Scenario — PV
Simple house in rural off-grid Africa Ghana - Nadowli 10.370, -2.658

Name	Slope °	Azimuth °	Wp	Wall d/h m	Face	Bifacial	Wp counted
roof east	25	-90	1,500	—	front	—	yes
roof west	25	90	1,500	—	front	—	yes
Total counted			3,000				

Location: Other test location in rural off-grid Africa
Database PVGIS-SARAH3 2005–2023 loss 14 % azimuth 0 = south, 90 = west, −90 = east.
Price bands and charts use UTC+0 from longitude (15° per hour), not the political time zone.
Peak hour 2021-04-02 12:07 local (12:07 UTC) 2,195 W 0.732 W/Wp of 3,000 Wp.
Database gaps: 10 days with 0 yield while the sun reached the horizon at noon. 2008-01-23, 2008-03-01, 2008-03-06, 2008-05-17, 2008-05-18, 2009-04-18, 2009-04-19, 2009-08-15, 2009-08-16, 2016-10-16. Yield charts skip them. The simulation uses the lowest-yield day of that month.
Sell when the export price is above 0. At 0 cent export PV yield only, not the battery. Do not sell when the earning is negative. At 15:00 import/export scheduling.

Click here to work on this simulation. If the click does nothing, copy the address below and paste it in the browser. PEGE energy sim server has to run.

http://127.0.0.1:8765/form?name=Ghana+-+Nadowli&simname=We+start+with+3+kW+PV+and+16+kWh+battery&lat=10.37&lon=-2.658&startyear=2005&endyear=2023&loss=14.0&raddatabase=auto&usehorizon=1&outdir=%2Fhome%2Ffounder%2Finternet%

Scenario — house, heat pump, battery
Simple house in rural off-grid Africa Ghana - Nadowli 10.370, -2.658

Chapter	Parameter	Value
Building	Design out / in / heat	10.0 °C / 20.0 °C / 800 W
	Heat on / cool on / ground	17.0 °C / 26.0 °C / 19.0 °C
	Curve / flow min / max	0.4 / 25.0 °C / 55.0 °C
	Thermal mass of the house	25.0 kWh/K
	Household only	2.0 kWh/day
DHW	Litres at 40 °C / tank	100 L tank 62.0 °C 8–18 h
	Water out of the pipe Q1–Q4	21 °C 19 °C 18 °C 20 °C
Heat pump	Source	air
	COP −10/0/10 @ 35 °C	1.8 2.2 2.8
	COP −10/0/10 @ 50 °C	1.5 1.8 2.3
	kW −10/0/10 @ 35 °C	0.8 1.0 1.2
	kW −10/0/10 @ 50 °C	0.6 0.8 1.2
Battery	kWh / C-rate / SOC min–max–start	16.0 kWh C 0.5 5 / 95 / 50 %
	Nameplate	Standard 16 × 314 Ah LFP
	Charge / discharge η	95 % / 90 %
Grid	Inverter / grid connection	3.0 kW / 0.0 kW
	Max export	0.0 kW
	Import cap Jan–Jun kW	Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1
	Import cap Jul–Dec kW	Jul 1 Aug 1 Sep 1 Oct 1 Nov 1 Dec 1
Cars	Lunch DC / night AC	0.0 kWh @ 0.0 kW night 2.0 kWh @ 1.0 kW

Clock is winter time UTC+1. Emergency import is an hour above the monthly kW cap.

Records 1–10 contribution of each PV
Ghana - Nadowli 10.370, -2.658

PV	2021-04-02 12:07	2012-09-07 12:07	2011-08-28 12:07	2015-08-18 12:07	2015-09-08 12:07	2021-09-16 12:07	2011-09-13 12:07	2012-08-01 12:07	2023-09-02 12:07	2010-03-27 12:07
roof east	1,111	1,086	1,090	1,092	1,080	1,074	1,075	1,094	1,082	1,092
roof west	1,084	1,082	1,074	1,066	1,077	1,082	1,079	1,060	1,072	1,060
Watt at record	2,195	2,167	2,165	2,158	2,157	2,156	2,155	2,154	2,154	2,152
Percent of installed peak	73.2	72.2	72.2	71.9	71.9	71.9	71.8	71.8	71.8	71.7

Values are watts at that hour. Date and time are UTC. Record 2,195 W (73.2 % of 3,000 Wp).

Hours at or above a share of the record
Ghana - Nadowli 10.370, -2.658

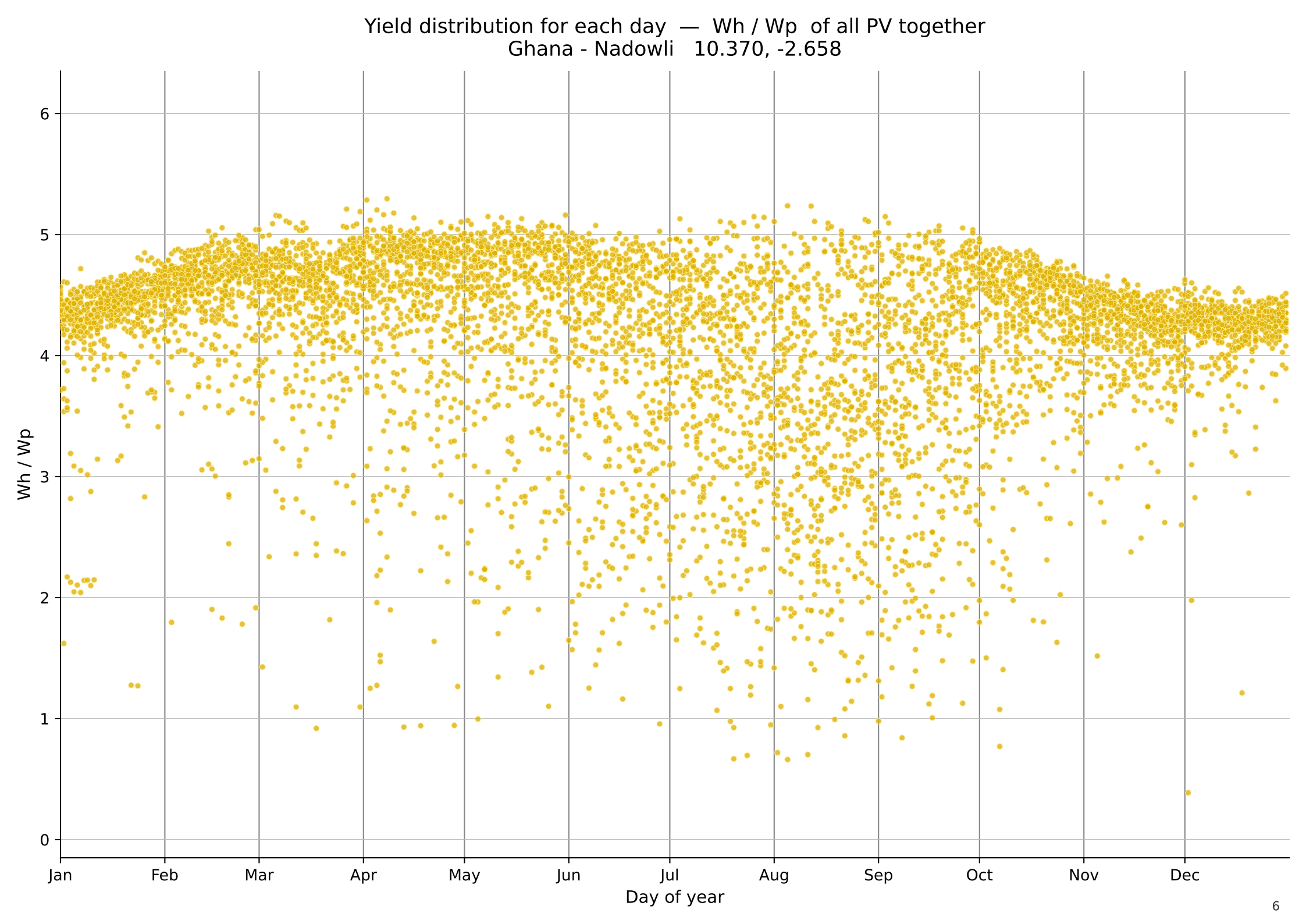
Of the record	Hours	Watts
98 %	10	2,152 W
96 %	68	2,108 W
94 %	251	2,064 W
92 %	787	2,020 W
90 %	2,109	1,976 W

