European Commission

Performance of off-grid PV system

PVGIS-5 estimates of solar electricity generation

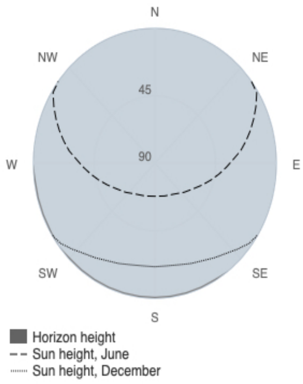
Provided inputs

Latitude/Longitude:	44.799,10.329
Horizon:	Calculated
Database used:	PVGIS-SARAH3
PV installed:	1500 Wp
Battery capacity:	4800 Wh
Cutoff limit:	10 %
Consumption per day:	5000 Wh
Slope angle:	90 °
Azimuth angle	90 °

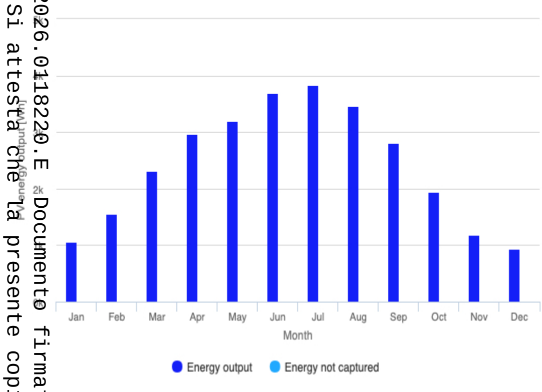
Simulation outputs

Percentage days with full battery:	0 %
Percentage days with empty battery:	99.51 %
Average energy not captured:	0 Wh
Average energy missing:	2595.62 Wh

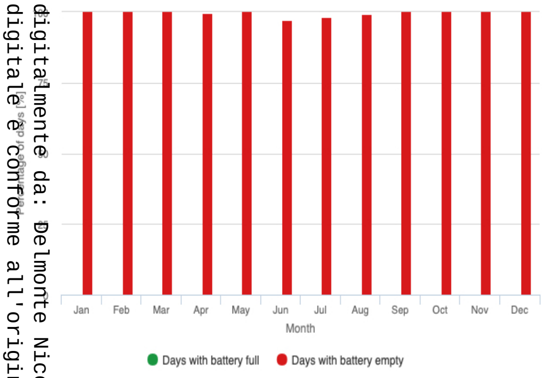
Outline of horizon at chosen location:



Power production estimate for off-grid PV:



Battery performance for off-grid PV system:

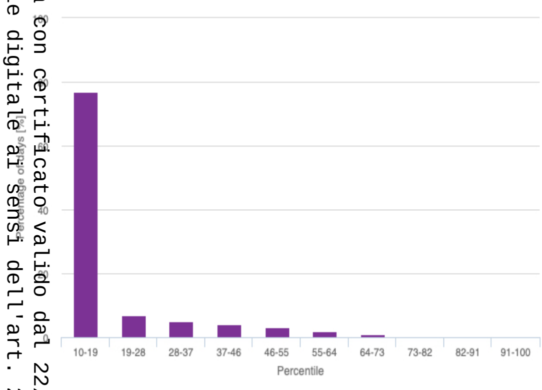


Monthly average performance

Month	E_d	E_l	f_f	f_e
January	1066.5	0.0	0.0	99.8
February	1549.3	0.0	0.0	100.0
March	2310.4	0.0	0.0	100.0
April	2961.2	0.0	0.0	99.8
May	3194.1	0.0	0.0	99.8
June	3698.6	0.0	0.0	97.0
July	3837.1	0.0	0.0	98.3
August	3471.0	0.0	0.0	99.3
September	2807.7	0.0	0.0	100.0
October	1939.4	0.0	0.0	100.0
November	1178.4	0.0	0.0	100.0
December	941.0	0.0	0.0	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 [%].

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



Cs	Cb
10-19	77.0
19-28	7.0
28-37	5.0
37-46	4.0
46-55	3.0
55-64	2.0
64-73	1.0
73-82	0.0
82-91	0.0
91-100	0.0

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

Joint Research Centre

Report generated on 2026/04/16