Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

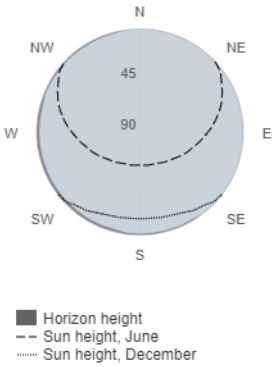
Provided inputs:

Latitude/Longitude:	52.408, 16.930
Horizon:	Calculated
Database used:	PVGIS-CMSAF
PV technology:	Crystalline silicon
PV installed:	7.14 kWp
System loss:	14 %

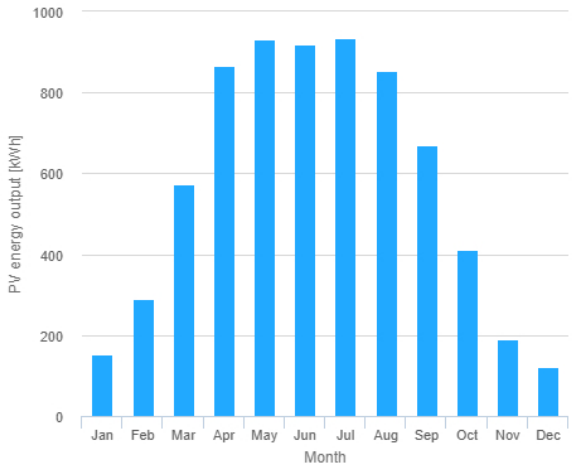
Simulation outputs

Slope angle:	35 °
Azimuth angle:	-45 °
Yearly PV energy production:	6920 kWh
Yearly in-plane irradiation:	1240 kWh/m²
Year to year variability:	316.00 %
Changes in output due to:	
Angle of incidence:	-3.1 %
Spectral effects:	1.7 %
Temperature and low irradiance:	-8.1 %
Total loss:	-22.1 %

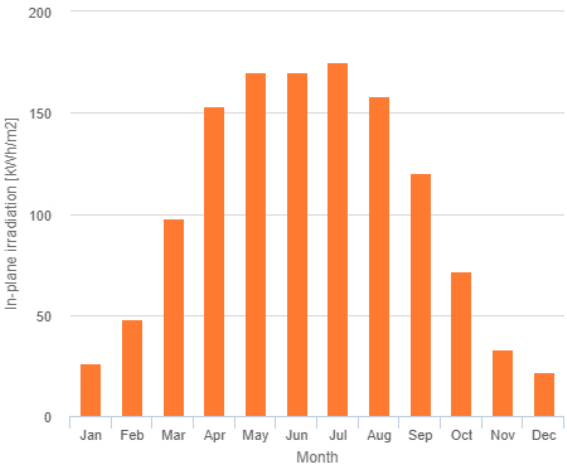
Outline of horizon at chosen location:



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	152	25.9	20.8
February	291	48	82.1
March	574	97.8	92.2
April	865	153	113
May	933	170	128
June	920	170	82.7
July	934	175	108
August	853	158	75.8
September	669	120	75.1
October	412	71.6	85.2
November	189	33	57.7
December	123	21.7	26.5

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].

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