

# 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: 6.46 kWp  
System loss: 14 %

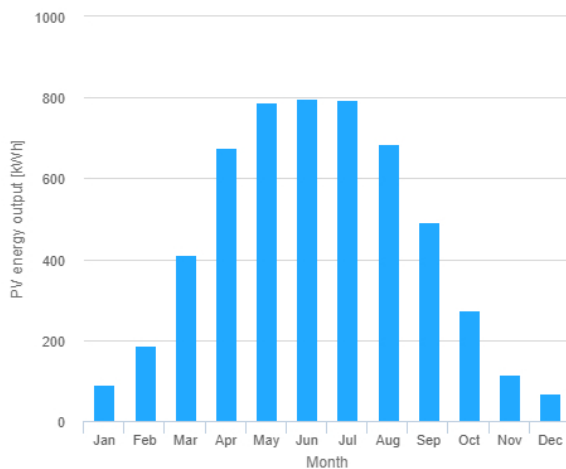
## Simulation outputs

Slope angle: 35 °  
Azimuth angle: -90 °  
Yearly PV energy production: 5370 kWh  
Yearly in-plane irradiation: 1070 kWh/m<sup>2</sup>  
Year to year variability: 191.00 %  
Changes in output due to:  
Angle of incidence: -3.6 %  
Spectral effects: 1.6 %  
Temperature and low irradiance: -8 %  
Total loss: -22.5 %

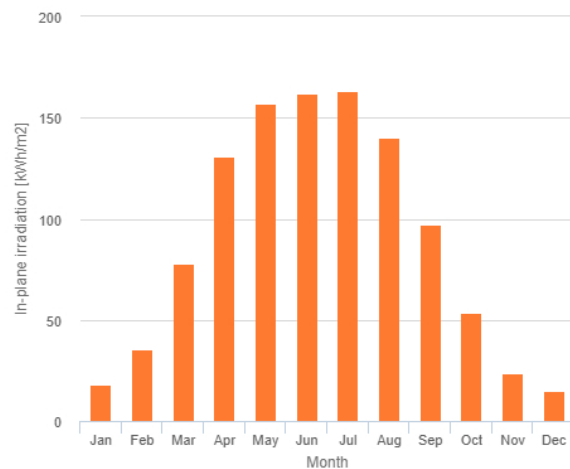
## Outline of horizon at chosen location:



## 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	88.8	18.2	8.87
February	187	35.5	42.2
March	411	77.7	48.9
April	675	131	73.8
May	787	157	103
June	797	162	70.6
July	793	163	93.3
August	686	140	49.9
September	492	97.4	44.5
October	273	53.6	46.2
November	114	23.5	26.1
December	68.5	14.8	11.5

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].