Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

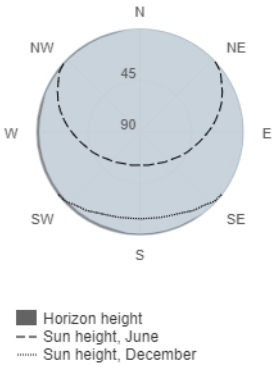
Provided inputs:

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

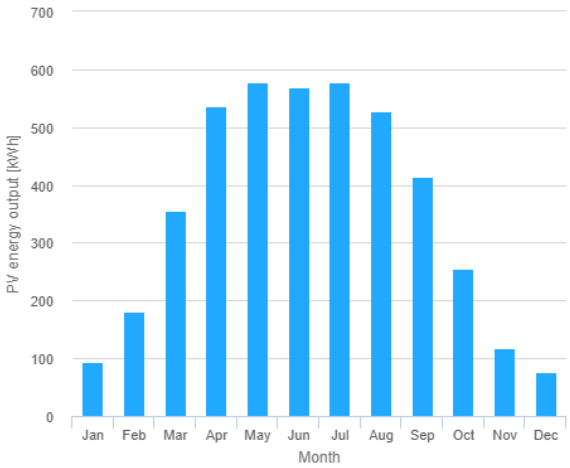
Simulation outputs

Slope angle:	35 °
Azimuth angle:	-45 °
Yearly PV energy production:	4280 kWh
Yearly in-plane irradiation:	1240 kWh/m²
Year to year variability:	196.00 %
Changes in output due to:	
Angle of incidence:	-3.1 %
Spectral effects:	1.7 %
Temperature and low irradiance:	-8.1 %
Total loss:	-22.1 %

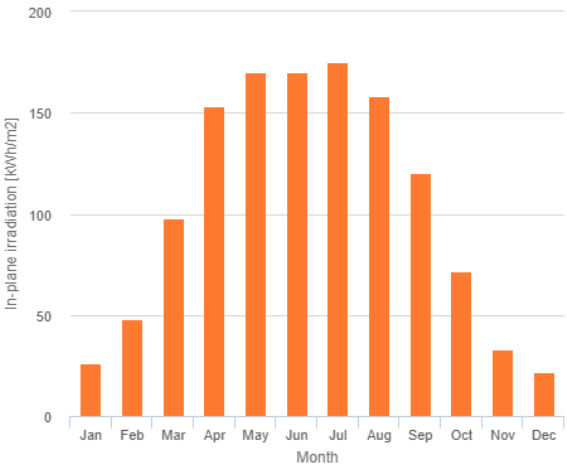
Outline of horizon at chosen location:



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	94.1	25.9	12.9
February	180	48	50.8
March	356	97.8	57.1
April	536	153	69.8
May	578	170	79.4
June	570	170	51.2
July	578	175	66.8
August	528	158	46.9
September	414	120	46.5
October	255	71.6	52.8
November	117	33	35.7
December	76.1	21.7	16.4

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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