Scenario — PV
GEMINI-60-house-part-of-a-settlement China - Talatan 36.190, 100.540

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: In Europe is the idea of huge photovoltaic fields in North Africa for energy supply. The same idea exists in China with the dry and sunny West of China. There is actually a huge photovoltaic field.
Database PVGIS-ERA5 2005–2023 loss 14 % azimuth 0 = south, 90 = west, −90 = east.
Price bands and charts use UTC+7 from longitude (15° per hour), not the political time zone.
Peak hour 2010-04-25 12:30 local (05:30 UTC) 72,981 W 0.813 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.

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=China+-+Talatan&simname=with+40+kW+grid&lat=36.19&lon=100.54&startyear=2005&endyear=2023&loss=14.0&raddatabase=auto&usehorizon=1&outdir=%2Fhome%2Ffounder%2Finternet%2Fgemini-next-generation.haus%2

Scenario — house, heat pump, battery
GEMINI-60-house-part-of-a-settlement China - Talatan 36.190, 100.540

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	4 °C 8 °C 12 °C 6 °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 / 40.0 kW
	Max export	40.0 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
China - Talatan 36.190, 100.540

PV	2010-04-25 05:30	2010-04-25 04:30	2011-05-03 05:30	2023-04-05 05:30	2010-04-26 05:30	2008-04-22 05:30	2018-04-05 05:30	2023-04-28 05:30	2011-05-03 04:30	2012-04-26 05:30
Roof East	16,495	17,981	15,970	15,869	15,890	15,842	15,800	15,854	17,413	15,728
Roof West	17,287	15,386	16,773	16,398	16,653	16,572	16,334	16,597	15,037	16,482
Terrace railing south	2,208	2,158	1,931	2,760	2,107	2,226	2,739	2,077	1,884	2,086
Terrace railing north	196	201	216	209	191	237	174	199	211	190
share central structure east part	18,248	18,676	17,670	17,477	17,569	17,500	17,418	17,488	18,126	17,389
share central strucure west part	18,546	17,699	17,973	17,676	17,856	17,775	17,620	17,767	17,231	17,673
Watt at record	72,981	72,100	70,532	70,390	70,267	70,153	70,084	69,982	69,902	69,548
Percent of installed peak	81.3	80.3	78.6	78.4	78.3	78.2	78.1	78.0	77.9	77.5

Values are watts at that hour. Date and time are UTC. Record 72,981 W (81.3 % of 89,760 Wp).

Hours at or above a share of the record
China - Talatan 36.190, 100.540

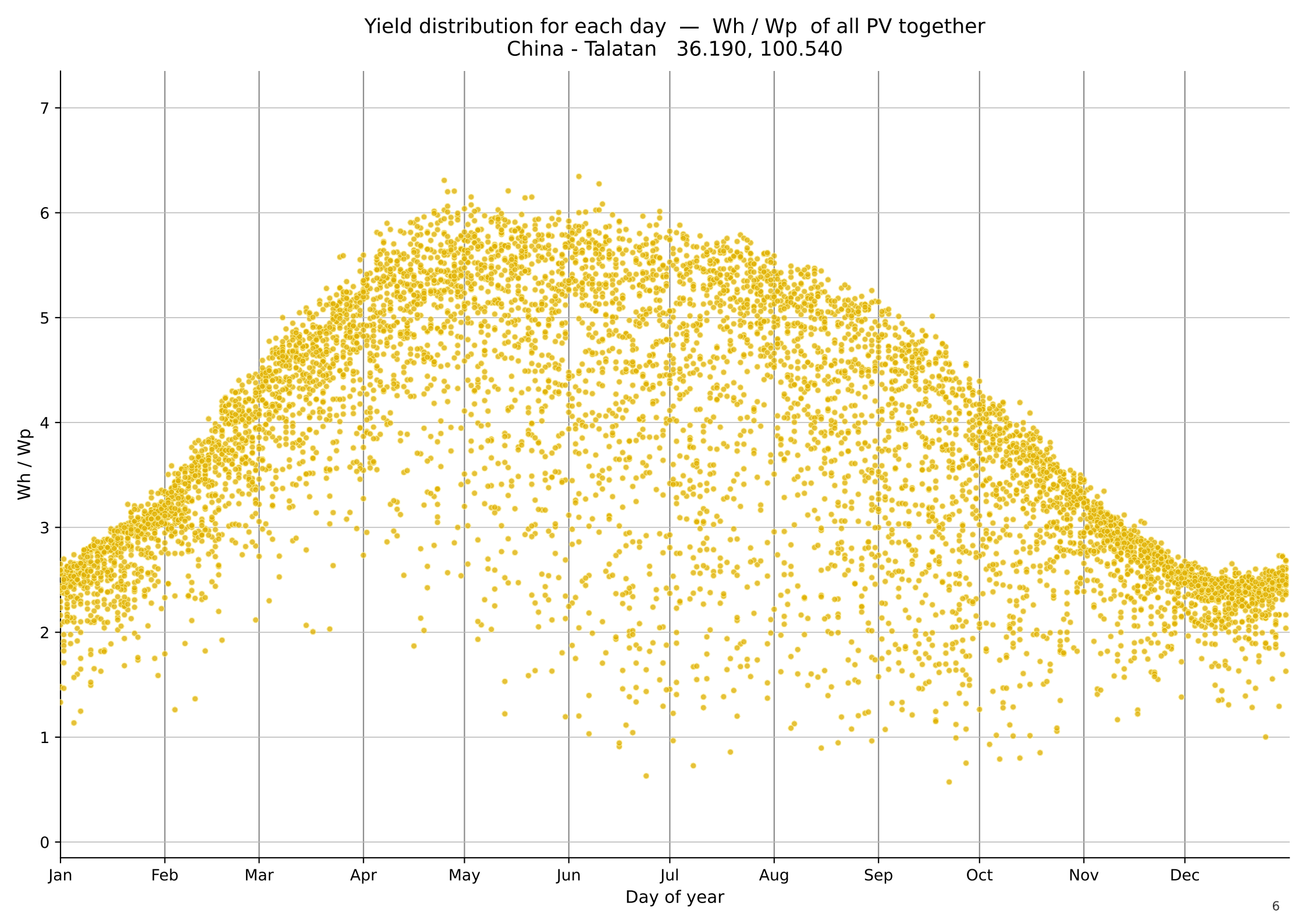
Of the record	Hours	Watts
98 %	2	71,521 W
96 %	7	70,061 W
94 %	20	68,602 W
92 %	66	67,142 W
90 %	173	65,682 W

