

# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

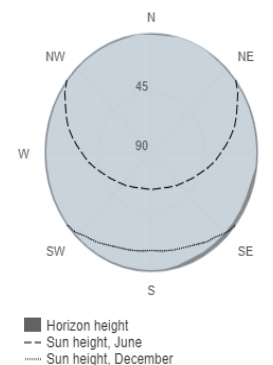
## Provided inputs:

Latitude/Longitude: 50.593, 17.244  
Horizon: Calculated  
Database used: PVGIS-SARAH  
PV technology: Crystalline silicon  
PV installed: 2 kWp  
System loss: 15 %

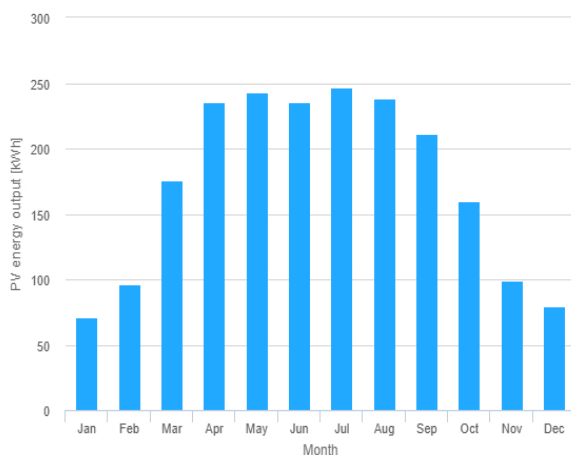
## Simulation outputs

Slope angle: 45 °  
Azimuth angle: 0 °  
Yearly PV energy production: 2092.63 kWh  
Yearly in-plane irradiation: 1318.89 kWh/m<sup>2</sup>  
Year-to-year variability: 117.94 kWh  
Changes in output due to:  
Angle of incidence: -2.86 %  
Spectral effects: 1.72 %  
Temperature and low irradiance: -5.54 %  
Total loss: -20.67 %

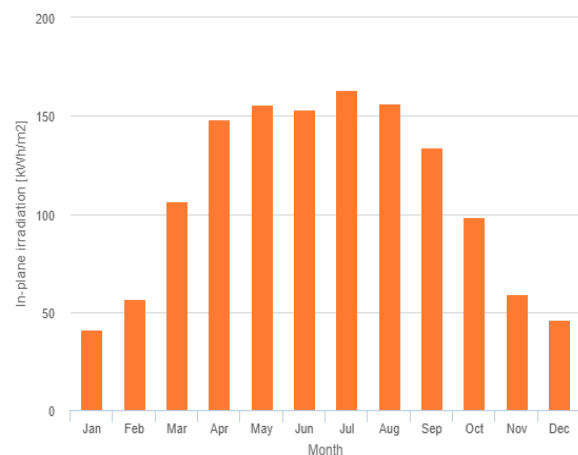
## Outline of horizon at chosen location:



## 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	70.9	41.0	18.4
February	96.5	56.6	35.3
March	175.6	106.4	45.9
April	235.9	148.1	37.9
May	243.4	155.9	39.7
June	235.6	153.5	25.7
July	246.9	163.5	26.9
August	238.8	156.4	21.7
September	210.8	134.0	35.4
October	159.6	98.2	31.6
November	99.3	59.0	28.2
December	79.4	46.3	26.1

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].