

# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

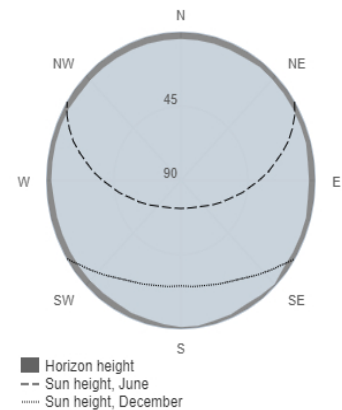
## Provided inputs:

Latitude/Longitude: 40.252, 21.887  
Horizon: Calculated  
Database used: PVGIS-SARAH  
PV technology: Crystalline silicon  
PV installed: 1000 kWp  
System loss: 14 %

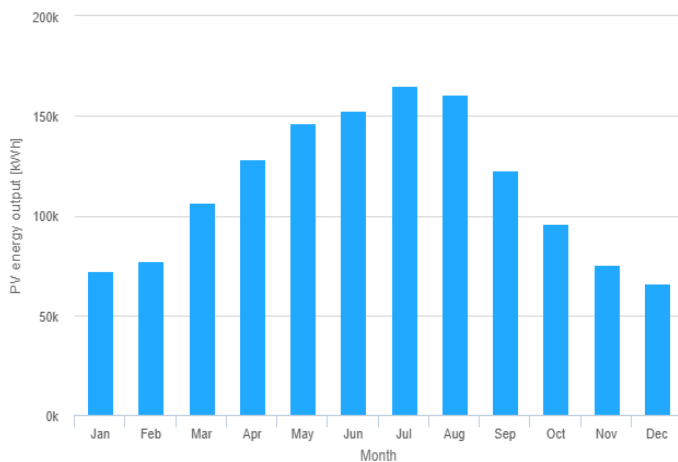
## Simulation outputs

Slope angle: 20 °  
Azimuth angle: 0 °  
Yearly PV energy production: 1368621.98 kWh  
Yearly in-plane irradiation: 1783.72 kWh/m<sup>2</sup>  
Year-to-year variability: 52988.60 kWh  
Changes in output due to:  
Angle of incidence: -2.84 %  
Spectral effects: 0.69 %  
Temperature and low irradiance: -8.8 %  
Total loss: -23.27 %

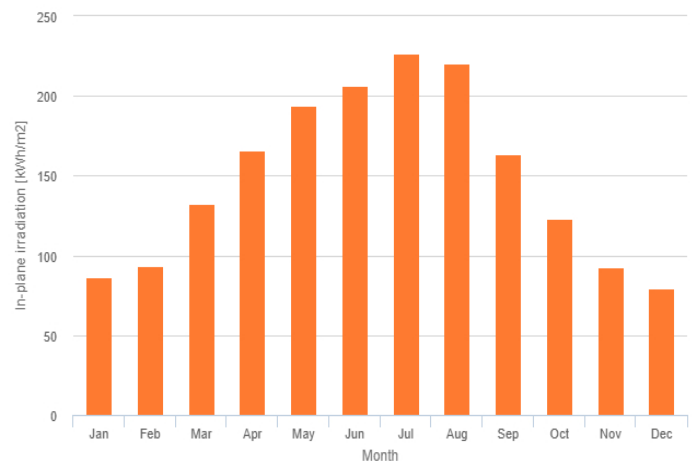
## Outline of horizon at chosen location:



## Monthly energy output from fix-angle PV system:



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



## Monthly PV energy and solar irradiation

Month	E_m	H(i)_m	SD_m
January	72082.886.3	12792.0	
February	77037.193.7	11400.5	
March	106258.632.6	12014.1	
April	128539.565.5	12245.5	
May	146589.994.1	9097.6	
June	152417.206.3	9104.1	
July	164877.226.5	9139.9	
August	160473.220.1	7550.4	
September	123006.363.5	11175.4	
October	95864.5122.8	13435.2	
November	75406.192.8	12559.9	
December	66069.179.6	11899.4	

E\_m: Average monthly electricity production from the given system [kWh].

H(i)\_m: Average monthly sum of global irradiation per square meter received by the modules of the given system [kWh/m²].

SD\_m: Standard deviation of the monthly electricity production due to year-to-year variation [kWh].