

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

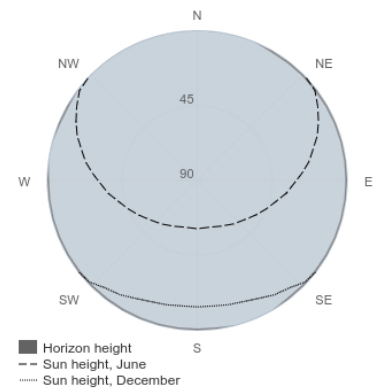
Provided inputs:

Latitude/Longitude: 51.747, -1.267
 Horizon: Calculated
 Database used: PVGIS-SARAH
 PV technology: Crystalline silicon
 PV installed: 0.36 kWp
 System loss: 14 %

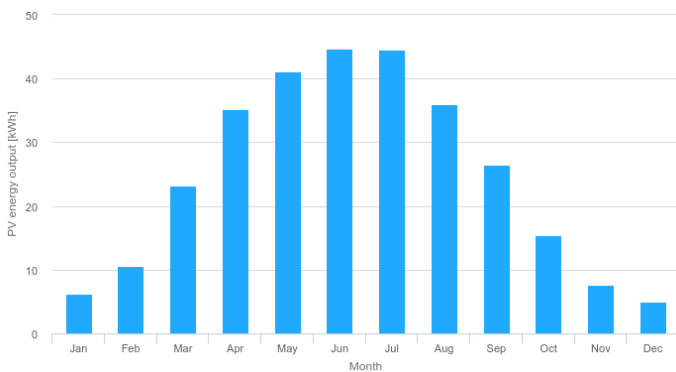
Simulation outputs

Slope angle: 0 °
 Azimuth angle: 0 °
 Yearly PV energy production: 296.06 kWh
 Yearly in-plane irradiation: 1034.55 kWh/m²
 Year-to-year variability: 9.68 kWh
 Changes in output due to:
 Angle of incidence: -4.73 %
 Spectral effects: 1.67 %
 Temperature and low irradiance: -4.57 %
 Total loss: -20.51 %

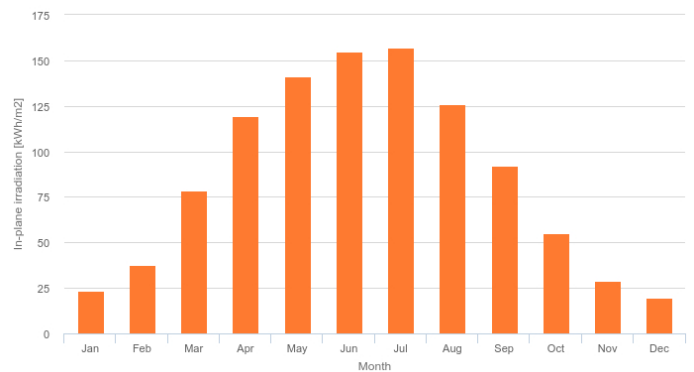
Outline of horizon at chosen location:



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	6.2	23.6	0.7
February	10.6	37.6	1.5
March	23.2	78.4	3.5
April	35.2	119.5	4.6
May	41.2	141.4	3.2
June	44.6	155.1	5.0
July	44.6	157.2	4.2
August	36.0	126.0	3.8
September	26.4	92.2	2.2
October	15.4	54.8	1.3
November	7.7	28.9	1.1
December	4.9	19.8	0.6

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].