

# 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: 8.84 kWp  
System loss: 14 %

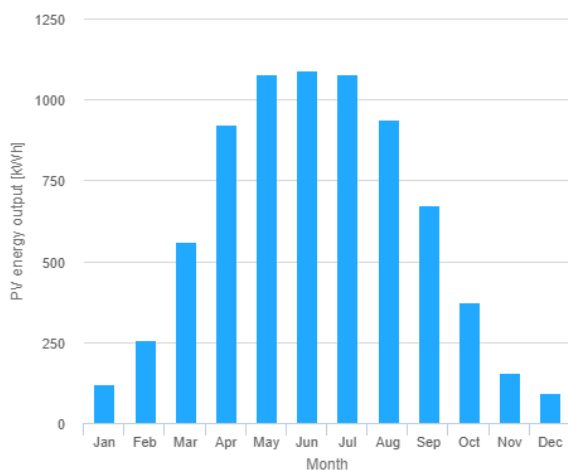
## Simulation outputs

Slope angle: 35 °  
Azimuth angle: -90 °  
Yearly PV energy production: 7350 kWh  
Yearly in-plane irradiation: 1070 kWh/m<sup>2</sup>  
Year to year variability: 262.00 %  
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 PV energy and solar irradiation

Month	Em	Hm	SDm
January	122	18.2	12.1
February	256	35.5	57.7
March	562	77.7	67
April	923	131	101
May	1080	157	141
June	1090	162	96.6
July	1080	163	128
August	939	140	68.3
September	673	97.4	60.9
October	374	53.6	63.2
November	156	23.5	35.7
December	93.7	14.8	15.8

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].

## Monthly in-plane irradiation for fixed-angle:

