

# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

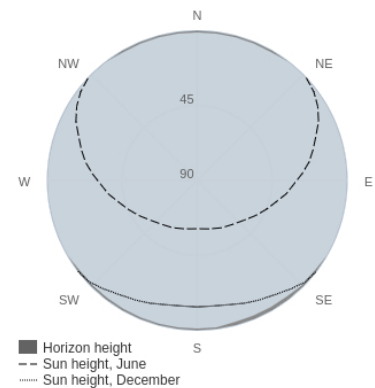
## Provided inputs:

Latitude/Longitude: 52.314,13.215  
Horizon: Calculated  
Database used: PVGIS-SARAH2  
PV technology: Crystalline silicon  
PV installed: 40.7 kWp  
System loss: 14 %

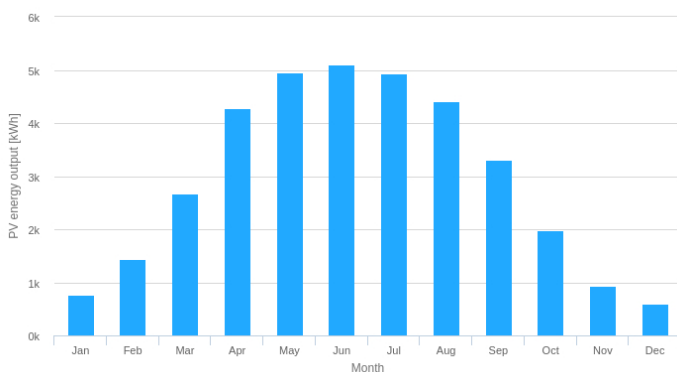
## Simulation outputs

Slope angle: 25 °  
Azimuth angle: -78 °  
Yearly PV energy production: 35403.92 kWh  
Yearly in-plane irradiation: 1133.06 kWh/m<sup>2</sup>  
Year-to-year variability: 1818.03 kWh  
Changes in output due to:  
Angle of incidence: -3.75 %  
Spectral effects: 1.65 %  
Temperature and low irradiance: -8.76 %  
Total loss: -23.23 %

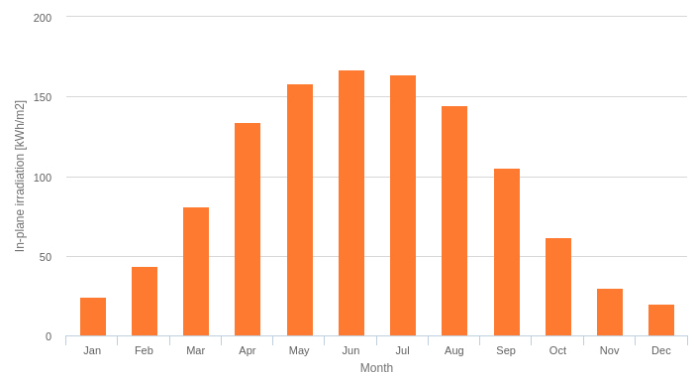
## Outline of horizon at chosen location:



## 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	767.5	24.4	130.9
February	1446.4	43.4	363.2
March	2672.8	81.1	345.3
April	4280.3	133.9	525.3
May	4950.8	158.4	745.2
June	5104.4	167.3	420.8
July	4943.2	163.6	606.3
August	4420.2	144.4	390.2
September	3310.2	105.1	346.6
October	1975.5	61.8	323.3
November	928.4	29.7	151.4
December	604.2	19.9	98.0

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].