Scenario — PV
GEMINI-60-house-part-of-a-settlement Nepal - Kathmandu 27.708, 85.262

Name	Slope °	Azimuth °	Wp	Wall d/h m	Face	Bifacial	Wp counted
Roof East	22	-90	19,800	—	front	—	yes
Roof West	22	90	19,800	—	front	—	yes
Terrace railing south	90	0	4,620	5 / 4	front	—	yes
Terrace railing north	90	180	4,620	5 / 4	front	—	yes
share central structure east part	8	-90	20,460	—	front	—	yes
share central strucure west part	8	90	20,460	—	front	—	yes
Total counted			89,760				

Location: Look at the yield chart and guess when the rain time is.
Database PVGIS-ERA5 2005–2023 loss 14 % azimuth 0 = south, 90 = west, −90 = east.
Price bands and charts use UTC+6 from longitude (15° per hour), not the political time zone.
Peak hour 2005-04-12 12:30 local (06:30 UTC) 61,234 W 0.682 W/Wp of 89,760 Wp.
Database gaps: 0 days with 0 yield while the sun reached the horizon at noon. 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.

Scenario — house, heat pump, battery
GEMINI-60-house-part-of-a-settlement Nepal - Kathmandu 27.708, 85.262

Chapter	Parameter	Value
Building	Design out / in / heat	-10.0 °C / 20.0 °C / 1,600 W
	Heat on / cool on / ground	22.0 °C / 25.0 °C / 10.0 °C
	Curve / flow min / max	0.3 / 25.0 °C / 55.0 °C
	Thermal mass of the house	25.0 kWh/K
	Household only	4.0 kWh/day
DHW	Litres at 40 °C / tank	200 L tank 42.0 °C 8–18 h
	Water out of the pipe Q1–Q4	10 °C 16 °C 20 °C 14 °C
Heat pump	Source	air and ground
	COP −10/0/10 @ 35 °C	2.4 3.4 4.5
	COP −10/0/10 @ 50 °C	1.9 2.6 3.3
	kW −10/0/10 @ 35 °C	4.0 5.0 6.0
	kW −10/0/10 @ 50 °C	3.5 4.5 5.0
Battery	kWh / C-rate / SOC min–max–start	257.2 kWh C 0.5 5 / 95 / 50 %
	Nameplate	—
	Charge / discharge η	95 % / 90 %
Grid	Inverter / grid connection	54.0 kW / 27.0 kW
	Max export	27.0 kW
	Import cap Jan–Jun kW	Jan 2 Feb 2 Mar 2 Apr 2 May 2 Jun 2
	Import cap Jul–Dec kW	Jul 2 Aug 2 Sep 2 Oct 2 Nov 2 Dec 2
Cars	Lunch DC / night AC	0.0 kWh @ 100.0 kW night 10.0 kWh @ 11.0 kW

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

Records 1–10 contribution of each PV
Nepal - Kathmandu 27.708, 85.262

PV	2005-04-12 06:30	2005-04-01 06:30	2012-04-16 06:30	2021-04-23 06:30	2017-04-09 06:30	2011-04-05 06:30	2005-04-02 06:30	2005-04-16 06:30	2016-04-24 06:30	2016-04-25 06:30
Roof East	14,048	13,999	14,010	13,999	13,957	13,921	13,917	13,921	13,928	13,925
Roof West	14,479	14,296	14,481	14,526	14,350	14,268	14,226	14,395	14,456	14,459
Terrace railing south	1,609	1,914	1,497	1,309	1,684	1,787	1,871	1,474	1,294	1,263
Terrace railing north	154	150	161	150	154	152	142	149	175	160
share central structure east part	15,392	15,293	15,365	15,374	15,277	15,228	15,211	15,282	15,290	15,289
share central strucure west part	15,552	15,404	15,541	15,571	15,424	15,358	15,326	15,460	15,487	15,488
Watt at record	61,234	61,056	61,054	60,928	60,847	60,715	60,692	60,680	60,629	60,583
Percent of installed peak	68.2	68.0	68.0	67.9	67.8	67.6	67.6	67.6	67.5	67.5

Values are watts at that hour. Date and time are UTC. Record 61,234 W (68.2 % of 89,760 Wp).

Hours at or above a share of the record
Nepal - Kathmandu 27.708, 85.262

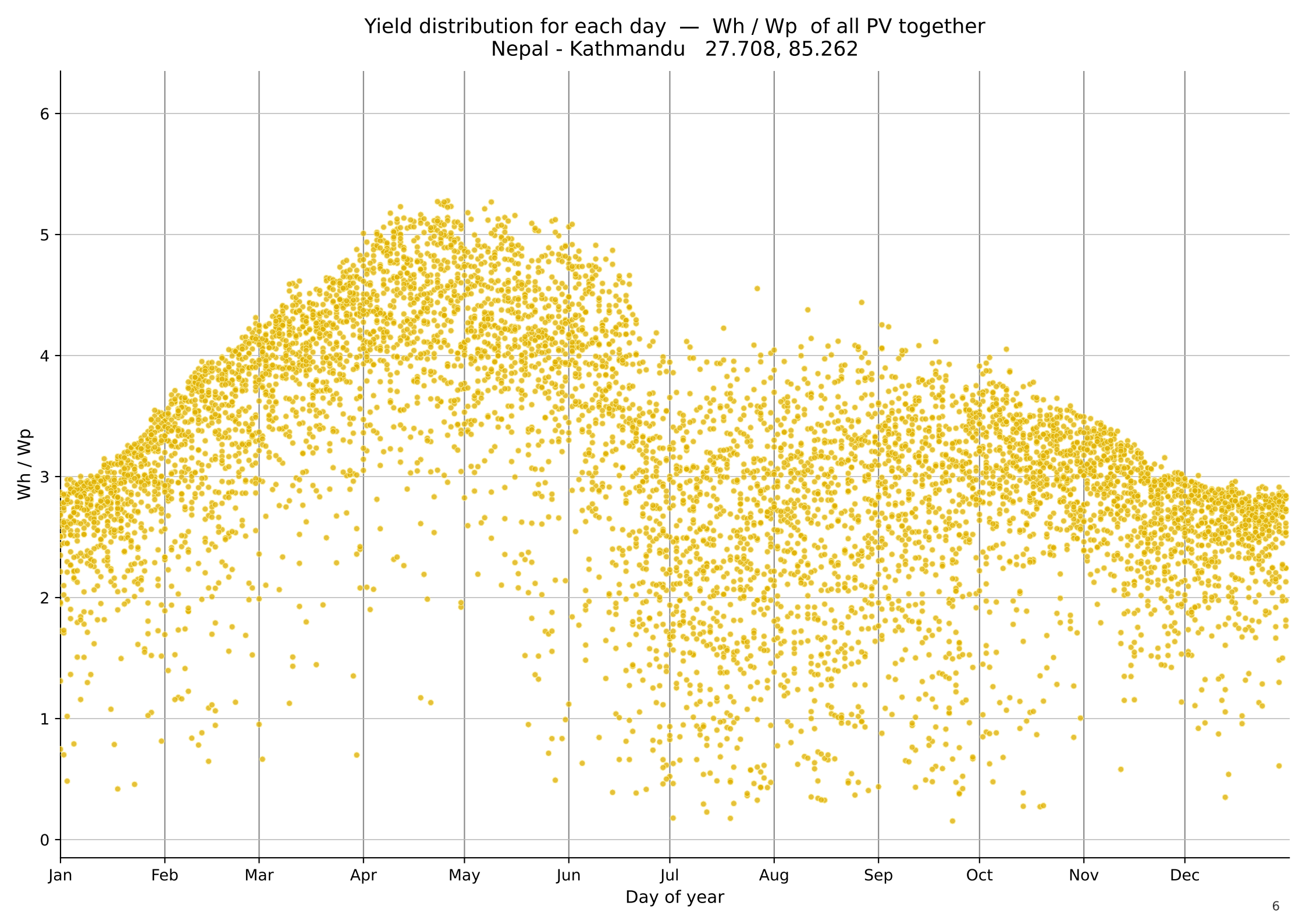
Of the record	Hours	Watts
98 %	35	60,010 W
96 %	200	58,785 W
94 %	521	57,560 W
92 %	895	56,336 W
90 %	1,285	55,111 W

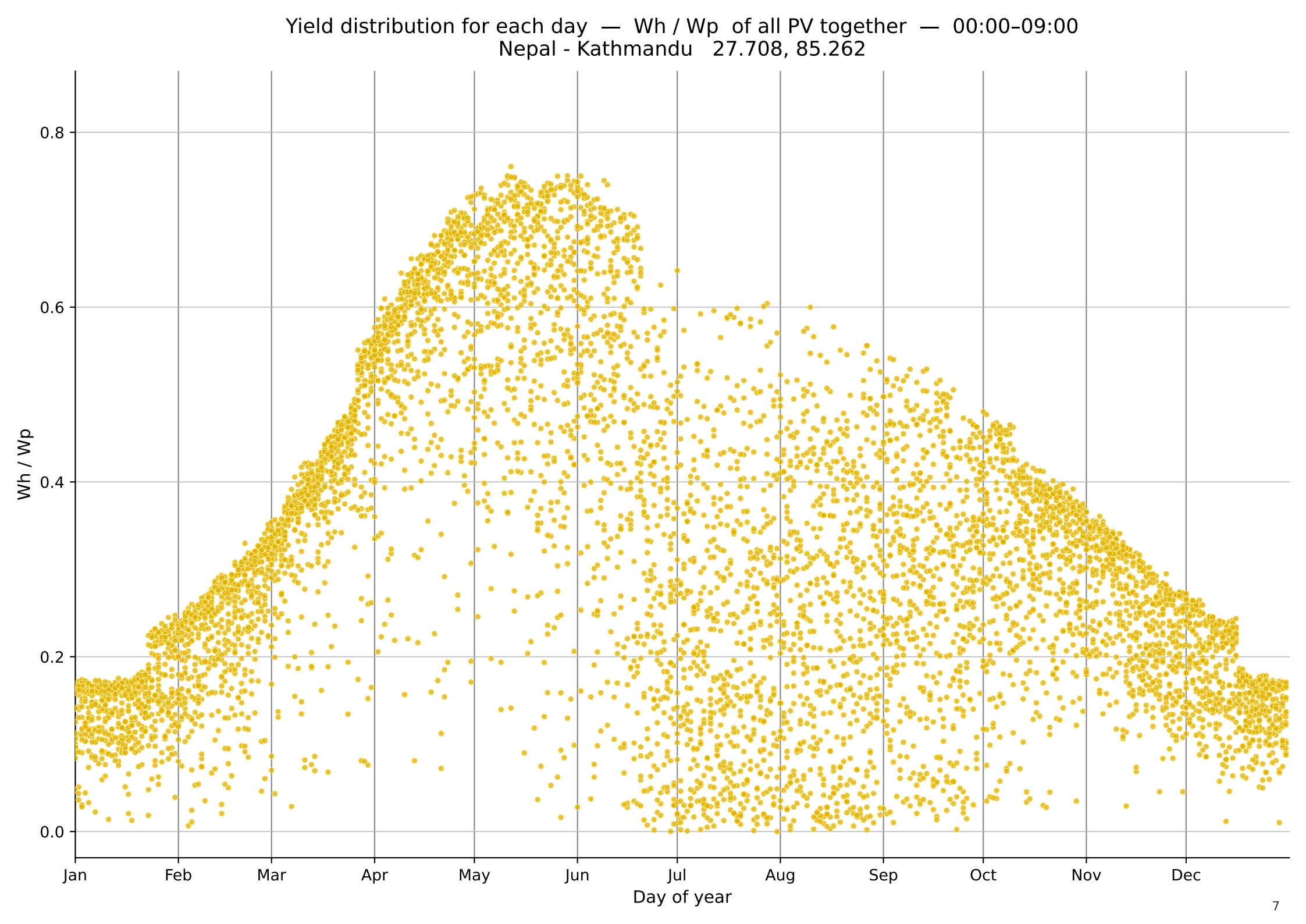
Record hour = 61,234 W combined.

