



# Performance of off-grid PV systems

## PVGIS-5 estimates of solar electricity generation

### Provided inputs

Latitude/Longitude: -34.069, 23.002 Slope angle: 0°

Horizon: Calculated Azimuth angle: 0°

Database used: PVGIS-CMSAF **Simulation outputs**

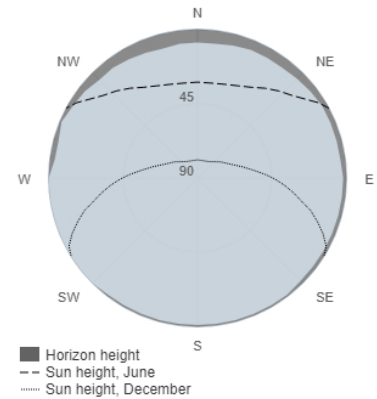
PV installed: 15000 Wp Percentage days with full battery: 97.7 %

Battery capacity: 30000 Wh Percentage days with empty battery: 0.16 %

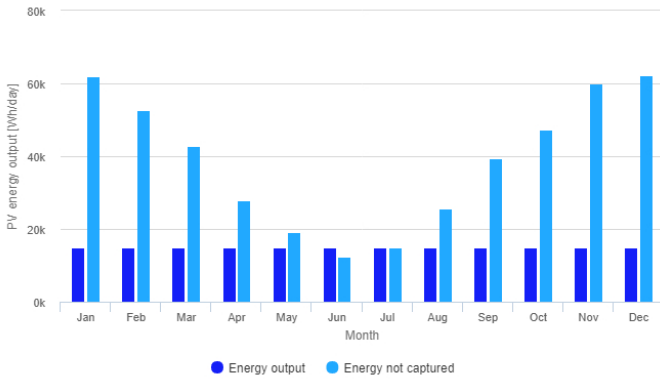
Cutoff limit: 30 % Average energy not captured: 39718.76 Wh

Consumption per day: 15000 Wh Average energy missing: 900.3 Wh

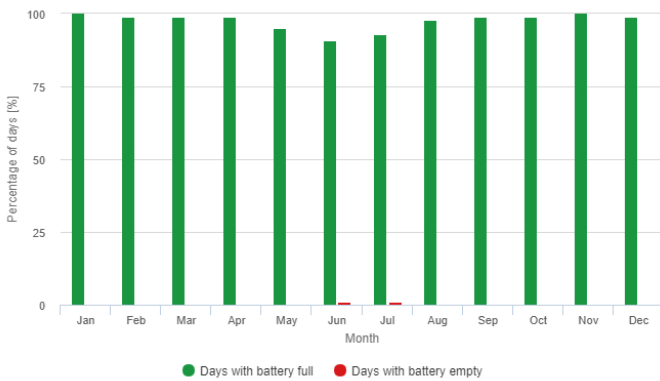
### Outline of horizon at chosen location:



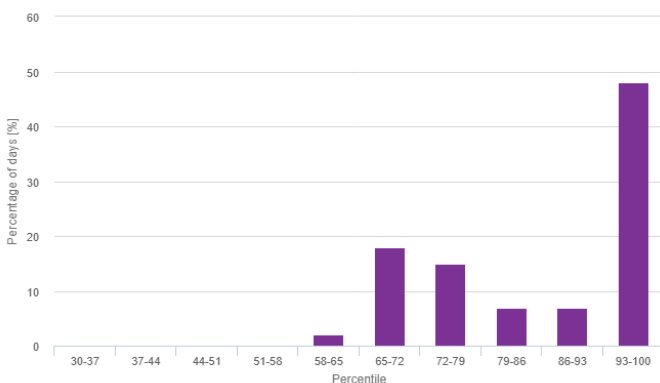
### Power production estimate for off-grid PV:



### Battery performance for off-grid PV system:



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



### Monthly average performance

Month	Ed	EI	Ff	Fe
January	14952.17	1834.9	100	0
February	14988.65	2637.8	99	0
March	14974.02	2795.5	99	0
April	14994.49	2784.2	99	0
May	15004.11	1904.3	95	0
June	14984.8	1250.4	91	1
July	14995.16	1485.9	93	1
August	15008.38	2568.6	98	0
September	15011.22	3945.3	99	0
October	15008	4734.9	99	0
November	15011.8	6001.8	100	0
December	15002.05	2330.9	99	0

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

Cs	Cb
30-37	0
37-44	0
44-51	0
51-58	0
58-65	2
65-72	18
72-79	15
79-86	7
86-93	7
93-100	48

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

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