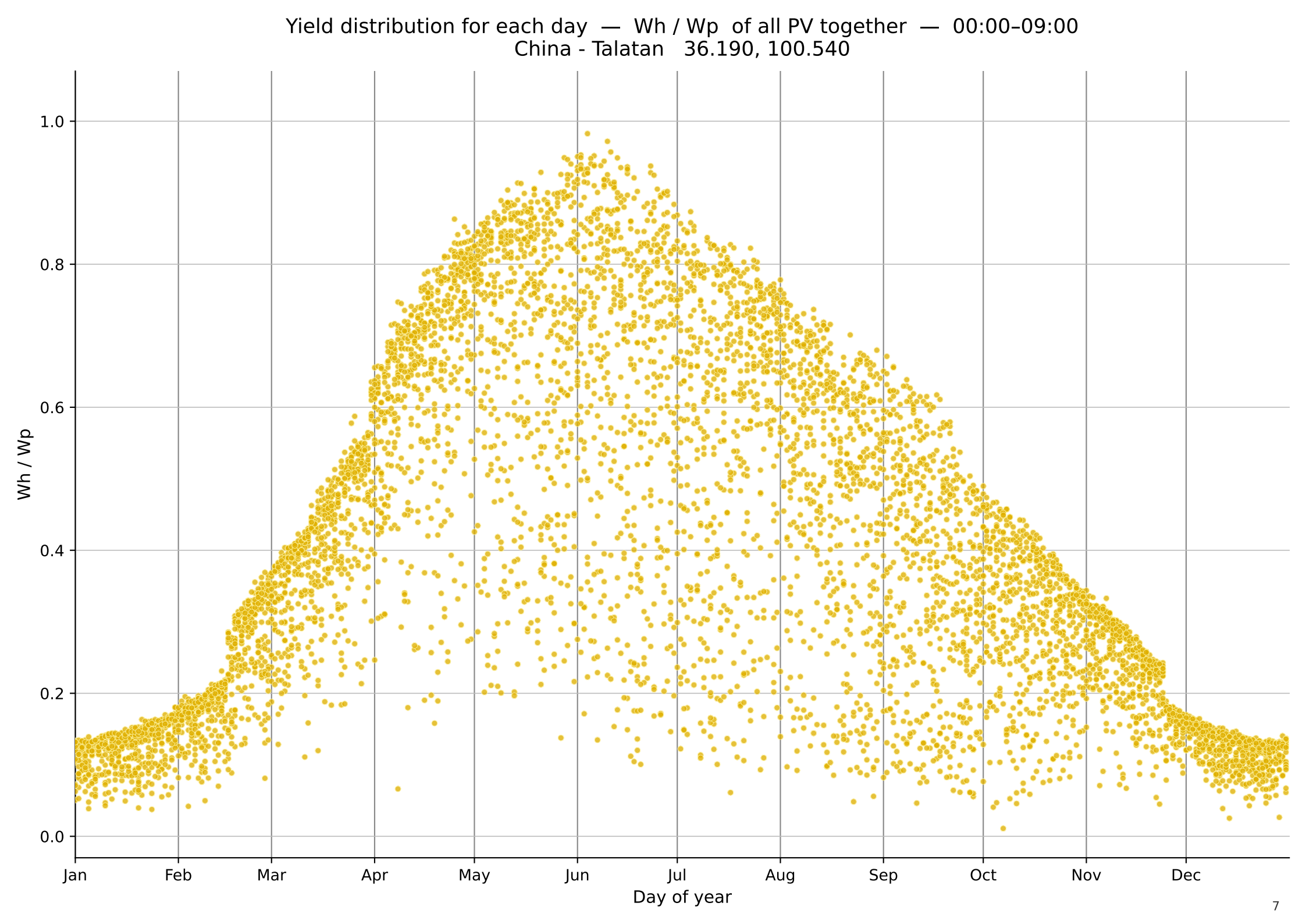
Record hour = 72,981 W combined.

