Scenario — PV
GEMINI-60-house-part-of-a-settlement Egypt - Cairo 29.953, 31.153

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: This location is typical for North Africa.
Database PVGIS-SARAH3 2005–2023 loss 14 % azimuth 0 = south, 90 = west, −90 = east.
Price bands and charts use UTC+2 from longitude (15° per hour), not the political time zone.
Peak hour 2021-04-10 12:09 local (10:09 UTC) 66,416 W 0.740 W/Wp of 89,760 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=Egypt+-+Cairo&simname=with+27+kW+grid&lat=29.953&lon=31.153&startyear=2005&endyear=2023&loss=14.0&raddatabase=auto&usehorizon=1&outdir=%2Fhome%2Ffounder%2Finternet%2Fgemini-next-generation.haus%2F

Scenario — house, heat pump, battery
GEMINI-60-house-part-of-a-settlement Egypt - Cairo 29.953, 31.153

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	8 °C 10 °C 12 °C 10 °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
Egypt - Cairo 29.953, 31.153

PV	2021-04-10 10:09	2015-04-25 10:09	2005-04-25 10:09	2015-04-23 10:09	2007-04-25 10:09	2021-04-10 09:09	2019-04-21 10:09	2019-04-21 09:09	2022-04-21 10:09	2017-04-25 10:09
Roof East	15,080	14,897	14,883	14,853	14,860	16,322	14,841	16,259	14,825	14,791
Roof West	15,691	15,633	15,609	15,572	15,596	13,919	15,540	14,104	15,532	15,519
Terrace railing south	1,967	1,534	1,536	1,594	1,529	1,917	1,653	1,618	1,627	1,527
Terrace railing north	231	224	216	248	225	230	261	240	216	226
share central structure east part	16,608	16,442	16,415	16,383	16,403	16,904	16,358	16,909	16,357	16,320
share central strucure west part	16,838	16,719	16,687	16,653	16,680	16,000	16,621	16,099	16,623	16,594
Watt at record	66,416	65,450	65,346	65,304	65,294	65,292	65,274	65,229	65,181	64,977
Percent of installed peak	74.0	72.9	72.8	72.8	72.7	72.7	72.7	72.7	72.6	72.4

Values are watts at that hour. Date and time are UTC. Record 66,416 W (74.0 % of 89,760 Wp).

Hours at or above a share of the record
Egypt - Cairo 29.953, 31.153

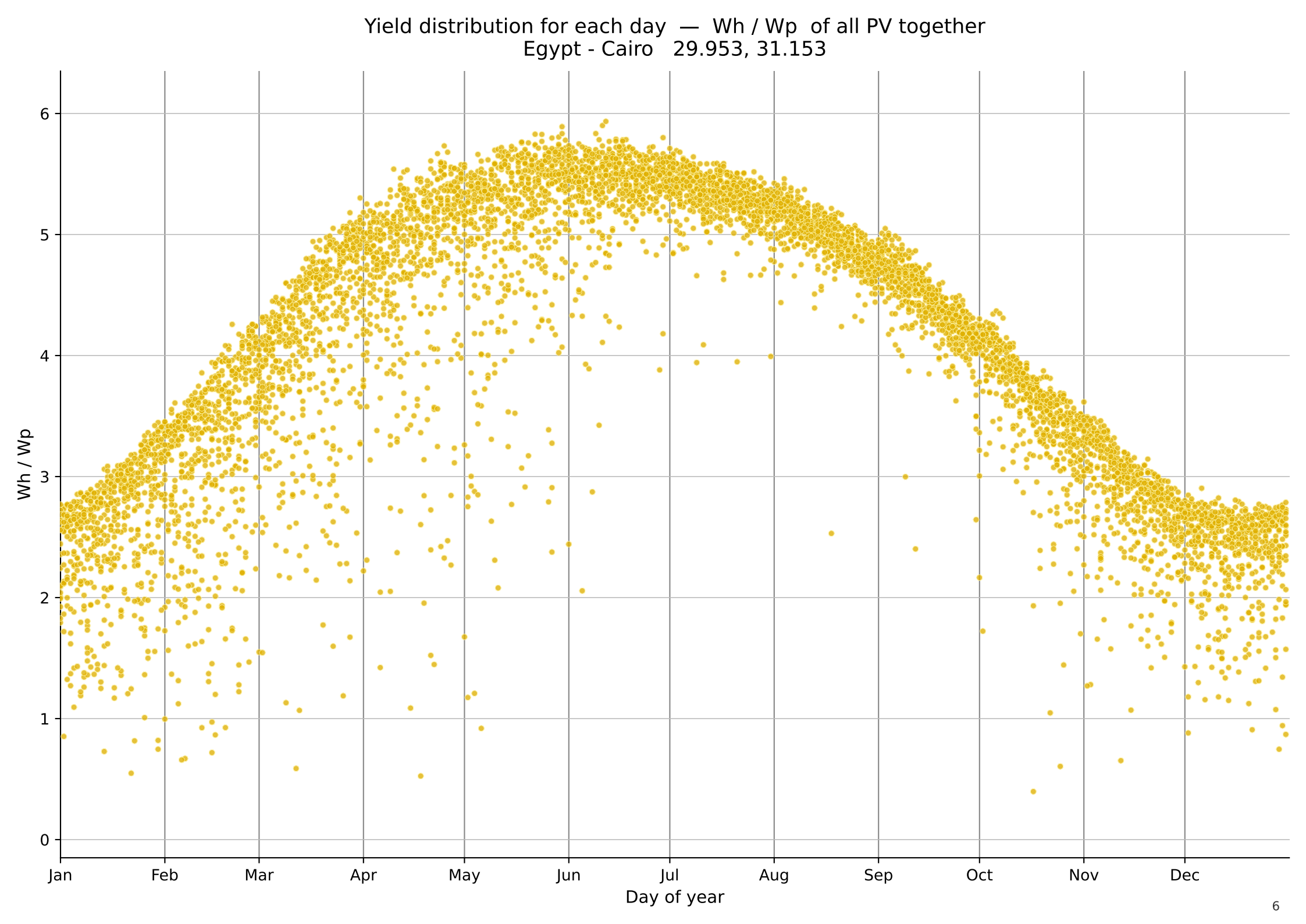
Of the record	Hours	Watts
98 %	9	65,087 W
96 %	54	63,759 W
94 %	254	62,431 W
92 %	827	61,102 W
90 %	1,901	59,774 W

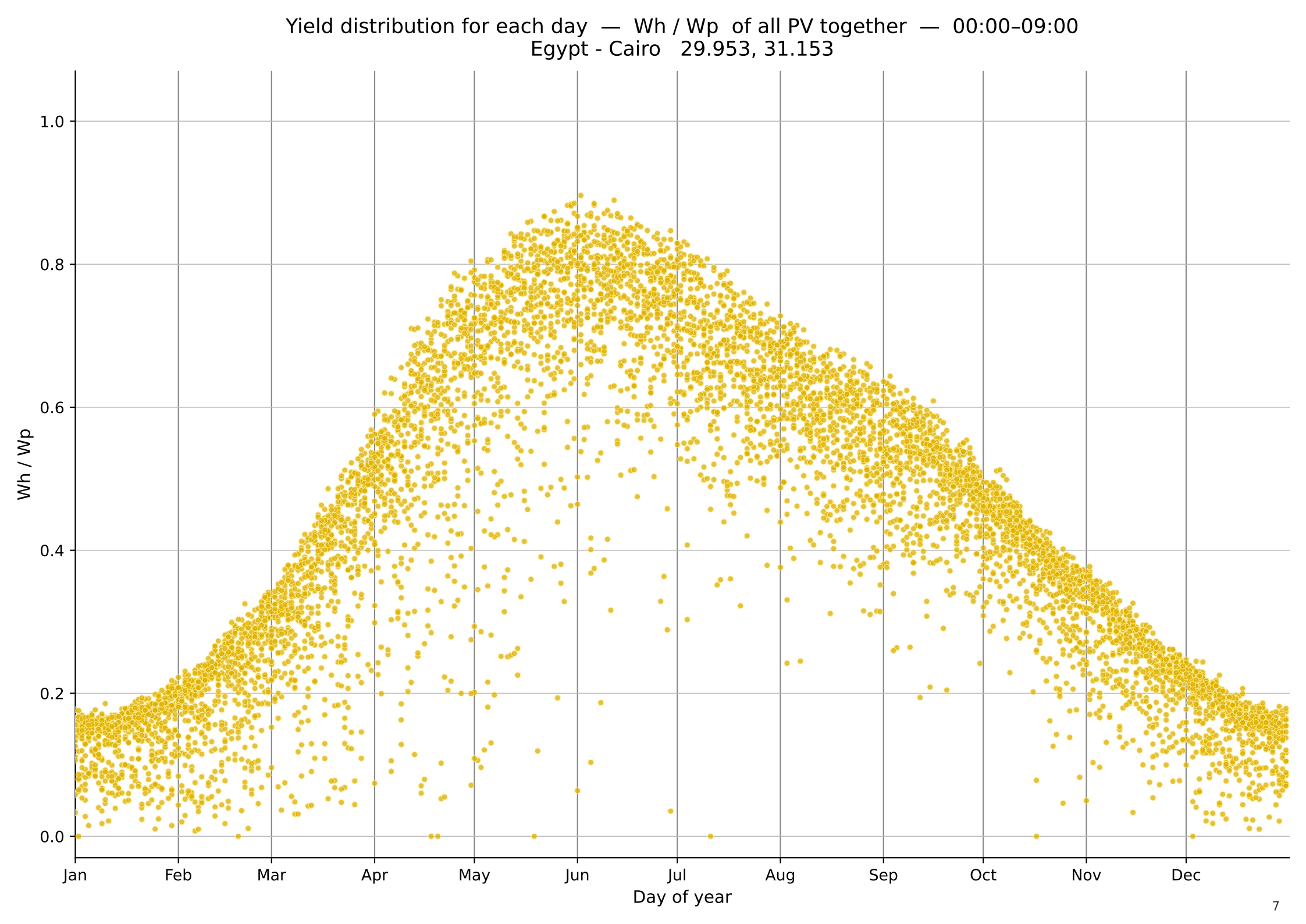
Record hour = 66,416 W combined.

