

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

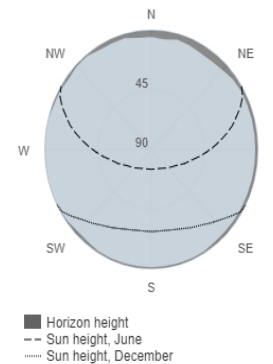
Provided inputs:

Latitude/Longitude: 37.841, 27.832
 Horizon: Calculated
 Database used: PVGIS-SARAH
 PV technology: Crystalline silicon
 PV installed: 10 kWp
 System loss: 14 %

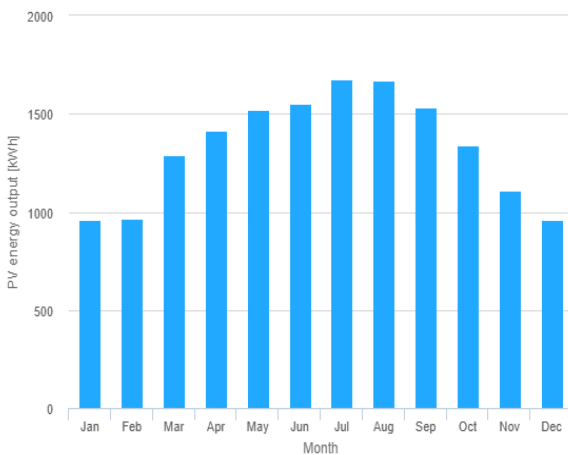
Simulation outputs

Slope angle: 35 °
 Azimuth angle: 0 °
 Yearly PV energy production: 15984.44 kWh
 Yearly in-plane irradiation: 2119.33 kWh/m²
 Year-to-year variability: 371.04 kWh
 Changes in output due to:
 Angle of incidence: -2.53 %
 Spectral effects: 0.45 %
 Temperature and low irradiance: -10.43 %
 Total loss: -24.58 %

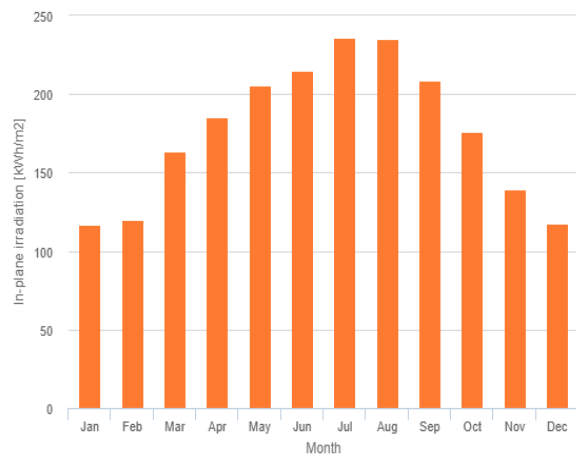
Outline of horizon at chosen location:



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	961.2	116.9	121.0
February	967.5	120.2	138.1
March	1287.4	163.6	103.2
April	1414.1	185.4	110.5
May	1522.1	205.3	84.4
June	1550.0	214.8	63.6
July	1673.0	235.7	14.6
August	1671.4	235.2	33.8
September	1529.9	208.8	80.3
October	1337.8	175.9	105.6
November	1108.6	139.5	127.6
December	961.5	118.0	173.2

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].