Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

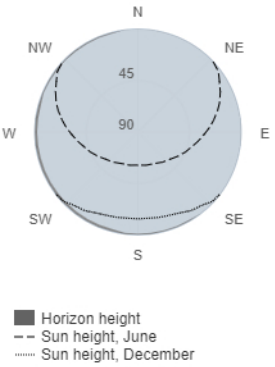
Provided inputs:

Latitude/Longitude:	52.408, 16.930
Horizon:	Calculated
Database used:	PVGIS-CMSAF
PV technology:	Crystalline silicon
PV installed:	8.5 kWp
System loss:	14 %

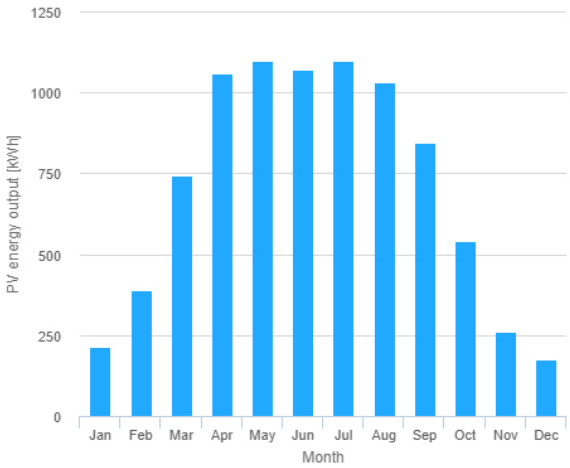
Simulation outputs

Slope angle:	35 °
Azimuth angle:	0 °
Yearly PV energy production:	8550 kWh
Yearly in-plane irradiation:	1290 kWh/m²
Year to year variability:	446.00 %
Changes in output due to:	
Angle of incidence:	-3.1 %
Spectral effects:	1.8 %
Temperature and low irradiance:	-8.2 %
Total loss:	-22.2 %

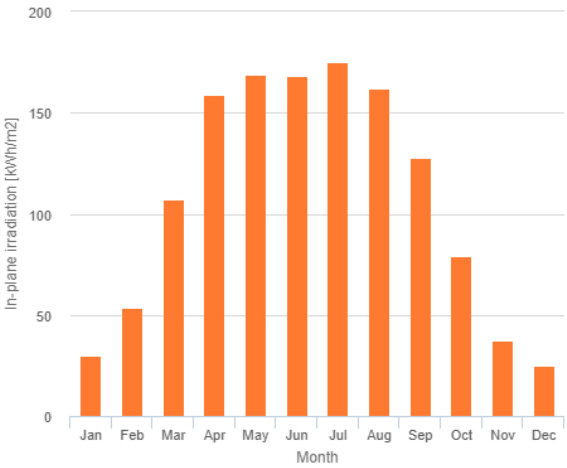
Outline of horizon at chosen location:



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	213	29.7	31.5
February	391	53.8	118
March	745	107	134
April	1060	159	154
May	1100	169	150
June	1070	168	87.8
July	1100	175	116
August	1030	162	101
September	845	128	106
October	543	79.1	117
November	262	37.6	85.9
December	174	25	39.7

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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