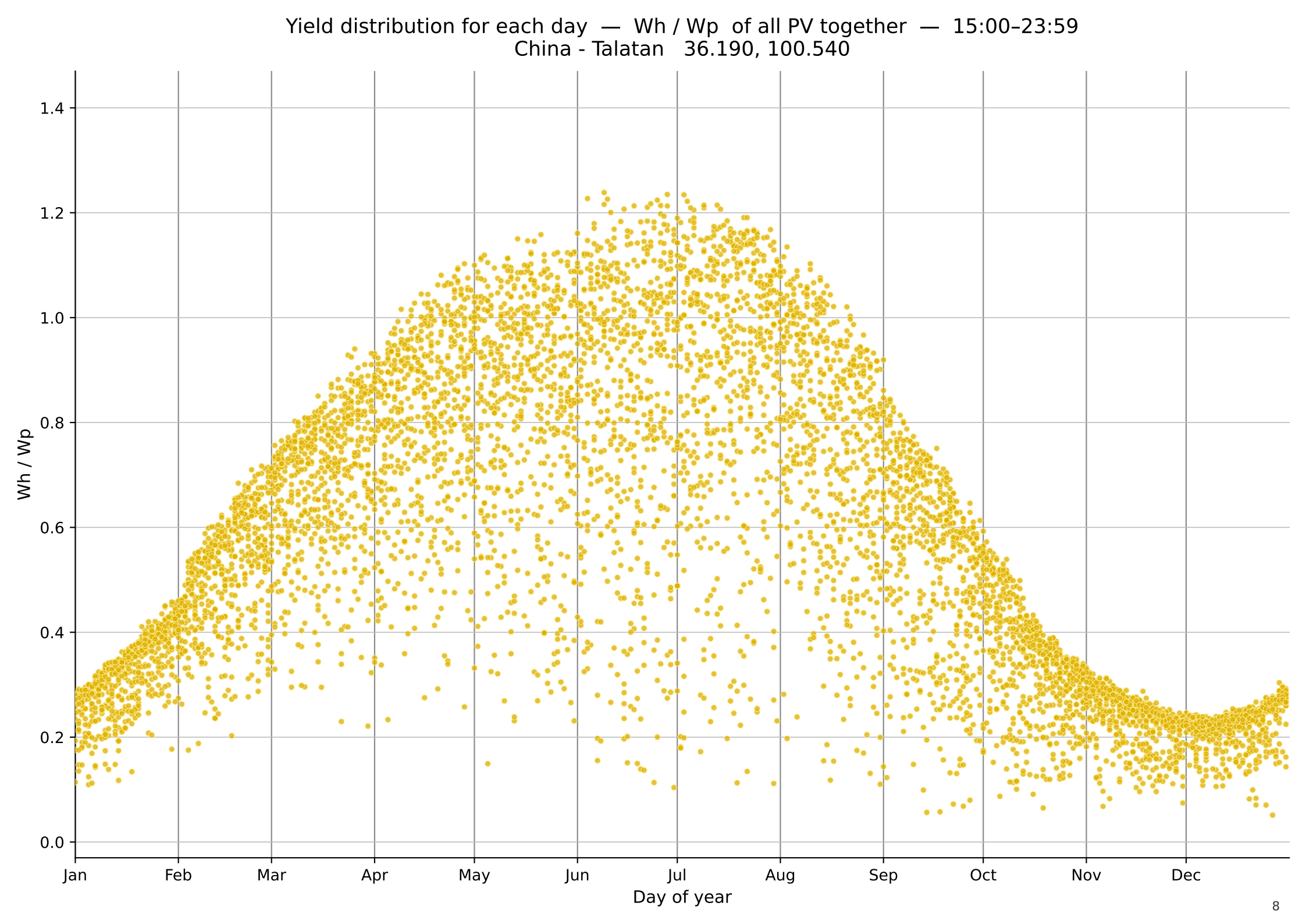
Records of each photovoltaic field
China - Talatan 36.190, 100.540