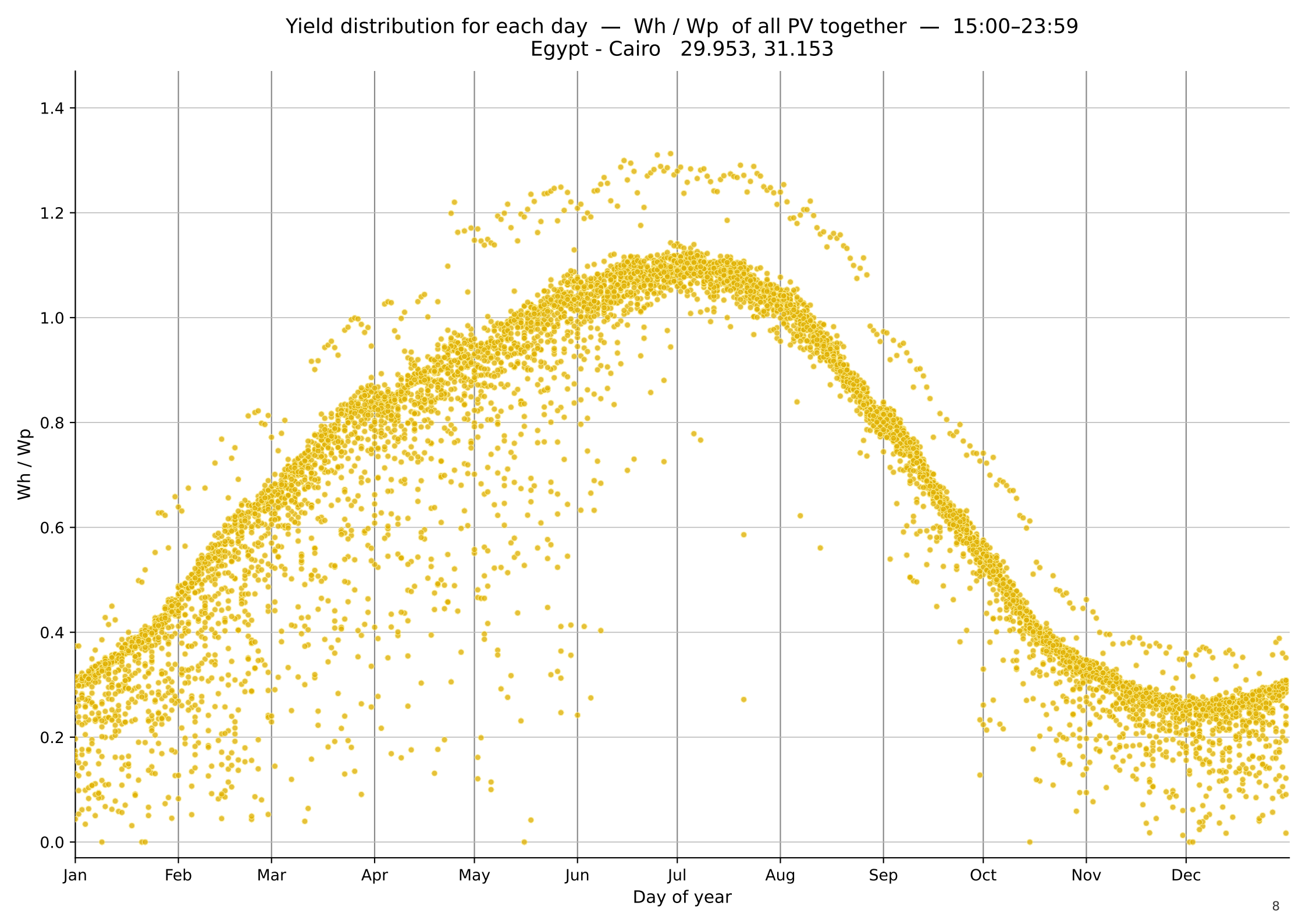
Records of each photovoltaic field
Egypt - Cairo 29.953, 31.153

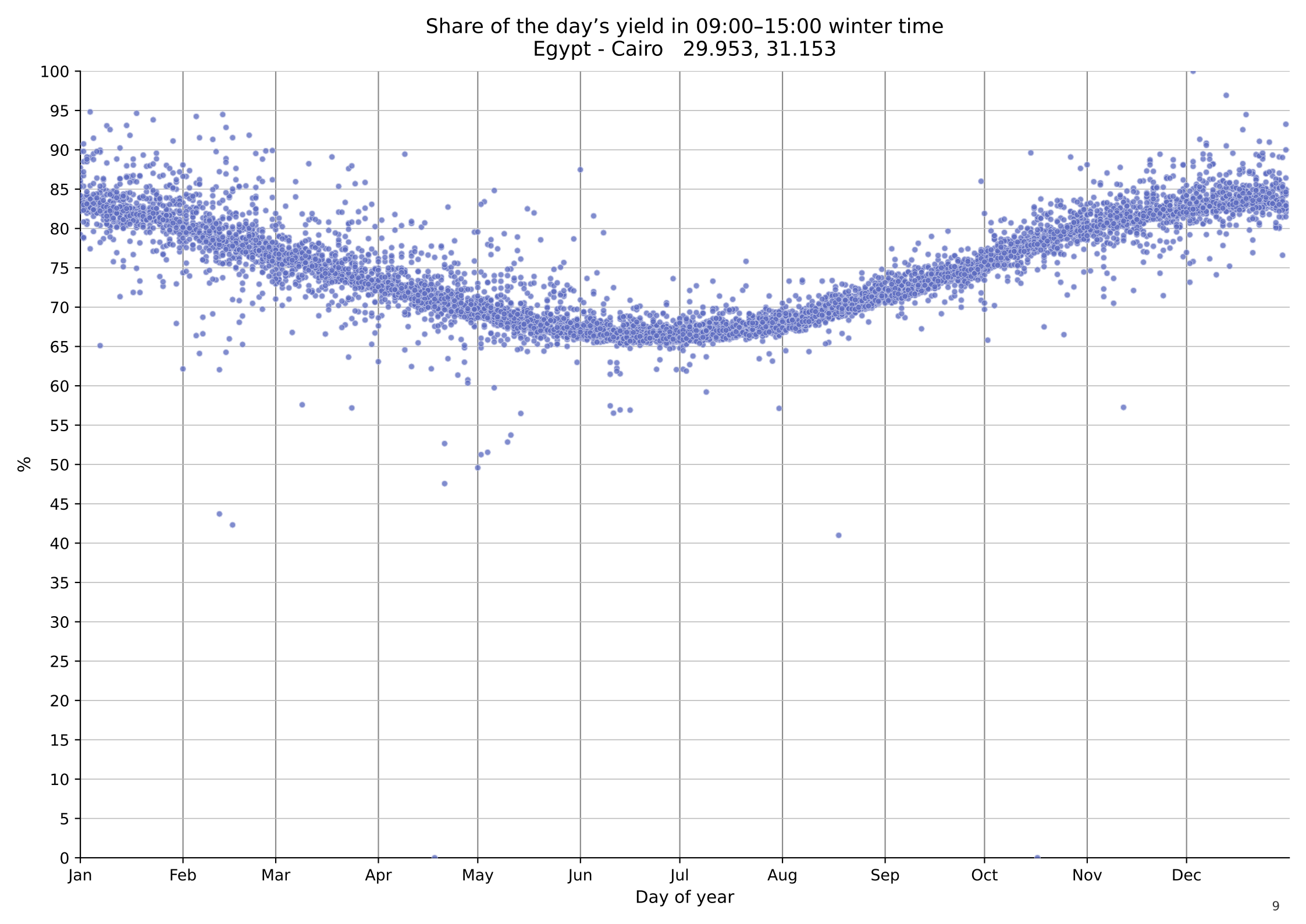
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Roof East	2007-04-25 08:09	16,444	83.1	19	121	419	1171	2420
Roof West	2005-04-25 11:09	16,543	83.6	5	21	144	537	1517
Terrace railing south	2008-01-14 10:09	3,425	74.1	4	13	57	138	297
Terrace railing north	2005-06-29 15:09	879	19.0	3	6	8	15	38
share central structure east part	2019-04-21 09:09	16,909	82.6	18	82	386	1158	2580
share central strucure west part	2021-04-10 10:09	16,838	82.3	10	83	406	1193	2695