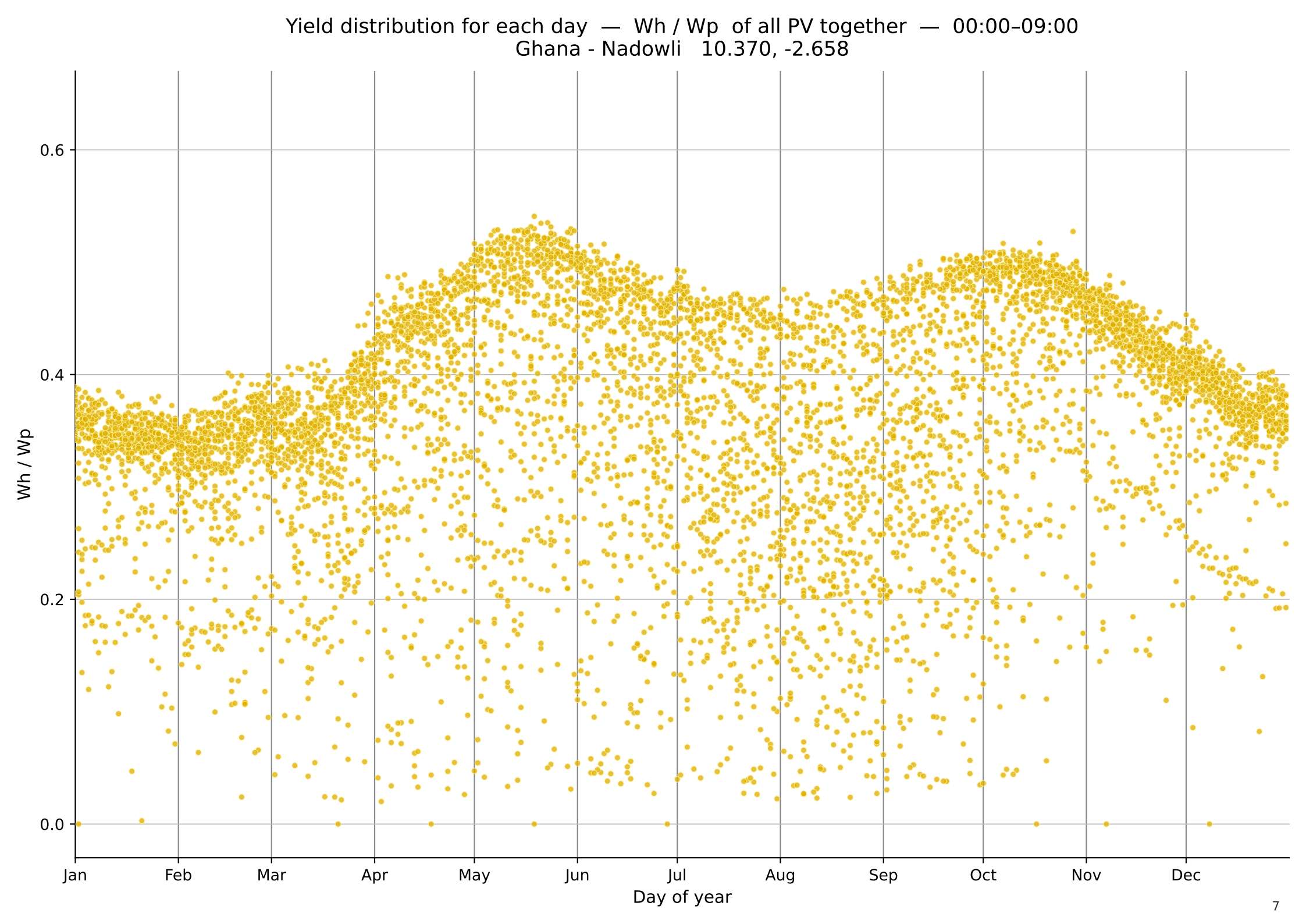
Record hour = 2,195 W combined.

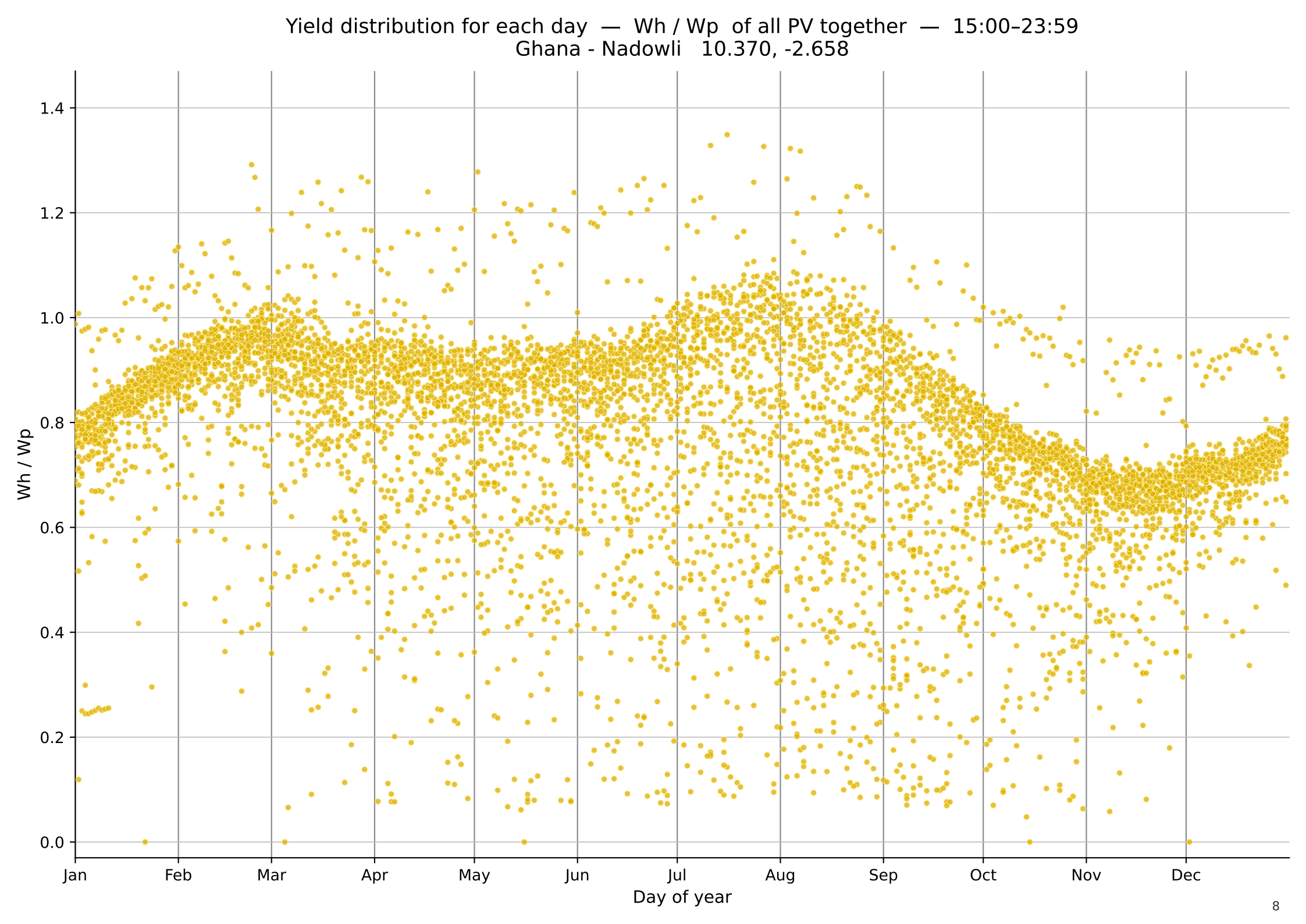
Records of each photovoltaic field
Ghana - Nadowli 10.370, -2.658

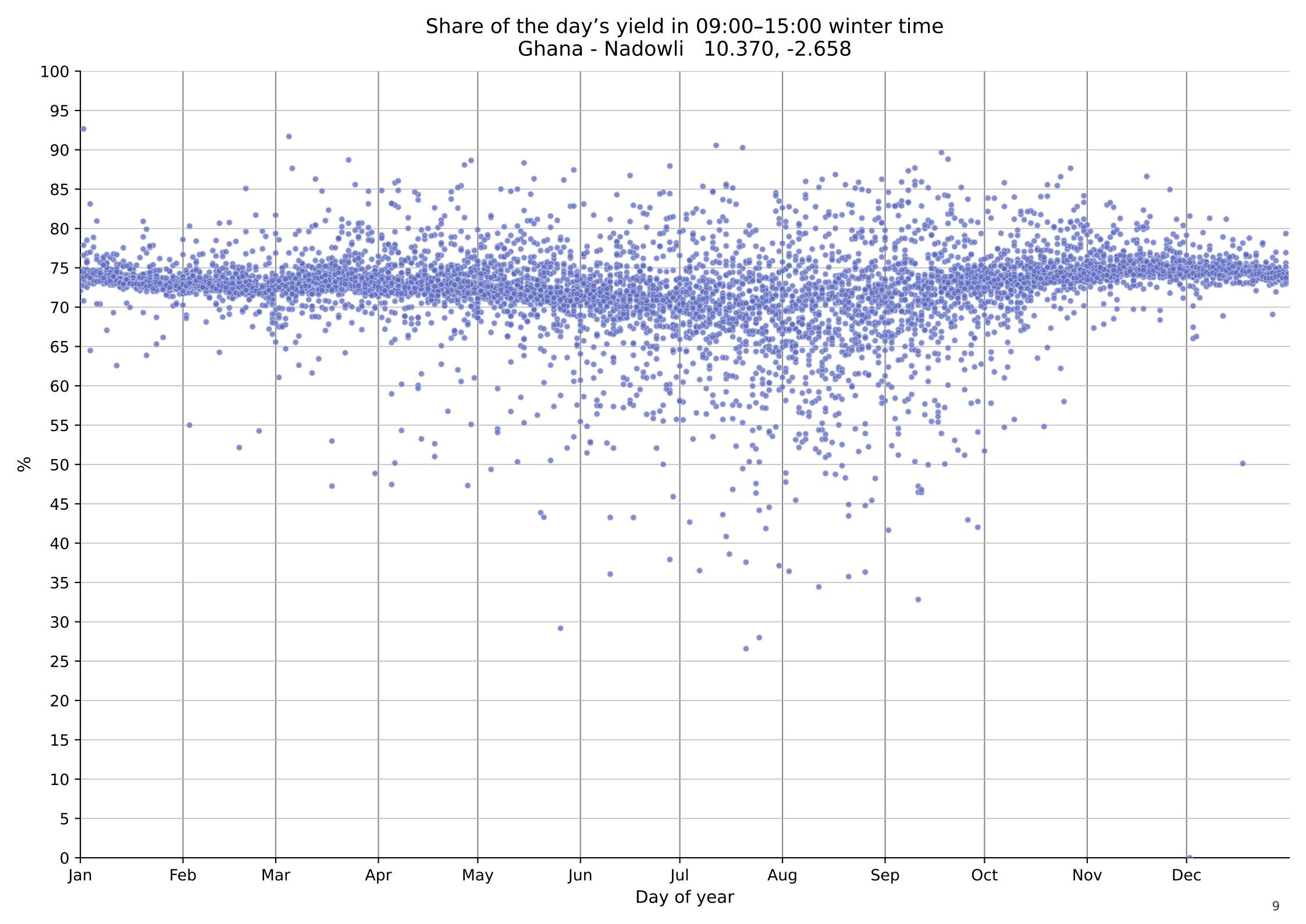
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
roof east	2014-08-28 11:07	1,168	77.8	8	107	431	1380	3077
roof west	2022-08-20 14:07	1,187	79.1	6	27	97	294	809

