

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

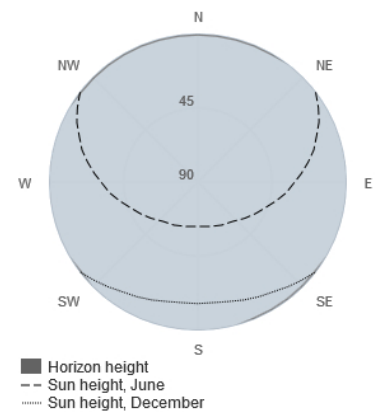
Provided inputs:

Latitude/Longitude: 50.174, 14.539
Horizon: Calculated
Database used: PVGIS-SARAH
PV technology: Crystalline silicon
PV installed: 5 kWp
System loss: 14 %

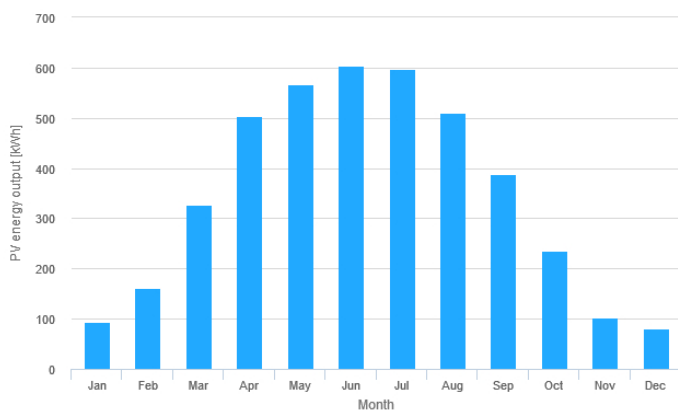
Simulation outputs

Slope angle: 35 °
Azimuth angle: 90 °
Yearly PV energy production: 4170.1 kWh
Yearly in-plane irradiation: 1062.72 kWh/m²
Year to year variability: 183.95 kWh
Changes in output due to:
Angle of incidence: -3.87 %
Spectral effects: 1.51 %
Temperature and low irradiance: -6.48 %
Total loss: -21.52 %

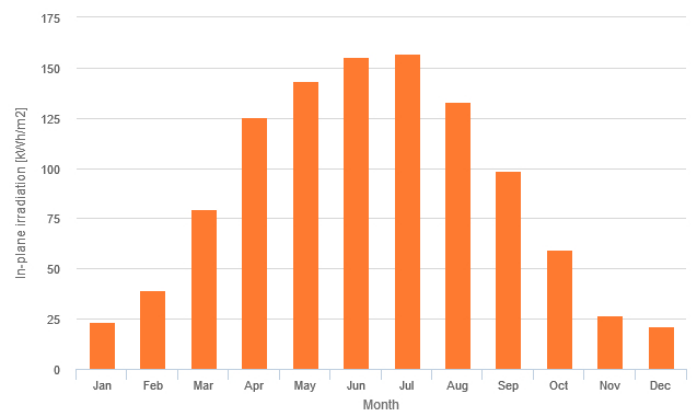
Outline of horizon at chosen location:



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	92.8	23.7	14.0
February	161.8	39.5	28.0
March	326.6	79.7	47.8
April	502.8	125.3	69.3
May	567.0	143.2	72.9
June	603.1	155.2	38.8
July	598.1	156.8	53.2
August	511.1	133.0	50.0
September	387.1	98.6	52.0
October	235.7	59.5	50.1
November	103.2	26.8	15.8
December	80.8	21.3	11.0

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].