

# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

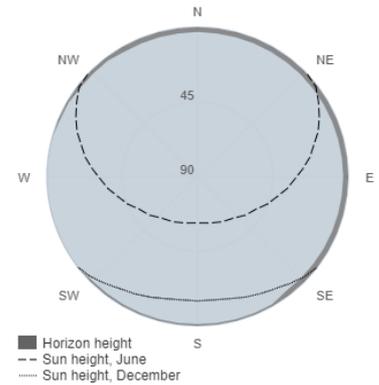
## Provided inputs:

Latitude/Longitude: 51.270,0.192  
 Horizon: Calculated  
 Database used: PVGIS-SARAH2  
 PV technology: Crystalline silicon  
 PV installed: 3 kWp  
 System loss: 14 %

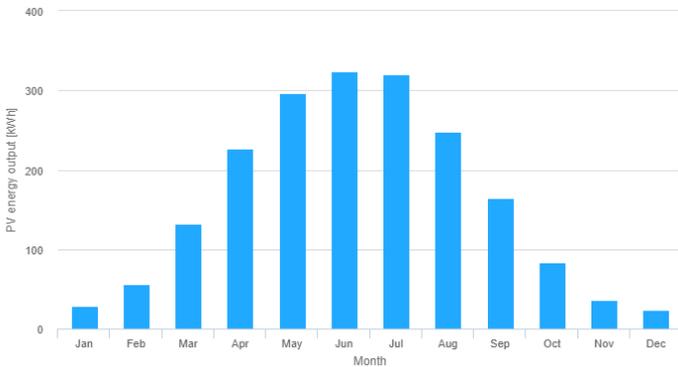
## Simulation outputs

Slope angle: 34 °  
 Azimuth angle: 135 °  
 Yearly PV energy production: 1942.07 kWh  
 Yearly in-plane irradiation: 836.87 kWh/m<sup>2</sup>  
 Year-to-year variability: 51.24 kWh  
 Changes in output due to:  
 Angle of incidence: -5.39 %  
 Spectral effects: 1.58 %  
 Temperature and low irradiance: -6.41 %  
 Total loss: -22.65 %

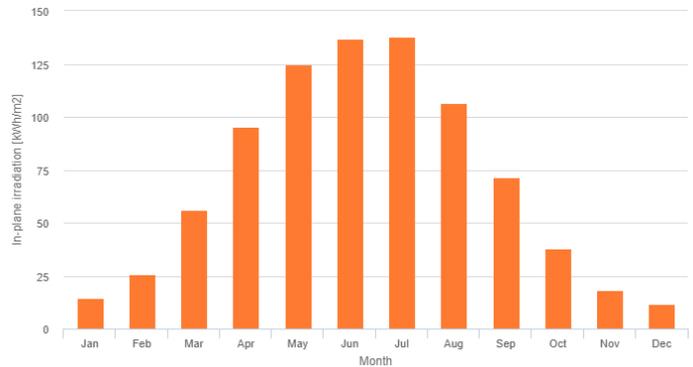
## Outline of horizon at chosen location:



## 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	29.1	14.4	2.3
February	56.6	25.8	5.2
March	132.3	56.2	11.3
April	226.9	95.1	19.9
May	297.2	124.5	29.4
June	324.2	137.1	29.5
July	320.7	137.7	22.5
August	247.7	106.6	18.9
September	164.5	71.5	9.6
October	82.9	37.9	4.1
November	36.6	18.1	1.4
December	23.3	11.9	1.6

E\_m: Average monthly electricity production from the defined system [kWh].

H(i)\_m: Average monthly sum of global irradiation per square meter received by the modules of the given system [kWh/m<sup>2</sup>].

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