

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

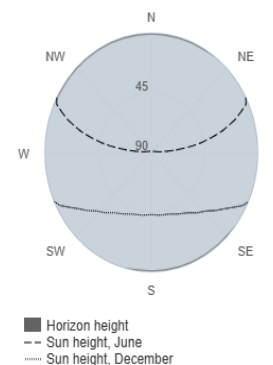
Provided inputs:

Latitude/Longitude: 23.143,-82.268
Horizon: Calculated
Database used: PVGIS-ERA5
PV technology: Cryst Sil Original
PV installed: 100 kWp
System loss: 14 %

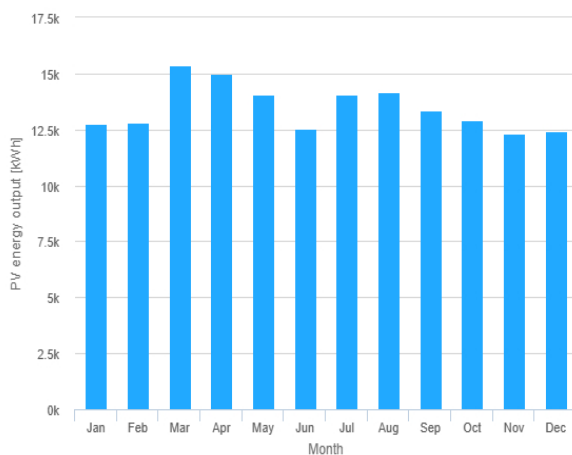
Simulation outputs

Slope angle: 24 (opt) °
Azimuth angle: -13 (opt) °
Yearly PV energy production: 161767.72 kWh
Yearly in-plane irradiation: 2135.93 kWh/m²
Year-to-year variability: 2604.24 kWh
Changes in output due to:
Angle of incidence: -2.63 %
Spectral effects: NaN %
Temperature and low irradiance: -9.55 %
Total loss: -24.26 %

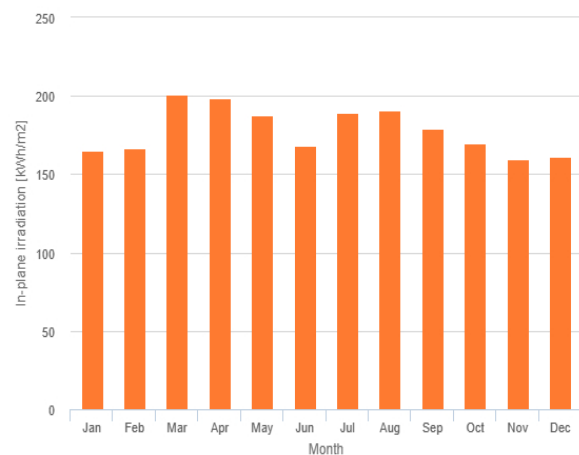
Outline of horizon at chosen location:



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	12758.1164.7	941.4	
February	12811.2166.4	642.9	
March	15372.0200.6	516.5	
April	14993.0198.7	341.3	
May	14076.7187.9	1070.1	
June	12515.6168.0	718.7	
July	14072.8189.5	539.6	
August	14172.6191.0	458.0	
September	13351.9178.9	493.5	
October	12897.7169.8	1047.1	
November	12298.2159.3	750.6	
December	12447.8161.1	736.8	

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].