Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

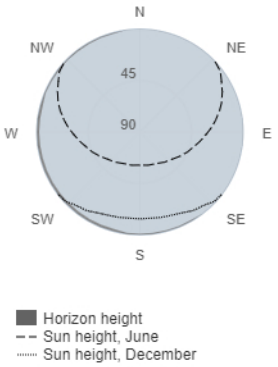
Provided inputs:

Latitude/Longitude:	52.408, 16.930
Horizon:	Calculated
Database used:	PVGIS-CMSAF
PV technology:	Crystalline silicon
PV installed:	4.08 kWp
System loss:	14 %

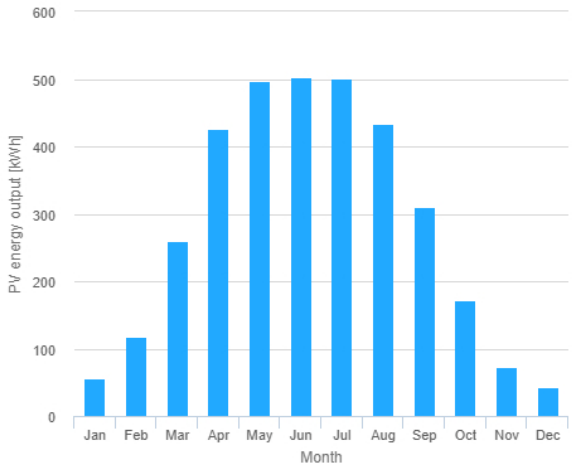
Simulation outputs

Slope angle:	35 °
Azimuth angle:	-90 °
Yearly PV energy production:	3390 kWh
Yearly in-plane irradiation:	1070 kWh/m²
Year to year variability:	121.00 %
Changes in output due to:	
Angle of incidence:	-3.6 %
Spectral effects:	1.6 %
Temperature and low irradiance:	-8 %
Total loss:	-22.5 %

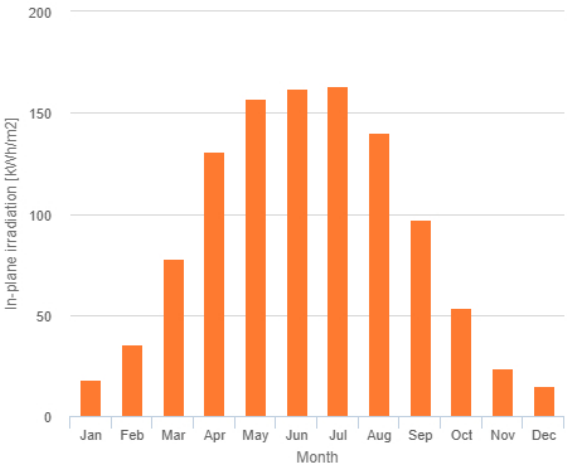
Outline of horizon at chosen location:



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	56.1	18.2	5.6
February	118	35.5	26.6
March	260	77.7	30.9
April	426	131	46.6
May	497	157	65.1
June	503	162	44.6
July	501	163	58.9
August	433	140	31.5
September	311	97.4	28.1
October	172	53.6	29.2
November	72.2	23.5	16.5
December	43.2	14.8	7.27

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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