

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

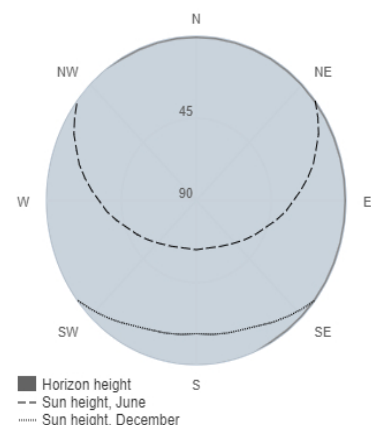
Provided inputs:

Latitude/Longitude: 49.537,8.585
 Horizon: Calculated
 Database used: PVGIS-SARAH
 PV technology: Crystalline silicon
 PV installed: 4.36 kWp
 System loss: 14 %

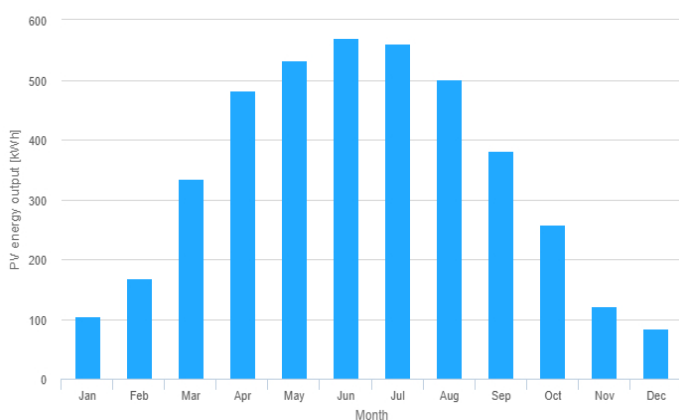
Simulation outputs

Slope angle: 26 (opt) °
 Azimuth angle: 69 °
 Yearly PV energy production: 4100.07 kWh
 Yearly in-plane irradiation: 1197.85 kWh/m²
 Year-to-year variability: 183.83 kWh
 Changes in output due to:
 Angle of incidence: -3.58 %
 Spectral effects: 1.52 %
 Temperature and low irradiance: -6.74 %
 Total loss: -21.49 %

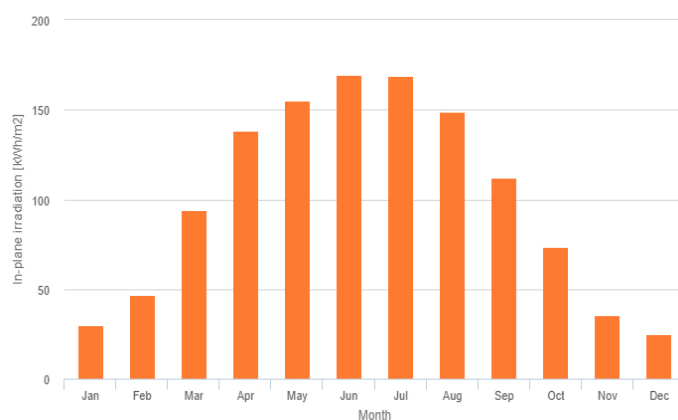
Outline of horizon at chosen location:



Monthly energy output from fix-angle PV system:



Monthly in-plane irradiation for fixed-angle:



Monthly PV energy and solar irradiation

Month	E_m	H(i)_m	SD_m
January	105.2	30.1	18.7
February	168.4	46.7	37.8
March	334.6	93.9	57.1
April	481.8	138.3	81.4
May	533.0	155.4	76.2
June	570.5	169.1	54.5
July	560.2	169.1	52.5
August	500.1	149.2	38.7
September	382.1	111.9	42.3
October	258.1	73.8	39.6
November	122.1	35.4	20.0
December	83.9	24.7	15.5

E_m: Average monthly electricity production from the defined system [kWh].

H(i)_m: Average monthly sum of global irradiation per square meter received by the modules of the given system [kWh/m²].

SD_m: Standard deviation of the monthly electricity production due to year-to-year variation [kWh].