

# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

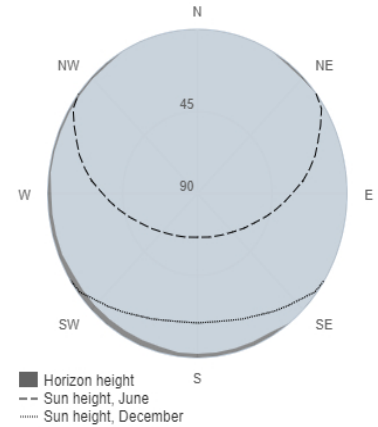
**Provided inputs:**

Latitude/Longitude: 46.983,28.877  
 Horizon: Calculated  
 Database used: PVGIS-SARAH  
 PV technology: Crystalline silicon  
 PV installed: 850 kWp  
 System loss: 14 %

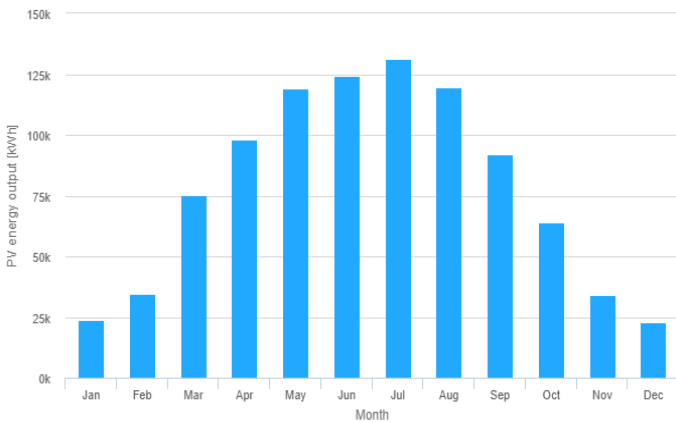
**Simulation outputs**

Slope angle: 20 °  
 Azimuth angle: -45 °  
 Yearly PV energy production: 939269.16 kWh  
 Yearly in-plane irradiation: 1411.95 kWh/m<sup>2</sup>  
 Year-to-year variability: 41764.77 kWh  
 Changes in output due to:  
     Angle of incidence: -3.15 %  
     Spectral effects: 1.16 %  
     Temperature and low irradiance: -7.11 %  
 Total loss: -21.74 %

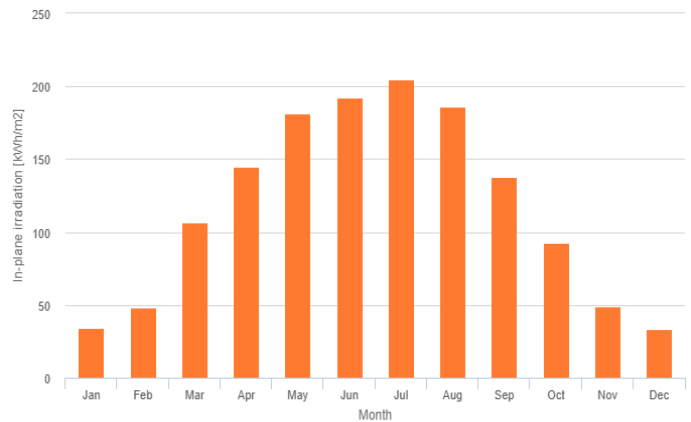
**Outline of horizon at chosen location:**



**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	23935.734.0	6059.3	
February	34398.148.2	8824.5	
March	75399.3106.9	9952.6	
April	98325.3145.1	10462.6	
May	118928.581.2	8708.1	
June	124378.892.3	9870.5	
July	131336.205.0	8194.4	
August	119483.385.8	8836.5	
September	92170.0138.1	12117.3	
October	63860.092.7	7844.8	
November	34113.849.2	4296.1	
December	22940.133.3	8779.7	

E\_m: Average monthly electricity production from the defined 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].

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