

Performance of off-grid PV system

PVGIS-5 estimates of solar electricity generation

Provided inputs

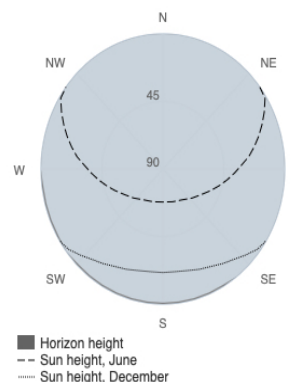
Latitude/Longitude: 44.799,10.329
Horizon: Calculated
Database used: PVGIS-SARAH3
Installed: 800 Wp
Battery capacity: 2400 Wh
Cutoff limit: 10 %
Consumption per day: 3000 Wh

Slope angle: 90 °
Azimuth angle: -90 °

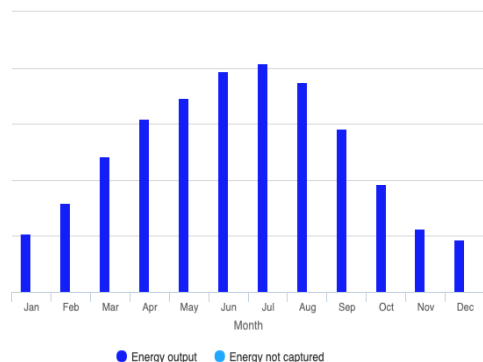
Simulation outputs

Percentage days with full battery: 0 %
Percentage days with empty battery: 100 %
Average energy not captured: 0 Wh
Average energy missing: 1735.86 Wh

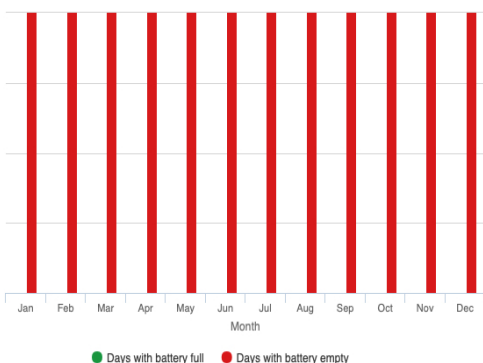
Outline of horizon at chosen location:



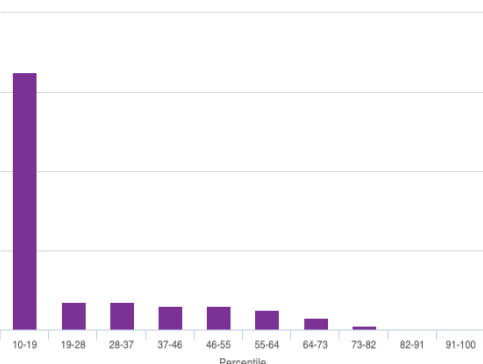
Power production estimate for off-grid PV:



Battery performance for off-grid PV system:



Probability of battery charge state at the end of the day:



Monthly average performance

Month	E_d	E_l	f_f	f_e
January	521.9	0.0	0.0	100.0
February	792.1	0.0	0.0	100.0
March	1210.5	0.0	0.0	100.0
April	1549.6	0.0	0.0	100.0
May	1729.5	0.0	0.0	100.0
June	1972.9	0.0	0.0	100.0
July	2042.0	0.0	0.0	100.0
August	1868.6	0.0	0.0	100.0
September	1459.2	0.0	0.0	100.0
October	961.7	0.0	0.0	100.0
November	561.7	0.0	0.0	100.0
December	471.3	0.0	0.0	100.0

E_d: Average energy production per day [Wh/day].

E_l: Average energy not captured per day [Wh/day].

f_f: Percentage of days when battery became full [%].

f_e: Percentage of days when battery became empty [%].

Cs	Cb
10-19	65.0
19-28	7.0
28-37	7.0
37-46	6.0
46-55	6.0
55-64	5.0
64-73	3.0
73-82	1.0
82-91	0.0
91-100	0.0

Cs: Charge state at the end of each day [%].

Cb: Percentage of days with this charge state [%].

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