Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

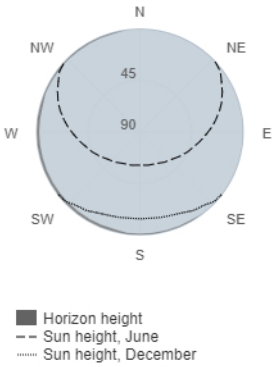
Provided inputs:

Latitude/Longitude:	52.408, 16.930
Horizon:	Calculated
Database used:	PVGIS-CMSAF
PV technology:	Crystalline silicon
PV installed:	9.52 kWp
System loss:	14 %

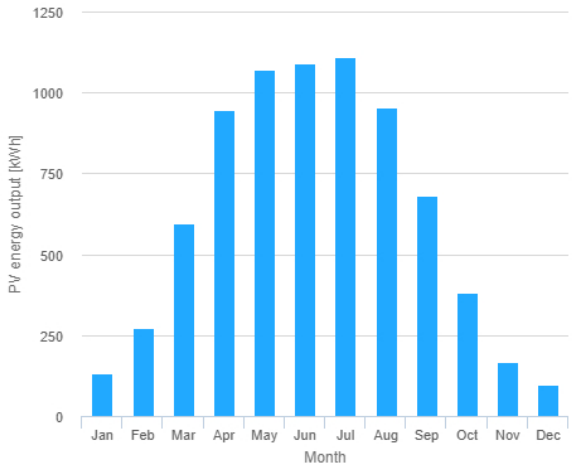
Simulation outputs

Slope angle:	35 °
Azimuth angle:	90 °
Yearly PV energy production:	7490 kWh
Yearly in-plane irradiation:	1030 kWh/m²
Year to year variability:	325.00 %
Changes in output due to:	
Angle of incidence:	-3.9 %
Spectral effects:	1.6 %
Temperature and low irradiance:	-8.7 %
Total loss:	-23.3 %

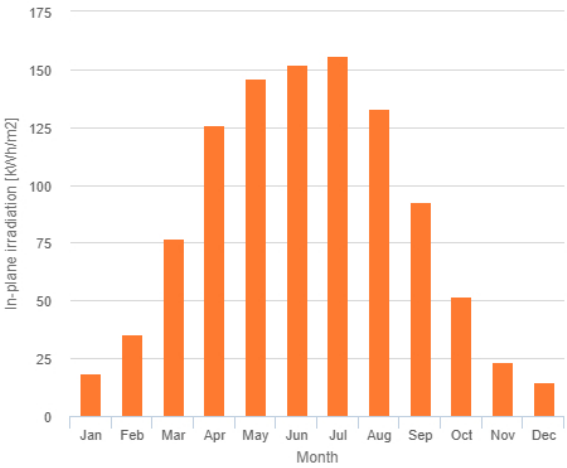
Outline of horizon at chosen location:



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	131	18.4	14
February	272	35.2	59.1
March	595	76.9	80.1
April	945	126	135
May	1070	146	123
June	1090	152	74.6
July	1110	156	103
August	953	133	78.4
September	681	92.7	74.8
October	382	51.6	63
November	167	23.4	40
December	98.8	14.7	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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