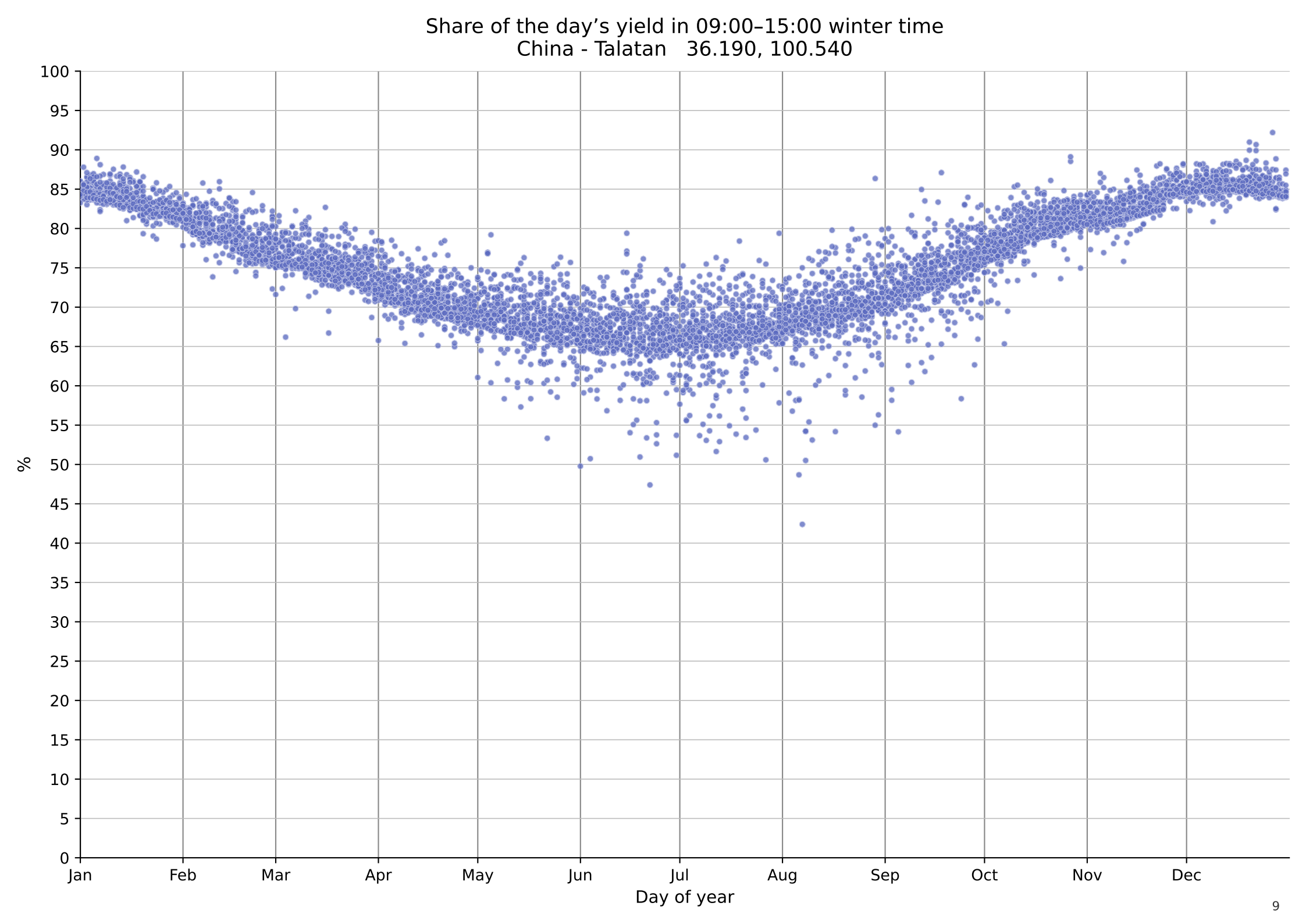
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Roof East	2010-04-25 03:30	18,308	92.5	2	3	12	35	111
Roof West	2010-04-25 06:30	17,863	90.2	1	9	32	97	206
Terrace railing south	2018-02-09 05:30	4,071	88.1	2	3	11	27	70
Terrace railing north	2017-03-13 06:30	909	19.7	1	3	4	5	10
share central structure east part	2010-04-25 04:30	18,676	91.3	1	6	12	45	138
share central strucure west part	2010-04-25 05:30	18,546	90.6	1	4	21	63	153

