

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

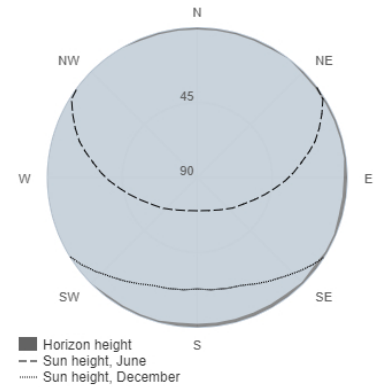
Provided inputs:

Latitude/Longitude: 43.843, 2.120
 Horizon: Calculated
 Database used: PVGIS-SARAH
 PV technology: Crystalline silicon
 PV installed: 3 kWp
 System loss: 2 %

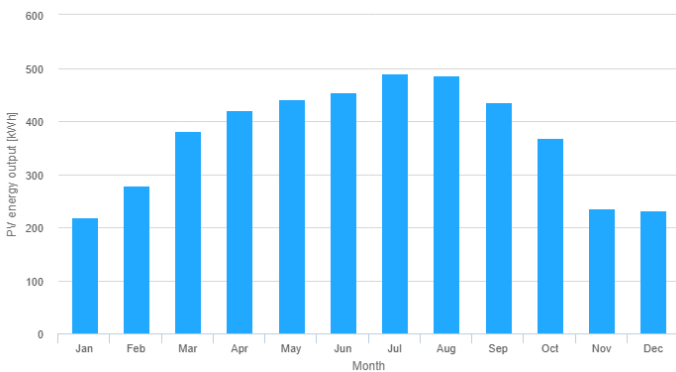
Simulation outputs

Slope angle: 37 (opt) °
 Azimuth angle: 2 (opt) °
 Yearly PV energy production: 4440 kWh
 Yearly in-plane irradiation: 1640 kWh/m²
 Year to year variability: 178.00 %
 Changes in output due to:
 Angle of incidence: -2.8 %
 Spectral effects: 1.2 %
 Temperature and low irradiance: -6.6 %
 Total loss: -9.9 %

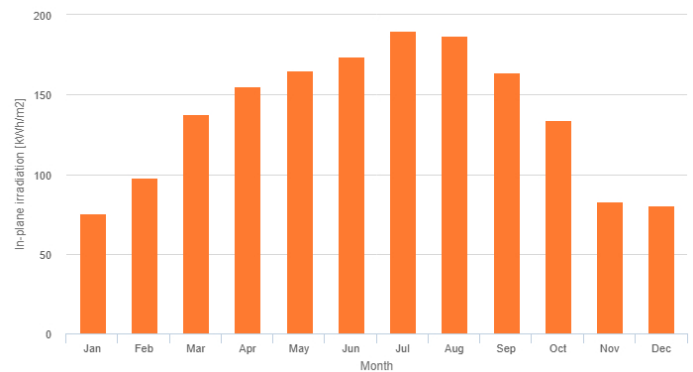
Outline of horizon at chosen location:



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	219	75.6	35.4
February	279	97.6	53.9
March	382	138	58.5
April	420	155	63.9
May	441	165	45.7
June	455	174	49.8
July	489	190	33.6
August	486	187	27
September	436	164	31.8
October	368	134	39.4
November	235	82.9	41.6
December	231	80.1	61.7

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].