

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

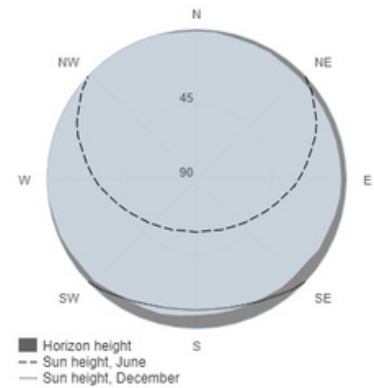
Provided inputs:

Latitude/Longitude: XXXXXXXXXX
 Horizon: Calculated
 Database used: PVGIS-SARAH2
 PV technology: Crystalline silicon
 PV installed: 5 kWp
 System loss: 14 %

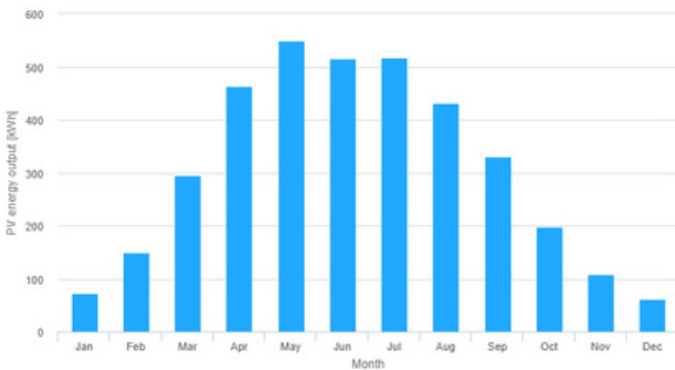
Simulation outputs

Slope angle: 15 °
 Azimuth angle: 2 °
 Yearly PV energy production: 3695.46 kWh
 Yearly in-plane irradiation: 942.27 kWh/m²
 Year-to-year variability: 158.47 kWh
 Changes in output due to:
 Angle of incidence: -3.97 %
 Spectral effects: 1.99 %
 Temperature and low irradiance: -6.88 %
 Total loss: -21.56 %

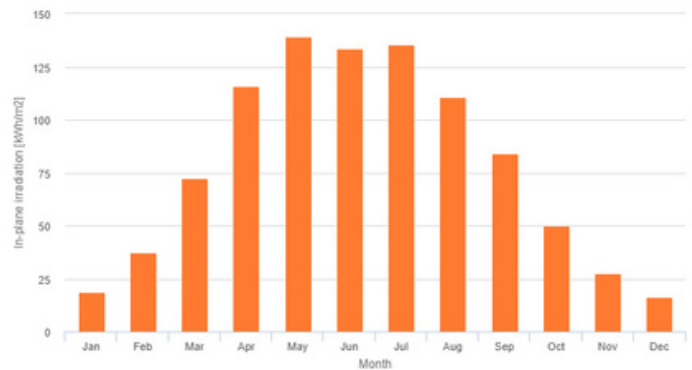
Outline of horizon at chosen location:



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	72.6	18.9	11.7
February	149.8	37.6	30.6
March	295.1	72.6	41.2
April	463.9	116.0	67.8
May	549.9	139.2	65.1
June	515.7	133.5	65.3
July	518.6	135.5	81.3
August	431.2	110.7	42.4
September	330.0	84.0	36.6
October	197.9	50.0	27.5
November	108.4	27.7	16.5
December	62.4	16.6	8.0

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].

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

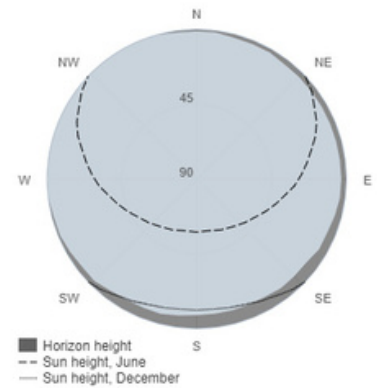
Provided inputs:

Latitude/Longitude: [REDACTED]
 Horizon: Calculated
 Database used: PVGIS-SARAH2
 PV technology: Crystalline silicon
 PV installed: 10 kWp
 System loss: 14 %

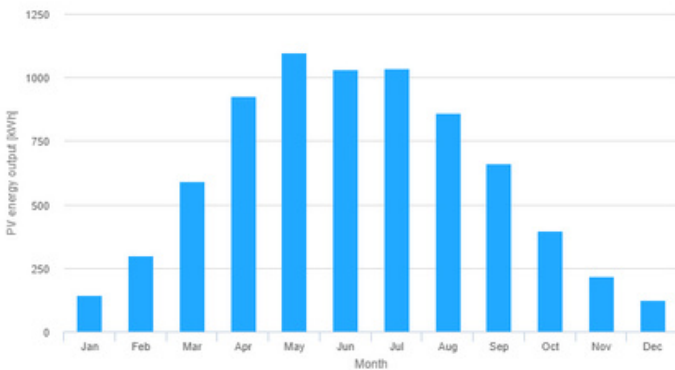
Simulation outputs

Slope angle: 15 °
 Azimuth angle: 2 °
 Yearly PV energy production: 7390.91 kWh
 Yearly in-plane irradiation: 942.27 kWh/m²
 Year-to-year variability: 316.93 kWh
 Changes in output due to:
 Angle of incidence: -3.97 %
 Spectral effects: 1.99 %
 Temperature and low irradiance: -6.88 %
 Total loss: -21.56 %