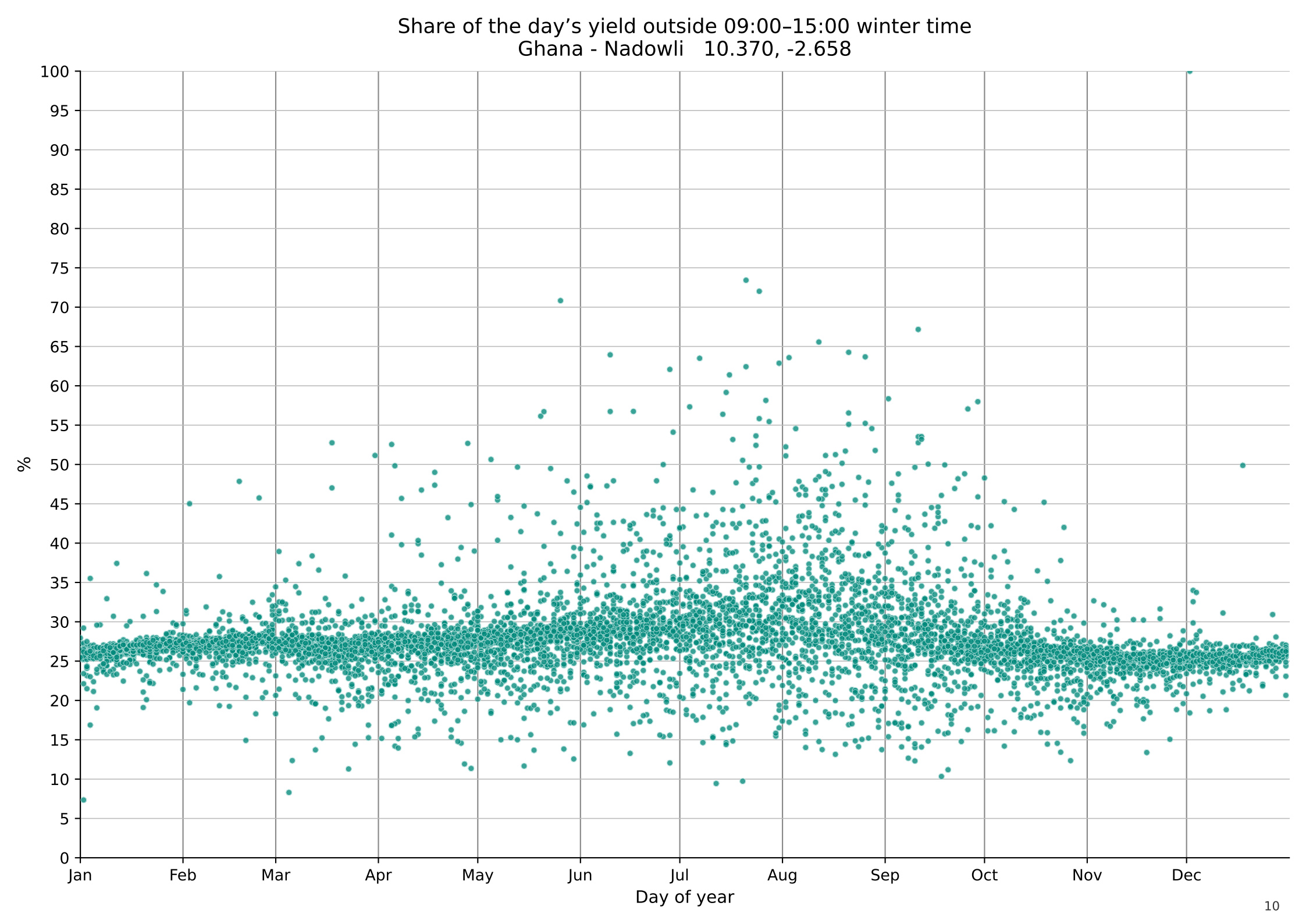
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

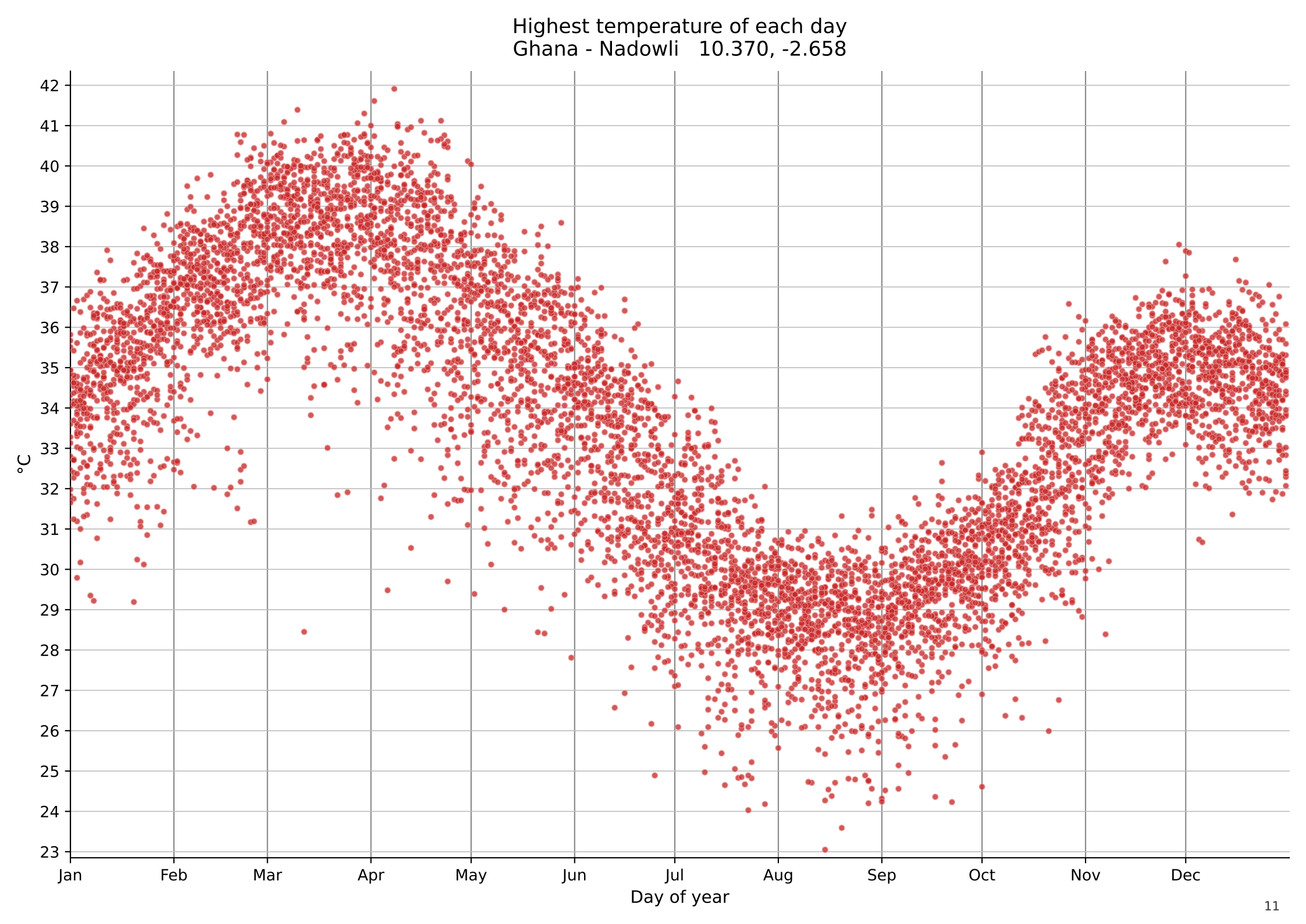

Yield distribution for each day — Wh / Wp of all PV together
Ghana - Nadowli 10.370, -2.658
Wh / Wp
0
1
2
3
4
5
6
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

