

# 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: 8.5 kWp  
System loss: 14 %

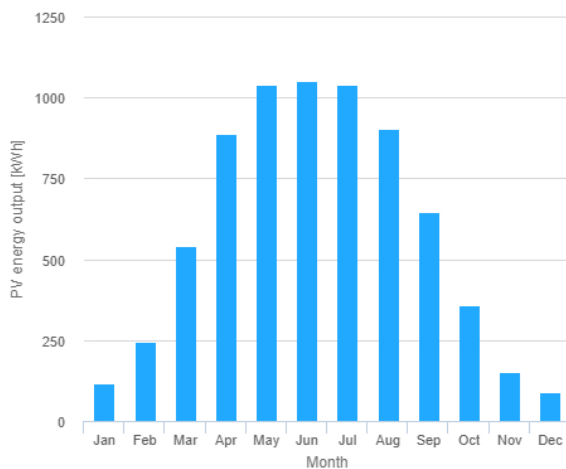
## Simulation outputs

Slope angle: 35 °  
Azimuth angle: -90 °  
Yearly PV energy production: 7070 kWh  
Yearly in-plane irradiation: 1070 kWh/m<sup>2</sup>  
Year to year variability: 252.00 %  
Changes in output due to:  
Angle of incidence: -3.6 %  
Spectral effects: 1.6 %  
Temperature and low irradiance: -8 %  
Total loss: -22.5 %

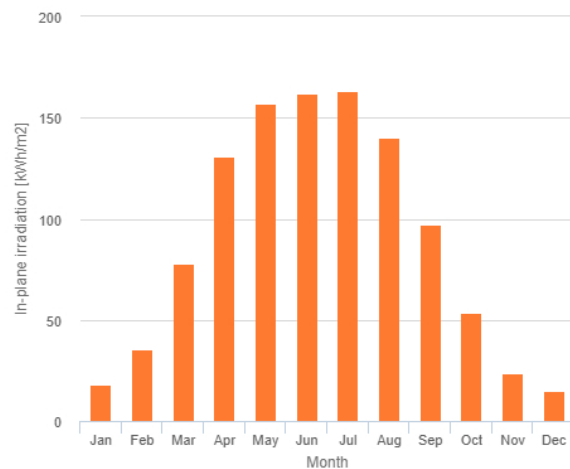
## Outline of horizon at chosen location:



## 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	117	18.2	11.7
February	246	35.5	55.5
March	541	77.7	64.4
April	888	131	97.2
May	1040	157	136
June	1050	162	92.9
July	1040	163	123
August	903	140	65.7
September	647	97.4	58.5
October	359	53.6	60.8
November	150	23.5	34.3
December	90.1	14.8	15.1

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].