# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

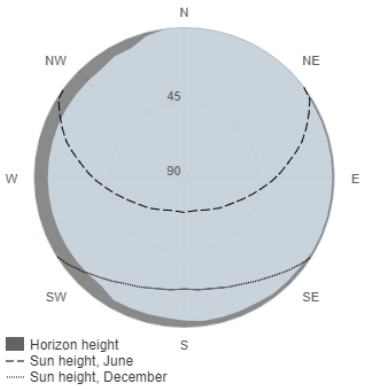
**Provided inputs:**

| | |
|---|---|
| Latitude/Longitude: | 43.972, 1.390 |
| Horizon: | Calculated |
| Database used: | PVGIS-SARAH |
| PV technology: | Crystalline silicon |
| PV installed: | 3 kWp |
| System loss: | 2 % |

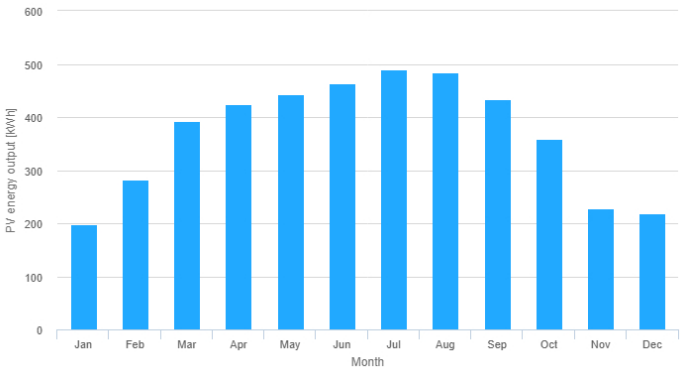
**Simulation outputs**

| | |
|---|---|
| Slope angle: | 36 (opt) ° |
| Azimuth angle: | 0 (opt) ° |
| Yearly PV energy production: | 4420 kWh |
| Yearly in-plane irradiation: | 1640 kWh/m² |
| Year to year variability: | 173.00 % |
| Changes in output due to: | |
| Angle of incidence: | -2.8 % |
| Spectral effects: | 1.2 % |
| Temperature and low irradiance: | -6.7 % |
| Total loss: | -10 % |

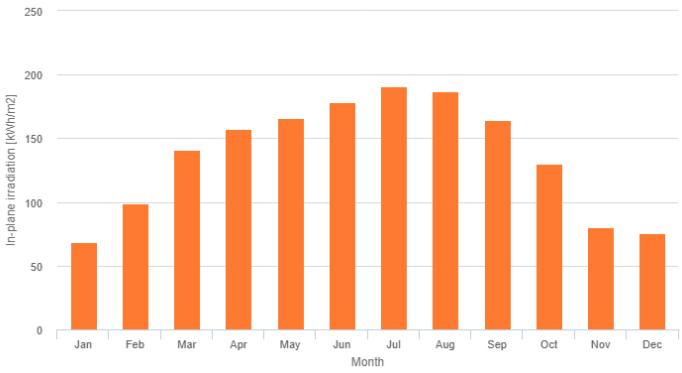
**Outline of horizon at chosen location:**




**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 | 199 | 68.7 | 24.6 |
| February | 283 | 98.7 | 47.2 |
| March | 393 | 141 | 56 |
| April | 425 | 157 | 61.9 |
| May | 443 | 166 | 37.6 |
| June | 463 | 178 | 48.9 |
| July | 490 | 191 | 27.1 |
| August | 485 | 187 | 28.3 |
| September | 434 | 164 | 32.1 |
| October | 358 | 130 | 37.9 |
| November | 228 | 80.1 | 42.6 |
| December | 219 | 75.8 | 45.9 |

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].



Joint Research Centre



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