

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

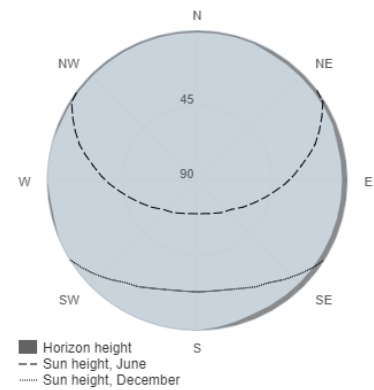
Provided inputs:

Latitude/Longitude: 43.616, 3.901
 Horizon: Calculated
 Database used: PVGIS-SARAH
 PV technology: Crystalline silicon
 PV installed: 3 kWp
 System loss: 2 %

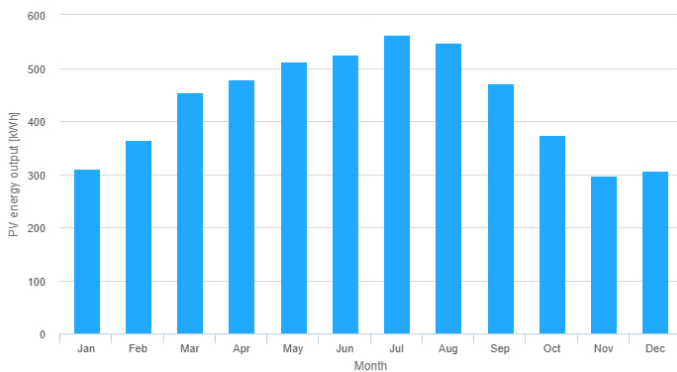
Simulation outputs

Slope angle: 39 (opt) °
 Azimuth angle: 1 (opt) °
 Yearly PV energy production: 5200 kWh
 Yearly in-plane irradiation: 1900 kWh/m²
 Year to year variability: 287.00 %
 Changes in output due to:
 Angle of incidence: -2.6 %
 Spectral effects: 0.8 %
 Temperature and low irradiance: -5 %
 Total loss: -8.6 %

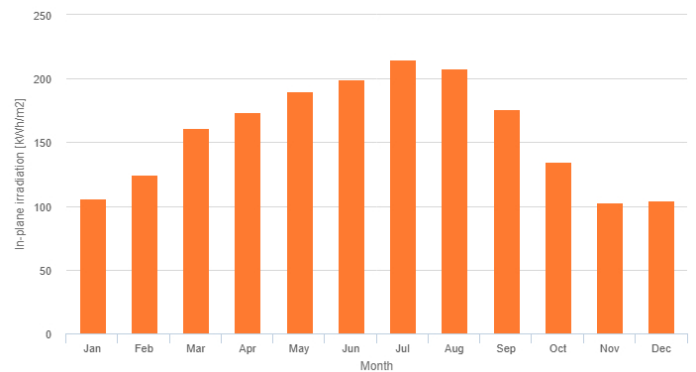
Outline of horizon at chosen location:



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	311	106	60.6
February	364	125	73.4
March	454	161	59.9
April	479	174	54.3
May	513	190	45.1
June	525	199	43.1
July	563	215	27.2
August	548	208	20.3
September	471	176	30.5
October	373	135	55.8
November	297	103	56
December	307	104	47.4

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].