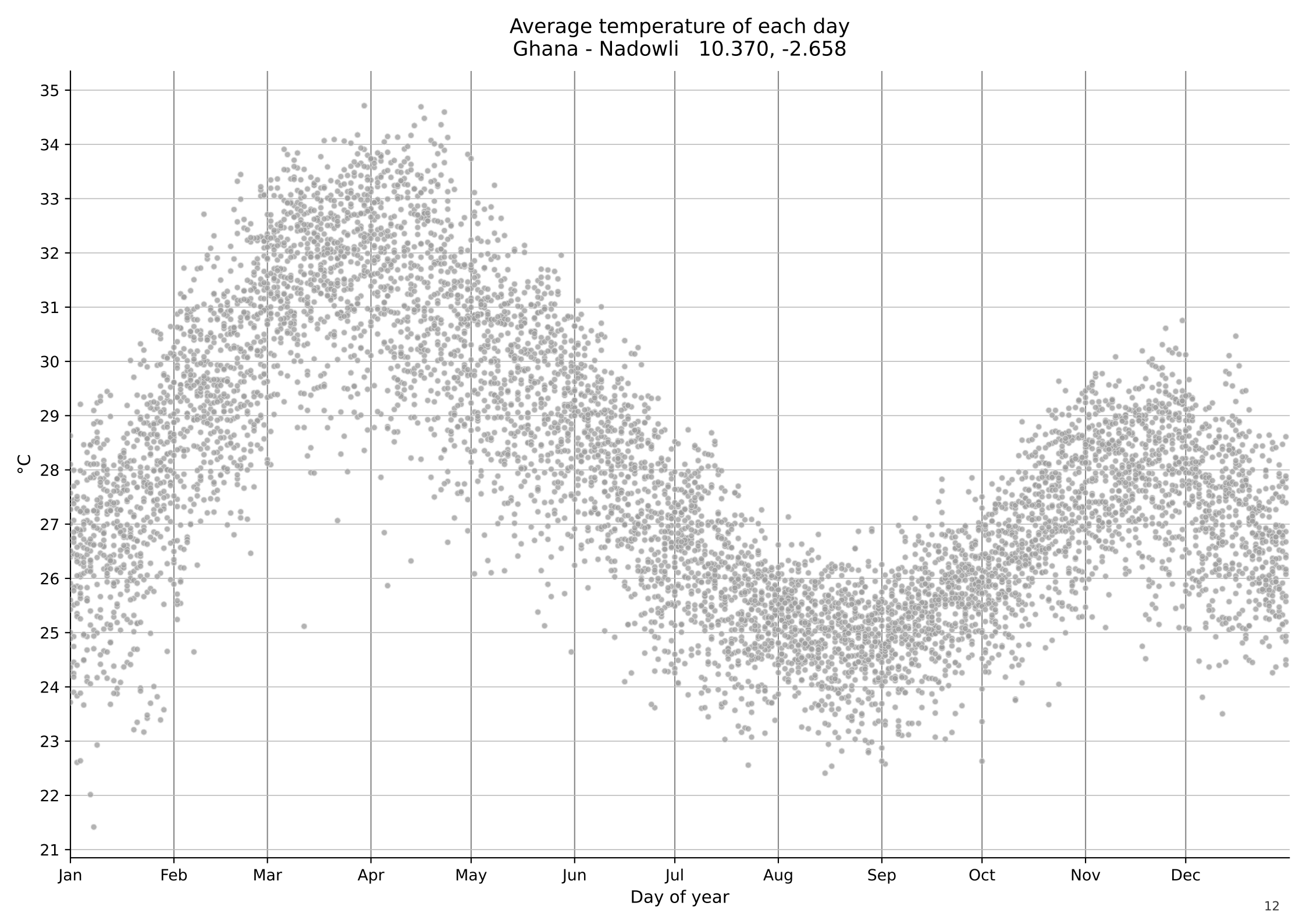

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Ghana - Nadowli 10.370, -2.658
0.6
0.4
0.2
0.0
Wh / Wp
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

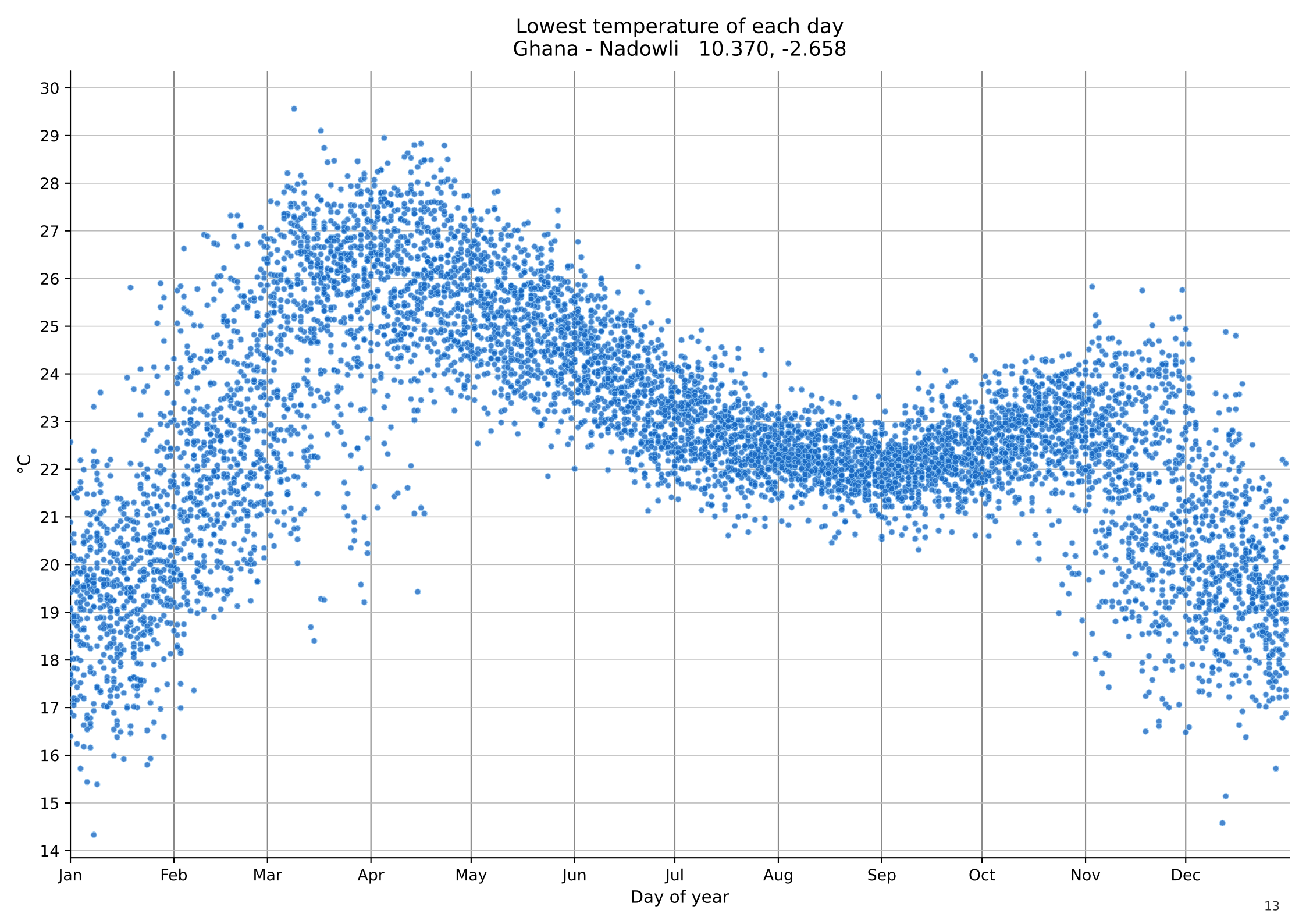

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
Ghana - Nadowli 10.370, -2.658
Wh / Wp
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

