Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

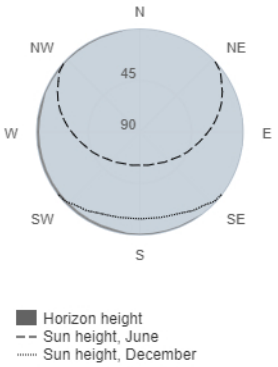
Provided inputs:

Latitude/Longitude:	52.408, 16.930
Horizon:	Calculated
Database used:	PVGIS-CMSAF
PV technology:	Crystalline silicon
PV installed:	3.74 kWp
System loss:	14 %

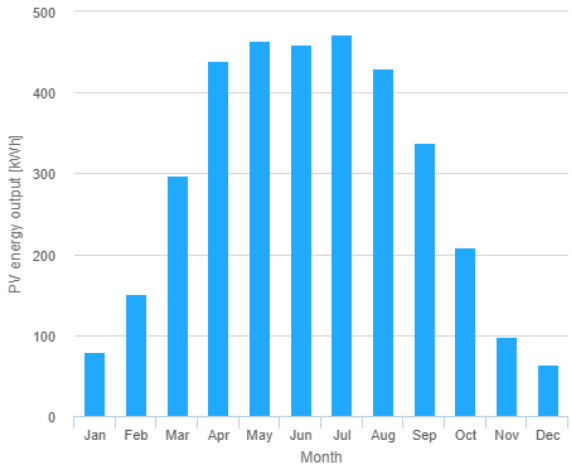
Simulation outputs

Slope angle:	35 °
Azimuth angle:	45 °
Yearly PV energy production:	3500 kWh
Yearly in-plane irradiation:	1210 kWh/m²
Year to year variability:	180.00 %
Changes in output due to:	
Angle of incidence:	-3.2 %
Spectral effects:	1.7 %
Temperature and low irradiance:	-8.5 %
Total loss:	-22.5 %

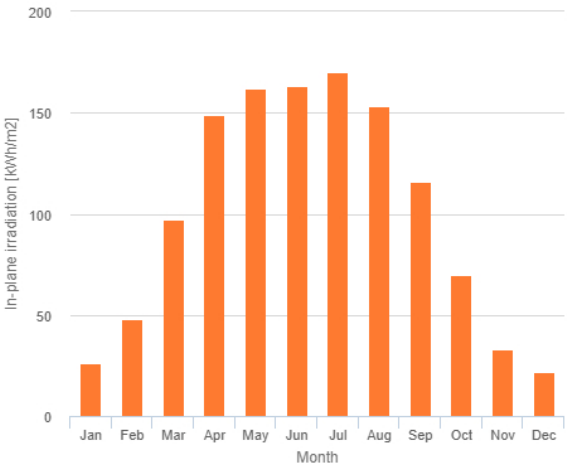
Outline of horizon at chosen location:



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	79.9	26.1	11.2
February	151	47.7	42.7
March	298	97.3	51.3
April	440	149	66.8
May	464	162	59.6
June	459	163	34.4
July	472	170	46.1
August	430	153	40.8
September	338	116	42.2
October	209	69.9	42.6
November	98.7	32.9	30.8
December	63.7	21.6	13.4

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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