



# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

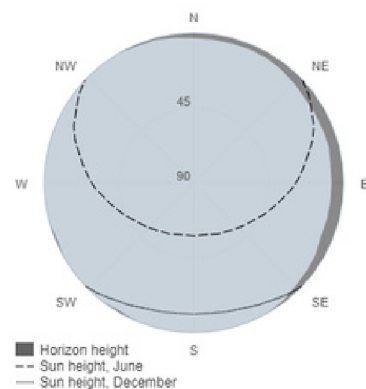
### Provided inputs:

Latitude/Longitude: [REDACTED]  
 Horizon: Calculated  
 Database used: PVGIS-SARAH2  
 PV technology: Crystalline silicon  
 PV installed: 3.5 kWp  
 System loss: 14 %

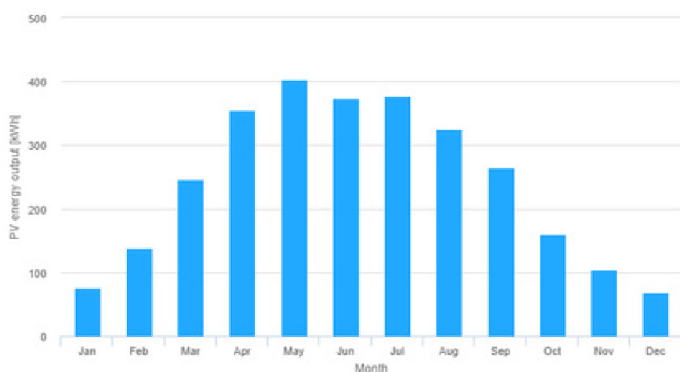
### Simulation outputs

Slope angle: 30 °  
 Azimuth angle: 20 °  
 Yearly PV energy production: 2896.01 kWh  
 Yearly in-plane irradiation: 1047.57 kWh/m<sup>2</sup>  
 Year-to-year variability: 90.91 kWh  
 Changes in output due to:  
 Angle of incidence: -3.43 %  
 Spectral effects: 1.91 %  
     Temperature and low irradiance: -6.68 %  
 Total loss: -21.01 %

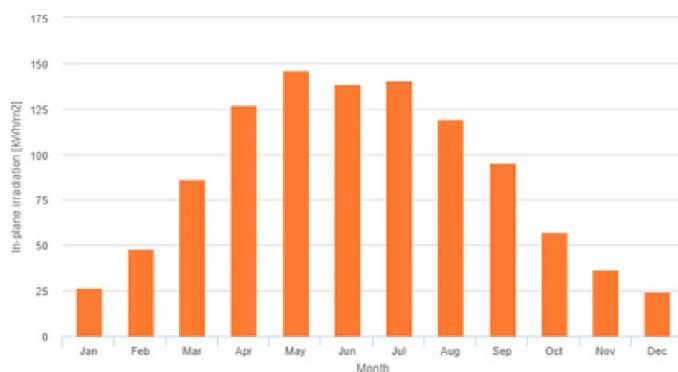
### Outline of horizon at chosen location:



### 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	76.8	26.9	13.0
February	137.9	48.0	25.8
March	246.7	86.4	30.3
April	354.9	127.0	53.5
May	403.2	146.3	45.2
June	374.4	138.7	40.6
July	377.2	140.8	57.4
August	326.2	119.6	30.6
September	264.1	95.6	29.3
October	160.9	57.0	26.6
November	104.7	36.8	16.2
December	69.1	24.4	12.2

E<sub>m</sub>: Average monthly electricity production from the defined system [kWh].  
 H(i)<sub>m</sub>: Average monthly sum of global irradiation per square meter received by the modules of the given system [kWh/m<sup>2</sup>].  
 SD<sub>m</sub>: Standard deviation of the monthly electricity production due to year-to-year variation [kWh].

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# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

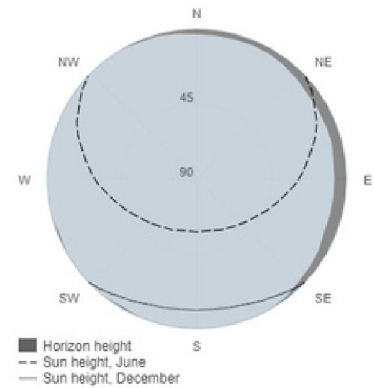
## Provided inputs:

Latitude/Longitude: XXXXXXXXXX  
 Horizon: Calculated  
 Database used: PVGIS-SARAH2  
 PV technology: Crystalline silicon  
 PV installed: 10 kWp  
 System loss: 14 %

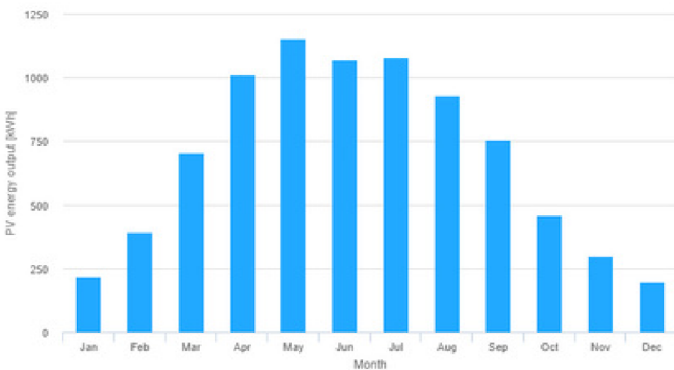
## Simulation outputs

Slope angle: 30 °  
 Azimuth angle: 20 °  
 Yearly PV energy production: 8274.32 kWh  
 Yearly in-plane irradiation: 1047.57 kWh/m<sup>2</sup>  
 Year-to-year variability: 259.75 kWh  
 Changes in output due to:  
 Angle of incidence: -3.43 %  
 Spectral effects: 1.91 %  
     Temperature and low irradiance: -6.68 %  
 Total loss: -21.01 %

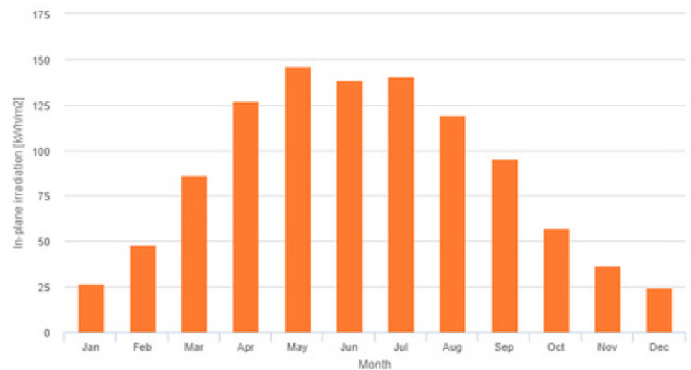
## Outline of horizon at chosen location:



## 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	219.3	26.9	37.1
February	394.1	48.0	73.7
March	704.8	86.4	86.5
April	1014.0	127.0	152.9
May	1152.0	146.3	129.2
June	1069.6	138.7	116.0
July	1077.7	140.8	164.0
August	932.0	119.6	87.4
September	754.5	95.6	83.7
October	459.6	57.0	75.9
November	299.2	36.8	46.3
December	197.5	24.4	34.9

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

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