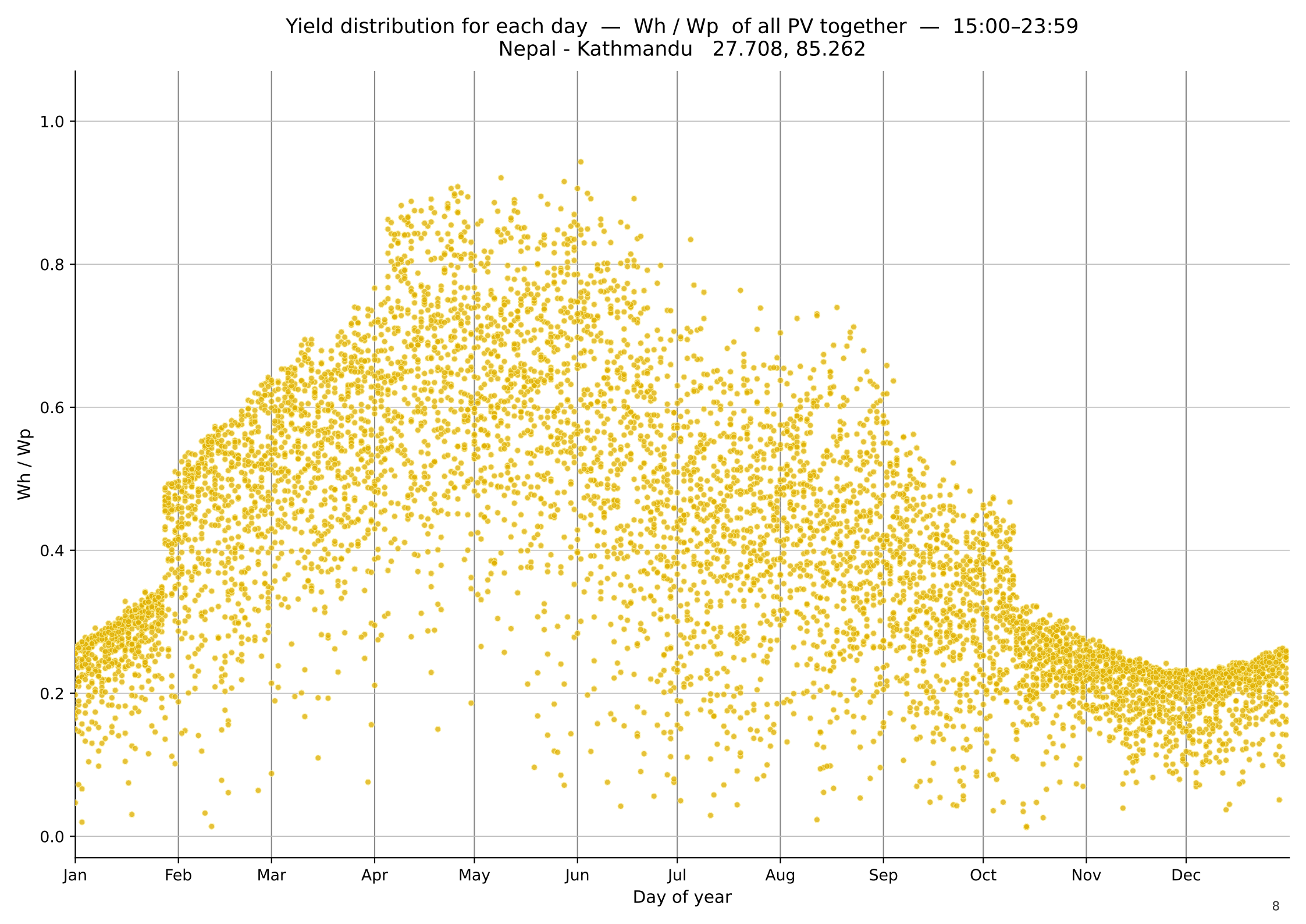
Records of each photovoltaic field
Nepal - Kathmandu 27.708, 85.262

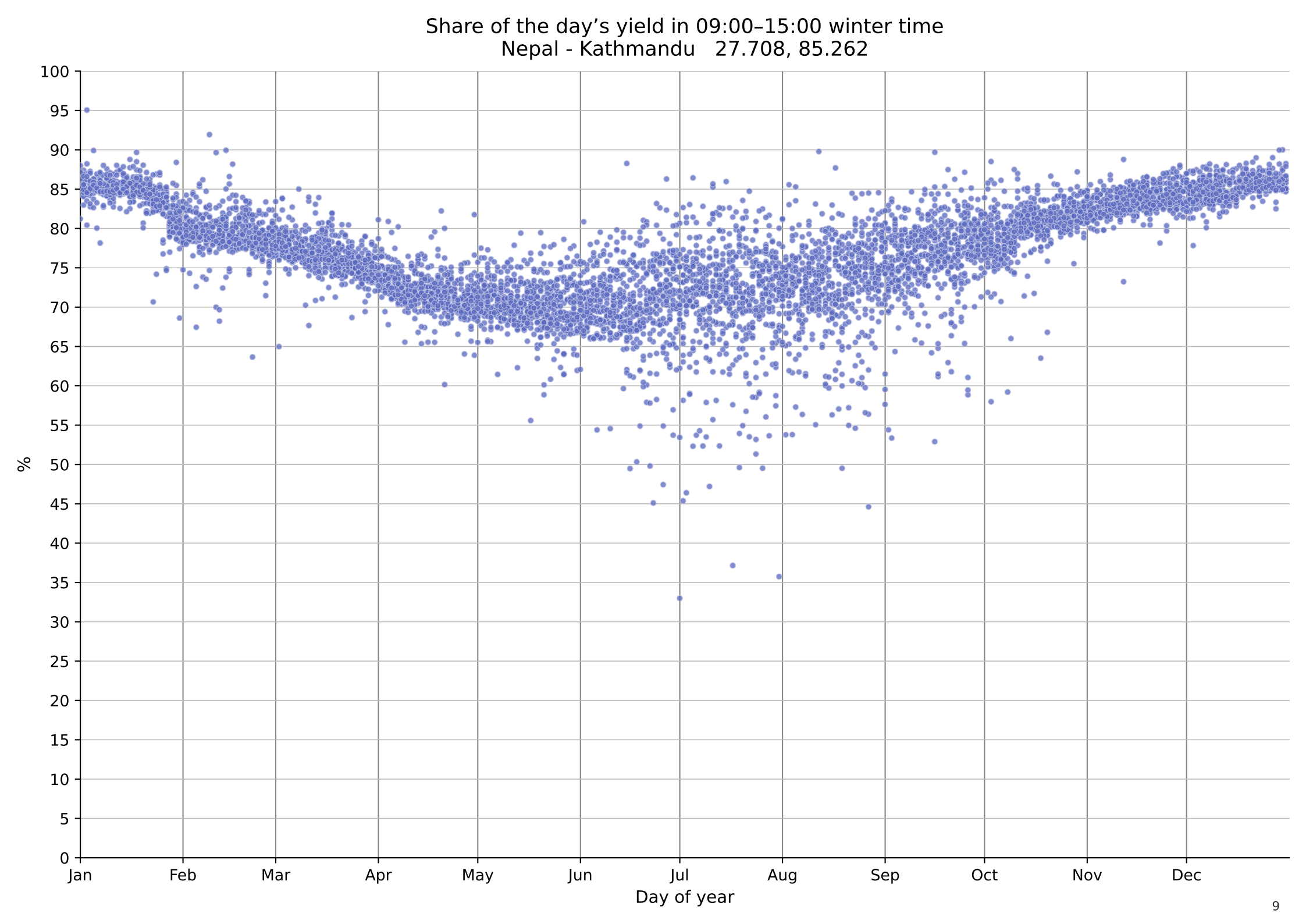
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Roof East	2021-04-23 04:30	15,157	76.5	49	340	809	1214	1919
Roof West	2005-05-10 07:30	15,258	77.1	15	65	157	353	604
Terrace railing south	2013-01-07 06:30	3,328	72.0	14	89	275	512	772
Terrace railing north	2009-06-09 01:30	747	16.2	6	15	42	68	102
share central structure east part	2023-05-11 05:30	15,756	77.0	17	158	424	808	1345
share central strucure west part	2021-04-23 06:30	15,571	76.1	46	190	399	727	1092

