

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: 5.1 kWp
 System loss: 14 %

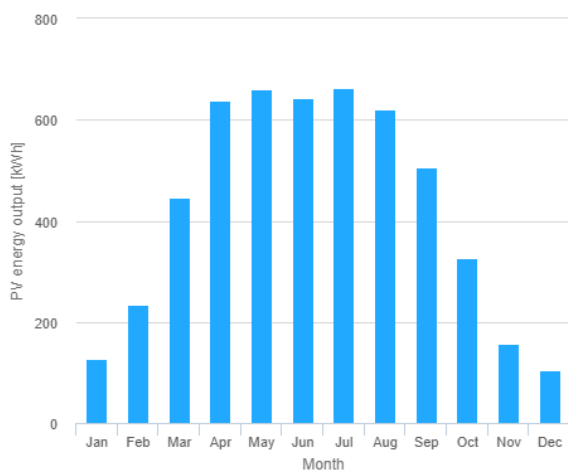
Simulation outputs

Slope angle: 35 °
 Azimuth angle: 0 °
 Yearly PV energy production: 5130 kWh
 Yearly in-plane irradiation: 1290 kWh/m²
 Year to year variability: 267.00 %
 Changes in output due to:
 Angle of incidence: -3.1 %
 Spectral effects: 1.8 %
 Temperature and low irradiance: -8.2 %
 Total loss: -22.2 %

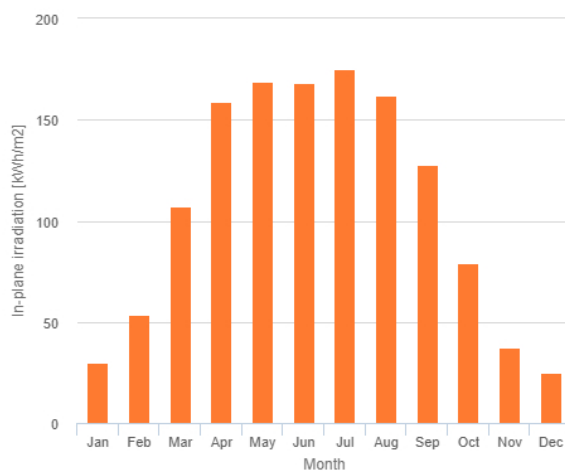
Outline of horizon at chosen location:



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	128	29.7	18.9
February	235	53.8	70.6
March	447	107	80.3
April	638	159	92.3
May	661	169	89.9
June	643	168	52.7
July	662	175	69.5
August	620	162	60.8
September	507	128	63.4
October	326	79.1	70.4
November	157	37.6	51.5
December	104	25	23.8

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].