

# 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: 3.4 kWp  
System loss: 14 %

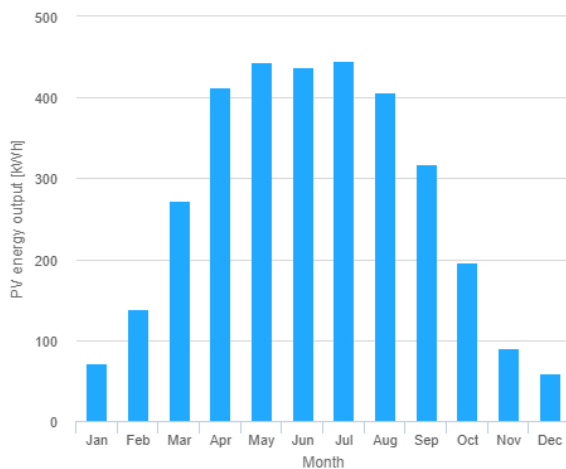
## Simulation outputs

Slope angle: 35 °  
Azimuth angle: -45 °  
Yearly PV energy production: 3290 kWh  
Yearly in-plane irradiation: 1240 kWh/m<sup>2</sup>  
Year to year variability: 150.00 %  
Changes in output due to:  
Angle of incidence: -3.1 %  
Spectral effects: 1.7 %  
Temperature and low irradiance: -8.1 %  
Total loss: -22.1 %

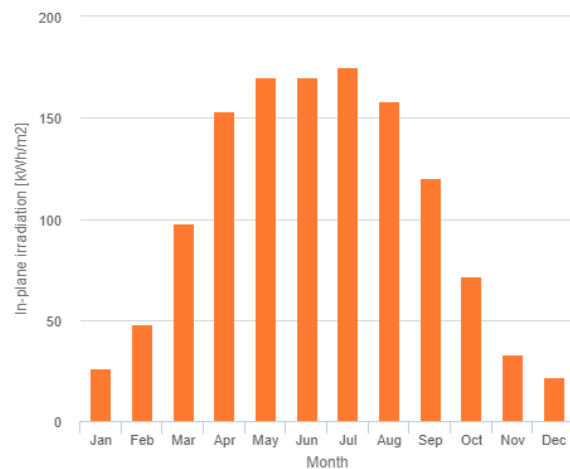
## Outline of horizon at chosen location:



## 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	72.4	25.9	9.91
February	138	48	39.1
March	273	97.8	43.9
April	412	153	53.7
May	444	170	61.1
June	438	170	39.4
July	445	175	51.4
August	406	158	36.1
September	318	120	35.8
October	196	71.6	40.6
November	90.1	33	27.5
December	58.5	21.7	12.6

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].