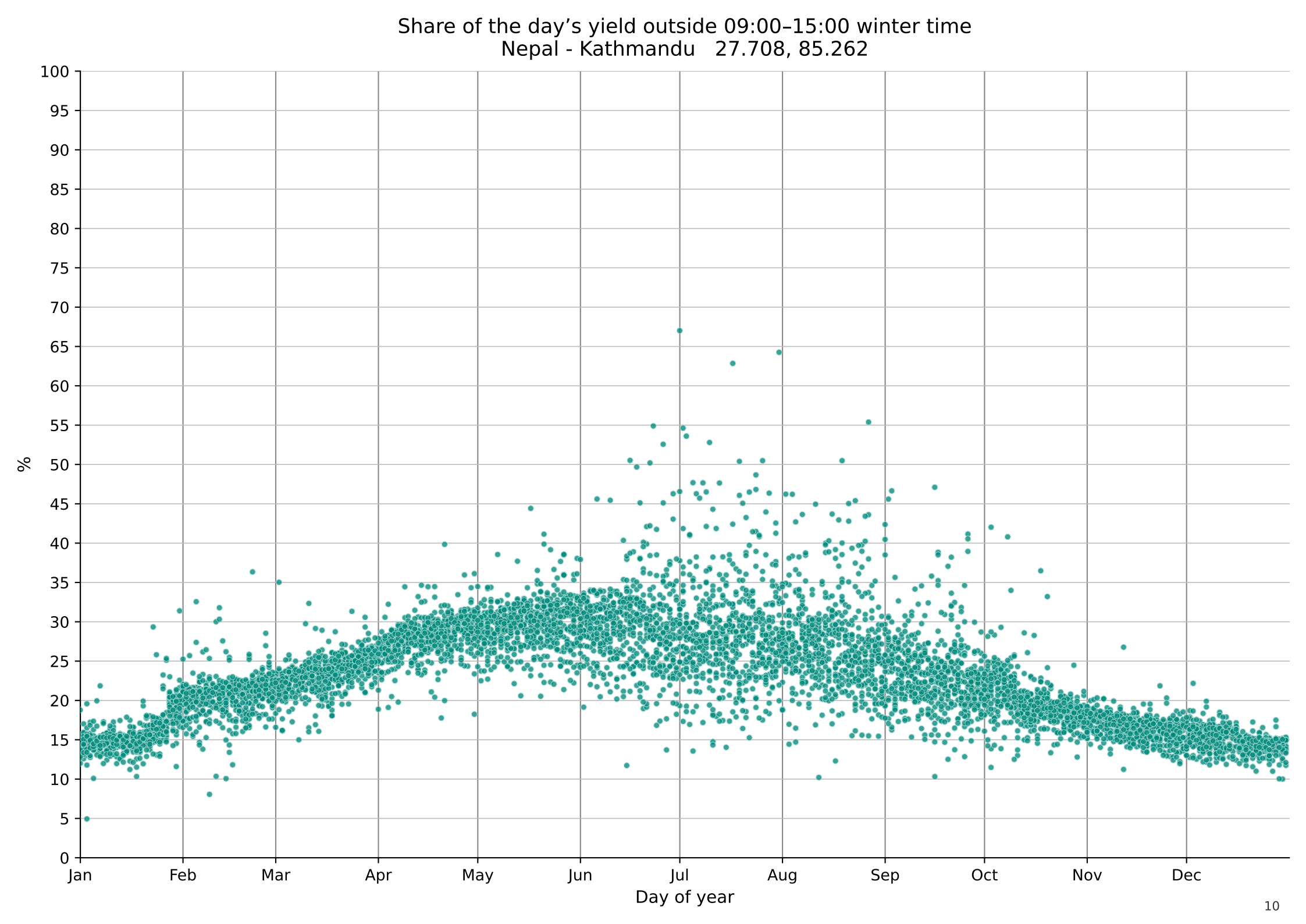
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

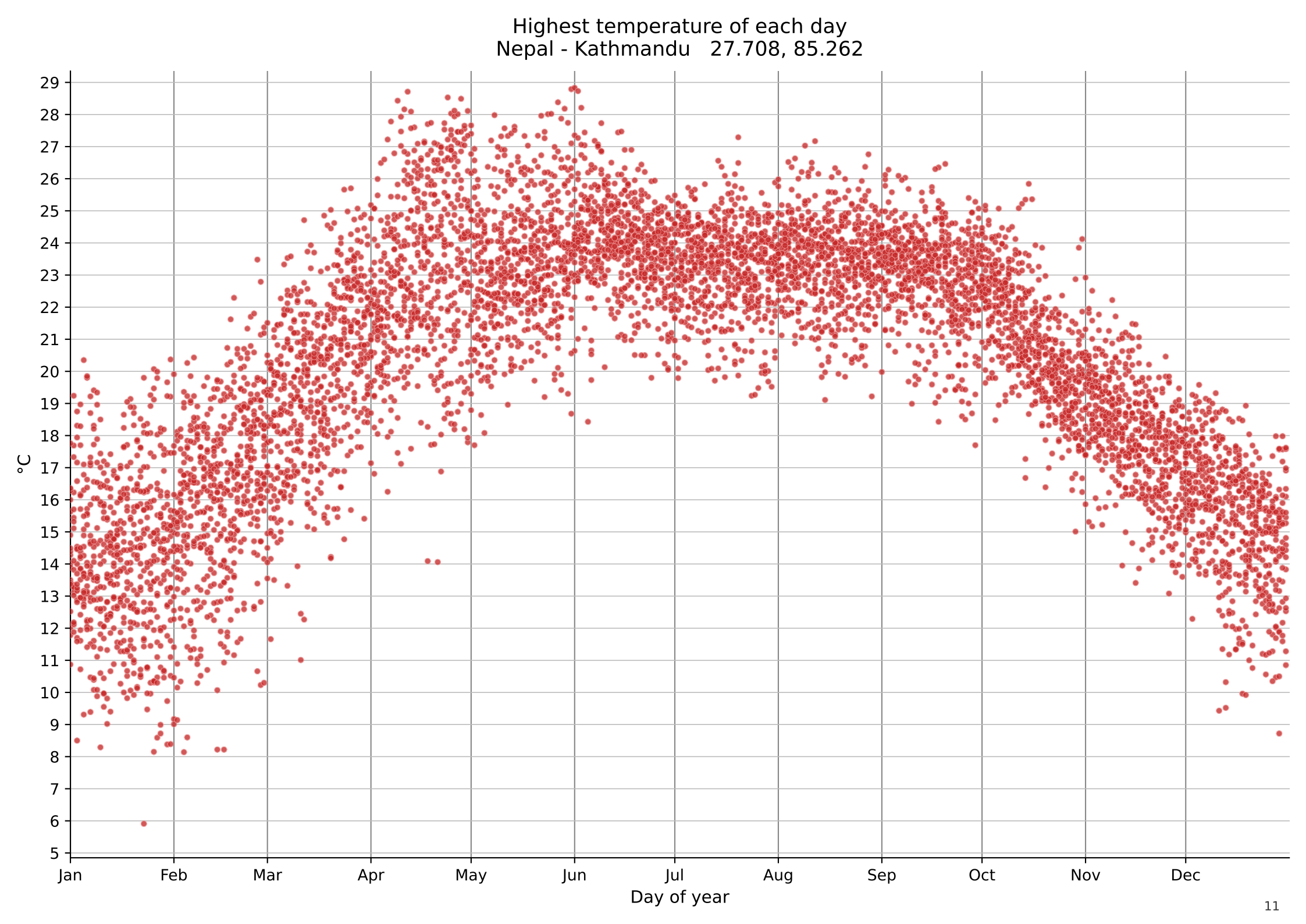

Yield distribution for each day — Wh / Wp of all PV together
Nepal - Kathmandu 27.708, 85.262
Wh / Wp
0
1
2
3
4
5
6
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

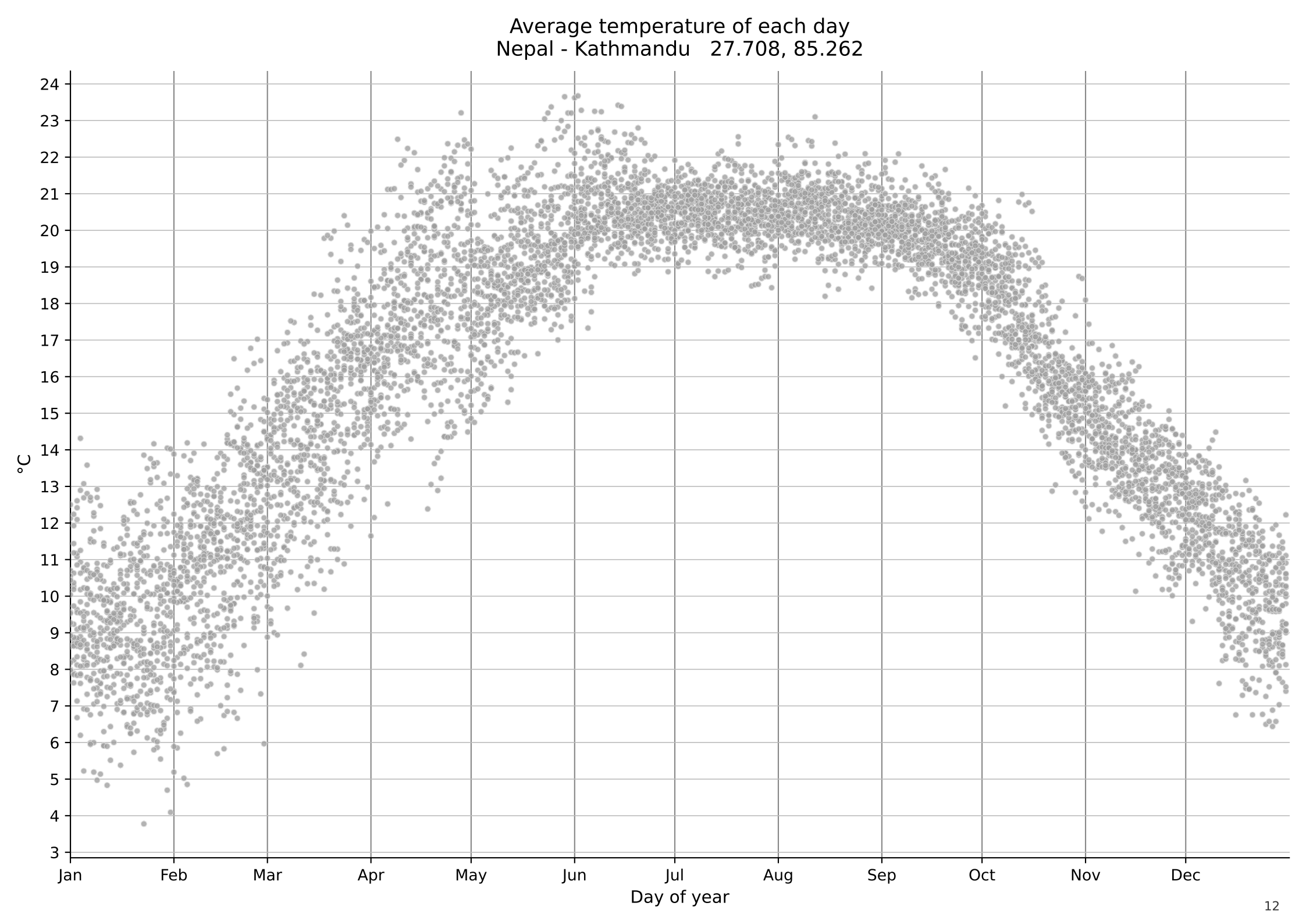

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Nepal - Kathmandu 27.708, 85.262
Wh / Wp
0.0
0.2
0.4
0.6
0.8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