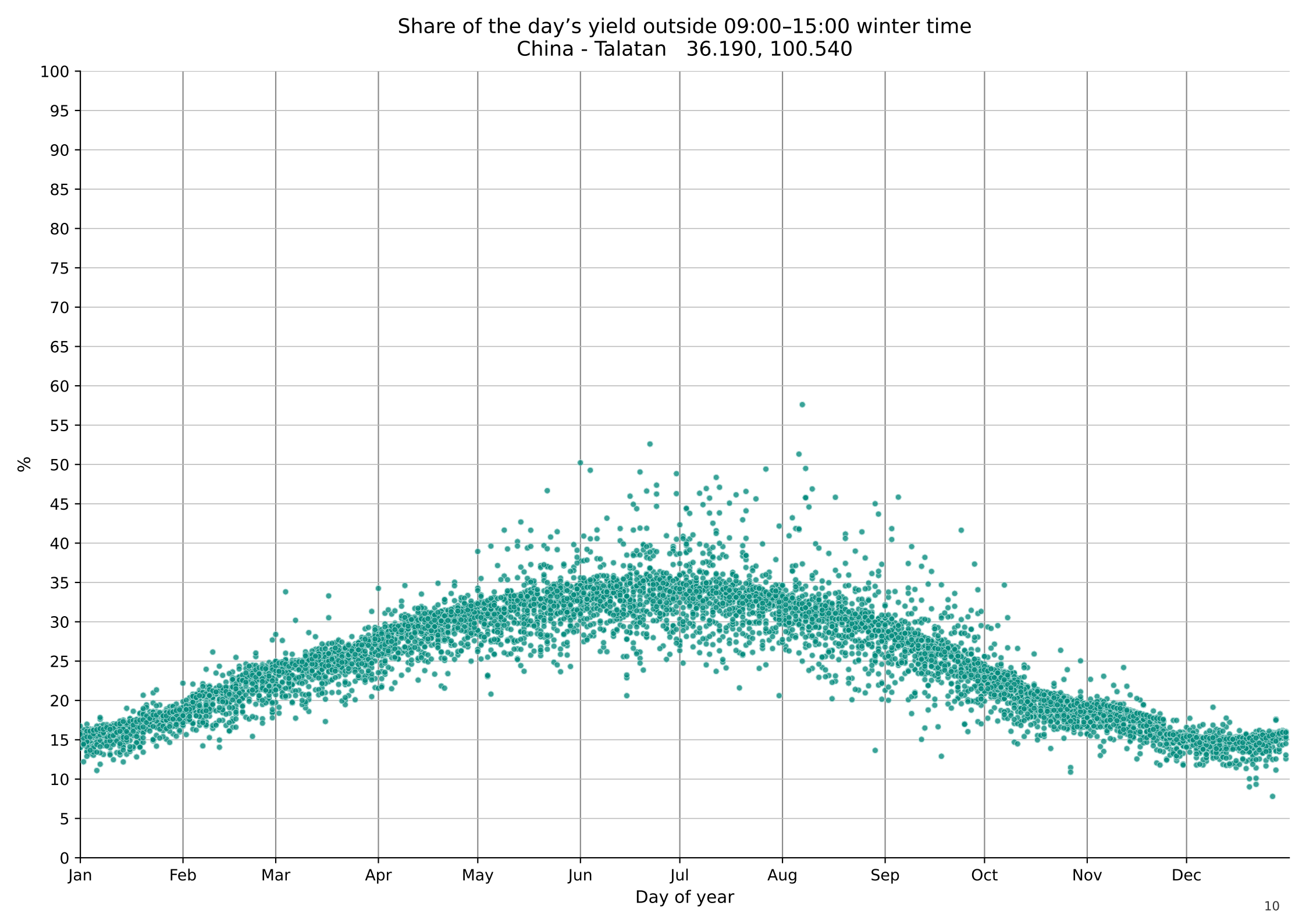
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

