

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

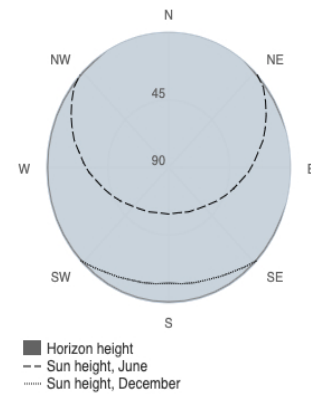
Provided inputs:

Latitude/Longitude: 53.556,-6.792
 Horizon: Calculated
 Database used: PVGIS-SARAH2
 PV technology: Crystalline silicon
 PV installed: 1.44 kWp
 System loss: 14 %

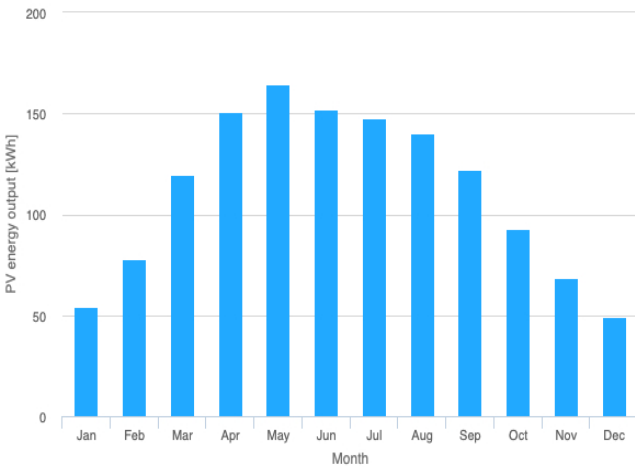
Simulation outputs

Slope angle: 50 °
 Azimuth angle: 0 °
 Yearly PV energy production: 1340.29 kWh
 Yearly in-plane irradiation: 1141.95 kWh/m²
 Year-to-year variability: 43.82 kWh
 Changes in output due to:
 Angle of incidence: -3.08 %
 Spectral effects: 1.96 %
 Temperature and low irradiance: -4.1 %
 Total loss: -18.49 %

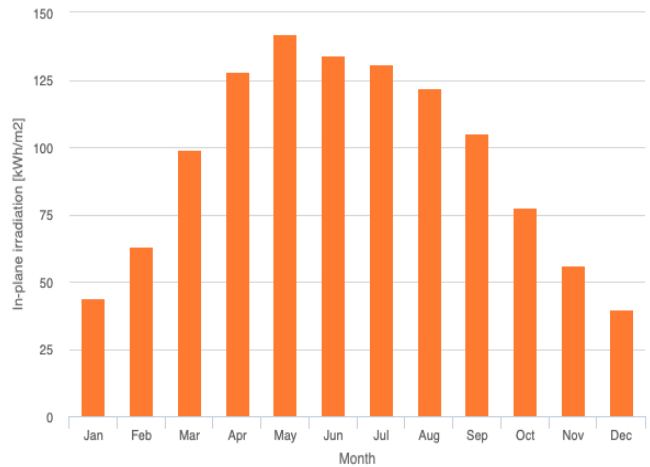
Outline of horizon at chosen location:



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	54.4	43.9	8.5
February	77.7	63.3	13.0
March	119.6	99.0	17.7
April	150.8	128.1	22.8
May	164.6	142.1	18.1
June	152.3	134.2	18.2
July	147.5	130.6	13.1
August	140.3	122.1	11.6
September	122.3	105.0	11.5
October	92.9	77.6	10.8
November	68.8	56.3	11.3
December	49.1	39.7	8.4

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].