

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: 6.8 kWp
System loss: 14 %

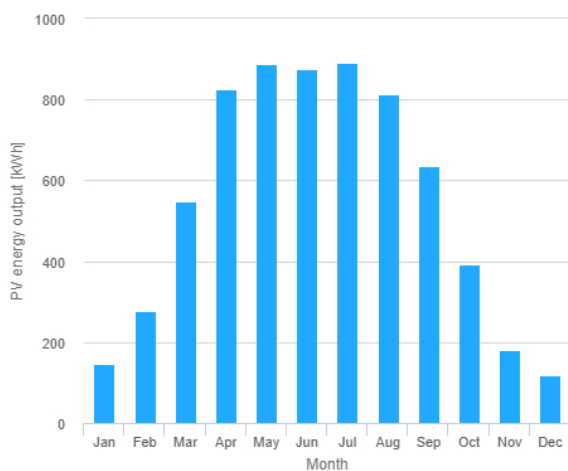
Simulation outputs

Slope angle: 35 °
Azimuth angle: -45 °
Yearly PV energy production: 6590 kWh
Yearly in-plane irradiation: 1240 kWh/m²
Year to year variability: 301.00 %
Changes in output due to:
Angle of incidence: -3.1 %
Spectral effects: 1.7 %
Temperature and low irradiance: -8.1 %
Total loss: -22.1 %

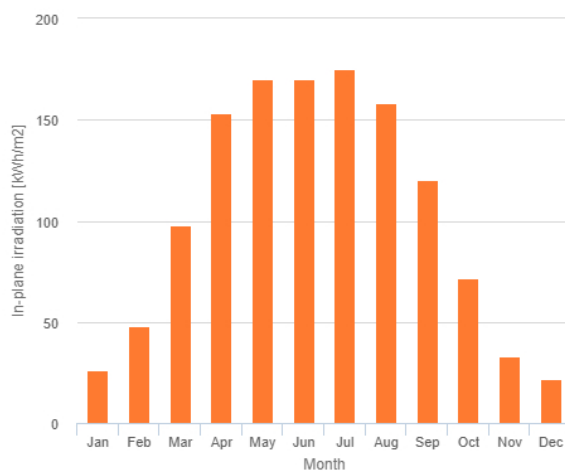
Outline of horizon at chosen location:



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	145	25.9	19.8
February	277	48	78.2
March	547	97.8	87.8
April	824	153	107
May	889	170	122
June	876	170	78.7
July	890	175	103
August	812	158	72.2
September	637	120	71.6
October	392	71.6	81.2
November	180	33	55
December	117	21.7	25.3

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].