

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

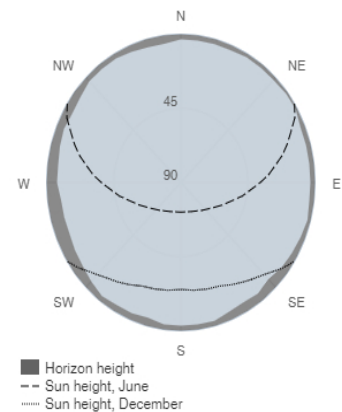
Provided inputs:

Latitude/Longitude: 41.319,23.794
 Horizon: Calculated
 Database used: PVGIS-SARAH2
 PV technology: Crystalline silicon
 PV installed: 1000 kWp
 System loss: 14 %

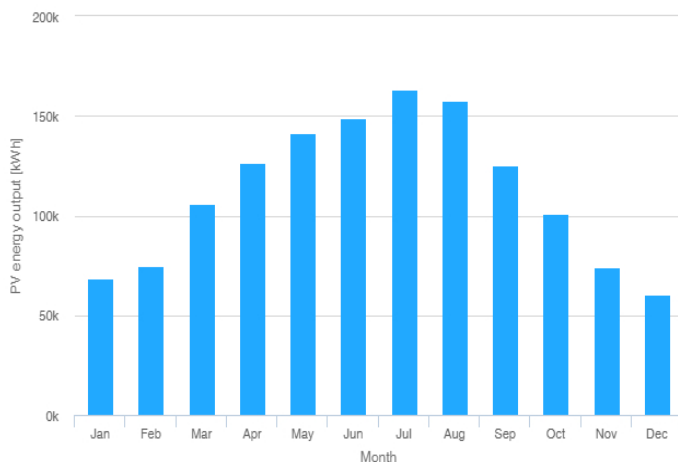
Simulation outputs

Slope angle: 20 °
 Azimuth angle: 0 °
 Yearly PV energy production: 1348714.62 kWh
 Yearly in-plane irradiation: 1716.05 kWh/m²
 Year-to-year variability: 53649.92 kWh
 Changes in output due to:
 Angle of incidence: -2.89 %
 Spectral effects: 0.89 %
 Temperature and low irradiance: -6.72 %
 Total loss: -21.41 %

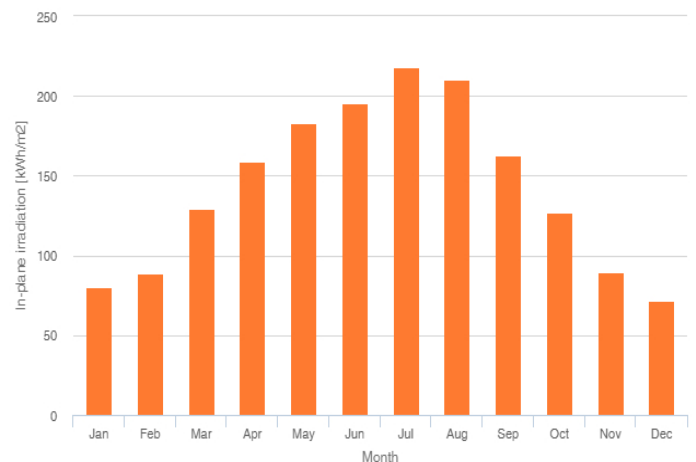
Outline of horizon at chosen location:



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	68255.580.4	17647.5	
February	74945.189.1	15227.5	
March	106207.429.4	14004.8	
April	126711.159.2	13930.1	
May	141709.982.9	11235.7	
June	149044.695.8	11303.1	
July	163436.218.0	8244.4	
August	157411.210.2	9211.3	
September	125411.462.5	10266.7	
October	101169.526.9	15162.7	
November	74176.789.7	12730.6	
December	60236.471.9	14894.0	

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].