

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

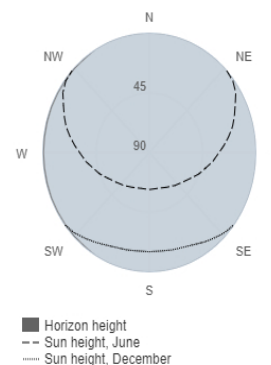
Provided inputs:

Latitude/Longitude: 50.728, 17.360
Horizon: Calculated
Database used: PVGIS-SARAH
PV technology: Crystalline silicon
PV installed: 6 kWp
System loss: 15 %

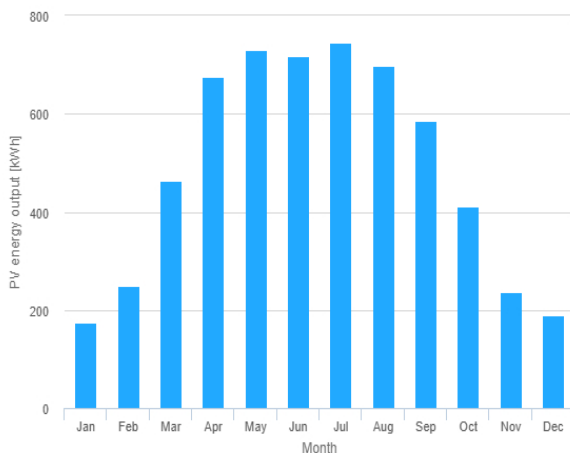
Simulation outputs

Slope angle: 45 °
Azimuth angle: -45 °
Yearly PV energy production: 5876 kWh
Yearly in-plane irradiation: 1237.79 kWh/m²
Year-to-year variability: 309.96 kWh
Changes in output due to:
Angle of incidence: -2.92 %
Spectral effects: 1.63 %
Temperature and low irradiance: -5.66 %
Total loss: -20.88 %

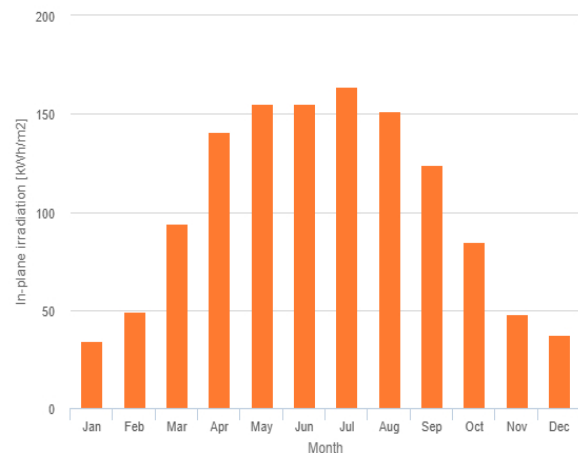
Outline of horizon at chosen location:



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	173.4	34.3	49.2
February	248.8	49.0	91.4
March	463.7	93.9	116.0
April	676.1	140.9	93.6
May	730.3	155.4	128.0
June	718.6	155.4	76.6
July	745.1	163.6	83.5
August	696.8	151.5	71.6
September	586.7	124.1	86.4
October	410.8	84.6	76.3
November	236.9	47.7	69.1
December	188.8	37.5	52.3

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].