

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

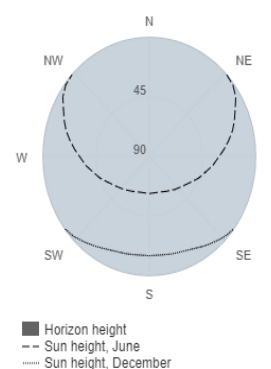
Provided inputs:

Latitude/Longitude: 50.731, 17.438
 Horizon: Calculated
 Database used: PVGIS-SARAH
 PV technology: Crystalline silicon
 PV installed: 7 kWp
 System loss: 15 %

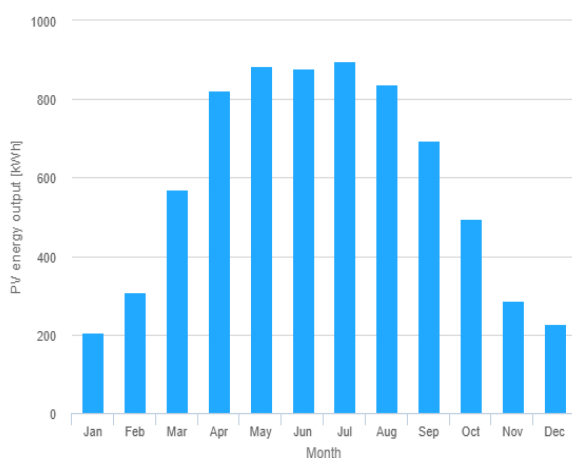
Simulation outputs

Slope angle: 35 °
 Azimuth angle: 35 °
 Yearly PV energy production: 7109.3 kWh
 Yearly in-plane irradiation: 1287.09 kWh/m²
 Year-to-year variability: 386.73 kWh
 Changes in output due to:
 Angle of incidence: -3.09 %
 Spectral effects: 1.64 %
 Temperature and low irradiance: -5.76 %
 Total loss: -21.09 %

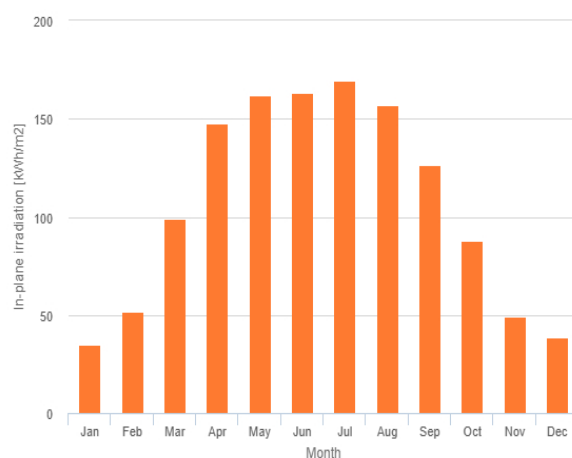
Outline of horizon at chosen location:



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	206.9	34.9	60.6
February	306.9	51.6	99.1
March	570.1	99.0	133.5
April	822.8	147.6	126.8
May	885.7	162.2	131.1
June	879.4	163.5	96.1
July	895.7	169.4	98.6
August	836.6	156.7	86.0
September	695.2	126.5	119.7
October	495.2	87.5	100.7
November	286.8	49.4	82.7
December	228.0	38.7	57.9

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].