

Performance of off-grid PV system

PVGIS-5 estimates of solar electricity generation

Provided inputs

Latitude/Longitude: 44.799,10.329
Position: Calculated
Database used: PVGIS-SARAH3
Installed: 500 Wp
Battery capacity: 2400 Wh
Cutoff limit: 10 %
Consumption per day: 3000 Wh

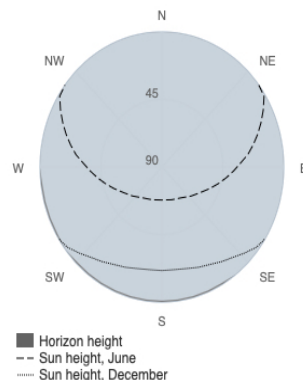
Slope angle:

Azimuth angle

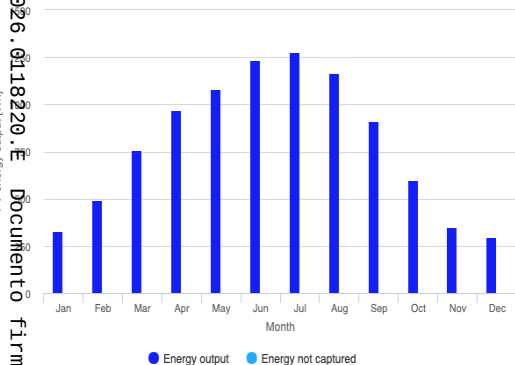
Simulation outputs

Percentage days with full battery: 0 %
Percentage days with empty battery: 100 %
Average energy not captured: 0 Wh
Average energy missing: 2209.8 Wh

Outline of horizon at chosen location:



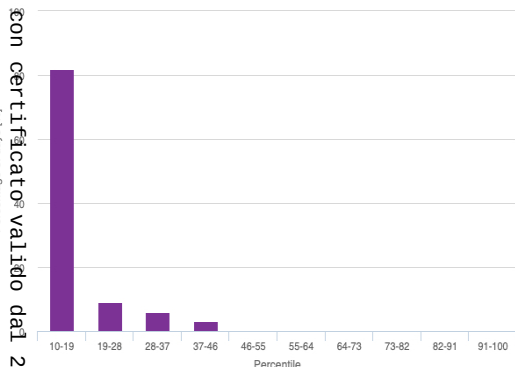
Power production estimate for off-grid PV:



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	326.2	0.0	0.0	100.0
February	495.1	0.0	0.0	100.0
March	756.6	0.0	0.0	100.0
April	968.5	0.0	0.0	100.0
May	1080.9	0.0	0.0	100.0
June	1233.1	0.0	0.0	100.0
July	1276.2	0.0	0.0	100.0
August	1167.9	0.0	0.0	100.0
September	912.0	0.0	0.0	100.0
October	601.1	0.0	0.0	100.0
November	351.1	0.0	0.0	100.0
December	294.6	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	82.0
19-28	9.0
28-37	6.0
37-46	3.0
46-55	0.0
55-64	0.0
64-73	0.0
73-82	0.0
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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