Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

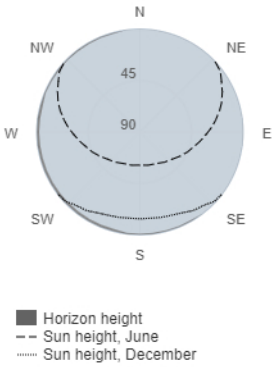
Provided inputs:

Latitude/Longitude:	52.408, 16.930
Horizon:	Calculated
Database used:	PVGIS-CMSAF
PV technology:	Crystalline silicon
PV installed:	5.44 kWp
System loss:	14 %

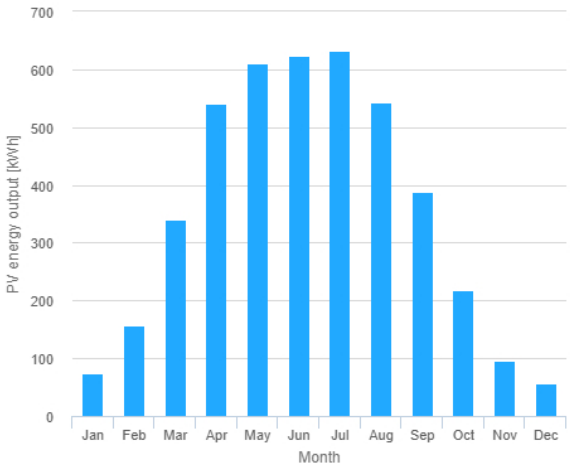
Simulation outputs

Slope angle:	35 °
Azimuth angle:	90 °
Yearly PV energy production:	4280 kWh
Yearly in-plane irradiation:	1030 kWh/m²
Year to year variability:	186.00 %
Changes in output due to:	
Angle of incidence:	-3.9 %
Spectral effects:	1.6 %
Temperature and low irradiance:	-8.7 %
Total loss:	-23.3 %

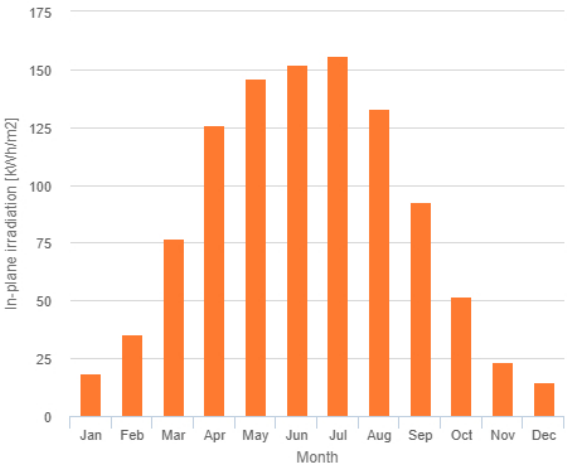
Outline of horizon at chosen location:



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	75	18.4	8.02
February	156	35.2	33.8
March	340	76.9	45.8
April	540	126	76.9
May	611	146	70.3
June	624	152	42.7
July	632	156	58.7
August	544	133	44.8
September	389	92.7	42.8
October	218	51.6	36
November	95.4	23.4	22.9
December	56.5	14.7	9.01

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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