

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

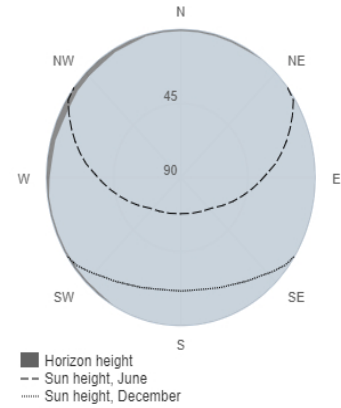
Provided inputs:

Latitude/Longitude: 44.661,24.256
 Horizon: Calculated
 Database used: PVGIS-SARAH2
 PV technology: Crystalline silicon
 PV installed: 48 kWp
 System loss: 14 %

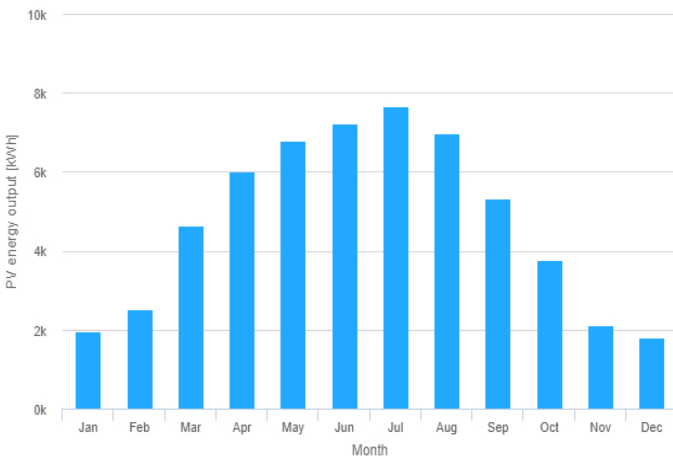
Simulation outputs

Slope angle: 10 °
 Azimuth angle: 0 °
 Yearly PV energy production: 56810.12 kWh
 Yearly in-plane irradiation: 1523.2 kWh/m²
 Year-to-year variability: 2358.93 kWh
 Changes in output due to:
 Angle of incidence: -3.25 %
 Spectral effects: 0.96 %
 Temperature and low irradiance: -7.5 %
 Total loss: -22.3 %

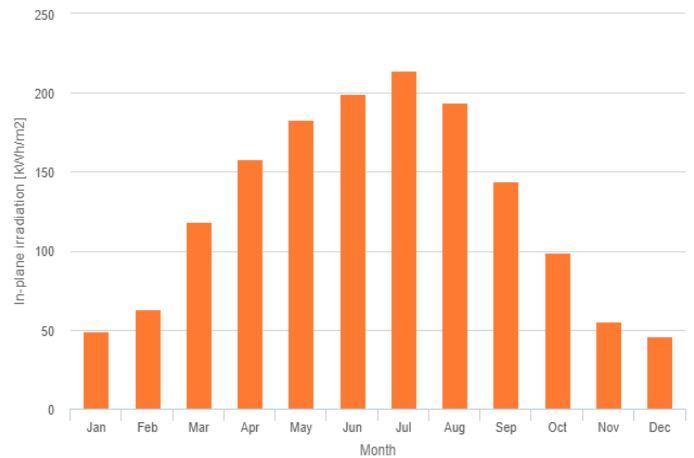
Outline of horizon at chosen location:



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	1949.9	49.1	583.8
February	2508.4	62.8	675.1
March	4639.5	118.0	668.5
April	6001.1	158.0	660.5
May	6778.1	183.3	479.1
June	7242.6	199.7	463.6
July	7671.9	214.2	384.6
August	6979.5	193.9	534.7
September	5329.1	143.9	438.4
October	3784.7	99.2	611.4
November	2130.3	55.0	411.0
December	1795.1	46.2	503.7

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].