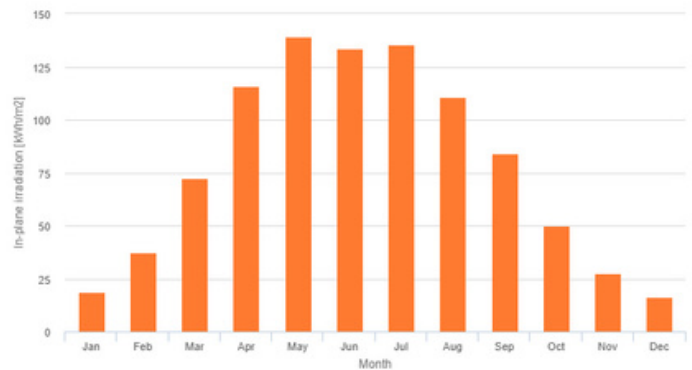
Outline of horizon at chosen location:



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	145.3	18.9	23.5
February	299.6	37.6	61.2
March	590.2	72.6	82.3
April	927.8	116.0	135.5
May	1099.8	139.2	130.2
June	1031.4	133.5	130.6
July	1037.1	135.5	162.7
August	862.4	110.7	84.7
September	660.1	84.0	73.2
October	395.7	50.0	55.0
November	216.7	27.7	33.1
December	124.7	16.6	15.9

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].

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

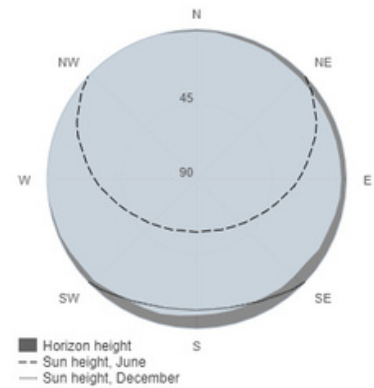
Provided inputs:

Latitude/Longitude: XXXXXXXXXX
 Horizon: Calculated
 Database used: PVGIS-SARAH2
 PV technology: Crystalline silicon
 PV installed: 20 kWp
 System loss: 14 %

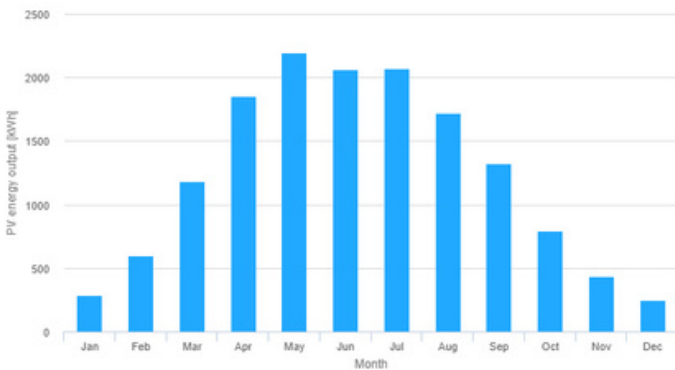
Simulation outputs

Slope angle: 15 °
 Azimuth angle: 2 °
 Yearly PV energy production: 14781.83 kWh
 Yearly in-plane irradiation: 942.27 kWh/m²
 Year-to-year variability: 633.86 kWh
 Changes in output due to:
 Angle of incidence: -3.97 %
 Spectral effects: 1.99 %
 Temperature and low irradiance: -6.88 %
 Total loss: -21.56 %

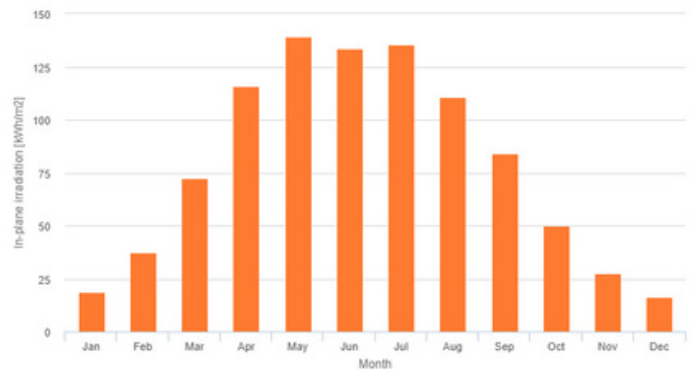
Outline of horizon at chosen location:



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	290.6	18.9	46.9
February	599.2	37.6	122.4
March	1180.3	72.6	164.7
April	1855.7	116.0	271.0
May	2199.7	139.2	260.4
June	2062.8	133.5	261.2
July	2074.3	135.5	325.4
August	1724.8	110.7	169.4
September	1320.2	84.0	146.3
October	791.5	50.0	110.0
November	433.4	27.7	66.2
December	249.4	16.6	31.9

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].