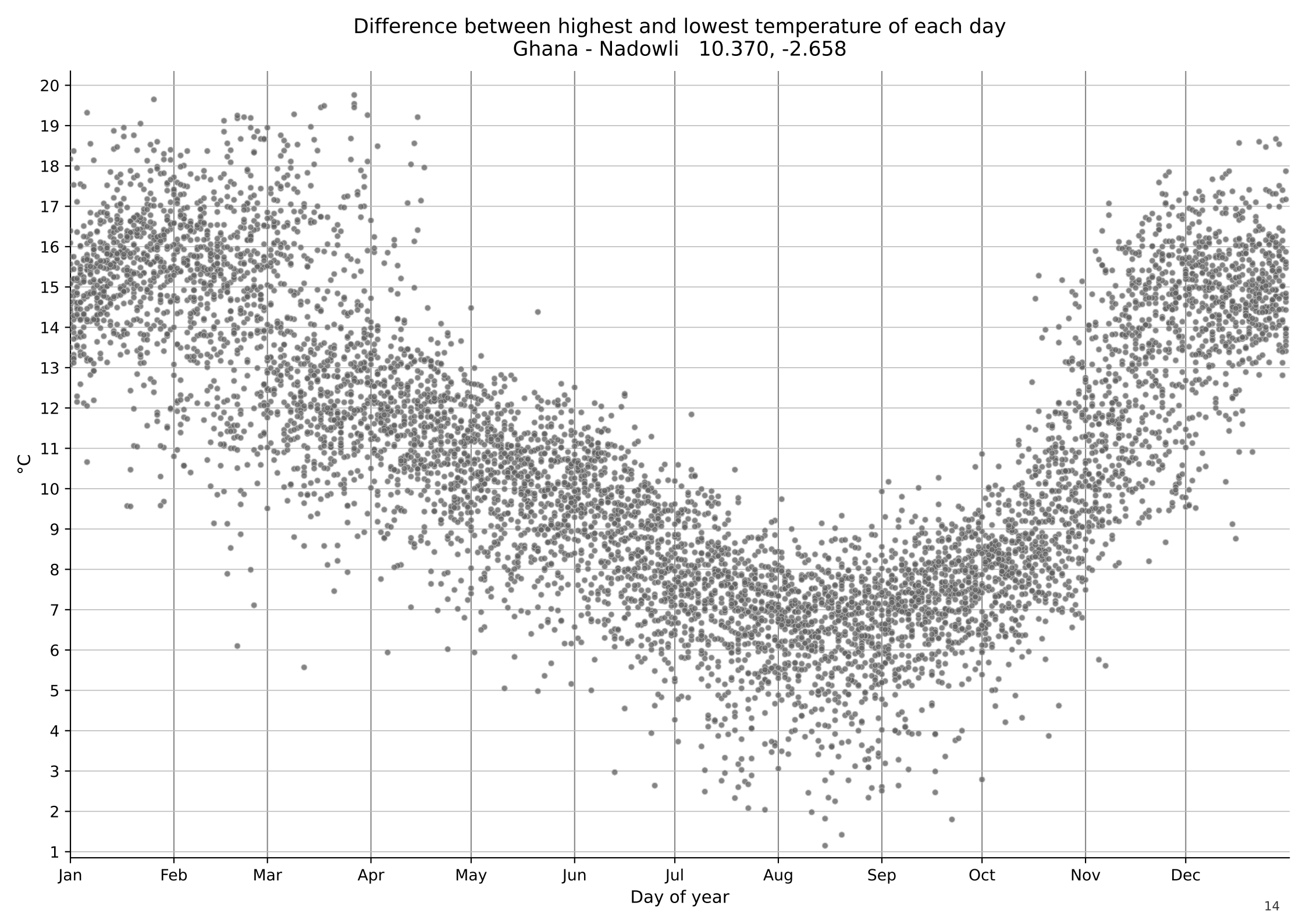

Share of the day’s yield in 09:00–15:00 winter time
Ghana - Nadowli 10.370, -2.658
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Share of the day’s yield outside 09:00–15:00 winter time
Ghana - Nadowli 10.370, -2.658
%
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Highest temperature of each day
Ghana - Nadowli 10.370, -2.658
°C
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Average temperature of each day
Ghana - Nadowli 10.370, -2.658
°C
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Lowest temperature of each day
Ghana - Nadowli 10.370, -2.658
°C
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Difference between highest and lowest temperature of each day
Ghana - Nadowli 10.370, -2.658
°C
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

Monthly and yearly specific yield (kWh/kWp = Wh/Wp)
Ghana - Nadowli 10.370, -2.658

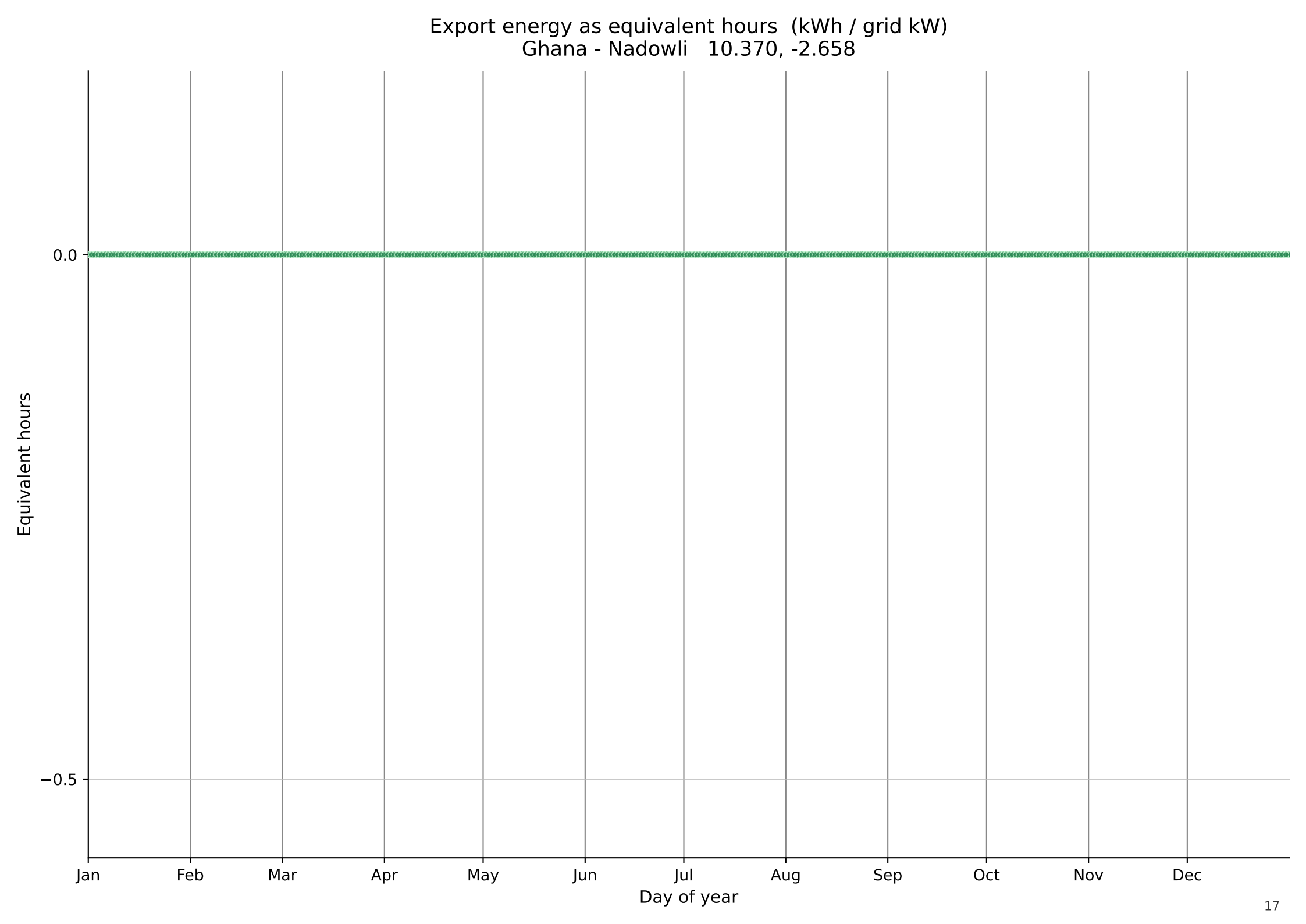
Month / year		roof east 25°/-90° 1,500 Wp	roof west 25°/90° 1,500 Wp	All together
January	Maximum	140.98	139.77	139.54
	average	134.28	132.12	133.20
	minimum	113.22	111.96	112.59
February	Maximum	139.87	135.31	137.59
	average	128.13	126.19	127.16
	minimum	113.28	115.11	116.29
March	Maximum	145.42	141.12	143.25
	average	138.35	135.52	136.93
	minimum	126.12	128.51	131.08
April	Maximum	142.09	138.93	140.51
	average	132.49	130.57	131.53
	minimum	123.74	120.34	122.12
May	Maximum	146.24	151.82	144.22
	average	134.37	133.09	133.73
	minimum	122.45	120.96	121.70
June	Maximum	128.25	126.97	126.41
	average	120.02	119.77	119.89
	minimum	109.36	111.36	110.89
July	Maximum	123.94	124.67	123.98
	average	115.94	117.83	116.88
	minimum	102.02	110.38	107.96
August	Maximum	117.39	124.25	118.58
	average	106.26	110.80	108.53
	minimum	93.14	99.26	96.74
September	Maximum	122.69	128.29	123.74
	average	112.44	114.96	113.70
	minimum	100.00	105.78	103.32
October	Maximum	140.25	147.42	139.03
	average	130.80	129.67	130.23
	minimum	117.02	114.15	115.58
November	Maximum	134.02	131.98	132.42
	average	127.21	123.97	125.59
	minimum	118.56	115.89	119.68
December	Maximum	137.11	138.42	135.57
	average	131.44	129.76	130.60
	minimum	120.69	125.27	126.36
All years	Maximum	1,558.9	1,609.1	1,536.9
	average	1,511.7	1,504.2	1,508.0
	minimum	1,421.5	1,457.7	1,456.6