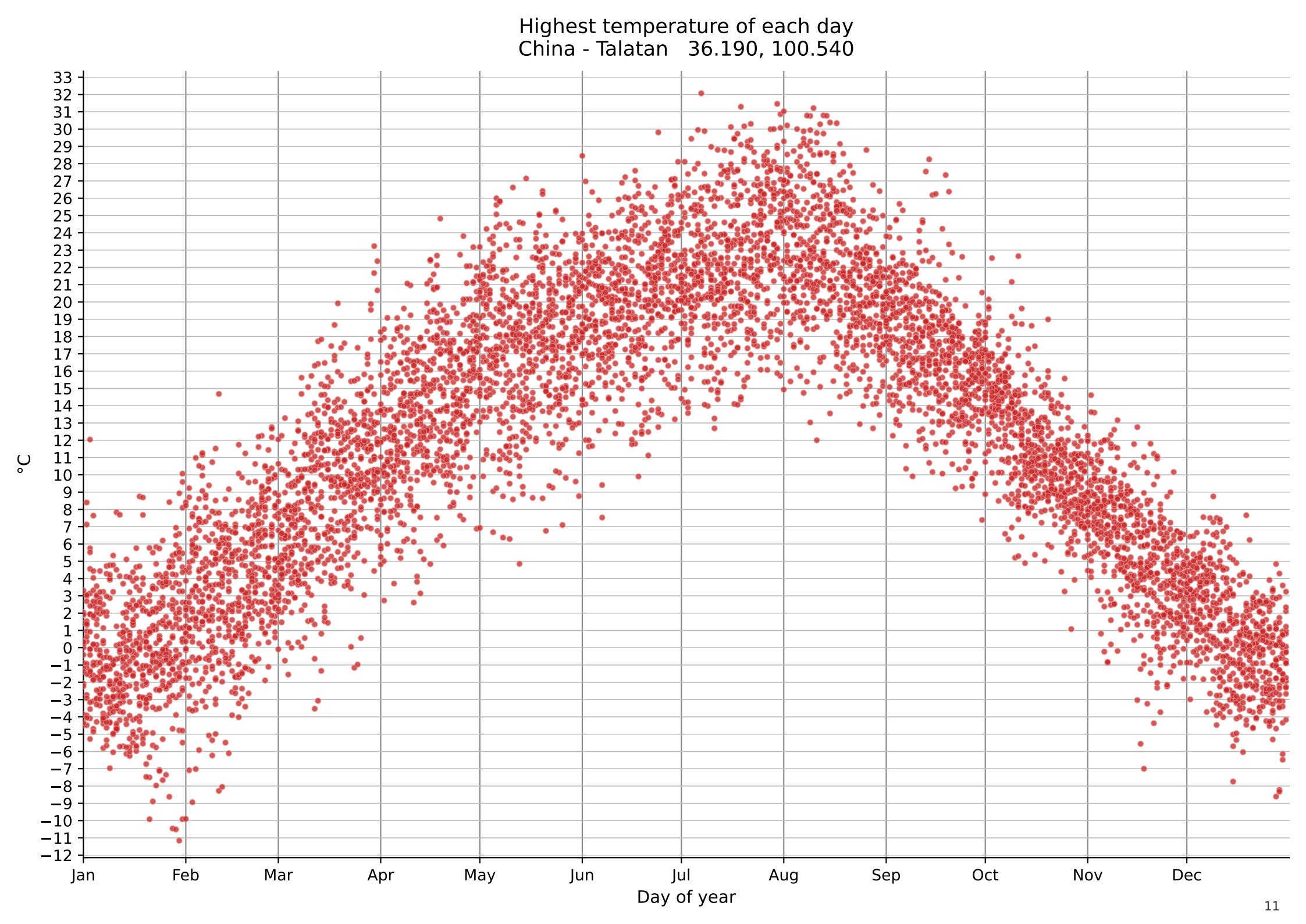

Yield distribution for each day — Wh / Wp of all PV together
China - Talatan 36.190, 100.540
Wh / Wp
0
1
2
3
4
5
6
7
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

