

# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

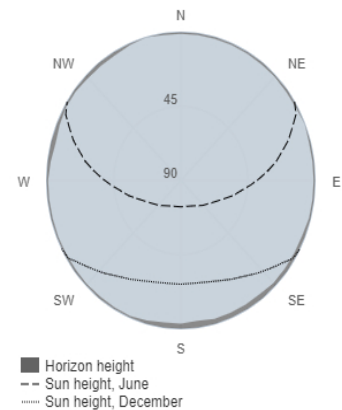
## Provided inputs:

Latitude/Longitude: 38.970, 23.098  
Horizon: Calculated  
Database used: PVGIS-SARAH  
PV technology: Crystalline silicon  
PV installed: 499.79 kWp  
System loss: 14 %

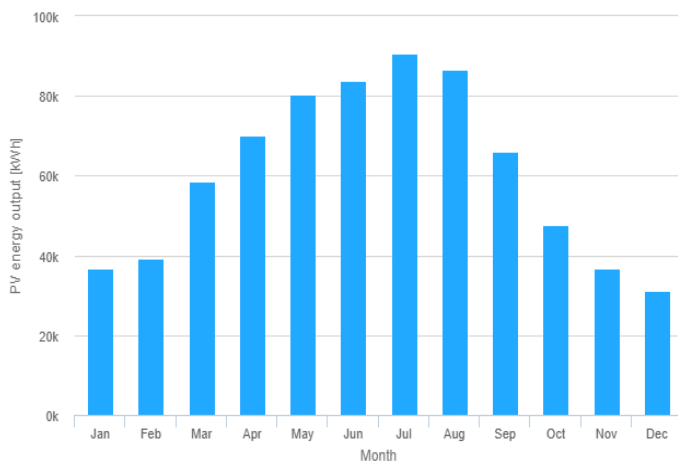
## Simulation outputs

Slope angle: 20 °  
Azimuth angle: 0 °  
Yearly PV energy production: 727305.92 kWh  
Yearly in-plane irradiation: 1883.04 kWh/m<sup>2</sup>  
Year-to-year variability: 12856.07 kWh  
Changes in output due to:  
Angle of incidence: -2.77 %  
Spectral effects: 0.61 %  
Temperature and low irradiance: -8.14 %  
Total loss: -22.72 %

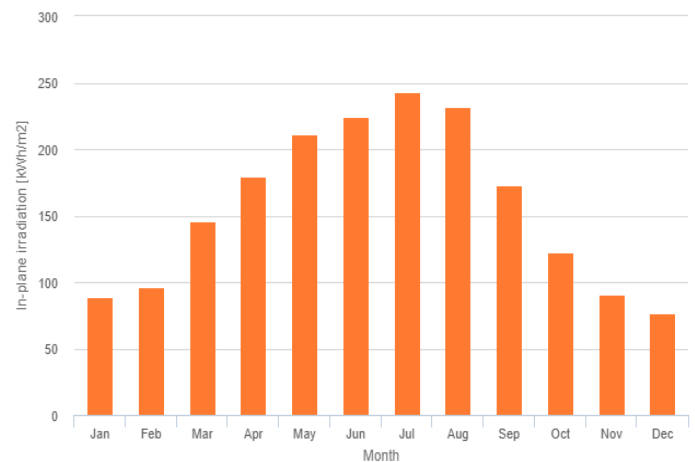
## Outline of horizon at chosen location:



## 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	36646.888.9	6669.5	
February	39129.596.0	5481.7	
March	58549.8146.0	6390.0	
April	70152.8179.8	5406.9	
May	80269.6211.0	4795.5	
June	83811.6224.4	3849.7	
July	90540.5242.9	2003.5	
August	86512.5231.3	1474.0	
September	65976.9173.3	5308.9	
October	47780.1122.2	5998.5	
November	36705.891.0	6251.2	
December	31230.076.2	4746.4	

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/m<sup>2</sup>].

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