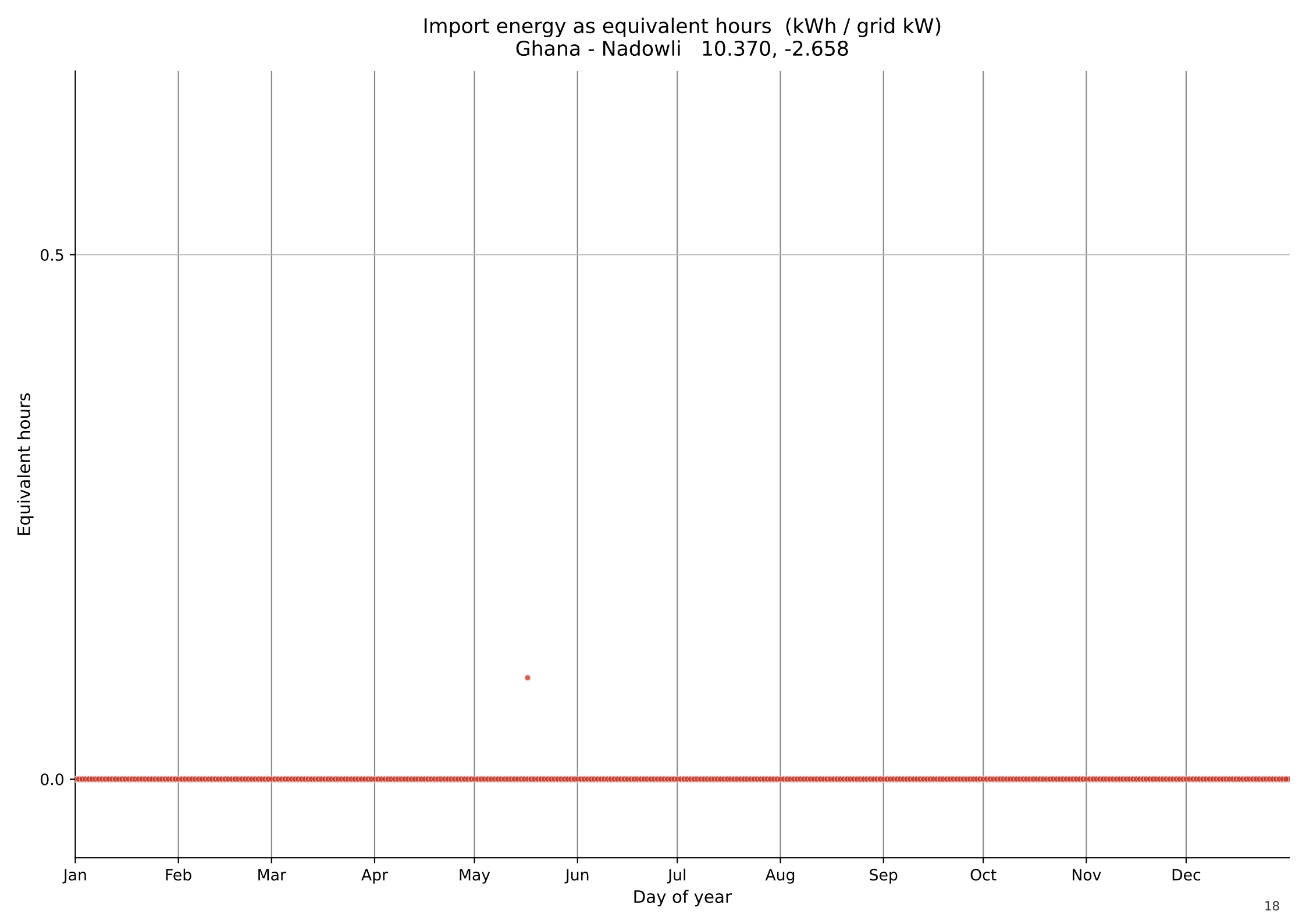
Highest combined yield hour: 2021-04-02 12:07 UTC 2,195.4 W (0.732 W/Wp) of 3,000 Wp installed. Use this hour to size battery charge power.

Monthly and yearly total yield (kWh)
Ghana - Nadowli 10.370, -2.658

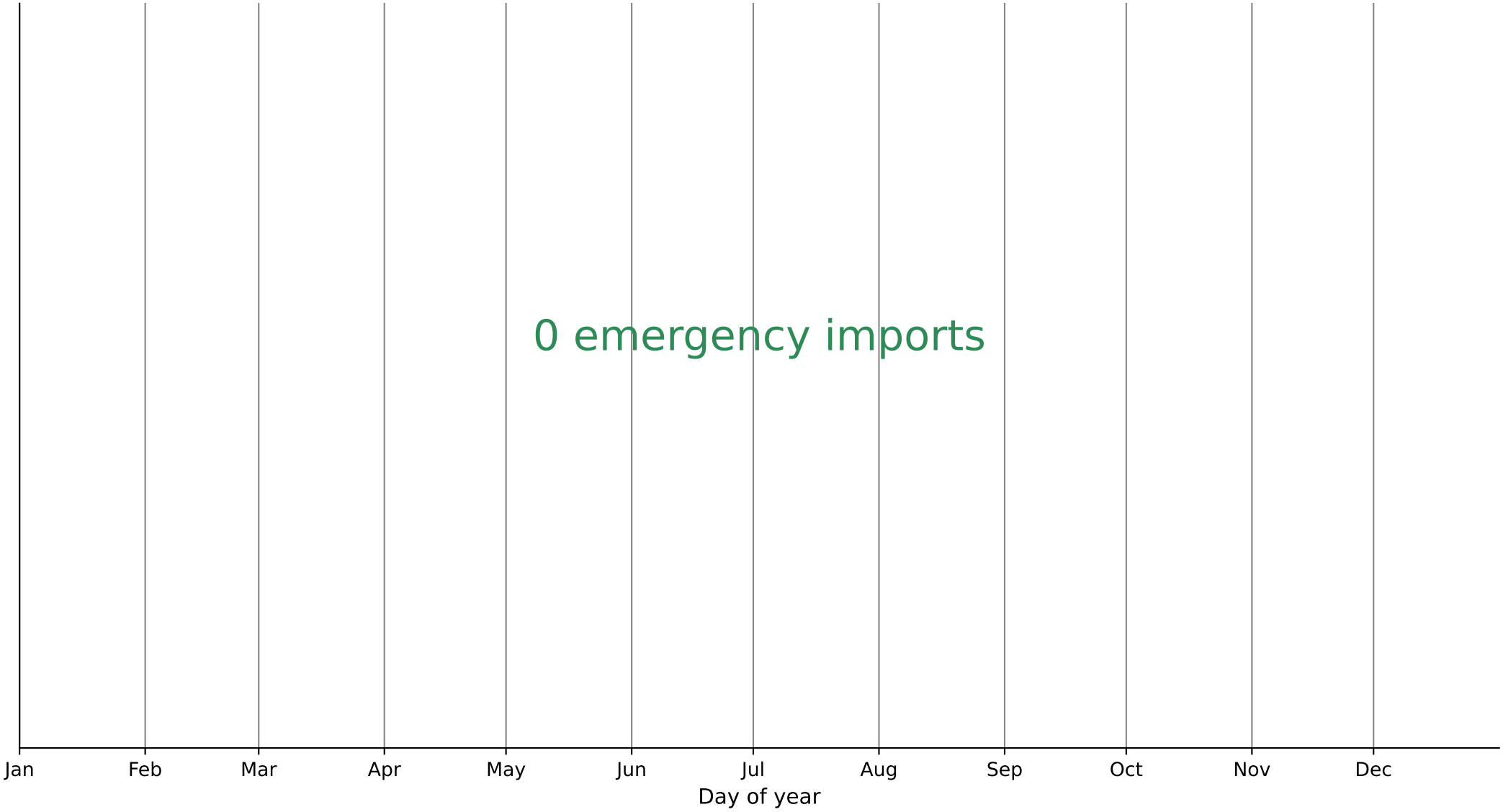
Month / year		roof east 25°/-90° 1,500 Wp	roof west 25°/90° 1,500 Wp	All together
January	Maximum	211.47	209.66	418.62
	average	201.42	198.18	399.60
	minimum	169.82	167.94	337.76
February	Maximum	209.80	202.96	412.76
	average	192.19	189.28	381.47
	minimum	169.92	172.67	348.86
March	Maximum	218.13	211.68	429.76
	average	207.52	203.28	410.80
	minimum	189.17	192.77	393.24
April	Maximum	213.14	208.40	421.54
	average	198.73	195.85	394.58
	minimum	185.61	180.51	366.37
May	Maximum	219.35	227.73	432.65
	average	201.55	199.63	401.18
	minimum	183.67	181.44	365.11
June	Maximum	192.38	190.45	379.24
	average	180.02	179.66	359.68
	minimum	164.04	167.04	332.66
July	Maximum	185.91	187.00	371.94
	average	173.90	176.75	350.65
	minimum	153.03	165.57	323.89
August	Maximum	176.08	186.38	355.75
	average	159.38	166.19	325.58
	minimum	139.71	148.89	290.21
September	Maximum	184.03	192.43	371.23
	average	168.65	172.43	341.09
	minimum	150.00	158.67	309.95
October	Maximum	210.37	221.13	417.08
	average	196.20	194.50	390.70
	minimum	175.52	171.22	346.74
November	Maximum	201.03	197.97	397.25
	average	190.81	185.96	376.77
	minimum	177.84	173.84	359.04
December	Maximum	205.67	207.62	406.70
	average	197.16	194.64	391.80
	minimum	181.03	187.90	379.08
All years	Maximum	2,338.3	2,413.7	4,610.8
	average	2,267.6	2,256.3	4,523.9
	minimum	2,132.3	2,186.6	4,369.9

Highest combined yield hour: 2021-04-02 12:07 UTC 2,195.4 W (0.732 W/Wp) of 3,000 Wp installed. Use this hour to size battery charge power.


Export energy as equivalent hours (kWh / grid kW)
Ghana - Nadowli 10.370, -2.658
0.0
−0.5
Equivalent hours
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Import energy as equivalent hours (kWh / grid kW)
Ghana - Nadowli 10.370, -2.658
0.5
0.0
Equivalent hours
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

Emergency import hours: 0 days with an emergency: 0
Ghana - Nadowli 10.370, -2.658



Emergency = this hour’s grid import is above the month’s max import kW. 2 kW means up to 48 kWh in 24 hours. More than 2 kW in an hour is the higher grid fee.
Import inside that cap is not an emergency. Preferred cheap hours are 00:00–06:00 and 09:00–15:00 winter time.