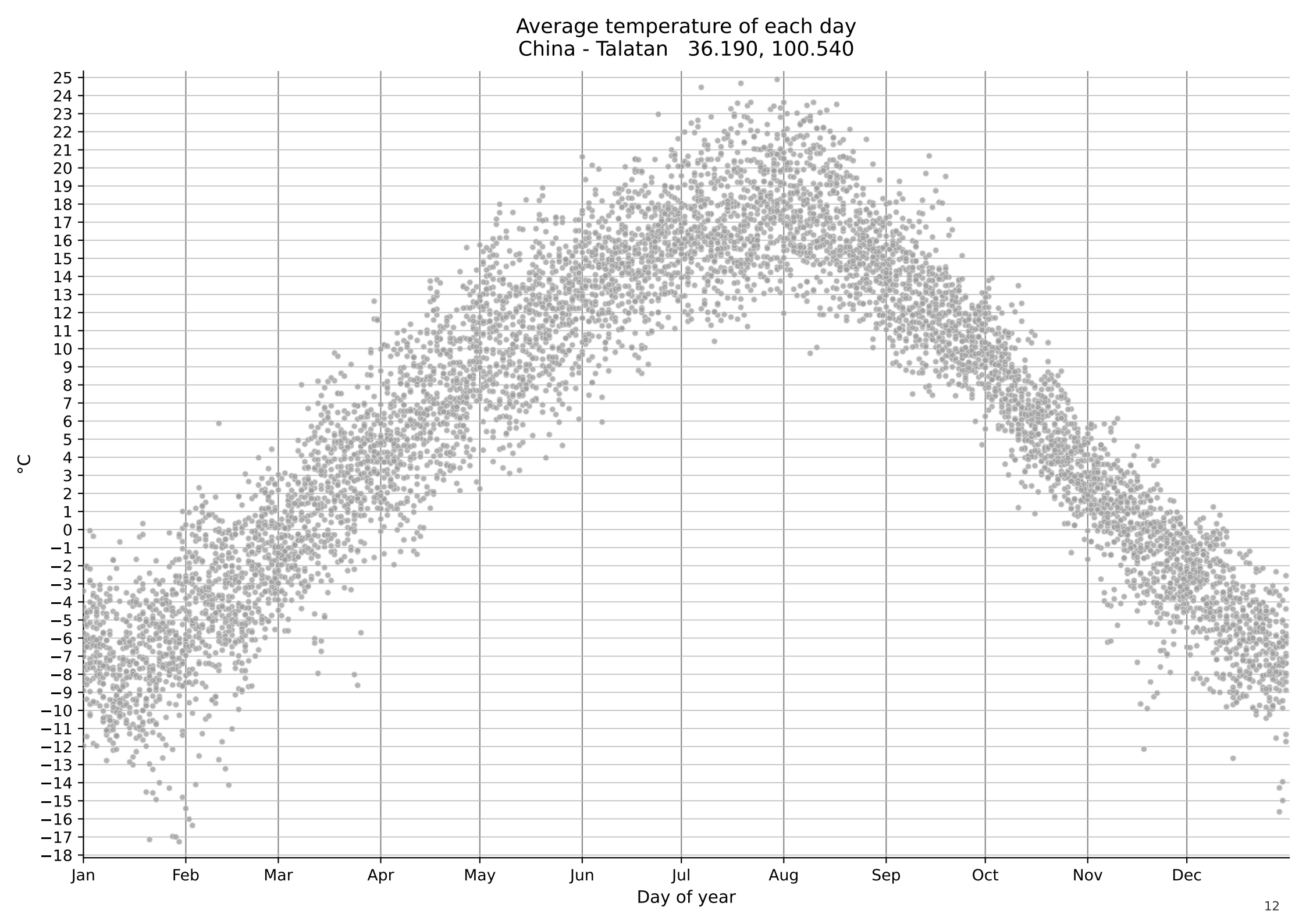

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
China - Talatan 36.190, 100.540
1.0
0.8
0.6
0.4
0.2
0.0
Wh / Wp
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

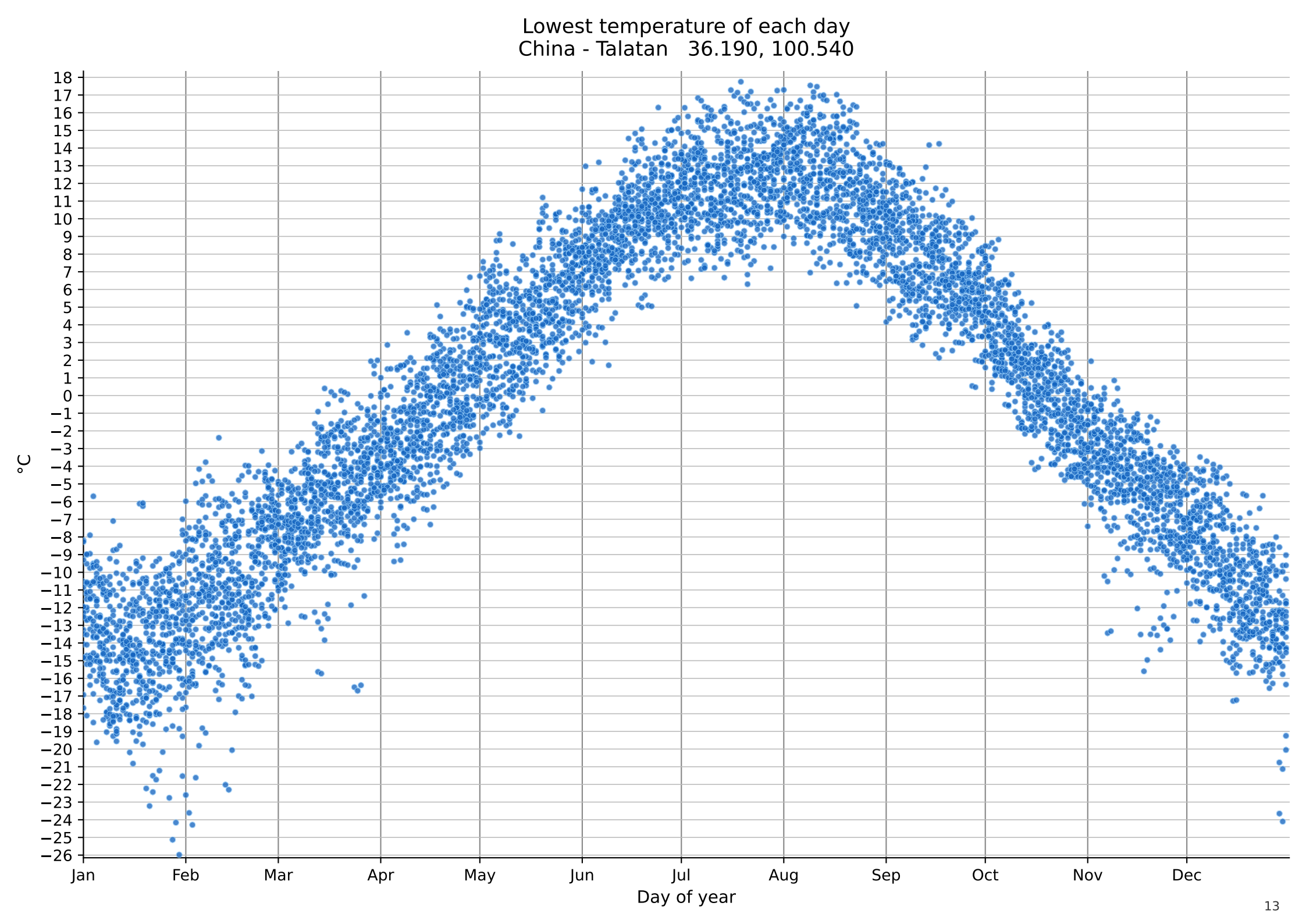

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
China - Talatan 36.190, 100.540
Wh / Wp
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

