

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

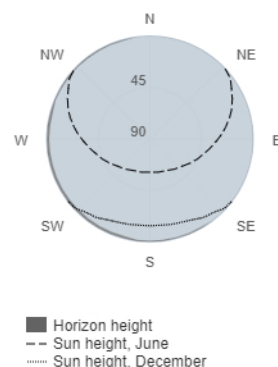
Provided inputs:

Latitude/Longitude: 52.408, 16.930
Horizon: Calculated
Database used: PVGIS-CMSAF
PV technology: Crystalline silicon
PV installed: 6.46 kWp
System loss: 14 %

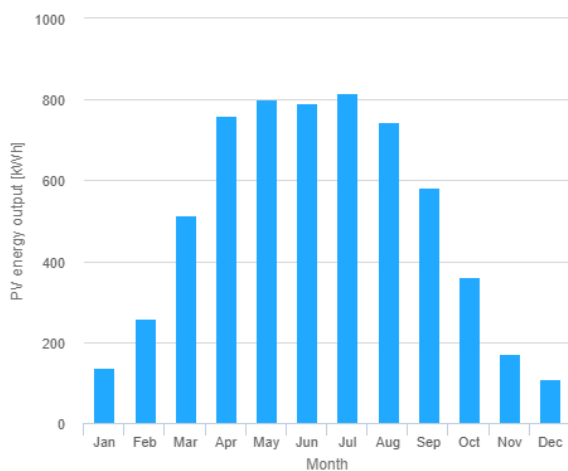
Simulation outputs

Slope angle: 35 °
Azimuth angle: 45 °
Yearly PV energy production: 6050 kWh
Yearly in-plane irradiation: 1210 kWh/m²
Year to year variability: 310.00 %
Changes in output due to:
Angle of incidence: -3.2 %
Spectral effects: 1.7 %
Temperature and low irradiance: -8.5 %
Total loss: -22.5 %

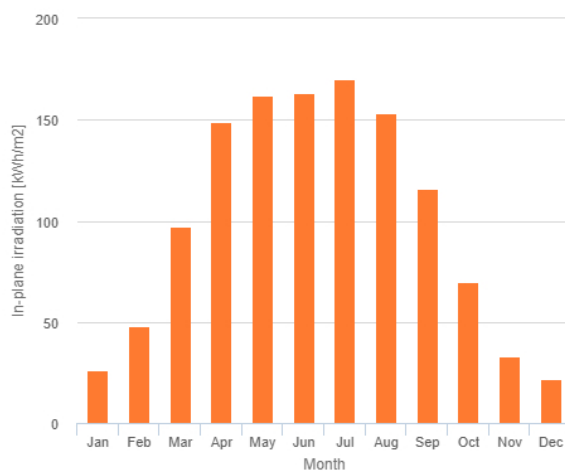
Outline of horizon at chosen location:



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	138	26.1	19.3
February	260	47.7	73.8
March	515	97.3	88.5
April	759	149	115
May	801	162	103
June	792	163	59.4
July	816	170	79.7
August	744	153	70.5
September	584	116	72.9
October	361	69.9	73.6
November	170	32.9	53.3
December	110	21.6	23.1

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].