Energy in kWh
Ghana - Nadowli 10.370, -2.658

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export to grid													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0
month average	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0
month minimum	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0
day Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day average	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
day minimum	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
Import from grid													
month Maximum	0	0	0	0	2	0	0	0	0	0	0	0	2
month average	0	0	0	0	0	0	0	0	0	0	0	0	0
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
day average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total energy used for house													
month Maximum	196	228	300	280	243	193	173	167	163	176	202	197	2,376
month average	168	204	274	249	218	179	166	162	159	160	179	169	2,287
month minimum	147	183	250	216	196	163	159	158	156	148	153	150	2,209
day Maximum	8.0	10.8	12.0	12.0	11.0	8.0	7.1	7.1	7.1	6.9	8.0	8.0	12.0
day average	5.4	7.2	8.9	8.3	7.0	6.0	5.3	5.2	5.3	5.2	6.0	5.4	6.3
day minimum	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.7

Month rows: kWh in that month. Day rows: best / average / worst day.
Total energy used for house = household + car + heating + cooling + DHW + direct electric.
PV not exported and not marked wasted is still in the battery, or could not leave because the grid was already full. It is not house use.

Energy by price
Ghana - Nadowli 10.370, -2.658

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0
month average	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0
month minimum	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0
day Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day average	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
day minimum	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
Import													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0
month average	0	0	0	0	0	0	0	0	0	0	0	0	0
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
day average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peak grid fee													
month Maximum	0	0	0	0	6	0	0	0	0	0	0	0	6
month average	0	0	0	0	0	0	0	0	0	0	0	0	0
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Import incl. peak fee													
month Maximum	0	0	0	0	7	0	0	0	0	0	0	0	7
month average	0	0	0	0	0	0	0	0	0	0	0	0	0
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
day average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Balance													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0
month average	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0
month minimum	-0	-0	-0	-0	-7	-0	-0	-0	-0	-0	-0	-0	-7
day Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day average	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
day minimum	-0.0	-0.0	-0.0	-0.0	-0.3	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.3

Currency in Your units. Import and export use the cent/kWh of that hour. Peak fee 6.33 / kW / month is the highest import hour of the month (hourly stand-in for the 15-minute peak) and is added to that month's
Sell only when export is above 0. At 0 cent, export PV yield only, not the battery. Do not sell when the earning is negative.

Export in kWh during price hours
Ghana - Nadowli 10.370, -2.658

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export total													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0
month average	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0
month minimum	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0
day Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day average	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
day minimum	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
Export during high price hours													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0
month average	-0	-0	-0	-0	-0	-0	-0	-0	0	-0	-0	-0	-0
month minimum	-0	-0	-0	-0	-0	-0	-0	-0	0	-0	-0	-0	-0
day Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day average	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0	-0.0	-0.0	-0.0
day minimum	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0	-0.0	-0.0	-0.0
Export during medium price hours													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0
month average	-0	0	-0	0	0	0	-0	0	-0	-0	0	0	-0
month minimum	-0	0	-0	0	0	0	-0	0	-0	-0	0	0	-0
day Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day average	-0.0	0.0	-0.0	0.0	0.0	0.0	-0.0	0.0	-0.0	-0.0	0.0	0.0	-0.0
day minimum	-0.0	0.0	-0.0	0.0	0.0	0.0	-0.0	0.0	-0.0	-0.0	0.0	0.0	-0.0
Export during low price hours													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0
month average	0	0	0	0	0	0	0	-0	-0	-0	-0	0	-0
month minimum	0	0	0	0	0	0	0	-0	-0	-0	-0	0	-0
day Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0

kWh exported while that price band was active. Not the money. Winter time. High 06:00–09:00 and 17:00–20:00, sold first. Low 09:00–15:00, sold last. Medium is the rest.

Heat pump
Ghana - Nadowli 10.370, -2.658

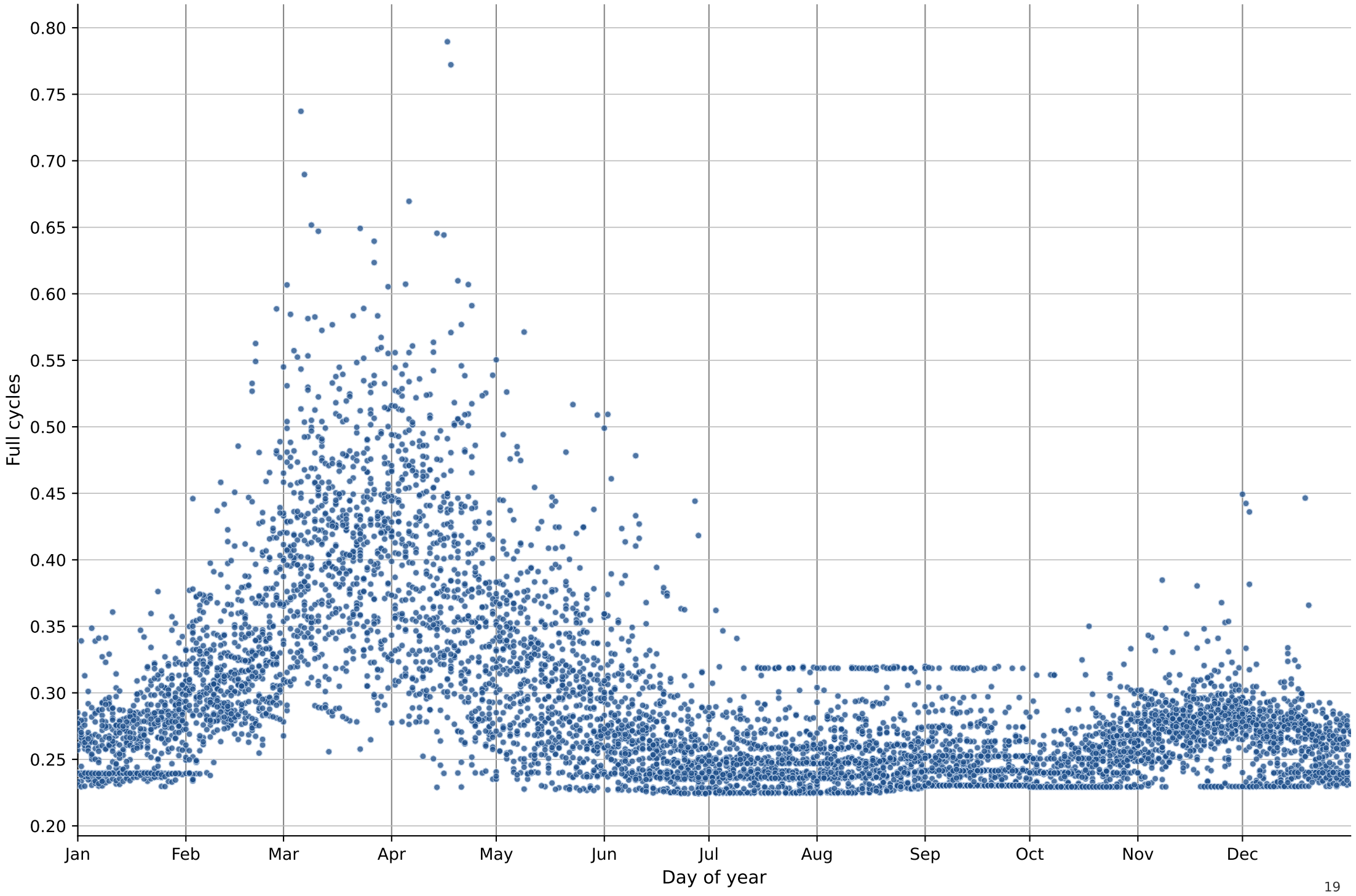
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0
month average	0	0	0	0	0	0	0	0	0	0	0	0	0
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cooling													
month Maximum	49	95	154	136	95	49	23	17	18	28	59	50	630
month average	22	71	128	105	69	35	16	12	14	12	36	21	541
month minimum	0	46	103	72	47	19	9	8	10	0	10	2	459
day Maximum	3.3	6.1	7.3	7.2	6.2	3.2	2.3	2.3	2.3	2.1	3.2	3.2	7.3
day average	0.7	2.5	4.1	3.5	2.2	1.2	0.5	0.4	0.5	0.4	1.2	0.7	1.5
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DHW													
month Maximum	23	21	22	24	25	24	26	26	25	24	23	24	287
month average	23	20	22	24	25	24	26	26	25	24	23	24	286
month minimum	23	20	22	24	25	24	26	26	25	24	23	24	286
day Maximum	0.7	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.8	0.8	0.9
day average	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
day minimum	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7
Direct electric													
month Maximum	5	28	57	37	11	1	0	0	0	1	4	5	114
month average	2	17	39	20	4	0	0	0	0	0	1	1	84
month minimum	0	9	28	6	1	0	0	0	0	0	0	0	61
day Maximum	1.0	2.5	3.2	3.4	2.4	0.4	0.0	0.0	0.0	0.3	0.8	0.9	3.4
day average	0.1	0.6	1.3	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