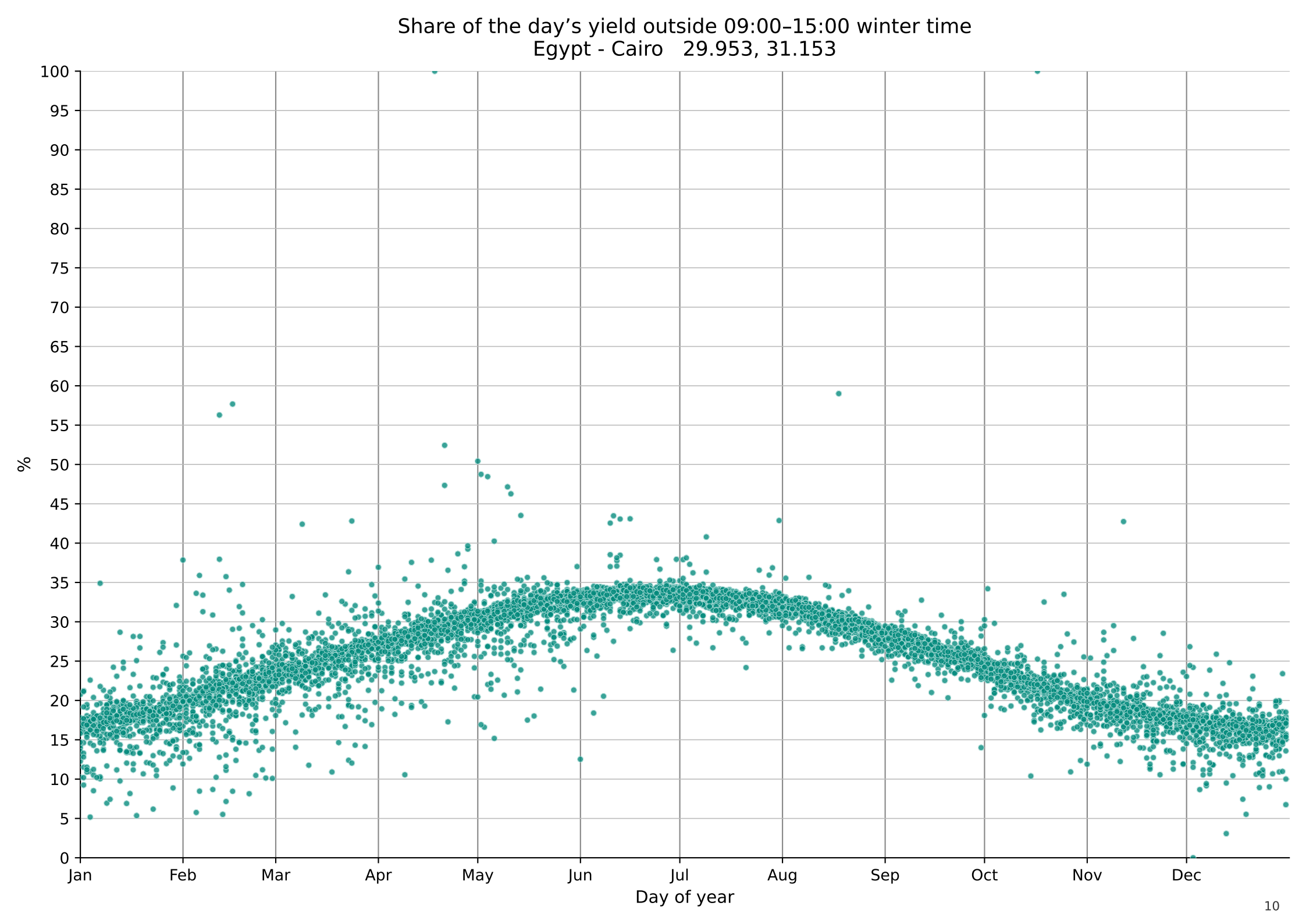
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

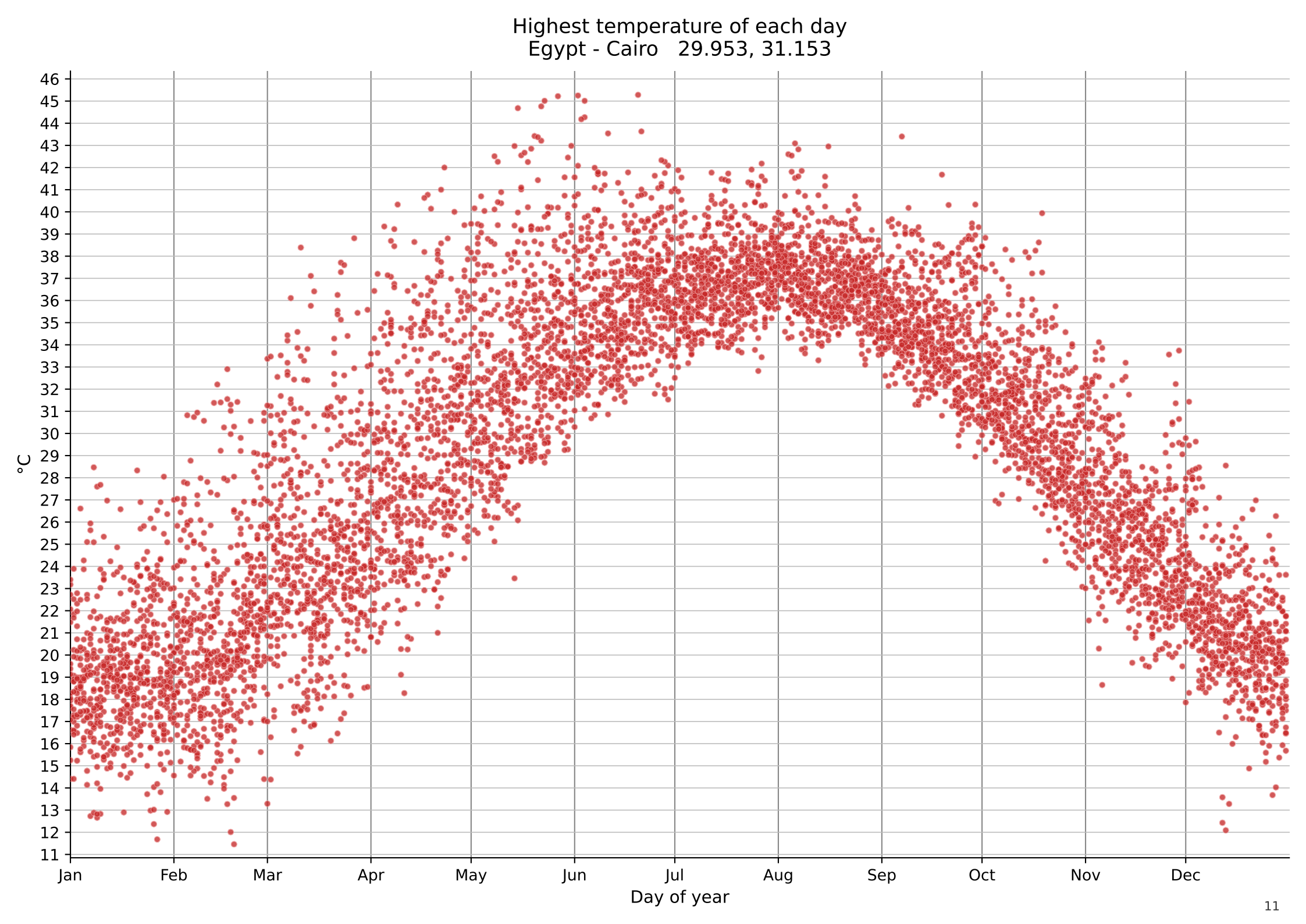

Yield distribution for each day — Wh / Wp of all PV together
Egypt - Cairo 29.953, 31.153
Wh / Wp
0
1
2
3
4
5
6
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

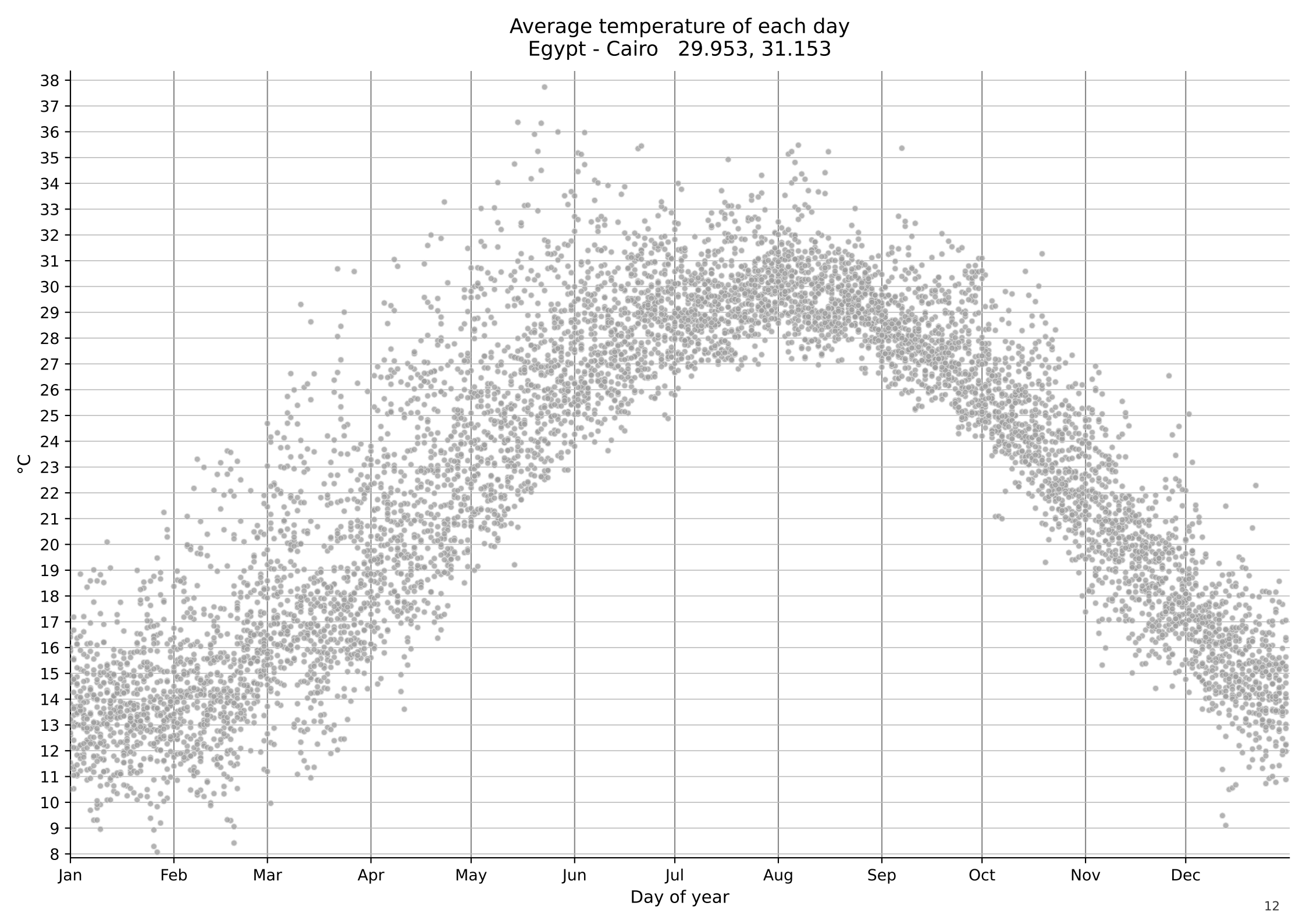

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Egypt - Cairo 29.953, 31.153
1.0
0.8
0.6
0.4
0.2
0.0
Wh / Wp
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

