

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: 7.82 kWp
System loss: 14 %

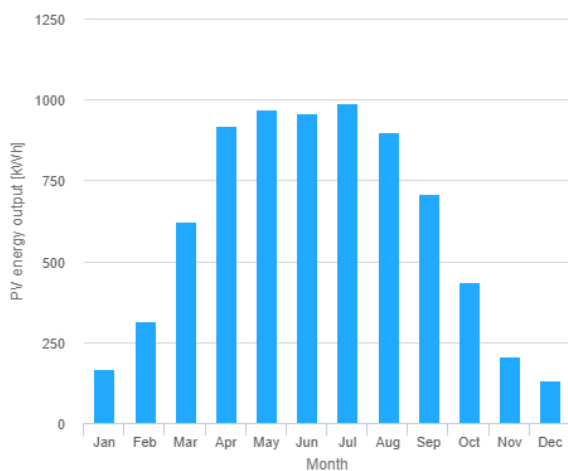
Simulation outputs

Slope angle: 35 °
Azimuth angle: 45 °
Yearly PV energy production: 7320 kWh
Yearly in-plane irradiation: 1210 kWh/m²
Year to year variability: 376.00 %
Changes in output due to:
Angle of incidence: -3.2 %
Spectral effects: 1.7 %
Temperature and low irradiance: -8.5 %
Total loss: -22.5 %

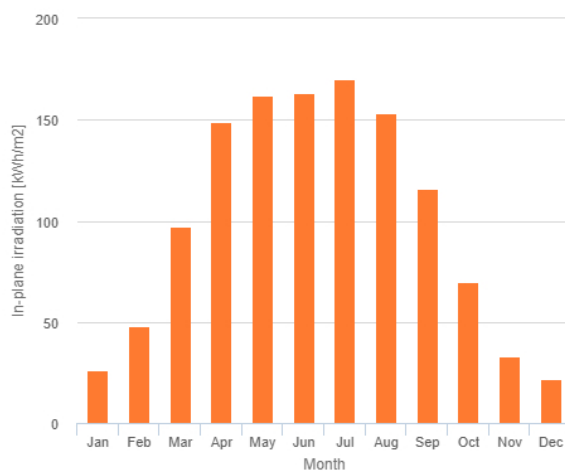
Outline of horizon at chosen location:



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	167	26.1	23.4
February	315	47.7	89.3
March	624	97.3	107
April	919	149	140
May	970	162	125
June	959	163	71.9
July	988	170	96.5
August	900	153	85.4
September	707	116	88.2
October	437	69.9	89
November	206	32.9	64.5
December	133	21.6	28

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].