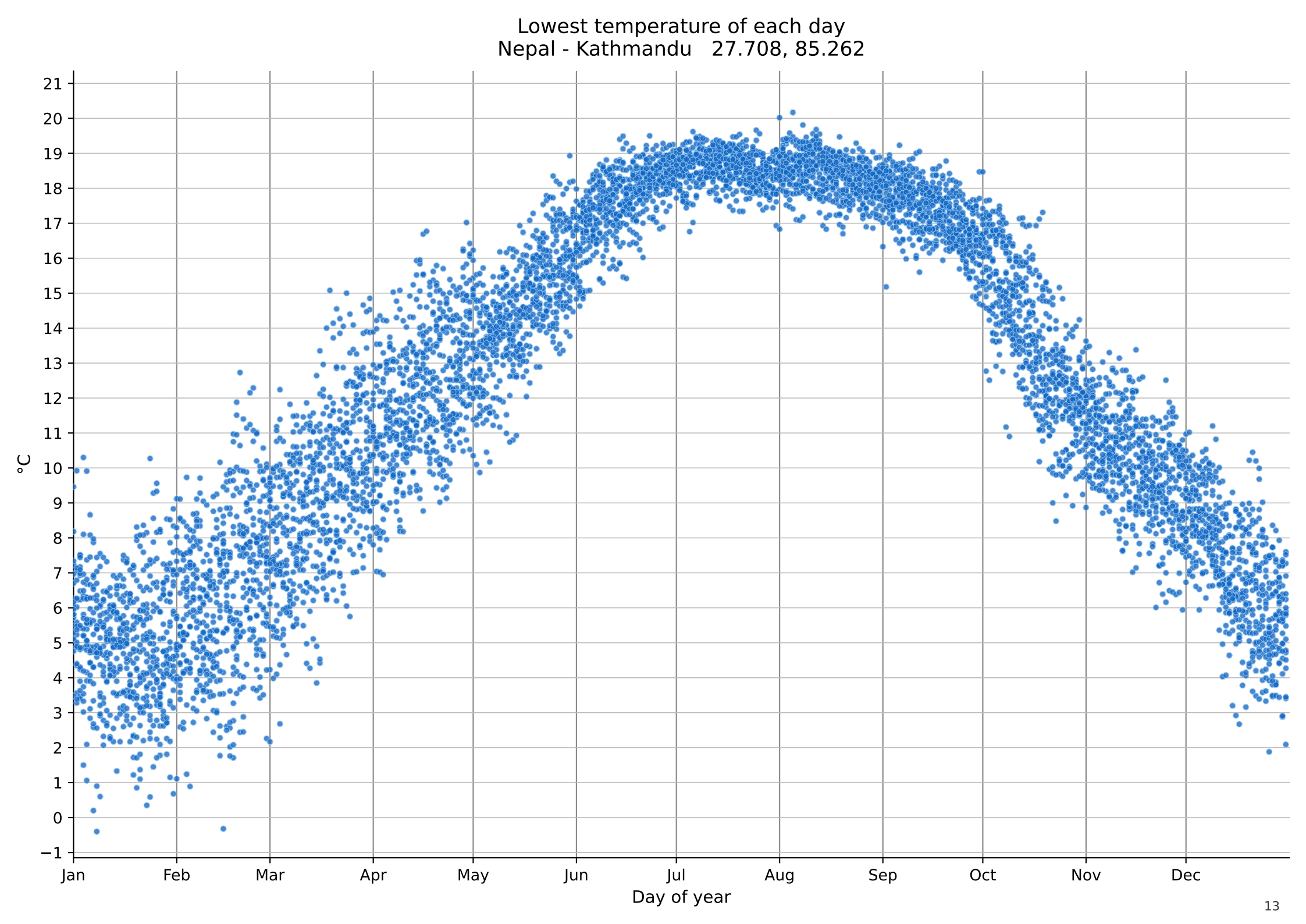

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
Nepal - Kathmandu 27.708, 85.262
Wh / Wp
1.0
0.8
0.6
0.4
0.2
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

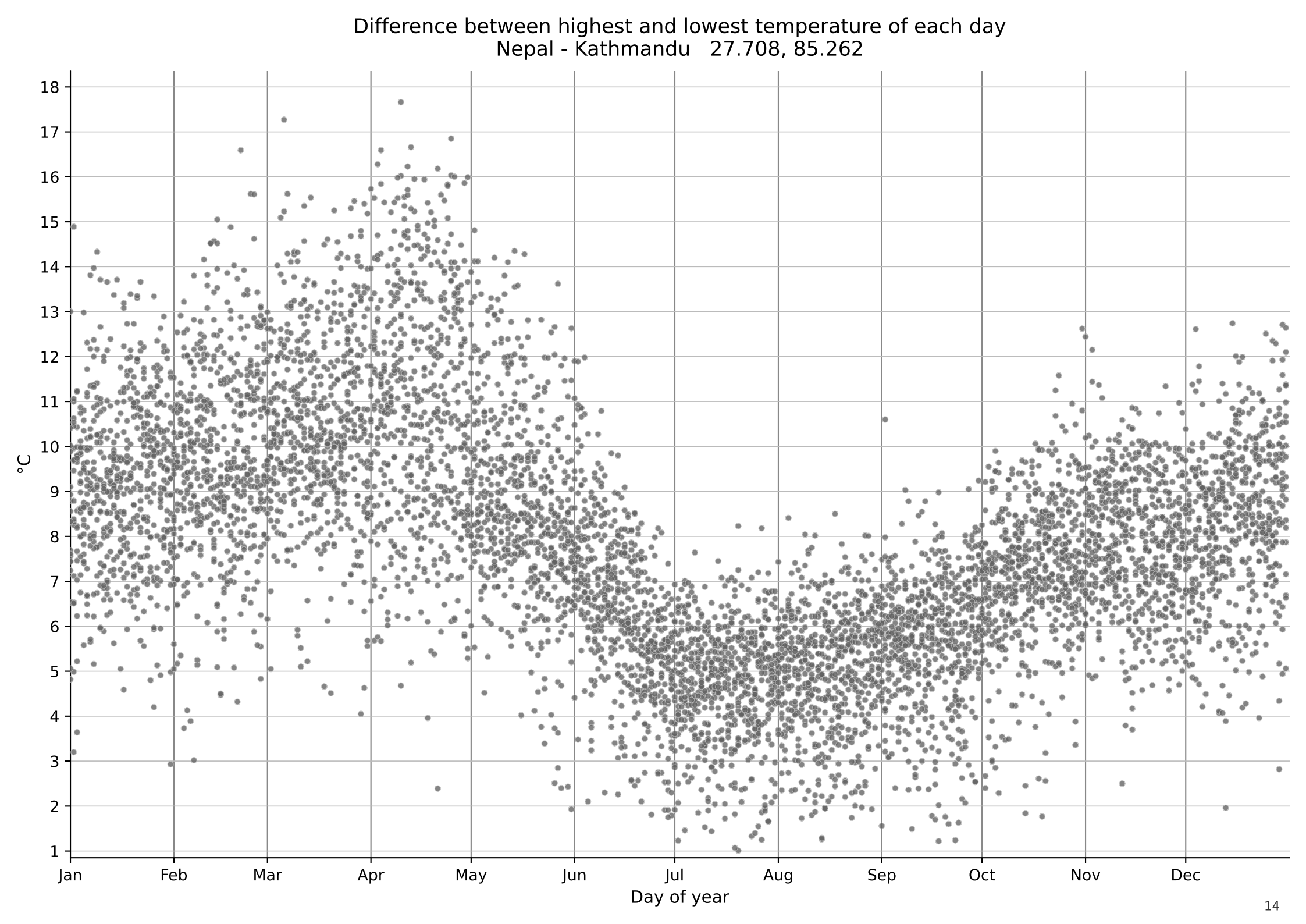

Share of the day’s yield in 09:00–15:00 winter time
Nepal - Kathmandu 27.708, 85.262
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Share of the day’s yield outside 09:00–15:00 winter time
Nepal - Kathmandu 27.708, 85.262
%
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
Nepal - Kathmandu 27.708, 85.262
°C
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Average temperature of each day
Nepal - Kathmandu 27.708, 85.262
°C
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Lowest temperature of each day
Nepal - Kathmandu 27.708, 85.262
°C
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
−1
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Difference between highest and lowest temperature of each day
Nepal - Kathmandu 27.708, 85.262
°C
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)
Nepal - Kathmandu 27.708, 85.262