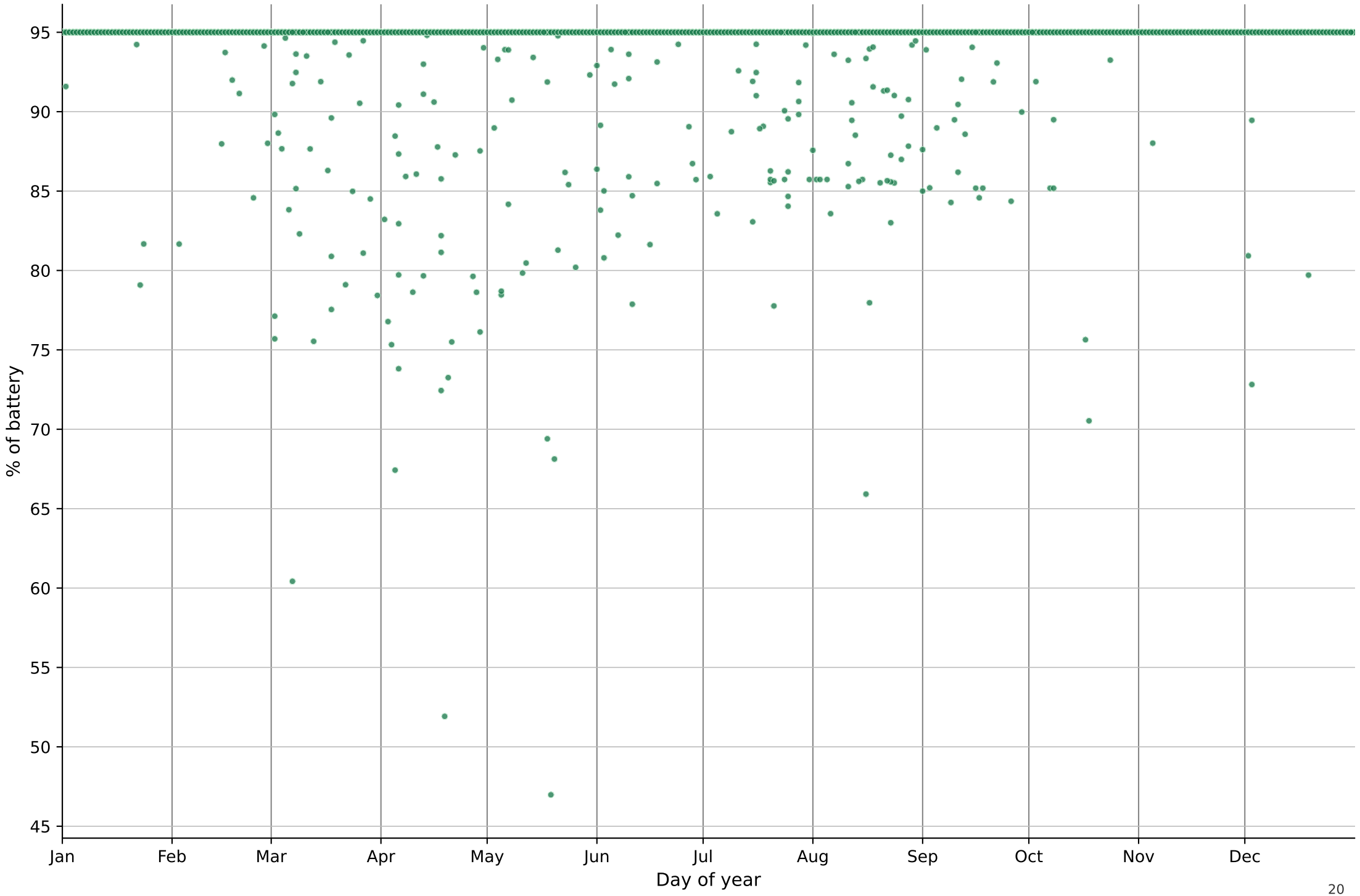
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

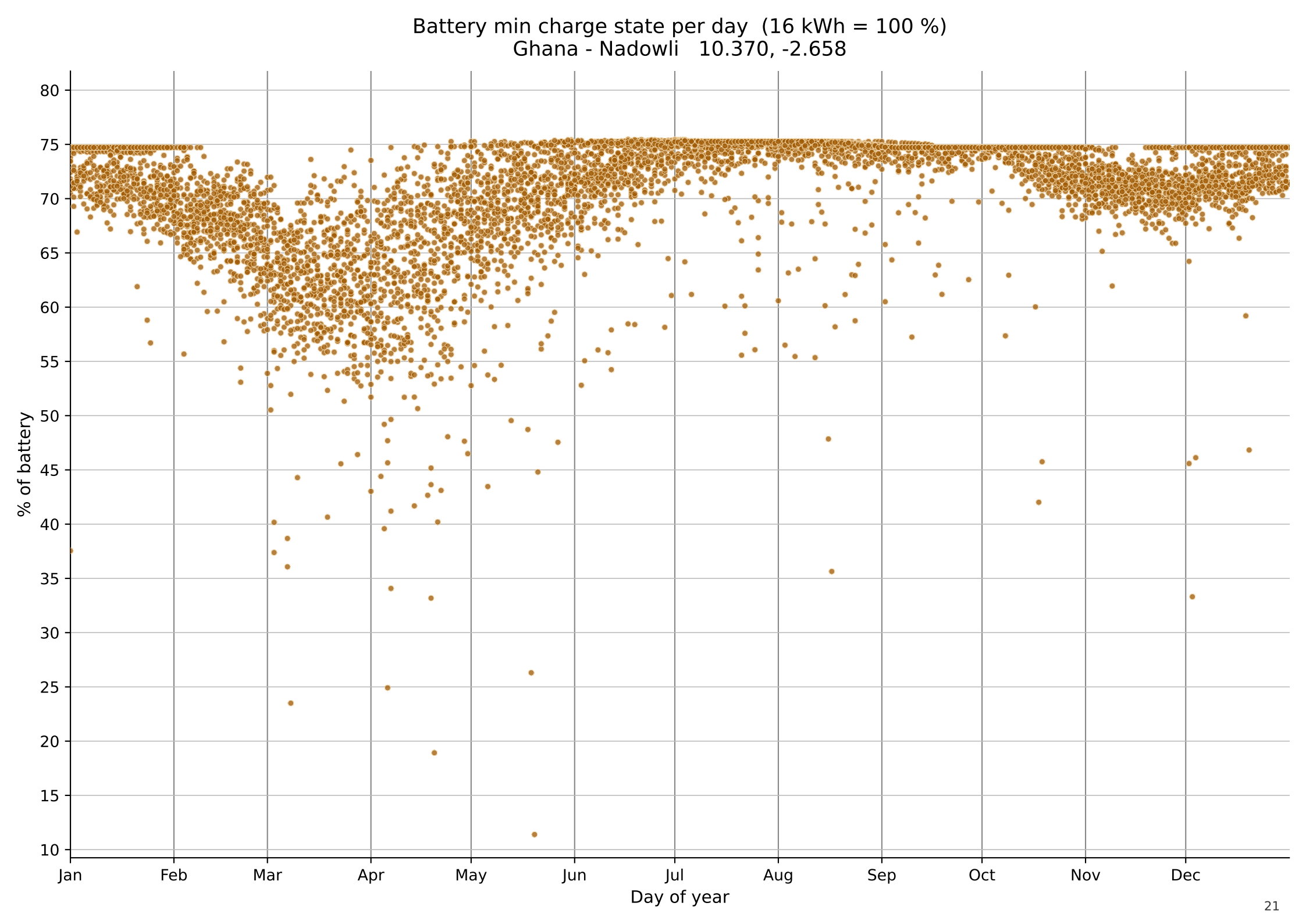
Battery
Ghana - Nadowli 10.370, -2.658

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	251	209	139	159	216	187	193	180	199	245	222	246	2,167
month average	219	163	117	127	168	167	173	152	170	220	185	210	2,072
month minimum	166	115	93	96	126	144	150	122	142	188	153	167	1,914
day Maximum	9.5	9.4	8.9	9.5	9.5	9.9	10.3	10.5	10.1	9.8	8.5	8.6	10.5
day average	7.1	5.8	3.8	4.2	5.4	5.6	5.6	4.9	5.7	7.1	6.2	6.8	5.7
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Full cycles													
month Maximum	9	10	14	13	11	9	8	8	8	8	9	9	111
month average	8	9	13	11	10	8	8	8	7	8	8	8	106
month minimum	8	8	12	9	8	7	8	8	7	7	7	7	102
day Maximum	0.4	0.6	0.7	0.8	0.6	0.5	0.4	0.3	0.3	0.4	0.4	0.4	0.8
day average	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.3
day minimum	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Charge C													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	1
month average	0	0	0	0	0	0	0	0	0	0	0	0	1
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	1
day Maximum	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
day average	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
day minimum	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Discharge C													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	1
month average	0	0	0	0	0	0	0	0	0	0	0	0	0
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
day average	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Wasted = PV left when the export price is negative and the battery is full. Full cycles = discharge kWh / 16 kWh. Battery export only into hours whose export price is above 0, highest price first. At 0 cent only P


Battery cycles per day (discharge / 16 kWh)
Ghana - Nadowli 10.370, -2.658
Full cycles
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Battery max charge state per day (16 kWh = 100 %)
Ghana - Nadowli 10.370, -2.658
% of battery
95
90
85
80
75
70
65
60
55
50
45
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Battery min charge state per day (16 kWh = 100 %)
Ghana - Nadowli 10.370, -2.658
% of battery
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year