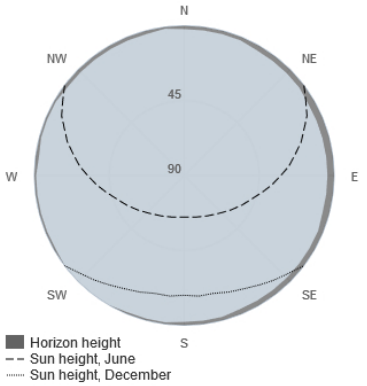
Performance of off-grid PV systems

PVGIS-5 estimates of solar electricity generation

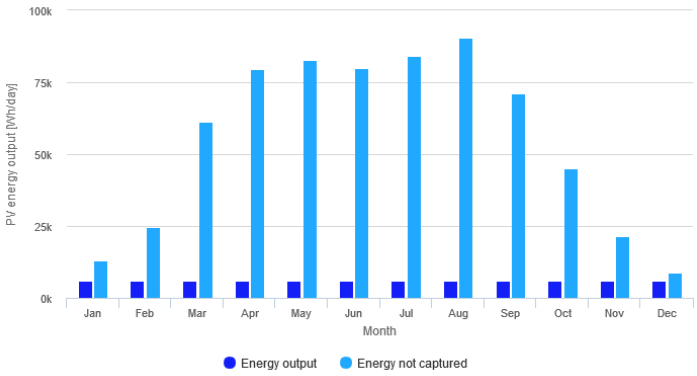
Provided inputs

Latitude/Longitude:	48.768, 21.797	Slope angle:	45 °
Horizon:	Calculated	Azimuth angle	0 °
Database used:	PVGIS-CMSAF	**Simulation outputs**	
PV installed:	24000 Wp	Percentage days with full battery:	91.51 %
Battery capacity:	24000 Wh	Percentage days with empty battery:	0.11 %
Cutoff limit:	20 %	Average energy not captured:	60452.17 Wh
Consumption per day:	6000 Wh	Average energy missing:	871.38 Wh

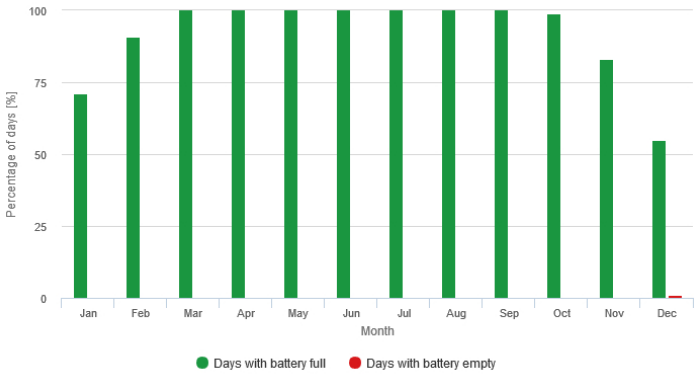
Outline of horizon at chosen location:



Power production estimate for off-grid PV:



Battery performance for off-grid PV system:

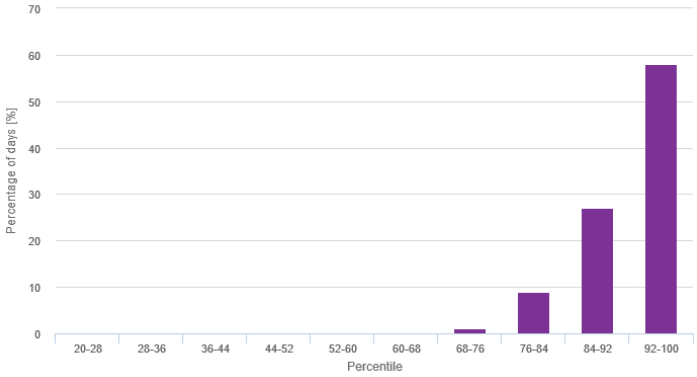


Monthly average performance

Month	Ed	El	Ff	Fe
January	6034.16	12943.7	71	0
February	6031.34	24675.4	91	0
March	6007.21	61134	100	0
April	6002.7	79591.6	100	0
May	6004.85	82690.2	100	0
June	6000.56	79970.8	100	0
July	6000.51	84090.6	100	0
August	5993.19	90642.9	100	0
September	5991.88	71175.9	100	0
October	5991.88	45108.7	99	0
November	5992.55	21416.8	83	0
December	5916.51	8711.2	55	1

Ed: Average energy production per day [Wh/day].
El: Average energy not captured per day [Wh/day].
Ff: percentage of days when battery became full [%].
Fe: percentage of days when battery became empty [%].

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



Cs	Cb
20-28	0
28-36	0
36-44	0
44-52	0
52-60	0
60-68	0
68-76	1
76-84	9
84-92	27
92-100	58

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

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