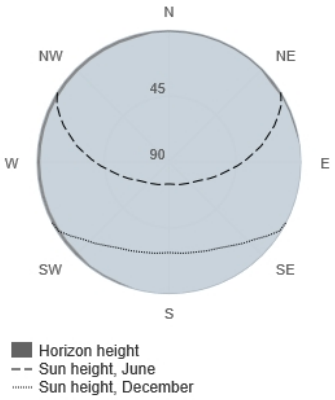
Provided inputs:

Latitude/Longitude:	38.727, -9.324
Horizon:	Calculated
Database used:	PVGIS-CMSAF
PV technology:	Crystalline silicon
PV installed:	0.5 kWp
System loss:	14 %

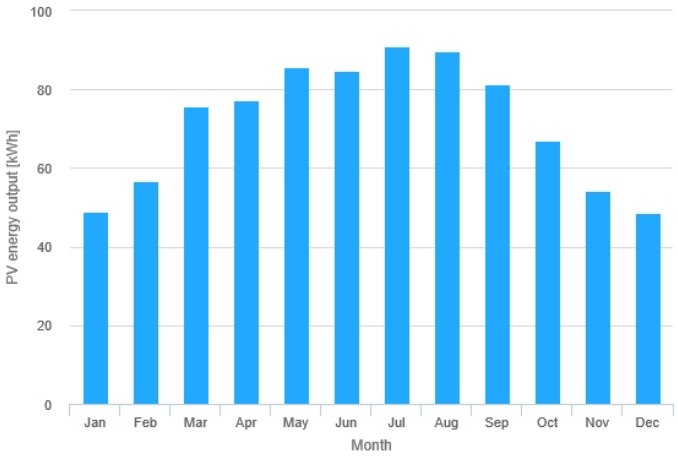
Simulation outputs

Slope angle:	33 (opt) °
Azimuth angle:	0 (opt) °
Yearly PV energy production:	861 kWh
Yearly in-plane irradiation:	2150 kWh/m²
Year to year variability:	29.80 %
Changes in output due to:	
Angle of incidence:	-2.6 %
Spectral effects:	0.6 %
Temperature and low irradiance:	-5.1 %
Total loss:	-20.1 %

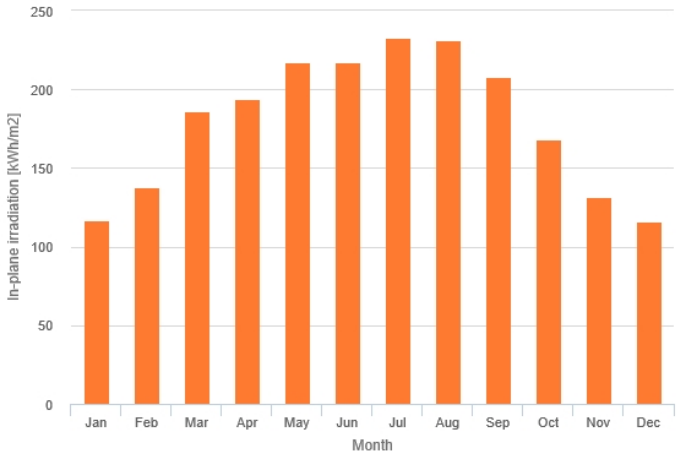
Outline of horizon at chosen location:



Monthly energy output from fix-angle PV system:



Monthly in-plane irradiation for fixed-angle:



Monthly PV energy and solar irradiation

Month	Em	Hm	SDm
January	48.8	117	10
February	56.8	138	11.6
March	75.7	186	8.75
April	77.3	194	5.11
May	85.6	217	4.68
June	84.8	217	2.98
July	91	233	2.32
August	89.8	231	3.73
September	81.3	208	4.14
October	67.1	168	7.7
November	54.2	132	9.71
December	48.6	116	7.14

Em: Average monthly electricity production from the given system [kWh].

Hm: Average monthly sum of global irradiation per square meter received by the modules of the given system [kWh/m²].

SDm: Standard deviation of the monthly electricity production due to year-to-year variation [kWh].

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