Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

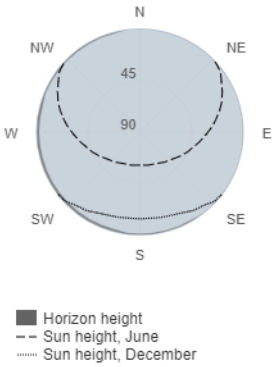
Provided inputs:

Latitude/Longitude:	52.408, 16.930
Horizon:	Calculated
Database used:	PVGIS-CMSAF
PV technology:	Crystalline silicon
PV installed:	4.42 kWp
System loss:	14 %

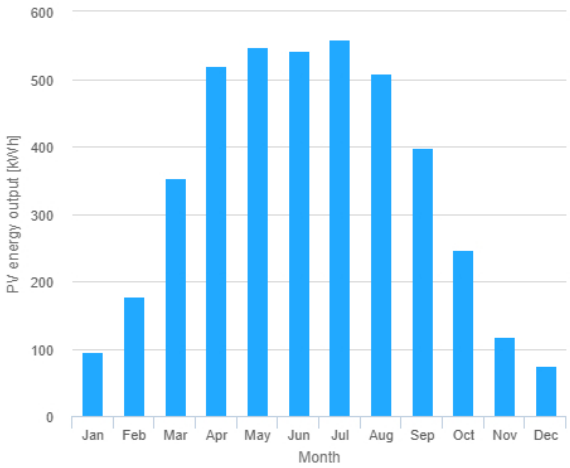
Simulation outputs

Slope angle:	35 °
Azimuth angle:	45 °
Yearly PV energy production:	4140 kWh
Yearly in-plane irradiation:	1210 kWh/m²
Year to year variability:	212.00 %
Changes in output due to:	
Angle of incidence:	-3.2 %
Spectral effects:	1.7 %
Temperature and low irradiance:	-8.5 %
Total loss:	-22.5 %

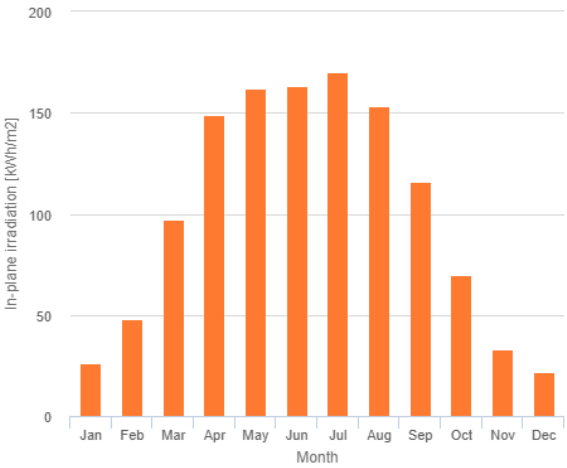
Outline of horizon at chosen location:



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	94.4	26.1	13.2
February	178	47.7	50.5
March	353	97.3	60.6
April	519	149	78.9
May	548	162	70.5
June	542	163	40.7
July	558	170	54.5
August	509	153	48.3
September	399	116	49.9
October	247	69.9	50.3
November	117	32.9	36.4
December	75.3	21.6	15.8

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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