

# Performance of off-grid PV systems

PVGIS-5 estimates of solar electricity generation

## Provided inputs

Latitude/Longitude: 49.230, 16.609

Horizon: Calculated

Database used: PVGIS-SARAH

PV installed: 240 Wp

Battery capacity: 300 Wh

Cutoff limit: 40 %

Consumption per day: 1100 Wh

Slope angle: 37 °

Azimuth angle: -3 °

## Simulation outputs

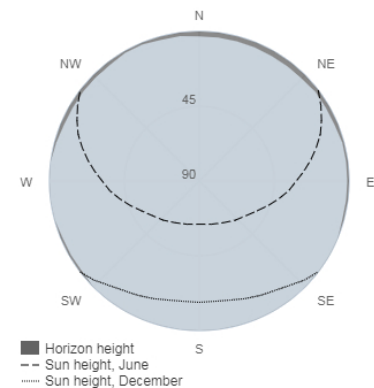
Percentage days with full battery: 56.05 %

Percentage days with empty battery: 100 %

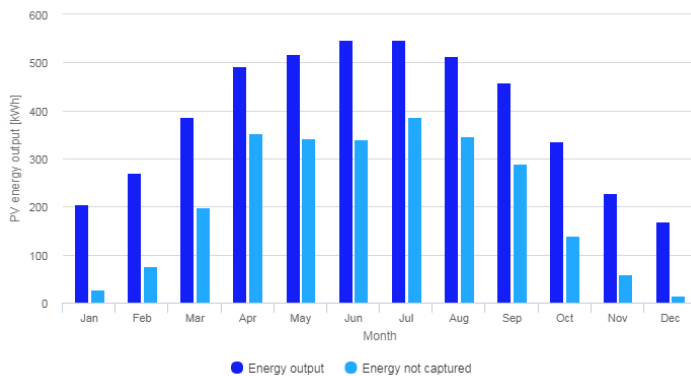
Average energy not captured: 383.47 Wh

Average energy missing: 710.24 Wh

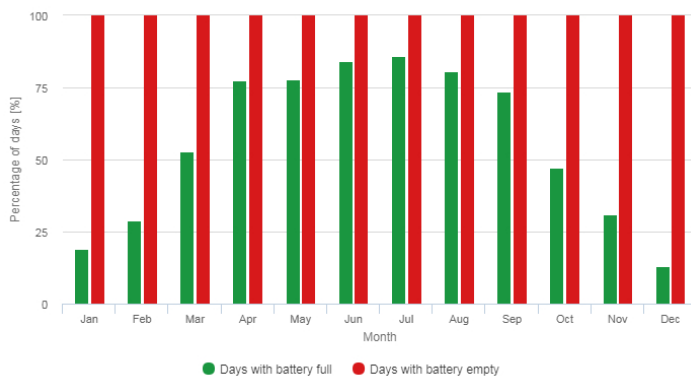
## Outline of horizon at chosen location:



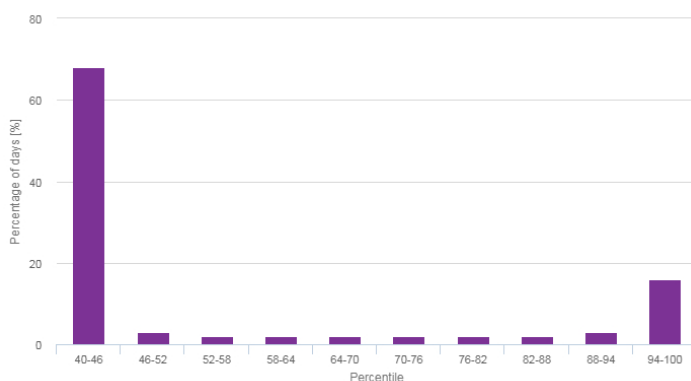
## Power production estimate for off-grid PV:



## 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	204.0	28.4	19.0	100.0
February	270.4	75.9	28.9	100.0
March	386.0	198.7	53.0	100.0
April	493.2	352.0	77.5	100.0
May	517.5	342.8	77.7	100.0
June	547.8	340.3	84.2	100.0
July	546.2	385.9	85.8	100.0
August	514.0	346.7	80.7	100.0
September	459.3	289.7	73.6	100.0
October	336.3	138.7	47.0	100.0
November	228.2	58.8	31.1	100.0
December	168.8	14.7	13.2	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
40-46	68.0
46-52	3.0
52-58	2.0
58-64	2.0
64-70	2.0
70-76	2.0
76-82	2.0
82-88	2.0
88-94	3.0
94-100	16.0

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

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

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