# Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

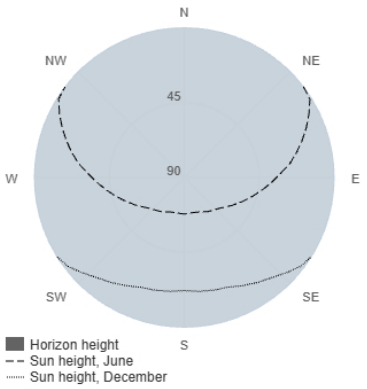
**Provided inputs:**

| | |
|---|---|
| Latitude/Longitude: | 44.508,25.878 |
| Horizon: | Calculated |
| Database used: | PVGIS-SARAH3 |
| PV technology: | Cryst Sil 2025 |
| PV installed: | 15 kWp |
| System loss: | 5 % |

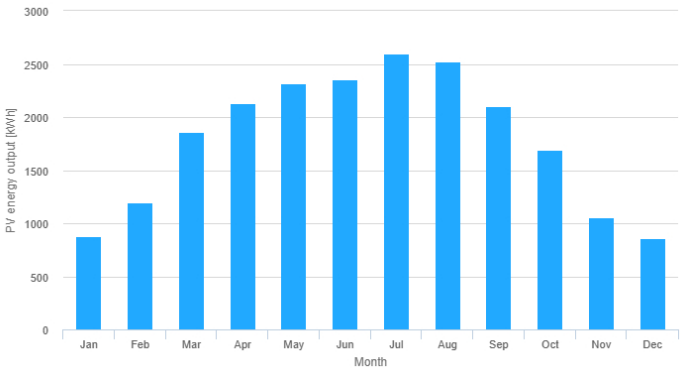
**Simulation outputs**

| | |
|---|---|
| Slope angle: | 35 ° |
| Azimuth angle: | 0 ° |
| Yearly PV energy production: | 21576.42 kWh |
| Yearly in-plane irradiation: | 1653.18 kWh/m² |
| Year-to-year variability: | 981.08 kWh |
| Changes in output due to: | |
| Angle of incidence: | -2.75 % |
| Spectral effects: | 1.09 % |
| Temperature and low irradiance: | -6.83 % |
| Total loss: | -12.99 % |

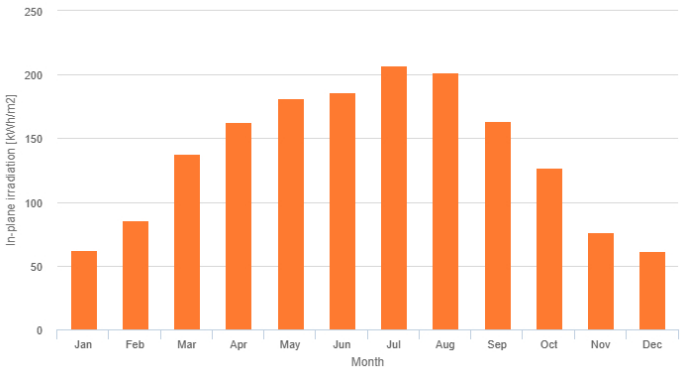
**Outline of horizon at chosen location:**




**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 | 881.4 | 62.0 | 328.5 |
| February | 1197.8 | 85.8 | 261.1 |
| March | 1858.9 | 137.6 | 243.4 |
| April | 2132.5 | 163.1 | 248.9 |
| May | 2319.6 | 181.1 | 153.2 |
| June | 2353.3 | 186.5 | 140.9 |
| July | 2593.6 | 207.3 | 157.6 |
| August | 2528.0 | 201.4 | 128.4 |
| September | 2103.6 | 163.3 | 179.8 |
| October | 1689.8 | 127.0 | 281.7 |
| November | 1055.8 | 76.6 | 183.1 |
| December | 862.3 | 61.6 | 263.3 |

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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