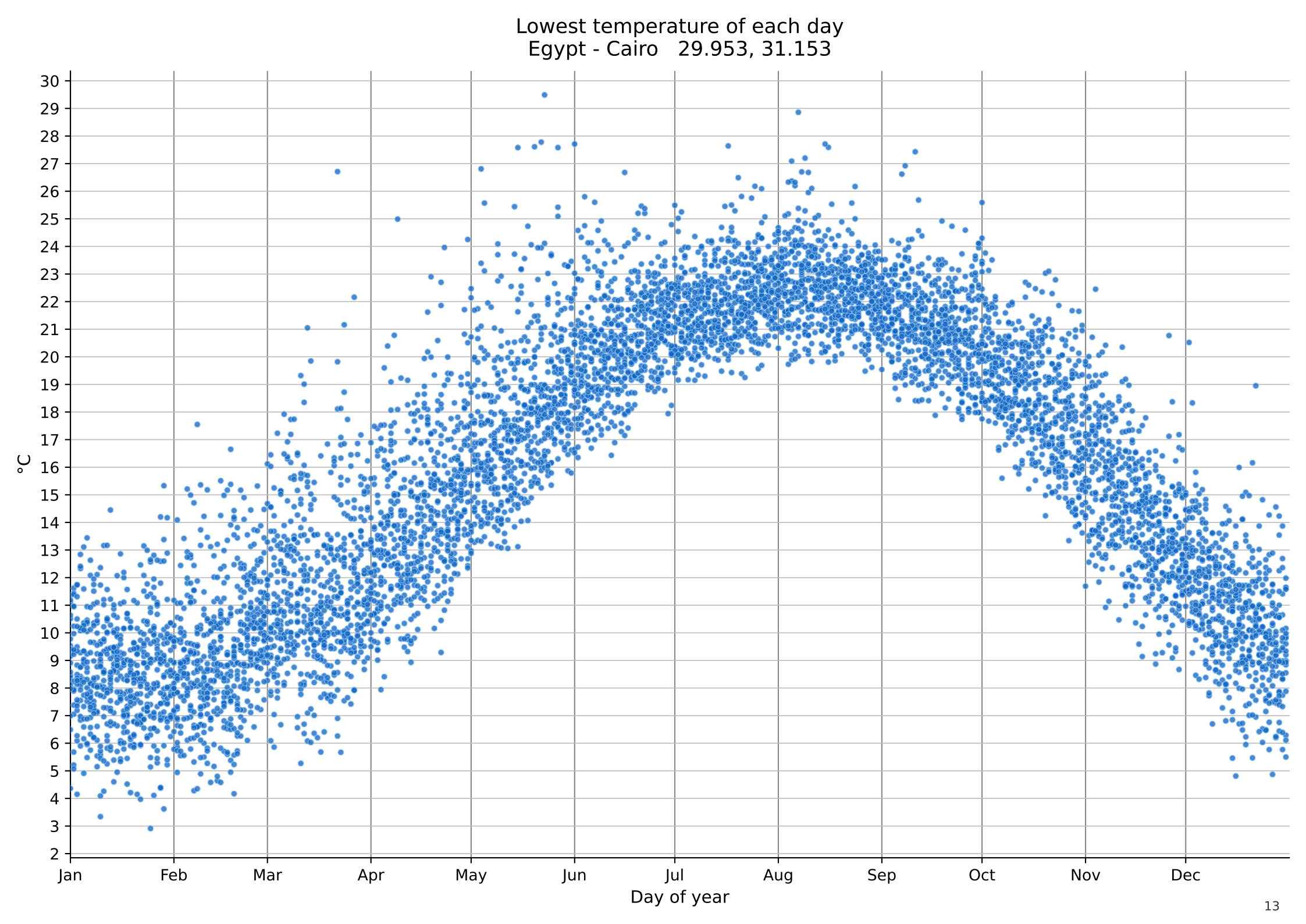

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
Egypt - Cairo 29.953, 31.153
Wh / Wp
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

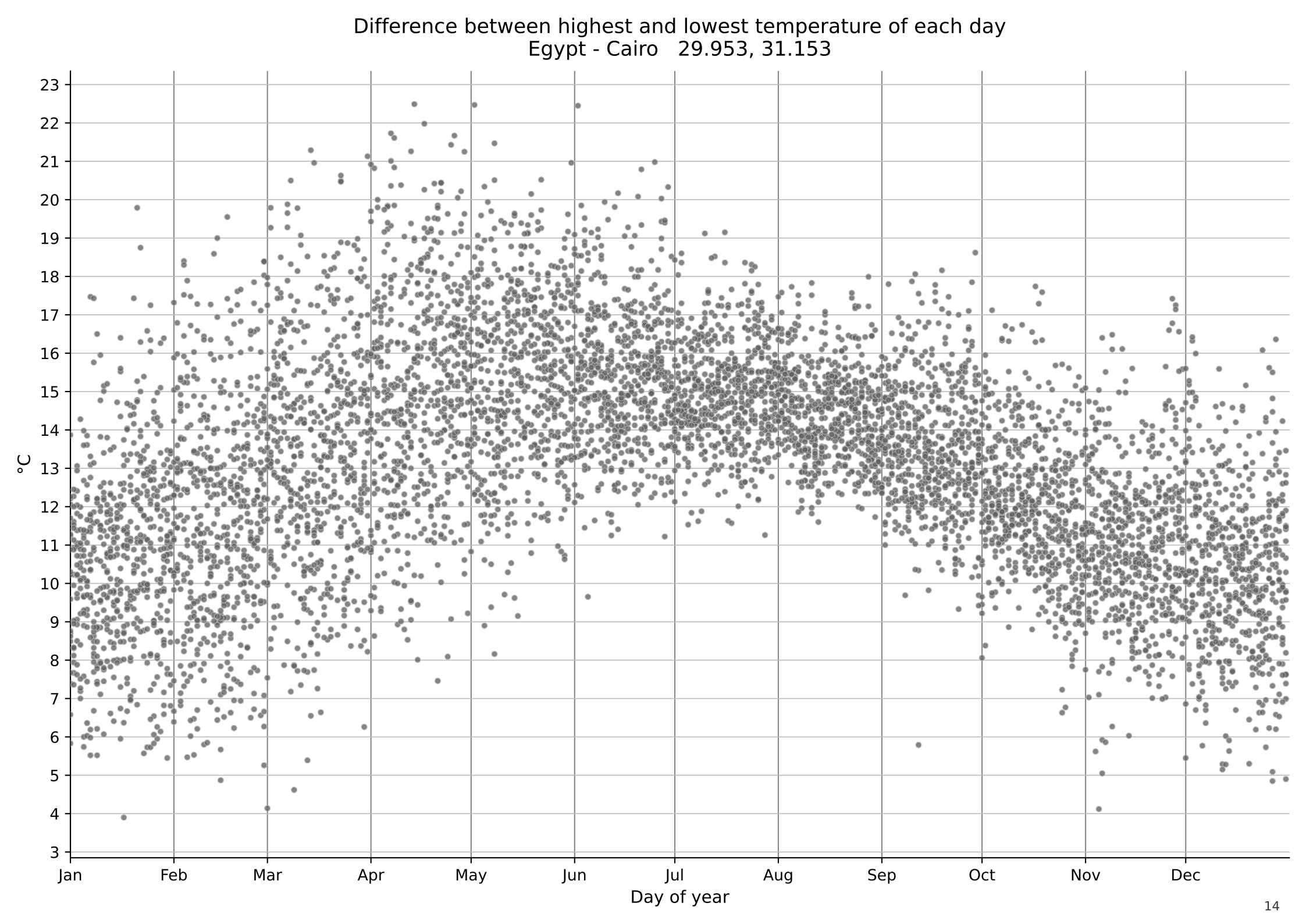

Share of the day’s yield in 09:00–15:00 winter time
Egypt - Cairo 29.953, 31.153
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Share of the day’s yield outside 09:00–15:00 winter time
Egypt - Cairo 29.953, 31.153
%
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
Egypt - Cairo 29.953, 31.153
°C
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Average temperature of each day
Egypt - Cairo 29.953, 31.153
°C
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Lowest temperature of each day
Egypt - Cairo 29.953, 31.153
°C
30
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
4
3
2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Difference between highest and lowest temperature of each day
Egypt - Cairo 29.953, 31.153
°C
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

