Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

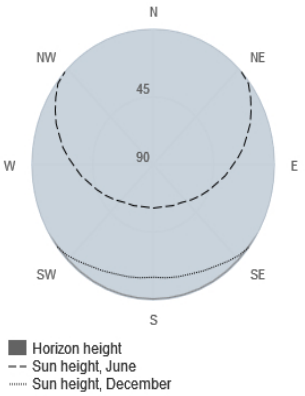
Provided inputs:

Latitude/Longitude:	51.559, 7.983
Horizon:	Calculated
Database used:	PVGIS-SARAH
PV technology:	Crystalline silicon
PV installed:	4 kWp
System loss:	14 %

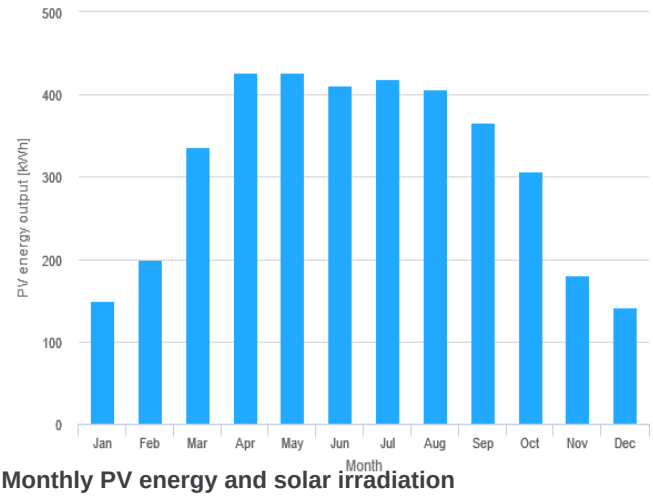
Simulation outputs

Slope angle:	60 °
Azimuth angle:	0 °
Yearly PV energy production:	3770.34 kWh
Yearly in-plane irradiation:	1168.59 kWh/m²
Year-to-year variability:	224.09 kWh
Changes in output due to:	
Angle of incidence:	-3.03 %
Spectral effects:	2.02 %
Temperature and low irradiance:	-5.19 %
Total loss:	-19.34 %

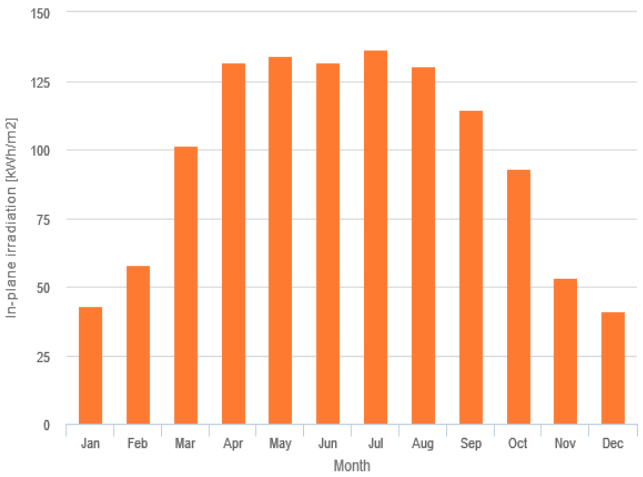
Outline of horizon at chosen location:



Monthly energy output from fix-angle PV system:



Monthly in-plane irradiation for fixed-angle:



Monthly PV energy and solar irradiation

Month	E_m	H(i)_m	SD_m
January	149.8	43.0	39.2
February	199.9	58.0	68.6
March	336.1	101.3	71.8
April	426.1	131.6	75.3
May	426.7	134.0	57.9
June	411.4	131.7	48.6
July	419.0	136.4	50.7
August	406.2	130.5	45.7
September	365.6	114.5	51.6
October	307.0	93.1	57.1
November	180.8	53.5	67.1
December	141.7	41.0	39.6

E_m: Average monthly electricity production from the given system [kWh].

H(i)_m: Average monthly sum of global irradiation per square meter received by the modules of the given system [kWh/m²].

SD_m: Standard deviation of the monthly electricity production due to year-to-year variation [kWh].

Report generated on 2021/10/15