

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

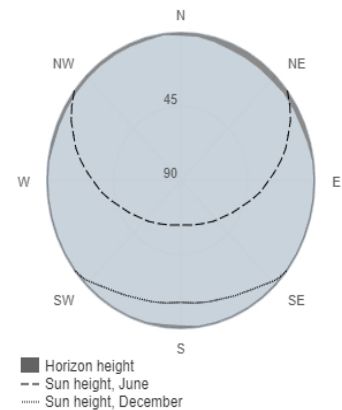
Provided inputs:

Latitude/Longitude: 50.435,15.579
Horizon: Calculated
Database used: PVGIS-SARAH2
PV technology: Crystalline silicon
PV installed: 28.8 kWp
System loss: 14 %

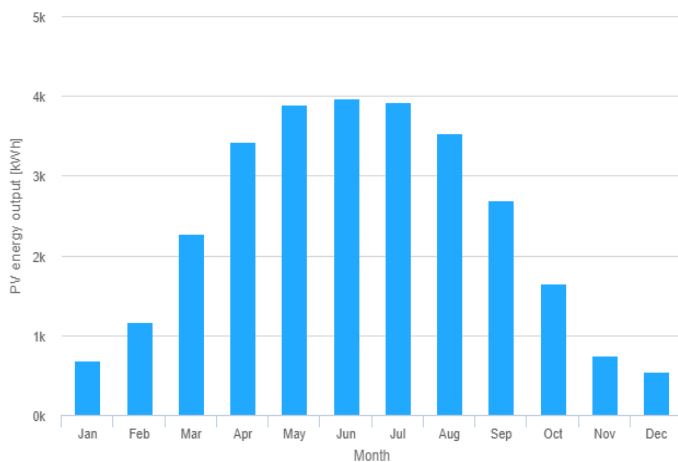
Simulation outputs

Slope angle: 10 °
Azimuth angle: 13 °
Yearly PV energy production: 28570.69 kWh
Yearly in-plane irradiation: 1249.8 kWh/m²
Year-to-year variability: 1234.46 kWh
Changes in output due to:
Angle of incidence: -3.72 %
Spectral effects: 1.54 %
Temperature and low irradiance: -5.59 %
Total loss: -20.62 %

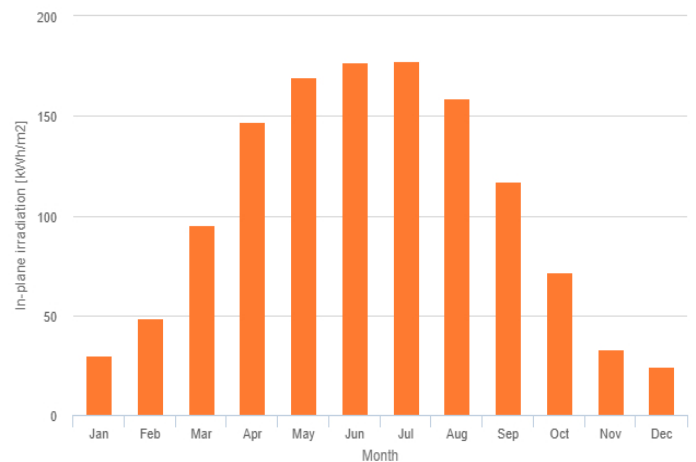
Outline of horizon at chosen location:



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	691.7	29.6	168.3
February	1175.4	48.7	297.6
March	2280.3	95.2	323.7
April	3433.6	147.1	497.4
May	3894.8	169.4	499.5
June	3976.2	177.0	370.5
July	3932.8	177.8	375.2
August	3536.6	158.7	325.3
September	2688.4	117.3	299.1
October	1658.2	71.5	324.6
November	752.4	33.0	135.9
December	550.4	24.5	89.2

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].