

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

Provided inputs: Latitude/Longitude: 51.067,3.694

Horizon: Calculated
Database used: PVGIS-SARAH2
PV technology: Crystalline silicon

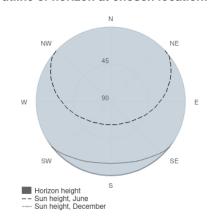
PV installed: 4 kWp System loss: 14 % Simulation outputs

Slope angle: 35 °
Azimuth angle: 0 °
Yearly PV energy production: 418Yearly in-plane irradiation: 1300

Year-to-year variability: Changes in output due to:

Angle of incidence: -3.08 %
Spectral effects: 1.78 %
Temperature and low irradiance: -5.33 %
Total loss: -19.69 %

Outline of horizon at chosen location:



Monthly energy output from fix-angle PV system:

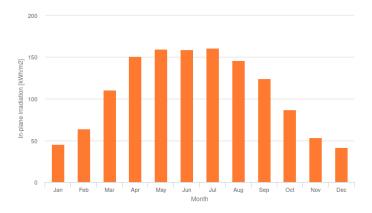


Monthly in-plane irradiation for fixed-angle:

4184.43 kWh

193.36 kWh

1302.61 kWh/m²



Monthly PV energy and solar irradiation

| Month | E_m | H(i)_m | SD_r |
|-----------|-------|--------|------|
| January | 156.3 | 45.6 | 25.1 |
| February | 217.7 | 64.0 | 71.2 |
| March | 369.2 | 110.8 | 60.4 |
| April | 486.6 | 150.9 | 76.2 |
| May | 507.6 | 159.5 | 66.7 |
| June | 496.0 | 158.7 | 59.4 |
| July | 495.4 | 160.8 | 64.0 |
| August | 455.2 | 146.1 | 46.0 |
| September | 396.0 | 124.5 | 29.6 |
| October | 284.2 | 86.7 | 37.3 |
| November | 180.1 | 53.7 | 30.0 |
| December | 140.1 | 11 1 | 32 B |

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].

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