Monthly and yearly specific yield (kWh/kWp = Wh/Wp)
Egypt - Cairo 29.953, 31.153

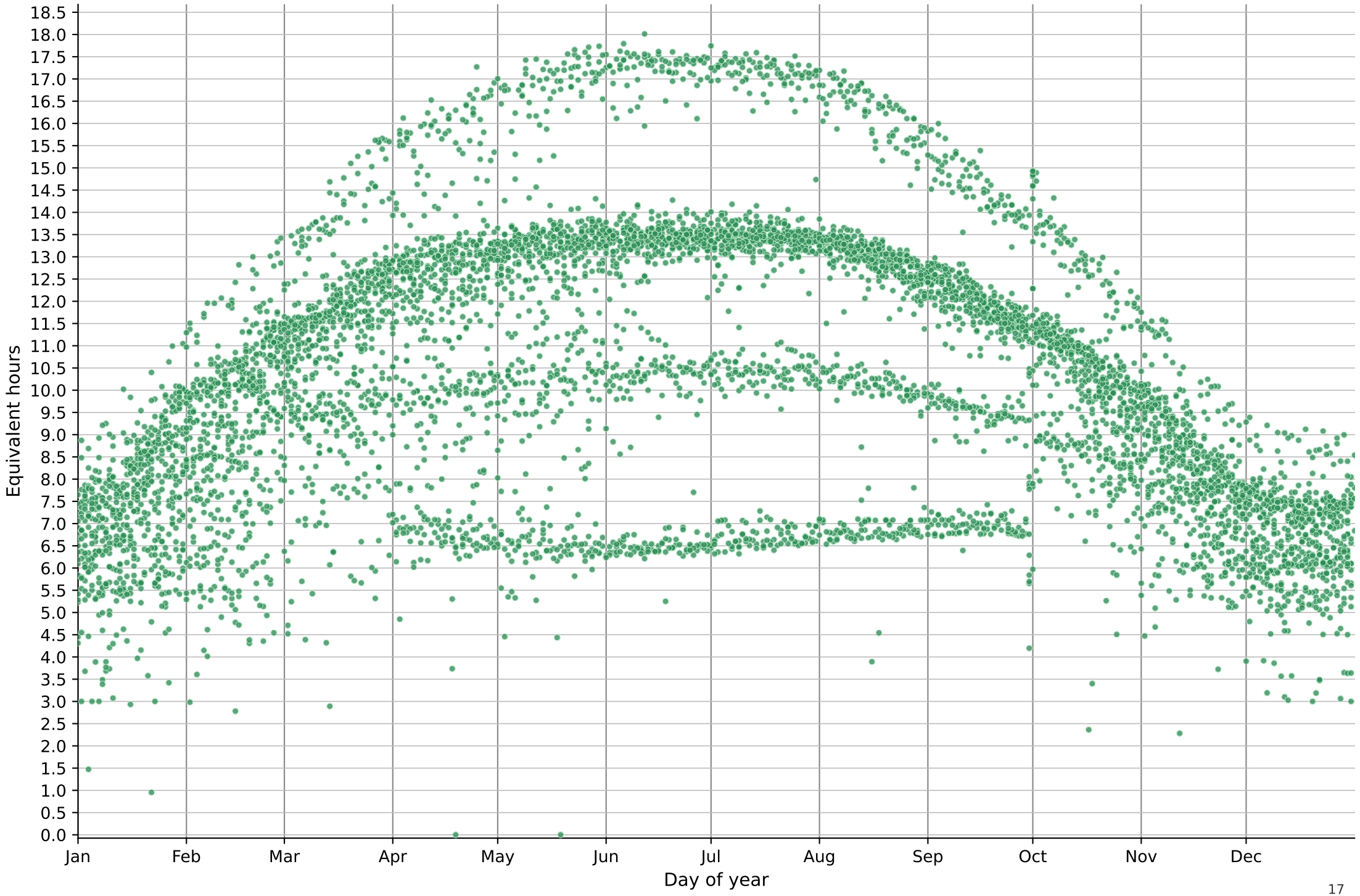
Month / year		Roof East 22°/-90° 19,800 Wp	Roof West 22°/90° 19,800 Wp	Terrace railing south 90°/0° 4,620 Wp	Terrace railing north 90°/180° 4,620 Wp	share central structure east 8°/-90° 20,460 Wp	share central strucure west p 8°/90° 20,460 Wp	All together
January	Maximum	92.92	90.76	30.84	12.73	94.15	93.73	85.12
	average	86.11	83.78	27.86	11.37	87.46	86.69	79.19
	minimum	74.72	73.32	24.52	9.09	75.74	75.23	68.84
February	Maximum	103.99	100.12	65.64	15.61	105.65	104.02	96.77
	average	96.52	93.59	60.15	13.38	98.06	96.98	90.18
	minimum	85.16	85.36	55.04	12.37	90.56	89.34	83.60
March	Maximum	139.41	142.20	83.99	18.64	143.60	145.15	132.07
	average	132.53	134.69	80.64	17.40	137.87	138.95	127.09
	minimum	125.92	127.76	75.76	16.13	130.76	131.49	120.58
April	Maximum	160.28	162.73	70.52	22.30	167.30	168.41	152.36
	average	149.17	152.50	68.10	20.36	155.99	157.55	142.57
	minimum	132.30	140.51	64.07	18.50	141.97	146.17	131.72
May	Maximum	176.81	193.56	47.02	29.32	184.60	191.27	167.29
	average	166.60	169.53	44.47	26.89	174.20	175.55	157.54
	minimum	153.24	148.55	40.55	24.30	157.95	156.17	141.52
June	Maximum	174.94	187.53	32.46	28.98	184.39	187.42	166.17
	average	170.17	176.43	30.25	26.85	179.27	182.21	161.79
	minimum	162.70	166.15	29.11	25.48	170.89	172.45	153.76
July	Maximum	174.13	190.85	36.26	26.41	183.86	189.76	166.49
	average	171.67	180.59	35.28	25.65	181.65	185.79	164.59
	minimum	163.73	175.87	34.32	25.06	177.53	181.85	161.68
August	Maximum	165.16	181.77	56.82	19.00	173.02	178.03	157.17
	average	160.25	167.66	56.08	18.00	168.88	172.07	153.86
	minimum	151.59	158.56	53.04	16.62	160.23	162.89	145.81
September	Maximum	140.89	153.91	82.17	15.96	147.17	152.47	135.58
	average	138.05	142.81	80.91	14.15	144.34	146.53	133.15
	minimum	131.45	136.72	78.64	13.27	140.15	141.38	129.03
October	Maximum	123.35	128.72	79.11	15.61	127.88	128.61	117.67
	average	116.38	117.50	74.62	13.06	120.62	121.17	111.22
	minimum	108.08	109.71	69.68	11.46	113.18	113.72	104.79
November	Maximum	95.54	96.69	46.82	12.07	96.99	96.96	88.49
	average	90.11	89.75	44.13	10.88	92.34	92.33	84.60
	minimum	83.62	80.67	40.34	9.41	86.77	84.82	78.83
December	Maximum	85.92	86.35	11.85	11.85	87.34	86.55	78.16
	average	81.12	80.04	10.34	10.34	82.55	82.23	74.17
	minimum	74.18	70.88	9.10	9.10	74.95	73.68	67.10
All years	Maximum	1,592.9	1,697.8	627.4	213.0	1,656.3	1,684.5	1,506.6
	average	1,558.7	1,588.9	612.8	208.3	1,623.2	1,638.0	1,480.0
	minimum	1,476.9	1,551.8	600.7	201.7	1,586.7	1,608.0	1,455.1

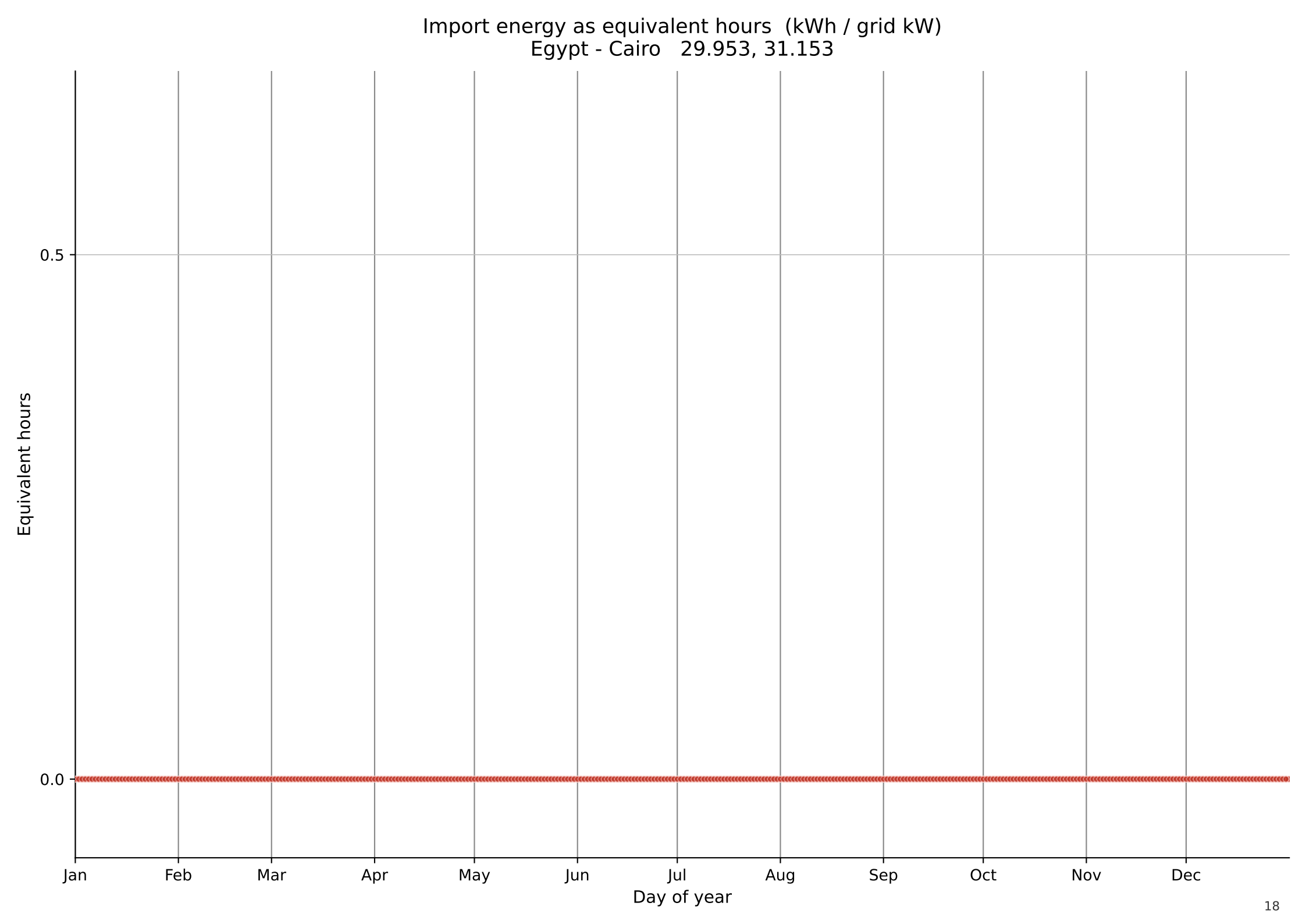
Highest combined yield hour: 2021-04-10 10:09 UTC 66,415.7 W (0.740 W/Wp) of 89,760 Wp installed. Use this hour to size battery charge power.

