

Performance of off-grid PV system



Provided inputs

Latitude/Longitude: 40.765,-111.846 Slope angle: 35 °
Horizon: Calculated Azimuth angle 0 °

Database used: PVGIS-NSRDB Simulation outputs

PV installed:

2.2 Wp

Percentage days with full battery:

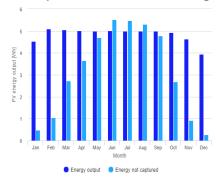
Percentage days with empty battery:

Percentage days with empty battery:

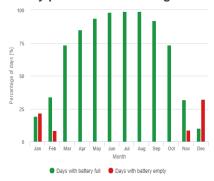
Average energy not captured:

Average energy missing:

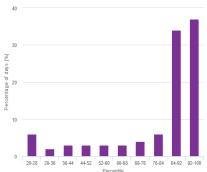
Power production estimate for off-grid PV:



Battery performance for off-grid PV system:



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

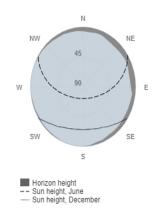


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Outline of horizon at chosen location:



Monthly average performance

67.69 %

4.65 Wh

2.51 Wh

5.87 %

| Month | E_d | E_I | f_f | f_e |
|-----------|-----|-----|------|------|
| January | 4.5 | 0.5 | 19.1 | 21.7 |
| February | 5.1 | 1.0 | 34.1 | 8.4 |
| March | 5.0 | 2.7 | 73.3 | 0.0 |
| April | 5.0 | 3.7 | 84.8 | 0.0 |
| May | 5.0 | 4.7 | 93.8 | 0.0 |
| June | 5.0 | 5.5 | 98.2 | 0.0 |
| July | 5.0 | 5.5 | 98.8 | 0.0 |
| August | 5.0 | 5.3 | 98.8 | 0.0 |
| September | 5.0 | 4.8 | 92.1 | 0.0 |
| October | 4.9 | 2.7 | 73.3 | 0.0 |
| November | 4.6 | 0.9 | 31.8 | 8.8 |
| December | 4.0 | 0.3 | 10.3 | 32.0 |

E_d: Average energy production per day [Wh/day].

E_I: 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 |
|--------|------|
| 20-28 | 6.0 |
| 28-36 | 2.0 |
| 36-44 | 3.0 |
| 44-52 | 3.0 |
| 52-60 | 3.0 |
| 60-68 | 3.0 |
| 68-76 | 4.0 |
| 76-84 | 6.0 |
| 84-92 | 34.0 |
| 92-100 | 37.0 |
| | |

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

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

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Report generated on 2022/03/24