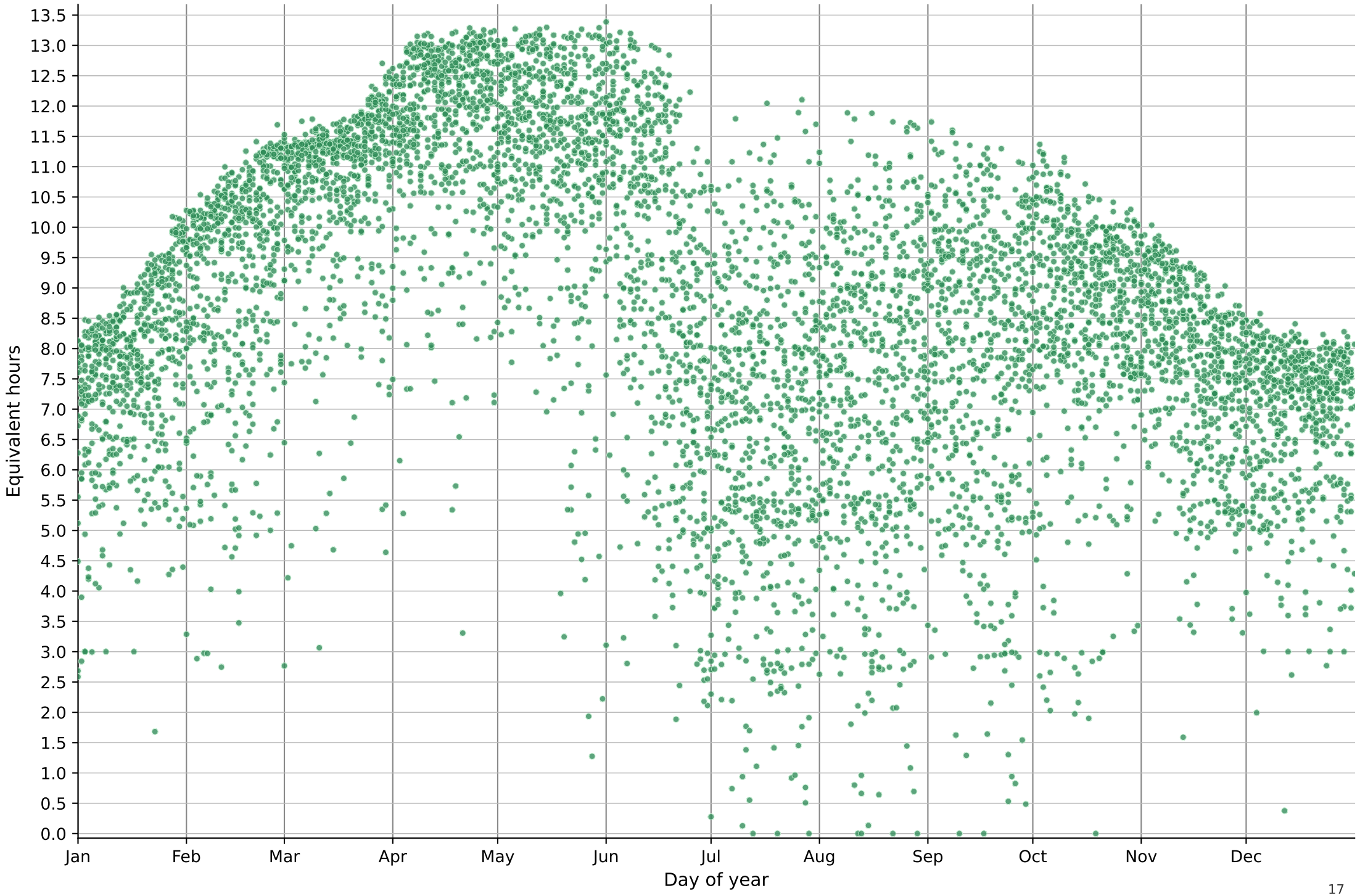
Month / year		Roof East 22°/-90° 19,800 Wp	Roof West 22°/90° 19,800 Wp	Terrace railing south 90°/0° 4,620 Wp	Terrace railing north 90°/180° 4,620 Wp	share central structure east 8°/-90° 20,460 Wp	share central strucure west p 8°/90° 20,460 Wp	All together
January	Maximum	102.57	94.41	48.97	9.90	105.17	101.24	93.33
	average	91.91	84.01	44.83	8.12	93.81	90.15	83.47
	minimum	82.37	70.54	37.28	5.97	82.14	76.99	72.43
February	Maximum	112.27	103.07	69.85	11.34	113.61	109.53	102.27
	average	100.96	92.18	62.49	9.43	101.86	98.16	91.90
	minimum	83.52	74.77	52.54	7.16	83.91	80.30	75.61
March	Maximum	142.85	125.22	77.94	14.65	143.95	136.17	127.58
	average	135.12	118.78	73.72	12.19	136.20	129.00	120.88
	minimum	119.62	107.66	66.77	10.31	121.22	115.83	108.37
April	Maximum	155.68	140.48	58.30	17.42	156.59	150.54	139.12
	average	144.43	130.20	54.66	16.00	145.16	139.51	129.10
	minimum	131.65	117.51	50.67	14.09	132.03	126.44	117.38
May	Maximum	158.69	141.98	35.43	24.50	160.15	153.51	140.64
	average	138.84	127.33	33.84	22.85	140.98	136.42	124.86
	minimum	109.89	102.40	30.29	21.10	111.99	109.16	99.88
June	Maximum	124.01	113.88	28.95	27.22	125.97	121.81	111.59
	average	107.18	100.82	25.78	24.60	109.70	107.17	97.91
	minimum	81.07	80.33	23.29	21.67	84.37	84.32	76.53
July	Maximum	98.73	94.01	29.79	25.12	101.19	99.34	91.05
	average	78.44	76.41	26.34	22.15	80.85	80.04	73.32
	minimum	59.11	58.10	21.63	18.63	60.99	60.56	55.64
August	Maximum	107.70	95.13	40.73	22.10	107.61	102.65	95.68
	average	85.38	81.85	35.03	19.79	87.35	85.98	79.22
	minimum	59.77	62.74	26.68	16.91	62.93	64.04	58.21
September	Maximum	102.06	96.63	55.93	16.22	103.96	101.93	94.25
	average	88.68	83.13	48.29	15.03	90.36	88.09	81.83
	minimum	67.80	64.55	37.57	13.55	69.36	68.06	63.17
October	Maximum	111.71	100.86	68.58	13.16	113.33	108.46	101.44
	average	99.41	91.67	61.49	11.18	101.44	97.99	91.35
	minimum	81.91	77.04	50.39	10.31	84.04	81.79	76.01
November	Maximum	99.60	91.03	57.40	9.52	101.63	97.53	90.76
	average	89.11	81.93	51.93	8.20	90.94	87.54	81.51
	minimum	76.69	71.69	43.06	6.98	78.57	76.16	70.67
December	Maximum	95.88	87.13	29.76	8.83	97.50	93.35	85.70
	average	84.61	78.88	27.89	7.20	86.67	83.92	76.75
	minimum	71.29	66.20	24.81	5.85	72.57	70.28	64.63
All years	Maximum	1,326.7	1,216.5	570.1	182.5	1,347.8	1,300.7	1,202.8
	average	1,244.1	1,147.2	546.3	176.7	1,265.3	1,224.0	1,132.1
	minimum	1,170.1	1,089.1	527.1	166.3	1,193.6	1,159.1	1,070.8

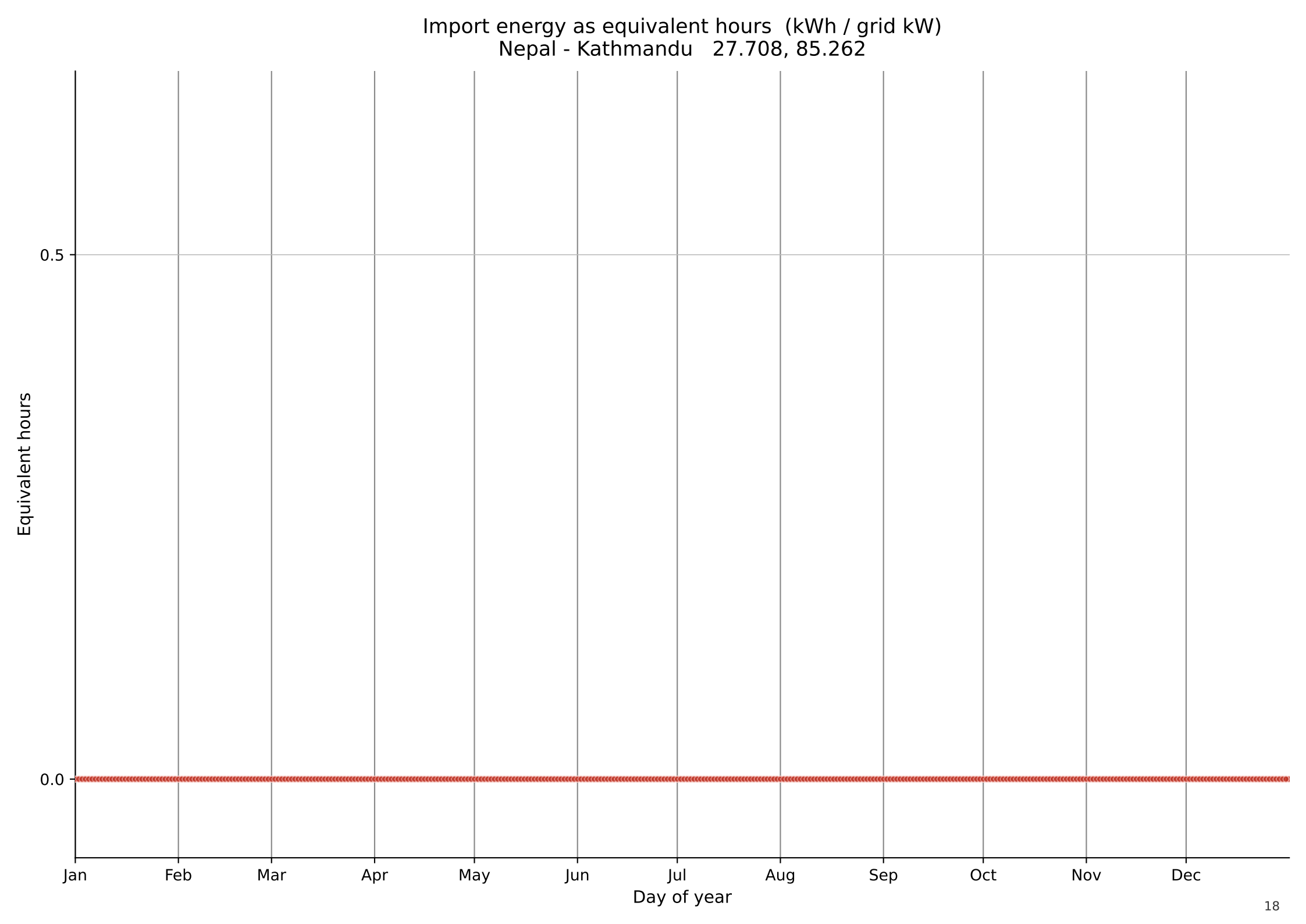
Highest combined yield hour: 2005-04-12 06:30 UTC 61,234.5 W (0.682 W/Wp) of 89,760 Wp installed. Use this hour to size battery charge power.

