

# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

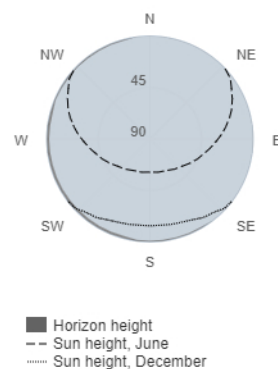
## Provided inputs:

Latitude/Longitude: 52.408, 16.930  
Horizon: Calculated  
Database used: PVGIS-CMSAF  
PV technology: Crystalline silicon  
PV installed: 9.52 kWp  
System loss: 14 %

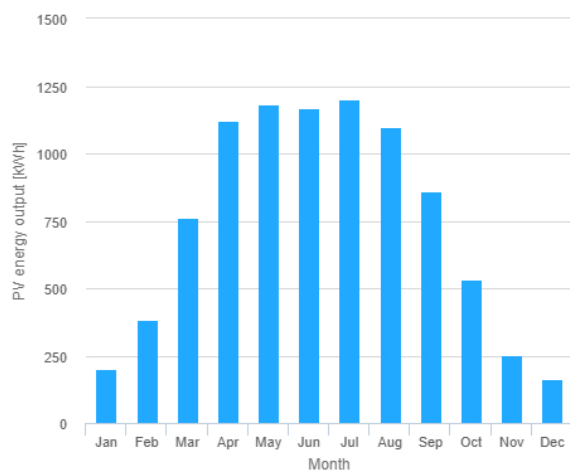
## Simulation outputs

Slope angle: 35 °  
Azimuth angle: 45 °  
Yearly PV energy production: 8920 kWh  
Yearly in-plane irradiation: 1210 kWh/m<sup>2</sup>  
Year to year variability: 458.00 %  
Changes in output due to:  
Angle of incidence: -3.2 %  
Spectral effects: 1.7 %  
Temperature and low irradiance: -8.5 %  
Total loss: -22.5 %

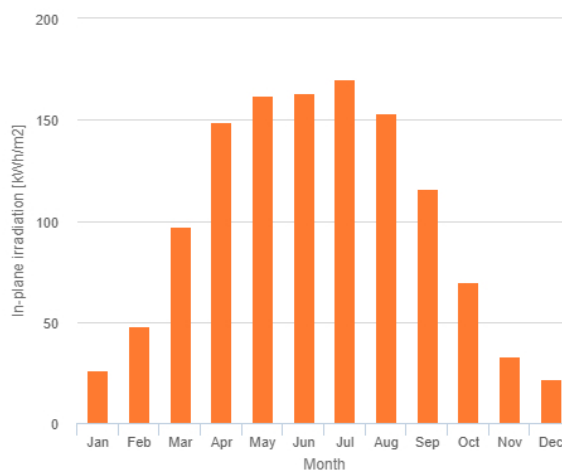
## Outline of horizon at chosen location:



## 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	203	26.1	28.5
February	384	47.7	109
March	760	97.3	130
April	1120	149	170
May	1180	162	152
June	1170	163	87.6
July	1200	170	117
August	1100	153	104
September	860	116	107
October	532	69.9	108
November	251	32.9	78.5
December	162	21.6	34.1

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/m<sup>2</sup>].

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