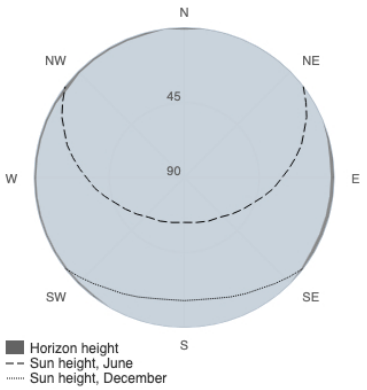
Performance of off-grid PV system

PVGIS-5 estimates of solar electricity generation

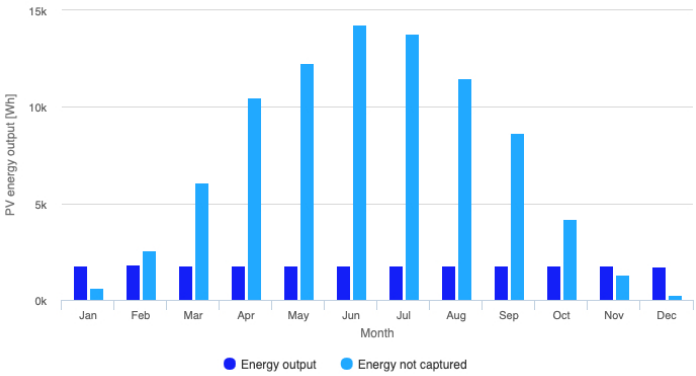
Provided inputs

Latitude/Longitude:	[redacted]	Slope angle:	4 °
Horizon:	Calculated	Azimuth angle	-1 °
Database used:	PVGIS-SARAH3	**Simulation outputs**	
PV installed:	4000 Wp	Percentage days with full battery:	83.69 %
Battery capacity:	4800 Wh	Percentage days with empty battery:	2.06 %
Cutoff limit:	15 %	Average energy not captured:	8582.66 Wh
Consumption per day:	1800 Wh	Average energy missing:	411.3 Wh

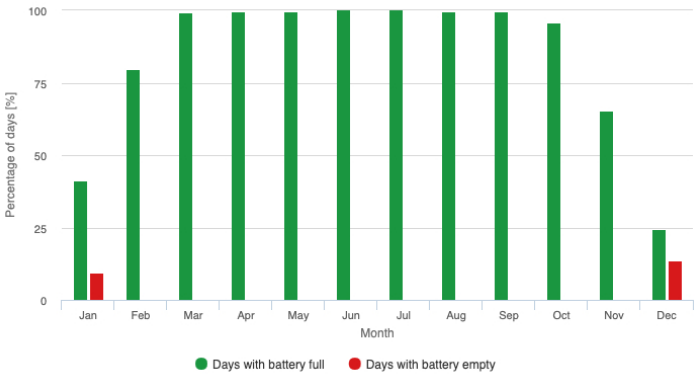
Outline of horizon at chosen location:



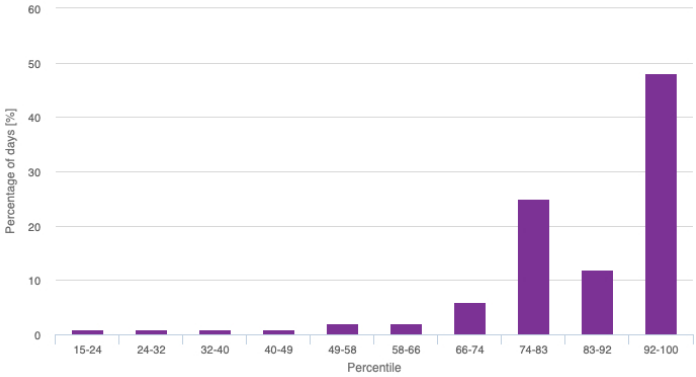
Power production estimate for off-grid PV:



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	1790.3	633.2	41.1	9.3
February	1822.3	2550.6	79.9	0.4
March	1801.8	6095.2	99.3	0.0
April	1799.7	10515.2	99.7	0.3
May	1798.4	12259.5	99.7	0.3
June	1801.0	14266.5	100.0	0.0
July	1799.0	13770.6	100.0	0.0
August	1797.6	11474.8	99.7	0.3
September	1797.9	8638.8	99.8	0.0
October	1797.3	4198.3	95.9	0.0
November	1770.2	1305.7	65.4	0.0
December	1723.0	271.5	24.6	13.6

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
15-24	1.0
24-32	1.0
32-40	1.0
40-49	1.0
49-58	2.0
58-66	2.0
66-74	6.0
74-83	25.0
83-92	12.0
92-100	48.0

Cs: Charge state at the end of each day [%].
Cb: Percentage of days with this charge state [%].

Report generated on 2026/08/15