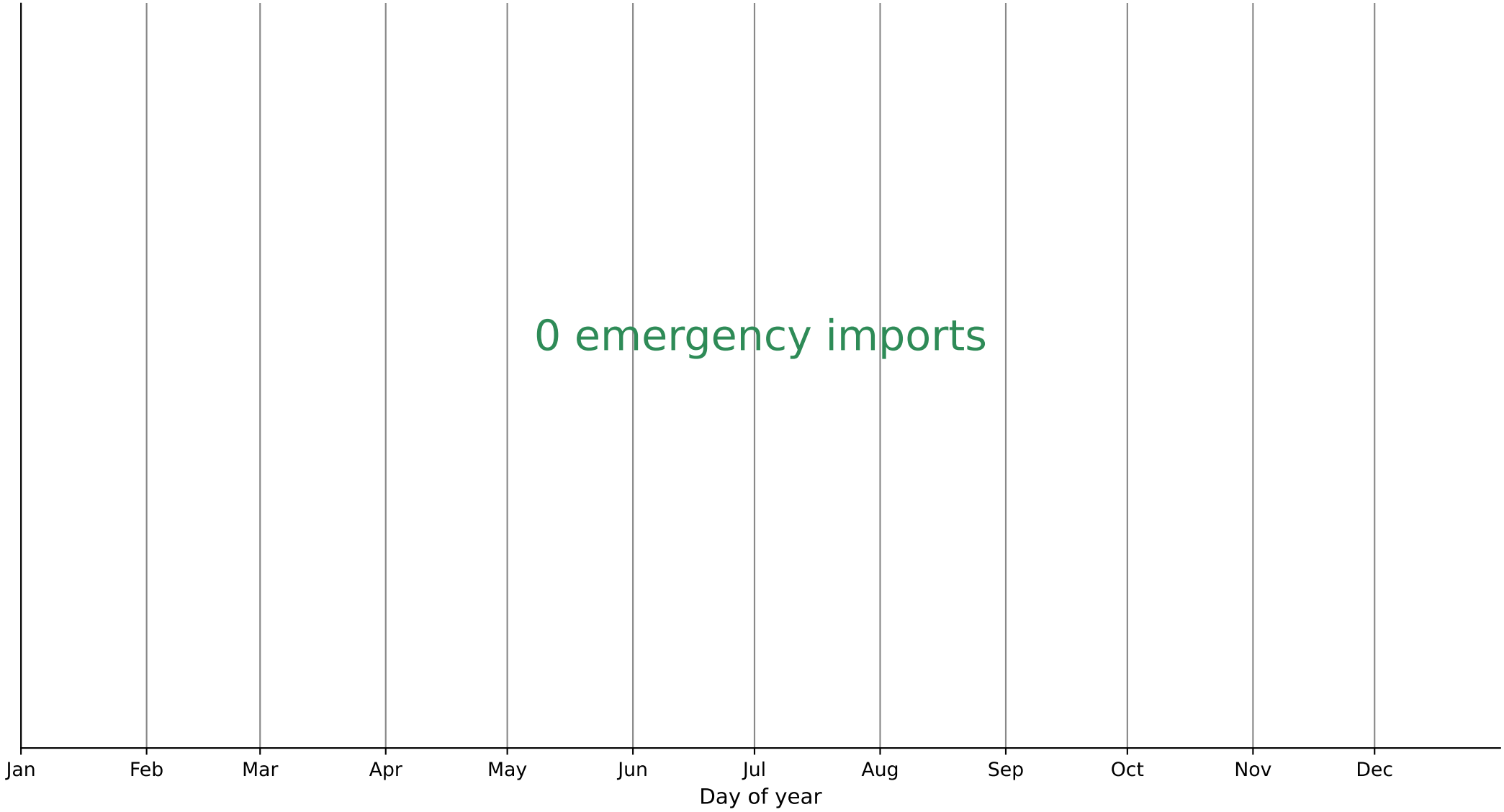
Monthly and yearly total yield (kWh)
Egypt - Cairo 29.953, 31.153

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 p 8°/-90° 20,460 Wp	share central strucure west p 8°/90° 20,460 Wp	All together
January	Maximum	1,839.90	1,797.12	142.49	58.80	1,926.24	1,917.63	7,640.14
	average	1,705.00	1,658.86	128.73	52.54	1,789.44	1,773.77	7,108.34
	minimum	1,479.53	1,451.75	113.27	42.02	1,549.72	1,539.15	6,179.41
February	Maximum	2,058.91	1,982.32	303.25	72.12	2,161.62	2,128.32	8,685.87
	average	1,911.01	1,853.04	277.88	61.84	2,006.33	1,984.21	8,094.30
	minimum	1,686.21	1,690.13	254.29	57.14	1,852.84	1,827.80	7,504.37
March	Maximum	2,760.34	2,815.58	388.02	86.10	2,938.16	2,969.79	11,854.42
	average	2,624.07	2,666.91	372.55	80.38	2,820.81	2,842.85	11,407.57
	minimum	2,493.21	2,529.69	350.00	74.50	2,675.39	2,690.28	10,822.83
April	Maximum	3,173.54	3,222.03	325.78	103.03	3,423.06	3,445.61	13,675.47
	average	2,953.59	3,019.55	314.63	94.05	3,191.62	3,223.49	12,796.93
	minimum	2,619.59	2,782.05	296.02	85.45	2,904.80	2,990.54	11,823.44
May	Maximum	3,500.87	3,832.46	217.24	135.47	3,776.84	3,913.29	15,016.13
	average	3,298.77	3,356.65	205.44	124.21	3,564.11	3,591.76	14,140.95
	minimum	3,034.20	2,941.20	187.34	112.26	3,231.56	3,195.22	12,703.17
June	Maximum	3,463.87	3,713.16	149.98	133.88	3,772.59	3,834.53	14,915.41
	average	3,369.28	3,493.27	139.77	124.04	3,667.87	3,727.95	14,522.19
	minimum	3,221.52	3,289.77	134.47	117.73	3,496.36	3,528.28	13,801.76
July	Maximum	3,447.81	3,778.90	167.50	122.03	3,761.85	3,882.50	14,943.90
	average	3,399.13	3,575.60	162.99	118.52	3,716.53	3,801.26	14,774.03
	minimum	3,241.90	3,482.22	158.55	115.78	3,632.20	3,720.72	14,512.08
August	Maximum	3,270.11	3,599.12	262.51	87.76	3,540.01	3,642.41	14,108.03
	average	3,172.96	3,319.58	259.08	83.16	3,455.31	3,520.53	13,810.63
	minimum	3,001.45	3,139.43	245.07	76.78	3,278.30	3,332.65	13,088.28
September	Maximum	2,789.65	3,047.40	379.61	73.75	3,011.07	3,119.63	12,170.04
	average	2,733.43	2,827.69	373.79	65.38	2,953.11	2,997.94	11,951.33
	minimum	2,602.65	2,707.15	363.32	61.29	2,867.40	2,892.58	11,581.65
October	Maximum	2,442.42	2,548.66	365.48	72.11	2,616.32	2,631.29	10,562.05
	average	2,304.40	2,326.50	344.73	60.36	2,467.89	2,479.06	9,982.94
	minimum	2,140.05	2,172.32	321.91	52.92	2,315.57	2,326.73	9,406.19
November	Maximum	1,891.70	1,914.44	216.30	55.78	1,984.46	1,983.84	7,942.75
	average	1,784.11	1,777.04	203.90	50.26	1,889.19	1,889.14	7,593.64
	minimum	1,655.77	1,597.31	186.39	43.47	1,775.37	1,735.44	7,075.88
December	Maximum	1,701.23	1,709.66	54.74	54.74	1,786.91	1,770.84	7,015.77
	average	1,606.27	1,584.70	47.76	47.76	1,688.90	1,682.33	6,657.72
	minimum	1,468.76	1,403.44	42.03	42.03	1,533.51	1,507.50	6,022.68
All years	Maximum	31,539.3	33,615.5	2,898.5	983.9	33,886.9	34,465.4	135,230.4
	average	30,862.0	31,459.4	2,831.3	962.5	33,211.1	33,514.3	132,840.6
	minimum	29,243.0	30,725.2	2,775.1	932.1	32,464.8	32,900.1	130,606.9

Highest combined yield hour: 2021-04-10 10:09 UTC 66,415.7 W (0.740 W/Wp) of 89,760 Wp installed. Use this hour to size battery charge power.


Export energy as equivalent hours (kWh / grid kW)
Egypt - Cairo 29.953, 31.153
Equivalent hours
Day of year
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5
15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5


Import energy as equivalent hours (kWh / grid kW)
Egypt - Cairo 29.953, 31.153
0.5
0.0
Equivalent hours
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year



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
Egypt - Cairo 29.953, 31.153

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export to grid													
month Maximum	6,512	7,476	9,714	9,725	10,616	10,420	10,681	10,416	9,249	9,076	6,882	5,909	103,439
month average	6,026	6,917	9,238	9,301	10,005	10,098	10,457	10,175	9,026	8,621	6,550	5,594	102,007
month minimum	5,184	6,449	8,778	8,727	9,115	9,646	10,288	9,947	8,753	8,048	6,098	5,001	100,587
day Maximum	298.3	362.4	422.9	466.3	478.9	486.4	479.1	464.2	431.9	403.2	317.3	253.5	486.4
day average	194.4	245.2	298.0	310.0	322.8	336.6	337.3	328.2	300.9	278.1	218.3	180.5	279.3
day minimum	25.7	75.1	78.1	0.0	0.0	141.8	170.6	105.1	113.3	63.8	61.6	81.0	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	571	521	541	485	509	512	535	541	503	491	496	549	6,108
month average	554	493	514	479	494	498	520	522	492	479	474	532	6,051
month minimum	535	468	488	472	482	485	503	511	485	475	463	514	5,983
day Maximum	19.8	19.7	19.1	20.2	21.3	21.3	21.2	20.5	20.1	17.3	17.5	19.4	21.3
day average	17.9	17.5	16.6	16.0	15.9	16.6	16.8	16.8	16.4	15.4	15.8	17.2	16.6
day minimum	15.6	15.4	15.4	15.3	15.3	15.3	15.2	15.2	15.2	15.3	15.3	15.3	15.2

