

# 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: 3.74 kWp  
System loss: 14 %

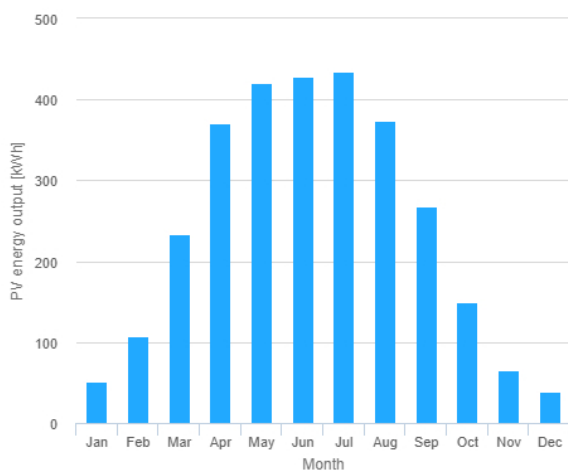
## Simulation outputs

Slope angle: 35 °  
Azimuth angle: 90 °  
Yearly PV energy production: 2940 kWh  
Yearly in-plane irradiation: 1030 kWh/m<sup>2</sup>  
Year to year variability: 128.00 %  
Changes in output due to:  
Angle of incidence: -3.9 %  
Spectral effects: 1.6 %  
Temperature and low irradiance: -8.7 %  
Total loss: -23.3 %

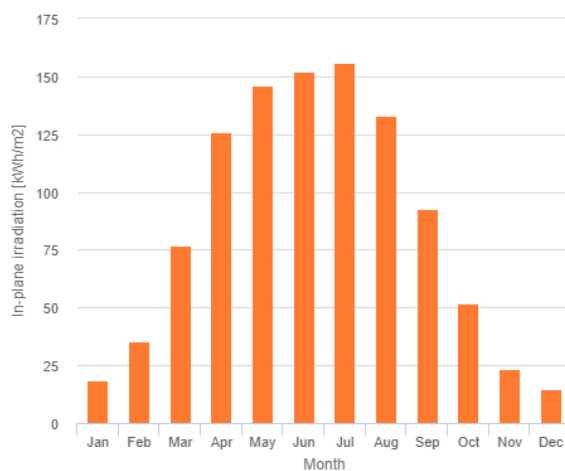
## Outline of horizon at chosen location:



## 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	51.6	18.4	5.51
February	107	35.2	23.2
March	234	76.9	31.5
April	371	126	52.9
May	420	146	48.3
June	429	152	29.3
July	435	156	40.3
August	374	133	30.8
September	268	92.7	29.4
October	150	51.6	24.7
November	65.6	23.4	15.7
December	38.8	14.7	6.2

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].