Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

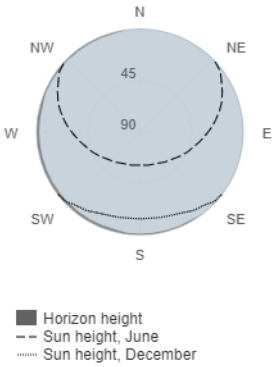
Provided inputs:

Latitude/Longitude:	52.408, 16.930
Horizon:	Calculated
Database used:	PVGIS-CMSAF
PV technology:	Crystalline silicon
PV installed:	3.4 kWp
System loss:	14 %

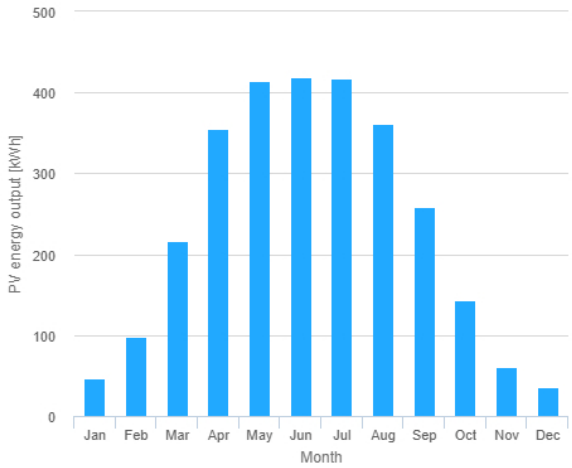
Simulation outputs

Slope angle:	35 °
Azimuth angle:	-90 °
Yearly PV energy production:	2830 kWh
Yearly in-plane irradiation:	1070 kWh/m²
Year to year variability:	101.00 %
Changes in output due to:	
Angle of incidence:	-3.6 %
Spectral effects:	1.6 %
Temperature and low irradiance:	-8 %
Total loss:	-22.5 %

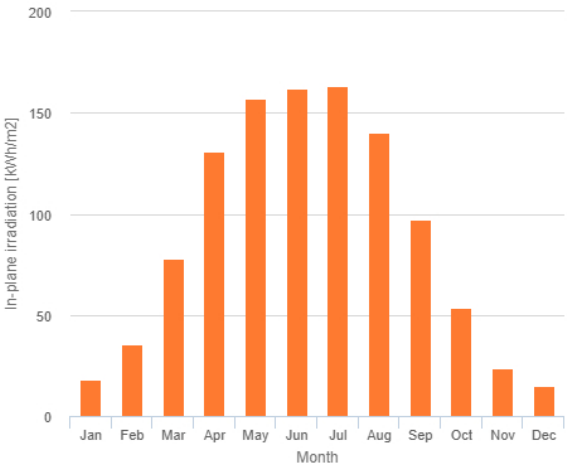
Outline of horizon at chosen location:



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	46.7	18.2	4.67
February	98.6	35.5	22.2
March	216	77.7	25.8
April	355	131	38.9
May	414	157	54.2
June	419	162	37.2
July	417	163	49.1
August	361	140	26.3
September	259	97.4	23.4
October	144	53.6	24.3
November	60.1	23.5	13.7
December	36	14.8	6.06

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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