Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

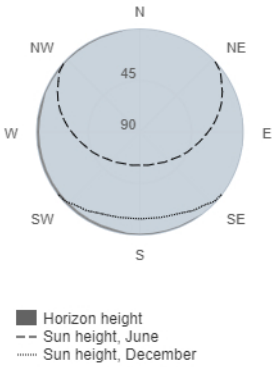
Provided inputs:

Latitude/Longitude:	52.408, 16.930
Horizon:	Calculated
Database used:	PVGIS-CMSAF
PV technology:	Crystalline silicon
PV installed:	4.76 kWp
System loss:	14 %

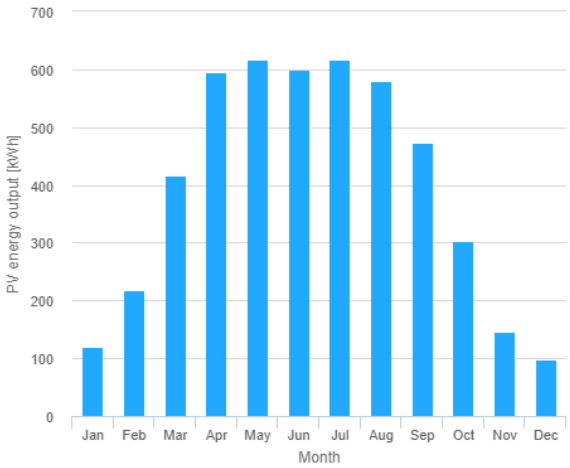
Simulation outputs

Slope angle:	35 °
Azimuth angle:	0 °
Yearly PV energy production:	4790 kWh
Yearly in-plane irradiation:	1290 kWh/m²
Year to year variability:	250.00 %
Changes in output due to:	
Angle of incidence:	-3.1 %
Spectral effects:	1.8 %
Temperature and low irradiance:	-8.2 %
Total loss:	-22.2 %

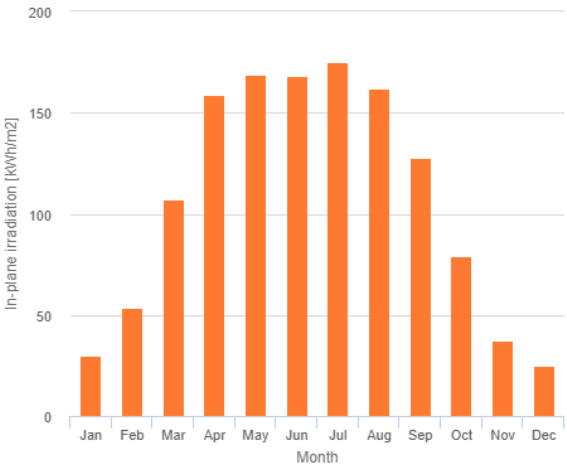
Outline of horizon at chosen location:



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	119	29.7	17.6
February	219	53.8	65.9
March	417	107	74.9
April	596	159	86.1
May	617	169	83.9
June	600	168	49.2
July	618	175	64.8
August	579	162	56.8
September	473	128	59.2
October	304	79.1	65.7
November	147	37.6	48.1
December	97.3	25	22.3

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].

Joint Research Centre

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