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
Egypt - Cairo 29.953, 31.153

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export													
month Maximum	1,032	1,006	1,172	974	1,038	1,012	1,030	1,079	1,009	1,121	1,011	967	12,259
month average	964	957	1,124	948	968	950	1,001	1,010	948	1,084	976	927	11,858
month minimum	857	903	1,072	905	917	904	972	977	924	1,025	918	865	11,704
day Maximum	43.8	47.5	50.3	48.3	48.9	48.1	47.1	48.7	46.0	49.7	43.4	40.0	50.3
day average	31.1	33.9	36.3	31.6	31.2	31.7	32.3	32.6	31.6	35.0	32.5	29.9	32.5
day minimum	4.8	9.0	14.6	0.0	0.0	13.4	14.8	11.3	13.6	7.7	7.4	10.3	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	1,032	1,006	1,172	974	1,038	1,012	1,030	1,079	1,009	1,121	1,011	967	12,259
month average	964	957	1,124	948	968	950	1,001	1,010	948	1,084	976	927	11,858
month minimum	857	903	1,072	905	917	904	972	977	924	1,025	918	865	11,704
day Maximum	43.8	47.5	50.3	48.3	48.9	48.1	47.1	48.7	46.0	49.7	43.4	40.0	50.3
day average	31.1	33.9	36.3	31.6	31.2	31.7	32.3	32.6	31.6	35.0	32.5	29.9	32.5
day minimum	4.8	9.0	14.6	0.0	0.0	13.4	14.8	11.3	13.6	7.7	7.4	10.3	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
Egypt - Cairo 29.953, 31.153

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export total													
month Maximum	6,512	7,476	9,714	9,725	10,616	10,420	10,681	10,416	9,249	9,076	6,882	5,909	103,439
month average	6,026	6,917	9,238	9,301	10,005	10,098	10,457	10,175	9,026	8,621	6,550	5,594	102,007
month minimum	5,184	6,449	8,778	8,727	9,115	9,646	10,288	9,947	8,753	8,048	6,098	5,001	100,587
day Maximum	298.3	362.4	422.9	466.3	478.9	486.4	479.1	464.2	431.9	403.2	317.3	253.5	486.4
day average	194.4	245.2	298.0	310.0	322.8	336.6	337.3	328.2	300.9	278.1	218.3	180.5	279.3
day minimum	25.7	75.1	78.1	0.0	0.0	141.8	170.6	105.1	113.3	63.8	61.6	81.0	0.0
Export during high price hours													
month Maximum	4,404	3,875	3,887	3,422	3,275	3,084	3,341	3,517	3,514	3,880	4,177	4,495	44,778
month average	4,272	3,676	3,678	3,167	2,999	2,810	3,065	3,227	3,264	3,735	3,995	4,247	42,134
month minimum	3,812	3,508	3,530	3,051	2,863	2,723	2,983	3,153	3,183	3,660	3,942	4,098	41,382
day Maximum	159.8	157.4	154.4	149.0	149.8	147.8	151.3	135.5	139.5	150.9	157.2	161.0	161.0
day average	137.8	130.3	118.6	105.6	96.7	93.7	98.9	104.1	108.8	120.5	133.2	137.0	115.4
day minimum	25.7	75.1	73.4	0.0	0.0	74.2	79.0	78.1	83.1	63.8	61.6	81.0	0.0
Export during medium price hours													
month Maximum	2,077	3,043	4,357	5,031	5,650	5,775	5,786	5,433	4,562	3,916	2,612	1,676	47,740
month average	1,698	2,668	4,084	4,657	5,331	5,582	5,656	5,283	4,425	3,647	2,339	1,348	46,718
month minimum	1,308	2,311	3,813	4,185	4,761	5,320	5,565	5,165	4,307	3,205	2,020	846	45,825
day Maximum	154.2	195.0	239.3	279.6	300.8	302.8	303.6	286.3	250.7	239.8	160.4	121.5	303.6
day average	54.8	94.6	131.7	155.2	172.0	186.1	182.5	170.4	147.5	117.6	78.0	43.5	127.9
day minimum	0.0	0.0	0.0	0.0	0.0	55.5	81.0	27.0	0.0	0.0	0.0	0.0	0.0
Export during low price hours													
month Maximum	95	772	1,681	1,669	1,863	1,839	1,856	1,827	1,416	1,500	327	0	13,777
month average	57	573	1,476	1,477	1,676	1,706	1,735	1,665	1,337	1,239	216	0	13,156
month minimum	10	324	1,256	1,120	1,440	1,502	1,526	1,408	1,210	977	103	0	11,799
day Maximum	27.0	54.0	81.0	91.0	102.2	100.5	84.5	81.0	81.0	69.1	40.2	0.0	102.2
day average	1.8	20.3	47.6	49.2	54.1	56.9	56.0	53.7	44.6	40.0	7.2	0.0	36.0
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
Egypt - Cairo 29.953, 31.153

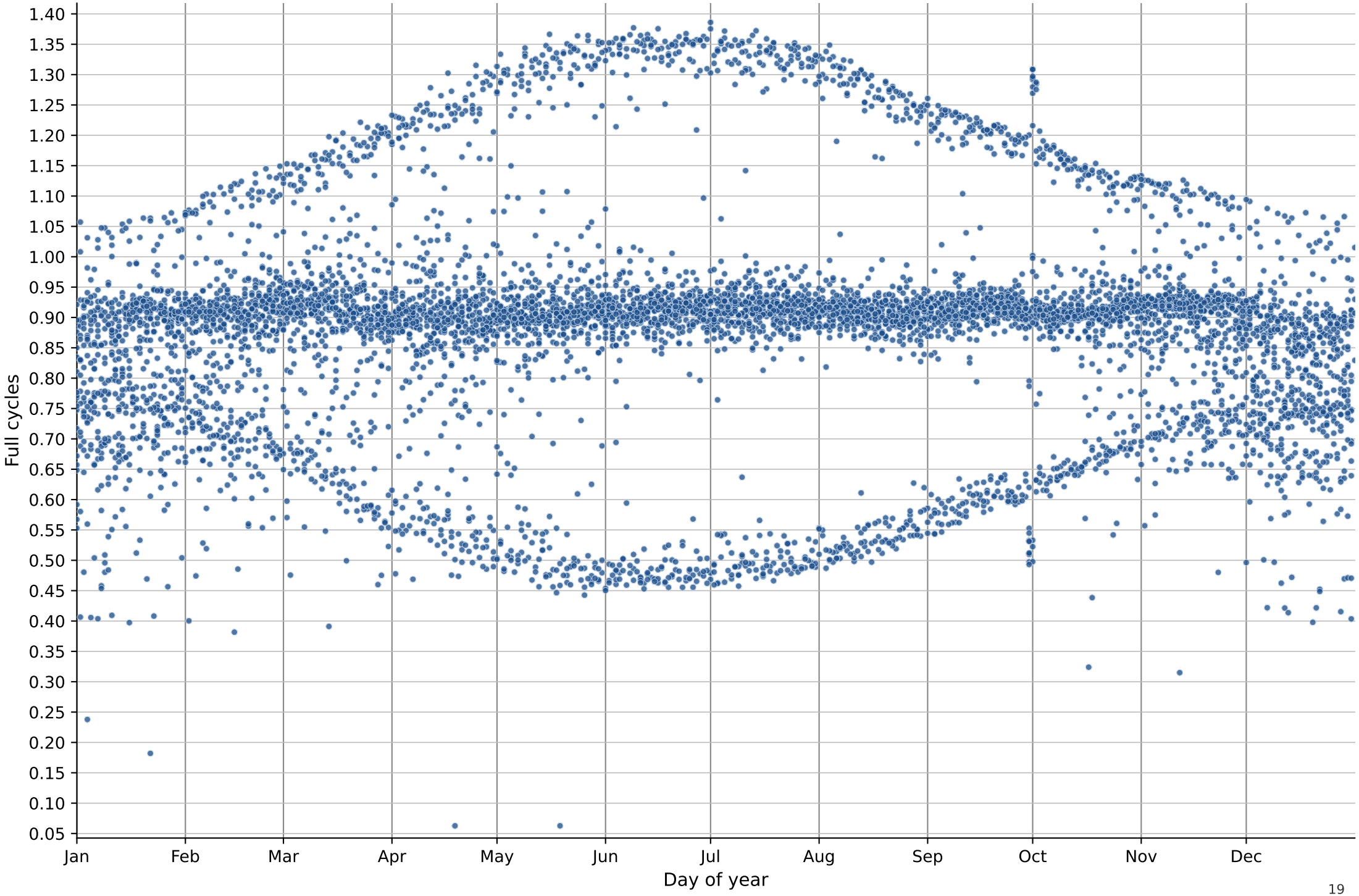
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	84	67	58	24	5	0	0	0	0	0	33	67	279
month average	69	52	33	16	1	0	0	0	0	0	13	52	236
month minimum	52	33	8	9	0	0	0	0	0	0	2	35	166
day Maximum	3.9	3.8	3.4	4.8	2.4	0.0	0.0	0.0	0.0	0.0	2.0	3.6	4.8
day average	2.2	1.9	1.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.7	0.6
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	0	0	0	12	34	52	63	69	46	16	0	0	233
month average	0	0	0	2	18	38	48	50	36	3	0	0	195
month minimum	0	0	0	0	6	26	31	39	28	0	0	0	153
day Maximum	0.0	0.0	0.0	4.4	5.9	6.0	5.9	5.2	4.9	2.0	0.3	0.0	6.0
day average	0.0	0.0	0.0	0.1	0.6	1.3	1.6	1.6	1.2	0.1	0.0	0.0	0.5
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	53	48	49	41	41	40	38	38	37	41	43	48	511
month average	51	45	47	41	41	39	38	38	37	41	41	46	506
month minimum	49	43	45	40	41	39	38	38	37	41	41	45	499
day Maximum	1.9	1.9	1.8	1.5	1.4	1.3	1.2	1.2	1.2	1.4	1.5	1.7	1.9
day average	1.6	1.6	1.5	1.4	1.3	1.3	1.2	1.2	1.2	1.3	1.4	1.5	1.4
day minimum	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.3	1.3	1.2
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

