

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

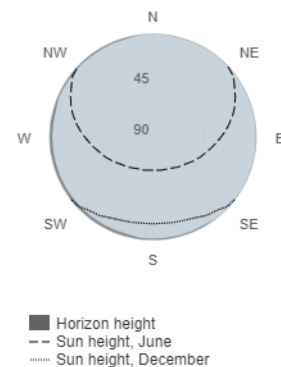
Provided inputs:

Latitude/Longitude: 52.408, 16.930
Horizon: Calculated
Database used: PVGIS-CMSAF
PV technology: Crystalline silicon
PV installed: 5.78 kWp
System loss: 14 %

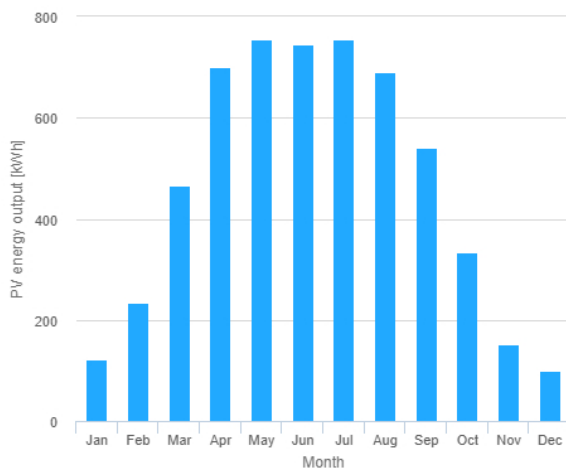
Simulation outputs

Slope angle: 35 °
Azimuth angle: -45 °
Yearly PV energy production: 5600 kWh
Yearly in-plane irradiation: 1240 kWh/m²
Year to year variability: 256.00 %
Changes in output due to:
Angle of incidence: -3.1 %
Spectral effects: 1.7 %
Temperature and low irradiance: -8.1 %
Total loss: -22.1 %

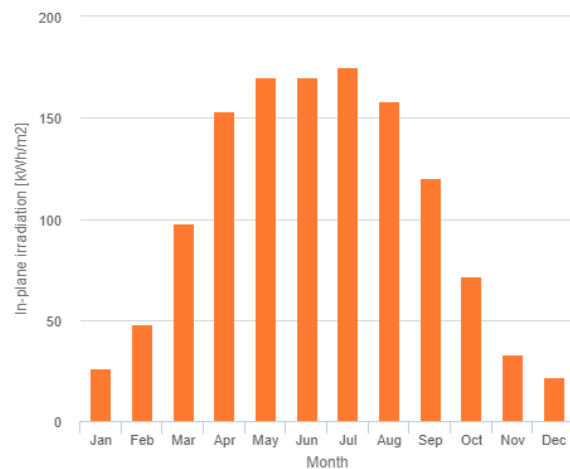
Outline of horizon at chosen location:



Monthly energy output from fix-angle PV system:



Monthly in-plane irradiation for fixed-angle:



Monthly PV energy and solar irradiation

Month	Em	Hm	SDm
January	123	25.9	16.9
February	235	48	66.4
March	465	97.8	74.6
April	701	153	91.2
May	756	170	104
June	745	170	66.9
July	756	175	87.4
August	690	158	61.3
September	541	120	60.8
October	333	71.6	69
November	153	33	46.7
December	99.5	21.7	21.5

Em: Average monthly electricity production from the given system [kWh].

Hm: Average monthly sum of global irradiation per square meter received by the modules of the given system [kWh/m²].

SDm: Standard deviation of the monthly electricity production due to year-to-year variation [kWh].