Monthly and yearly total yield (kWh)
Nepal - Kathmandu 27.708, 85.262

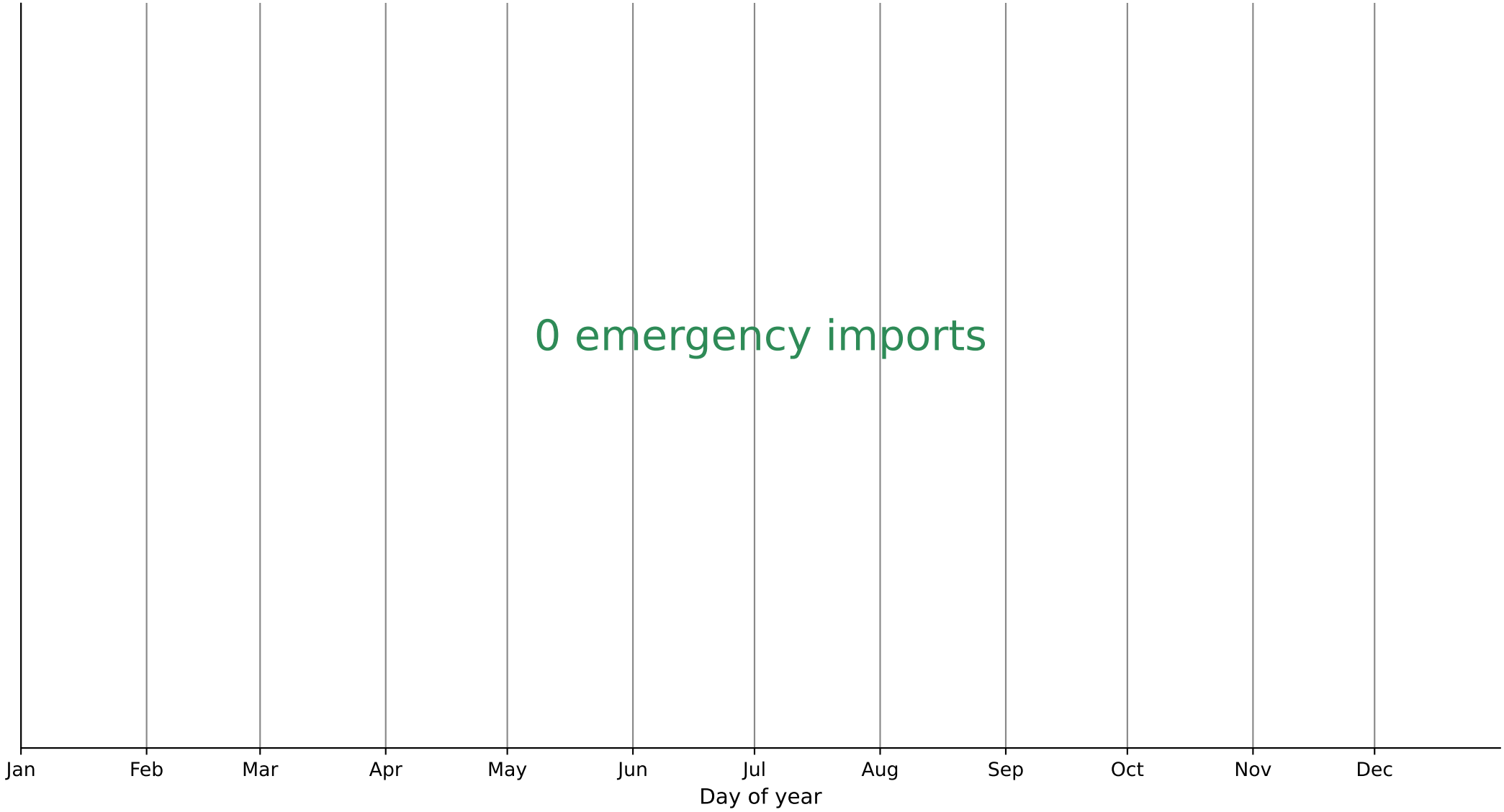
Month / year		Roof East 22°/-90° 19,800 Wp	Roof West 22°/90° 19,800 Wp	Terrace railing south 90°/0° 4,620 Wp	Terrace railing north 90°/180° 4,620 Wp	share central structure east 8°/-90° 20,460 Wp	share central strucure west p 8°/90° 20,460 Wp	All together
January	Maximum	2,030.90	1,869.24	226.25	45.74	2,151.82	2,071.34	8,377.12
	average	1,819.87	1,663.48	207.13	37.52	1,919.40	1,844.45	7,491.87
	minimum	1,630.88	1,396.72	172.23	27.58	1,680.54	1,575.15	6,500.88
February	Maximum	2,222.99	2,040.85	322.69	52.40	2,324.51	2,240.98	9,179.99
	average	1,998.97	1,825.21	288.68	43.57	2,083.99	2,008.43	8,248.85
	minimum	1,653.75	1,480.42	242.72	33.08	1,716.83	1,642.87	6,786.34
March	Maximum	2,828.45	2,479.41	360.09	67.68	2,945.30	2,786.09	11,451.65
	average	2,675.40	2,351.87	340.61	56.30	2,786.65	2,639.39	10,850.22
	minimum	2,368.50	2,131.59	308.48	47.65	2,480.07	2,369.94	9,727.19
April	Maximum	3,082.52	2,781.54	269.37	80.49	3,203.88	3,080.06	12,487.07
	average	2,859.68	2,577.97	252.54	73.93	2,969.92	2,854.39	11,588.43
	minimum	2,606.70	2,326.75	234.08	65.09	2,701.24	2,586.93	10,536.04
May	Maximum	3,141.99	2,811.14	163.69	113.19	3,276.74	3,140.83	12,623.71
	average	2,749.00	2,521.23	156.35	105.55	2,884.36	2,791.20	11,207.68
	minimum	2,175.92	2,027.54	139.93	97.49	2,291.24	2,233.40	8,965.51
June	Maximum	2,455.32	2,254.84	133.77	125.76	2,577.26	2,492.32	10,016.58
	average	2,122.14	1,996.22	119.10	113.63	2,244.50	2,192.70	8,788.30
	minimum	1,605.24	1,590.57	107.59	100.10	1,726.18	1,725.14	6,869.12
July	Maximum	1,954.79	1,861.39	137.61	116.08	2,070.44	2,032.47	8,172.78
	average	1,553.06	1,512.91	121.68	102.31	1,654.10	1,637.57	6,581.62
	minimum	1,170.45	1,150.48	99.91	86.06	1,247.80	1,239.12	4,993.83
August	Maximum	2,132.46	1,883.55	188.18	102.10	2,201.60	2,100.32	8,588.33
	average	1,690.46	1,620.67	161.84	91.45	1,787.13	1,759.25	7,110.80
	minimum	1,183.52	1,242.17	123.27	78.13	1,287.49	1,310.33	5,224.92
September	Maximum	2,020.86	1,913.33	258.40	74.93	2,127.01	2,085.49	8,459.70
	average	1,755.78	1,645.95	223.12	69.42	1,848.79	1,802.32	7,345.38
	minimum	1,342.38	1,278.14	173.55	62.58	1,419.03	1,392.41	5,670.55
October	Maximum	2,211.78	1,997.01	316.83	60.79	2,318.70	2,219.02	9,105.30
	average	1,968.28	1,815.04	284.07	51.65	2,075.49	2,004.94	8,199.46
	minimum	1,621.75	1,525.31	232.81	47.63	1,719.42	1,673.41	6,822.94
November	Maximum	1,972.03	1,802.37	265.20	43.99	2,079.31	1,995.43	8,146.57
	average	1,764.41	1,622.27	239.92	37.89	1,860.67	1,791.15	7,316.31
	minimum	1,518.46	1,419.39	198.95	32.23	1,607.58	1,558.14	6,343.20
December	Maximum	1,898.46	1,725.09	137.48	40.78	1,994.90	1,909.89	7,692.34
	average	1,675.21	1,561.89	128.85	33.24	1,773.22	1,717.02	6,889.43
	minimum	1,411.63	1,310.76	114.62	27.01	1,484.85	1,437.85	5,801.34
All years	Maximum	26,267.7	24,087.6	2,634.0	843.2	27,576.9	26,613.0	107,966.7
	average	24,632.3	22,714.7	2,523.9	816.5	25,888.2	25,042.8	101,618.4
	minimum	23,168.2	21,564.4	2,435.0	768.5	24,420.3	23,715.4	96,116.4

Highest combined yield hour: 2005-04-12 06:30 UTC 61,234.5 W (0.682 W/Wp) of 89,760 Wp installed. Use this hour to size battery charge power.