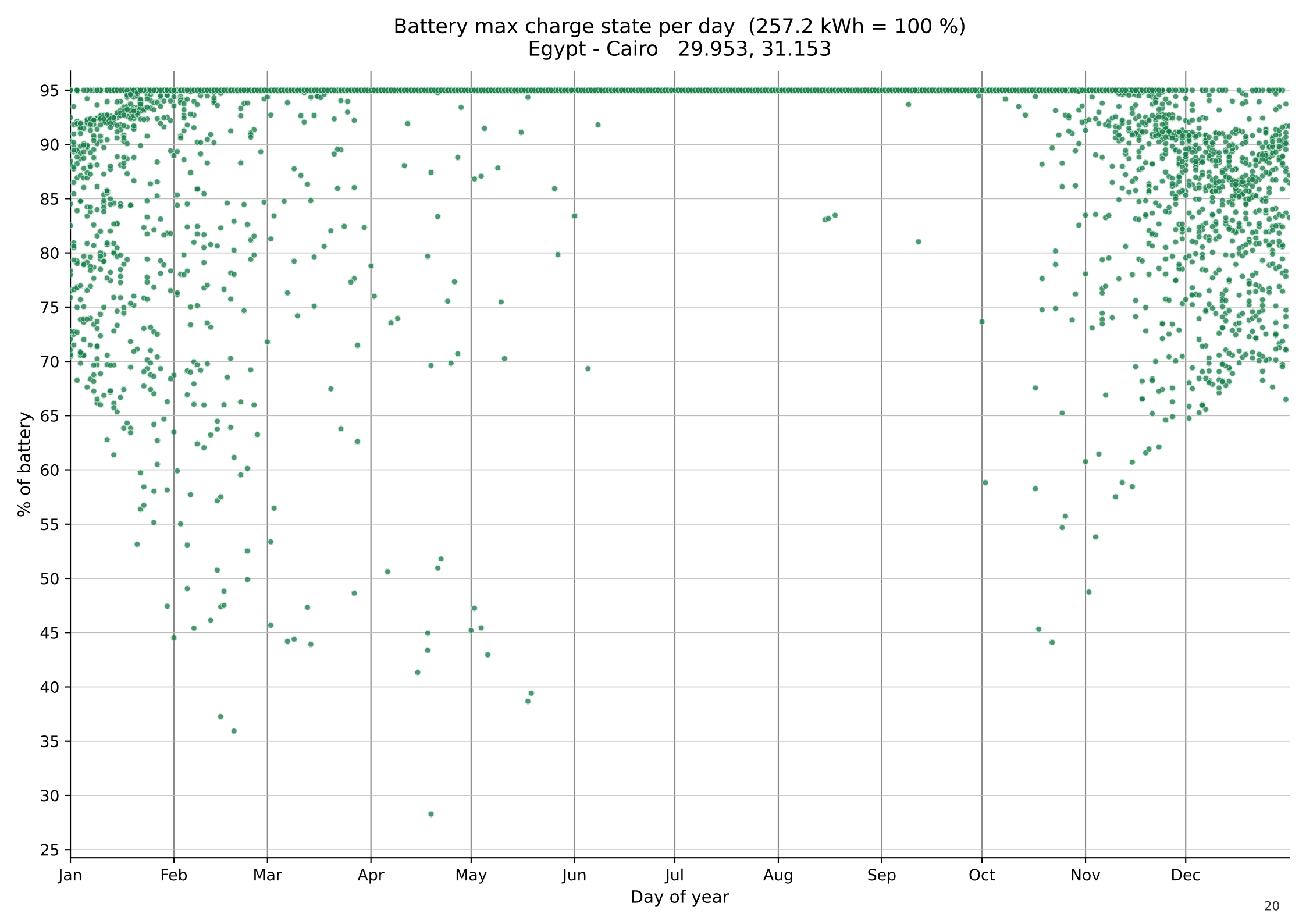
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

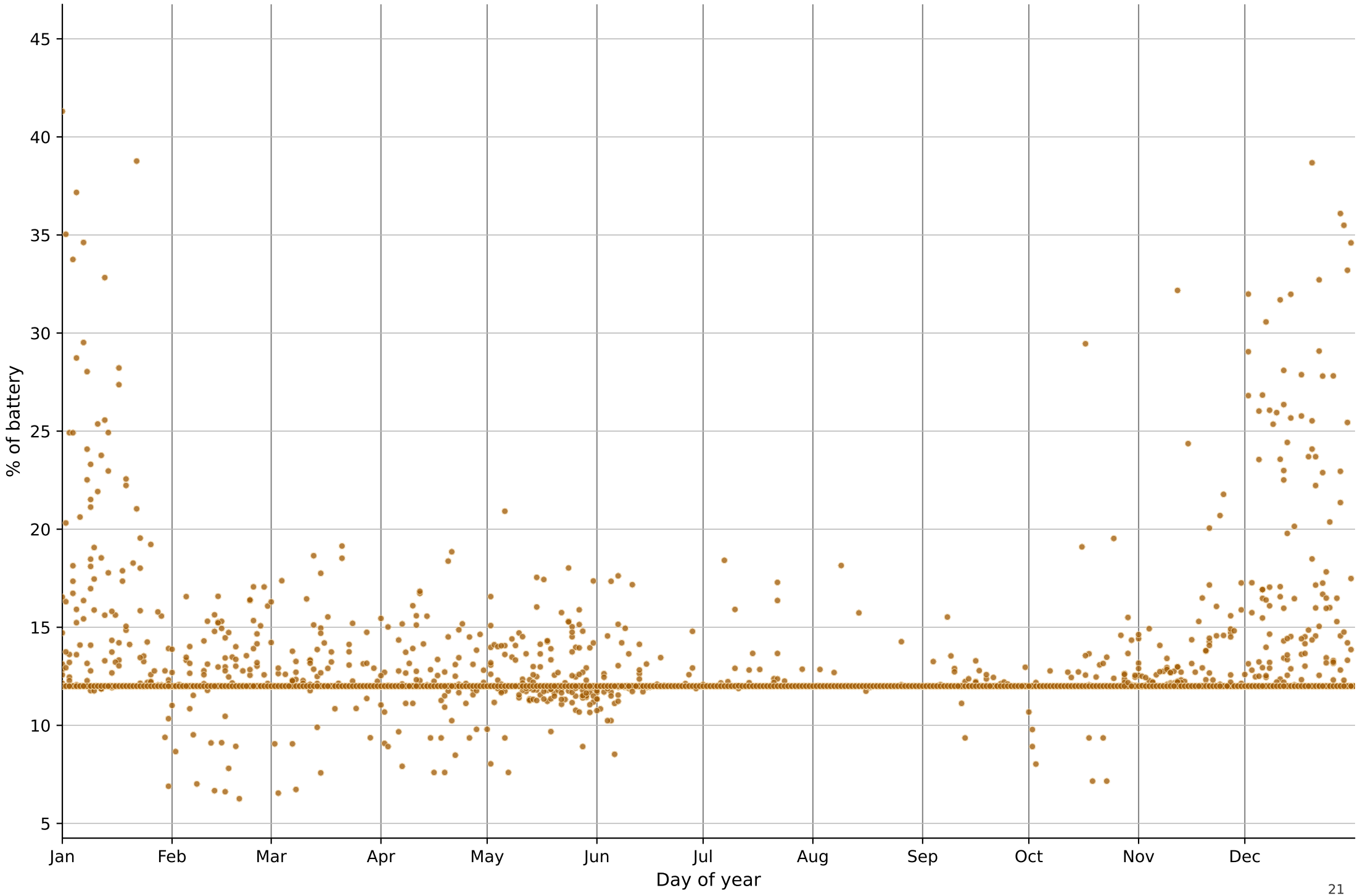
Battery
Egypt - Cairo 29.953, 31.153

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	5	234	1,230	2,935	3,532	3,618	3,392	2,725	1,968	532	22	0	19,128
month average	1	183	1,099	2,471	3,067	3,359	3,189	2,558	1,791	356	12	0	18,084
month minimum	0	35	976	2,043	2,432	3,058	3,039	2,424	1,544	180	0	0	17,137
day Maximum	2.9	37.2	95.0	204.6	214.1	213.9	188.2	168.4	144.7	39.6	9.5	0.0	214.1
day average	0.0	6.5	35.5	82.4	98.9	112.0	102.9	82.5	59.7	11.5	0.4	0.0	49.5
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	17.5	0.0	0.0	0.0	0.0	0.0	0.0
Full cycles													
month Maximum	27	26	28	27	29	28	29	29	27	29	27	26	326
month average	25	24	28	27	28	27	28	28	27	28	26	25	323
month minimum	22	23	27	26	27	27	28	28	27	26	25	23	319
day Maximum	1.1	1.1	1.2	1.3	1.4	1.4	1.4	1.3	1.3	1.3	1.1	1.1	1.4
day average	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.9
day minimum	0.2	0.4	0.4	0.1	0.1	0.5	0.5	0.5	0.5	0.3	0.3	0.4	0.1
Charge C													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	3
month average	0	0	0	0	0	0	0	0	0	0	0	0	3
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	3
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	0.2	0.2	0.2	0.2	0.2	0.1	0.2
day minimum	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	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	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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)
Egypt - Cairo 29.953, 31.153
Full cycles
1.40
1.35
1.30
1.25
1.20
1.15
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 %)
Egypt - Cairo 29.953, 31.153
% of battery
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
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 %)
Egypt - Cairo 29.953, 31.153
% of battery
45
40
35
30
25
20
15
10
5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year