Export energy as equivalent hours (kWh / grid kW)
Nepal - Kathmandu 27.708, 85.262
Equivalent hours
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Import energy as equivalent hours (kWh / grid kW)
Nepal - Kathmandu 27.708, 85.262
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
Nepal - Kathmandu 27.708, 85.262



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
Nepal - Kathmandu 27.708, 85.262

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export to grid													
month Maximum	7,237	7,769	9,342	9,943	10,289	8,475	7,088	7,416	7,367	7,915	6,992	6,517	90,564
month average	6,362	7,003	8,965	9,468	9,350	7,450	5,592	6,084	6,317	7,065	6,236	5,765	85,657
month minimum	5,402	5,709	8,098	8,851	7,561	5,777	4,147	4,374	4,772	5,791	5,334	4,762	80,656
day Maximum	274.7	315.6	343.0	358.8	359.0	361.5	326.8	321.0	316.9	306.9	271.0	231.6	361.5
day average	205.2	248.2	289.2	315.6	301.6	248.3	180.4	196.3	210.6	227.9	207.9	186.0	234.5
day minimum	45.4	74.2	74.7	89.3	34.4	50.9	0.0	0.0	0.0	0.0	42.9	10.2	0.0
Import from 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
Total energy used for house													
month Maximum	613	556	556	503	501	468	478	477	469	520	536	586	6,188
month average	596	525	542	486	492	463	474	474	465	512	527	574	6,129
month minimum	577	498	522	464	481	456	470	470	457	496	514	559	6,051
day Maximum	20.9	20.6	19.7	18.1	17.1	16.3	15.8	15.9	16.3	17.9	18.8	20.0	20.9
day average	19.2	18.6	17.5	16.2	15.9	15.4	15.3	15.3	15.5	16.5	17.6	18.5	16.8
day minimum	15.6	16.7	15.8	15.1	15.1	15.1	14.9	14.9	14.9	15.4	16.2	17.3	14.9

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
Nepal - Kathmandu 27.708, 85.262

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export													
month Maximum	1,052	1,011	1,129	943	956	917	908	945	930	1,056	990	996	11,278
month average	985	960	1,094	922	930	863	802	842	848	981	934	932	11,091
month minimum	890	851	1,021	891	801	772	673	714	748	858	864	845	10,734
day Maximum	42.3	43.8	43.6	43.7	40.8	43.7	39.5	40.0	39.2	42.8	39.2	38.3	43.8
day average	31.8	34.0	35.3	30.7	30.0	28.8	25.9	27.2	28.3	31.6	31.1	30.1	30.4
day minimum	5.5	8.9	9.0	10.7	7.6	6.1	0.0	0.0	0.0	0.0	5.1	2.2	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	0.0	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
Peak grid fee													
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 incl. peak fee													
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
Balance													
month Maximum	1,052	1,011	1,129	943	956	917	908	945	930	1,056	990	996	11,278
month average	985	960	1,094	922	930	863	802	842	848	981	934	932	11,091
month minimum	890	851	1,021	891	801	772	673	714	748	858	864	845	10,734
day Maximum	42.3	43.8	43.6	43.7	40.8	43.7	39.5	40.0	39.2	42.8	39.2	38.3	43.8
day average	31.8	34.0	35.3	30.7	30.0	28.8	25.9	27.2	28.3	31.6	31.1	30.1	30.4
day minimum	5.5	8.9	9.0	10.7	7.6	6.1	0.0	0.0	0.0	0.0	5.1	2.2	0.0

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
Nepal - Kathmandu 27.708, 85.262

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export total													
month Maximum	7,237	7,769	9,342	9,943	10,289	8,475	7,088	7,416	7,367	7,915	6,992	6,517	90,564
month average	6,362	7,003	8,965	9,468	9,350	7,450	5,592	6,084	6,317	7,065	6,236	5,765	85,657
month minimum	5,402	5,709	8,098	8,851	7,561	5,777	4,147	4,374	4,772	5,791	5,334	4,762	80,656
day Maximum	274.7	315.6	343.0	358.8	359.0	361.5	326.8	321.0	316.9	306.9	271.0	231.6	361.5
day average	205.2	248.2	289.2	315.6	301.6	248.3	180.4	196.3	210.6	227.9	207.9	186.0	234.5
day minimum	45.4	74.2	74.7	89.3	34.4	50.9	0.0	0.0	0.0	0.0	42.9	10.2	0.0
Export during high price hours													
month Maximum	4,364	3,844	3,769	3,268	3,355	3,617	3,823	3,852	3,818	3,954	3,998	4,314	44,793
month average	4,247	3,669	3,640	3,138	3,192	3,308	3,536	3,629	3,614	3,818	3,889	4,178	43,857
month minimum	3,992	3,520	3,502	3,047	3,006	3,118	3,113	3,308	3,319	3,430	3,745	4,014	43,229
day Maximum	160.6	159.4	156.8	145.2	150.0	158.8	157.4	154.1	159.6	156.3	157.9	156.8	160.6
day average	137.0	130.1	117.4	104.6	103.0	110.3	114.1	117.0	120.5	123.1	129.6	134.8	120.1
day minimum	45.4	74.2	74.7	75.6	34.4	50.9	0.0	0.0	0.0	0.0	42.9	10.2	0.0
Export during medium price hours													
month Maximum	2,683	3,215	4,104	4,712	5,035	4,001	2,988	3,235	2,988	3,189	2,687	2,323	36,598
month average	1,988	2,720	3,893	4,465	4,486	3,276	1,865	2,192	2,307	2,688	2,117	1,583	33,580
month minimum	1,141	1,838	3,294	4,136	3,456	2,095	1,015	1,039	1,234	1,892	1,501	731	30,418
day Maximum	116.5	132.5	155.3	176.1	181.1	181.7	162.1	157.9	148.8	133.6	105.1	93.7	181.7
day average	64.1	96.4	125.6	148.8	144.7	109.2	60.2	70.7	76.9	86.7	70.6	51.1	91.9
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	295	945	1,666	2,225	2,248	1,379	475	693	774	917	475	22	10,736
month average	127	614	1,432	1,866	1,672	865	191	264	396	560	230	3	8,219
month minimum	19	317	1,036	1,394	1,016	356	3	27	81	316	43	0	6,624
day Maximum	27.2	54.0	80.0	81.0	81.0	81.0	68.7	66.5	60.8	54.0	44.6	8.5	81.0
day average	4.1	21.8	46.2	62.2	53.9	28.8	6.2	8.5	13.2	18.1	7.7	0.1	22.5
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

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
Nepal - Kathmandu 27.708, 85.262

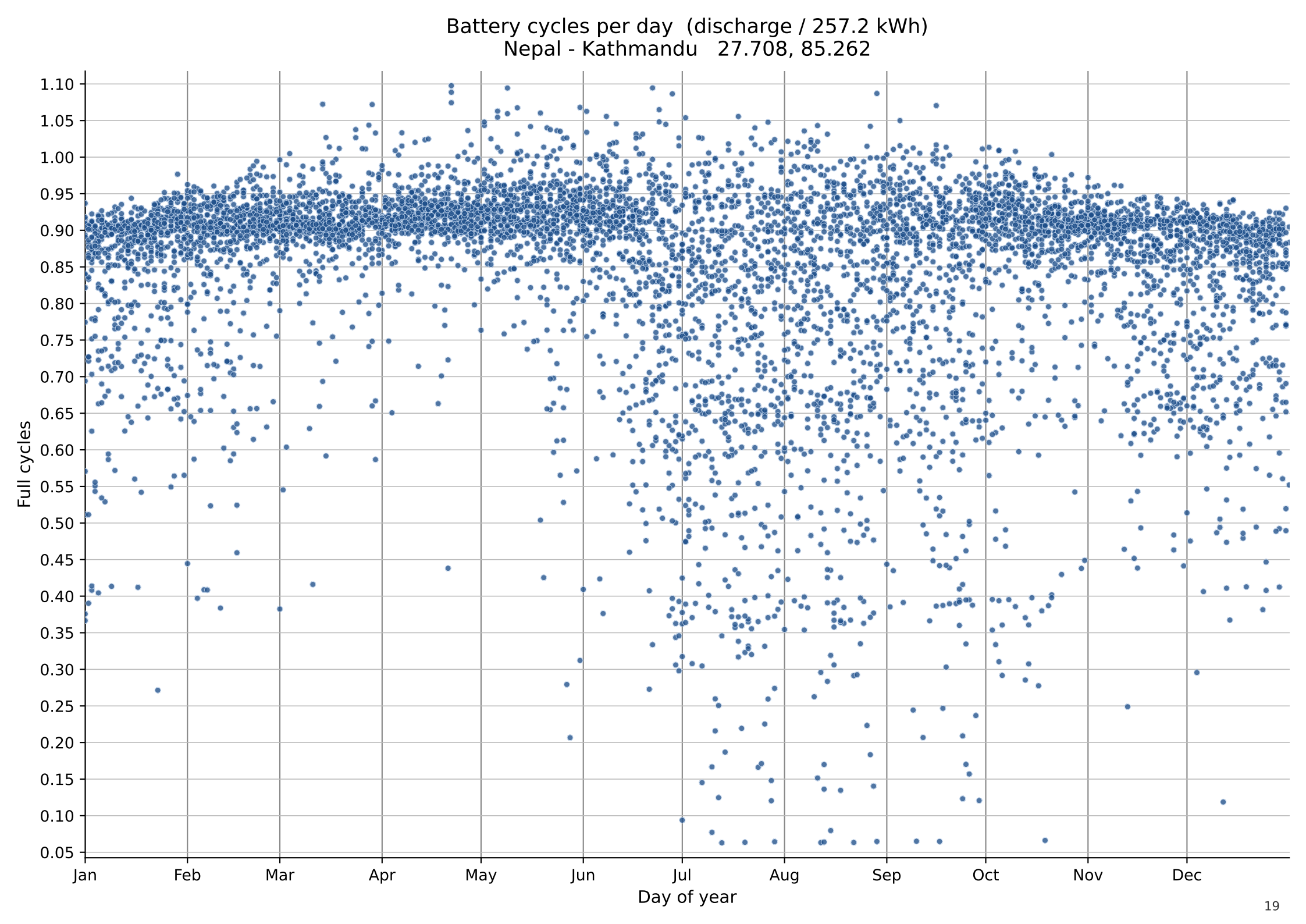
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	125	106	74	48	32	15	15	14	21	46	75	107	602
month average	110	84	61	32	23	10	11	11	16	39	66	96	560
month minimum	93	62	43	12	14	4	8	7	10	24	54	83	493
day Maximum	5.1	4.9	3.9	2.8	1.9	1.1	0.8	0.9	1.3	2.6	3.3	4.4	5.1
day average	3.5	3.0	2.0	1.1	0.7	0.3	0.4	0.4	0.5	1.3	2.2	3.1	1.5
day minimum	0.0	1.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	2.0	0.0
Cooling													
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
DHW													
month Maximum	54	49	49	35	36	34	29	29	28	40	41	45	462
month average	52	46	47	34	35	33	29	29	28	39	40	44	456
month minimum	50	44	45	33	34	33	28	28	27	38	39	43	449
day Maximum	1.8	1.8	1.8	1.3	1.2	1.2	1.0	1.0	1.0	1.4	1.5	1.5	1.8
day average	1.7	1.6	1.5	1.1	1.1	1.1	0.9	0.9	0.9	1.3	1.3	1.4	1.2
day minimum	1.5	1.4	1.4	1.1	1.1	1.1	0.9	0.9	0.9	1.2	1.2	1.3	0.9
Direct electric													
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

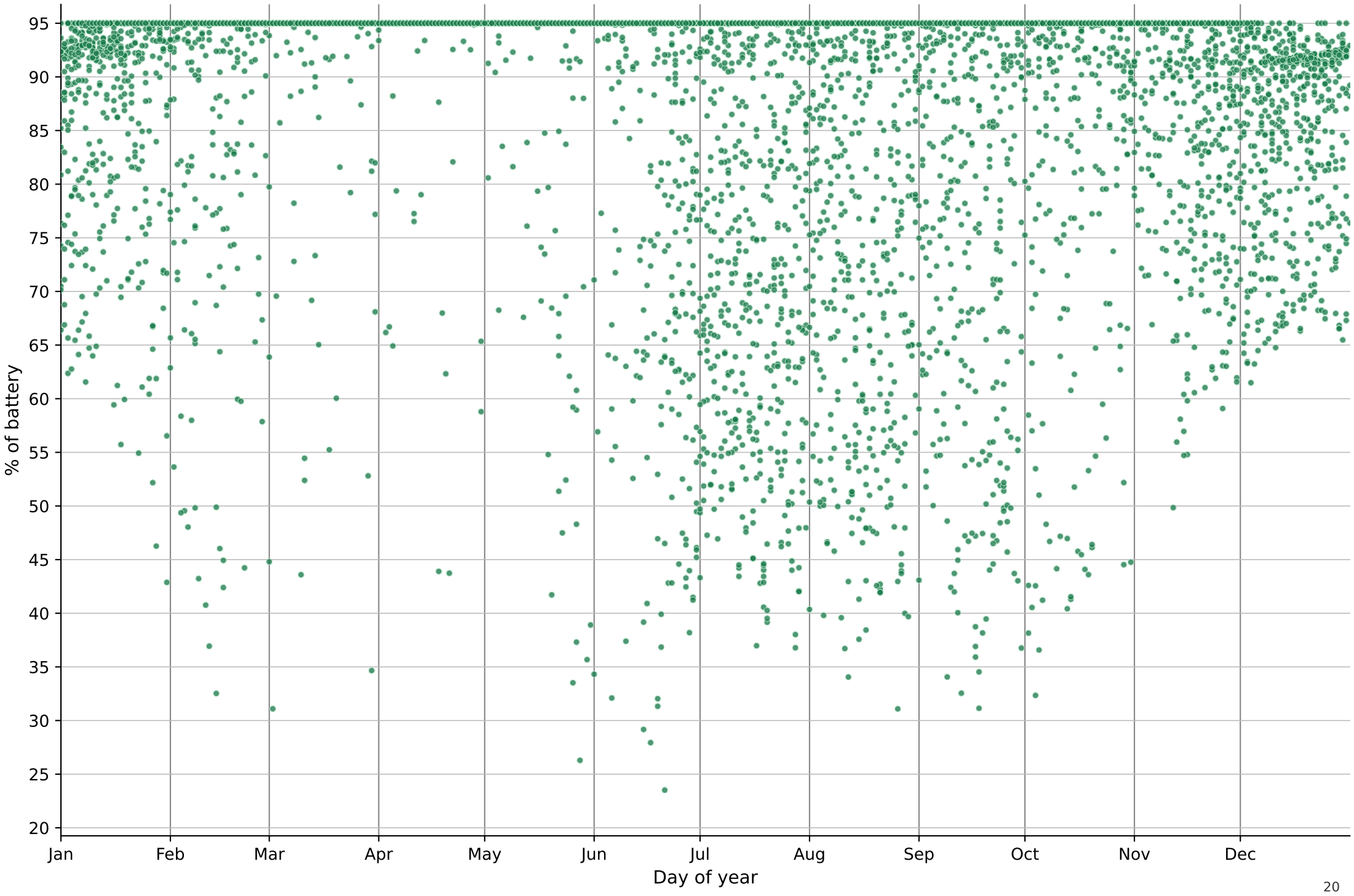
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

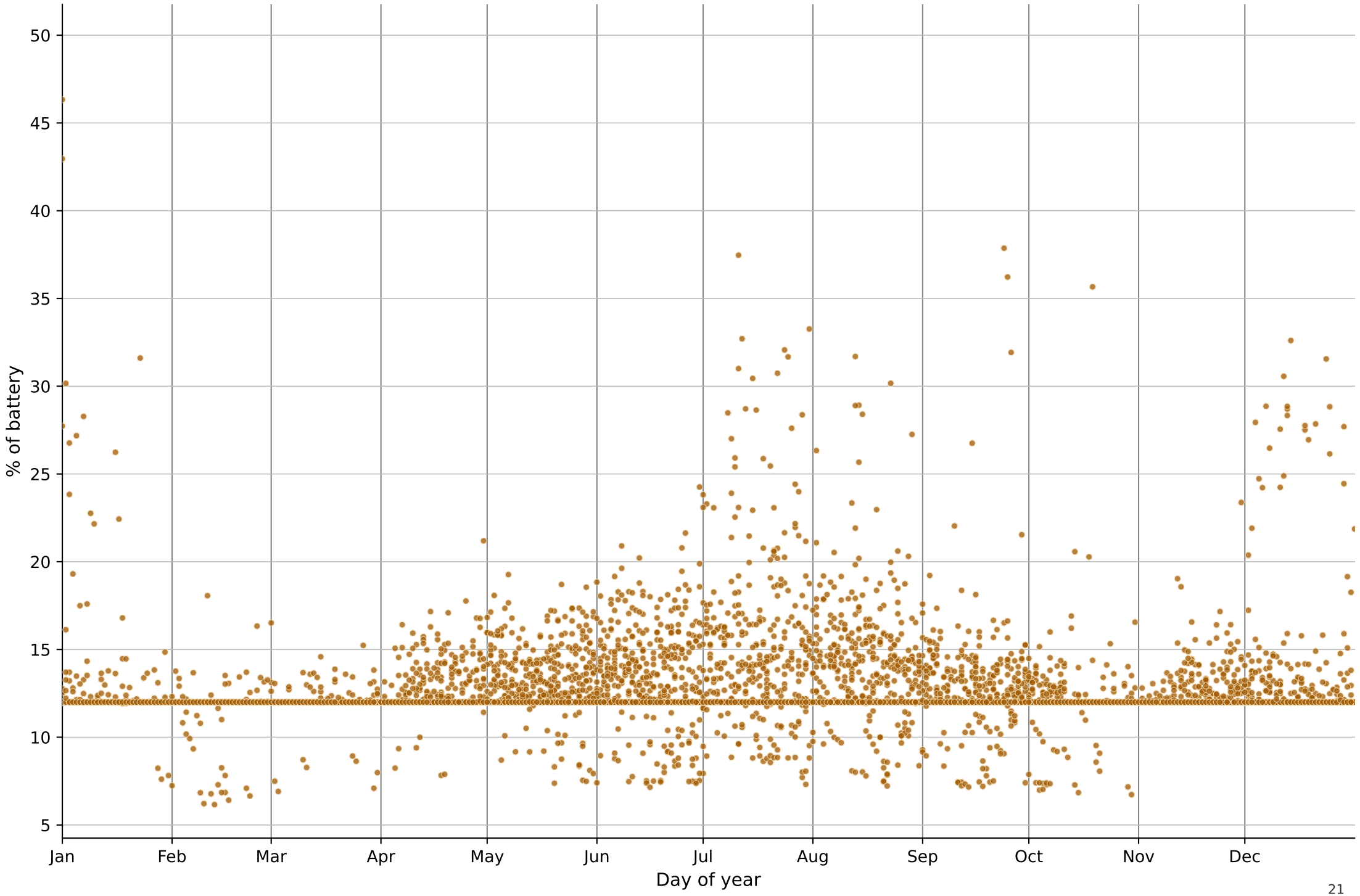
Battery
Nepal - Kathmandu 27.708, 85.262

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	16	391	984	1,472	1,238	646	115	169	134	116	46	0	4,741
month average	3	209	784	1,060	779	320	35	50	57	64	15	0	3,378
month minimum	0	53	536	570	392	70	0	0	1	9	0	0	2,359
day Maximum	9.3	45.0	64.1	88.0	85.6	66.6	44.4	44.3	37.6	27.1	6.9	0.0	88.0
day average	0.1	7.4	25.3	35.3	25.1	10.7	1.1	1.6	1.9	2.1	0.5	0.0	9.2
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
Full cycles													
month Maximum	28	26	29	28	29	28	27	28	27	29	27	28	316
month average	26	25	28	28	28	25	23	24	24	27	26	25	310
month minimum	24	22	26	27	25	21	18	19	21	23	23	22	298
day Maximum	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	0.9	1.1
day average	0.8	0.9	0.9	0.9	0.9	0.8	0.7	0.8	0.8	0.9	0.9	0.8	0.8
day minimum	0.3	0.4	0.4	0.4	0.2	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Charge C													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	2
month average	0	0	0	0	0	0	0	0	0	0	0	0	2
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	2
day Maximum	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
day average	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2
day minimum	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	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	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Wasted = PV left when the export price is negative and the battery is full. Full cycles = discharge kWh / 257.2 kWh. Battery export only into hours whose export price is above 0, highest price first. At 0 cent on


Battery cycles per day (discharge / 257.2 kWh)
Nepal - Kathmandu 27.708, 85.262
Full cycles
1.10
1.05
1.00
0.95
0.90
0.85
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
0.15
0.10
0.05
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Battery max charge state per day (257.2 kWh = 100 %)
Nepal - Kathmandu 27.708, 85.262
% of battery
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Battery min charge state per day (257.2 kWh = 100 %)
Nepal - Kathmandu 27.708, 85.262
% of battery
50
45
40
35
30
25
20
15
10
5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year