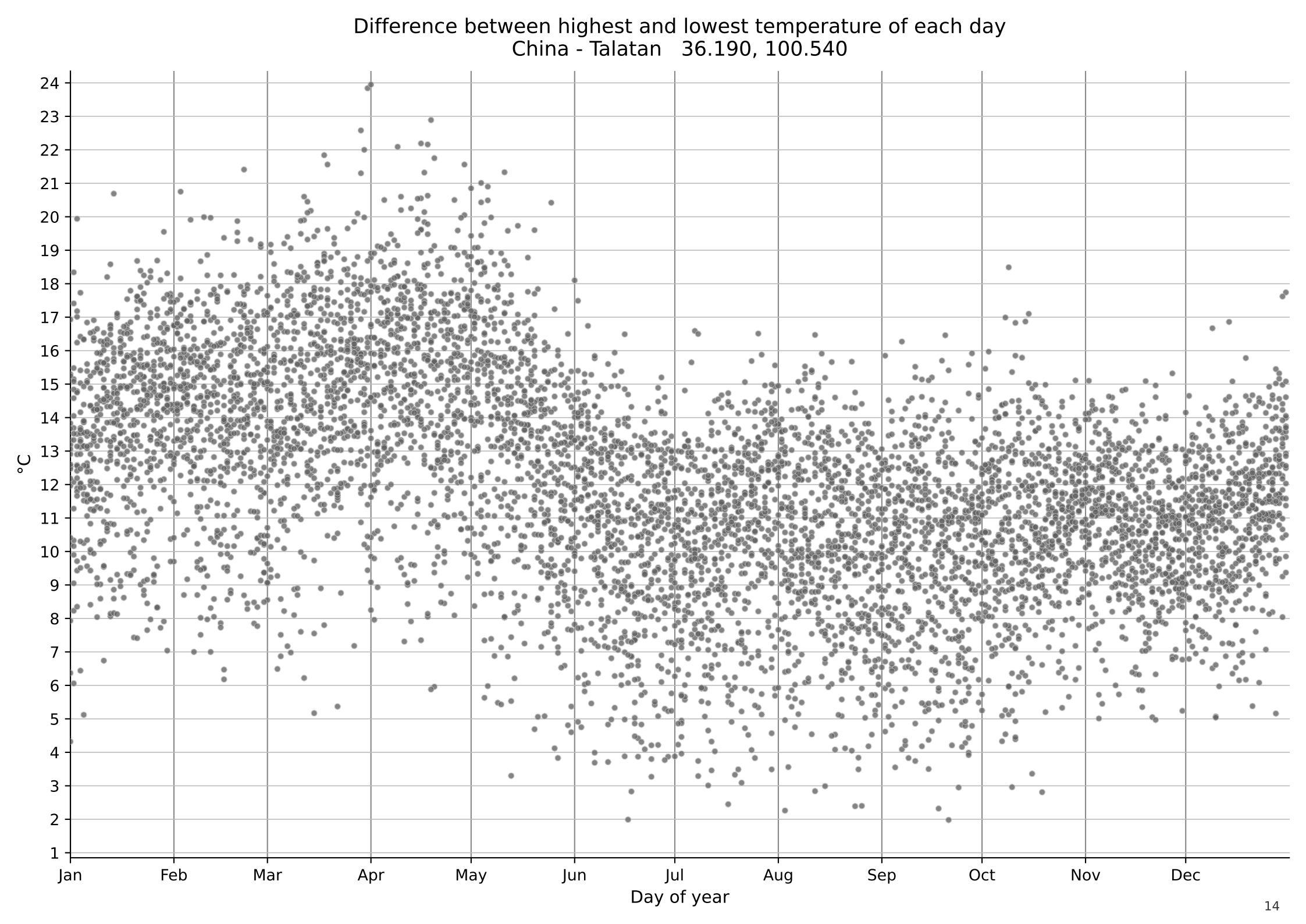

Share of the day’s yield in 09:00–15:00 winter time
China - Talatan 36.190, 100.540
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Share of the day’s yield outside 09:00–15:00 winter time
China - Talatan 36.190, 100.540
%
Day of year
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100


Highest temperature of each day
China - Talatan 36.190, 100.540
°C
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
7
6
5
4
3
2
1
0
−1
−2
−3
−4
−5
−6
−7
−8
−9
−10
−11
−12
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Average temperature of each day
China - Talatan 36.190, 100.540
°C
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
−1
−2
−3
−4
−5
−6
−7
−8
−9
−10
−11
−12
−13
−14
−15
−16
−17
−18
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Lowest temperature of each day
China - Talatan 36.190, 100.540
°C
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
−1
−2
−3
−4
−5
−6
−7
−8
−9
−10
−11
−12
−13
−14
−15
−16
−17
−18
−19
−20
−21
−22
−23
−24
−25
−26
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Difference between highest and lowest temperature of each day
China - Talatan 36.190, 100.540
°C
24
23
22
21
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)
China - Talatan 36.190, 100.540

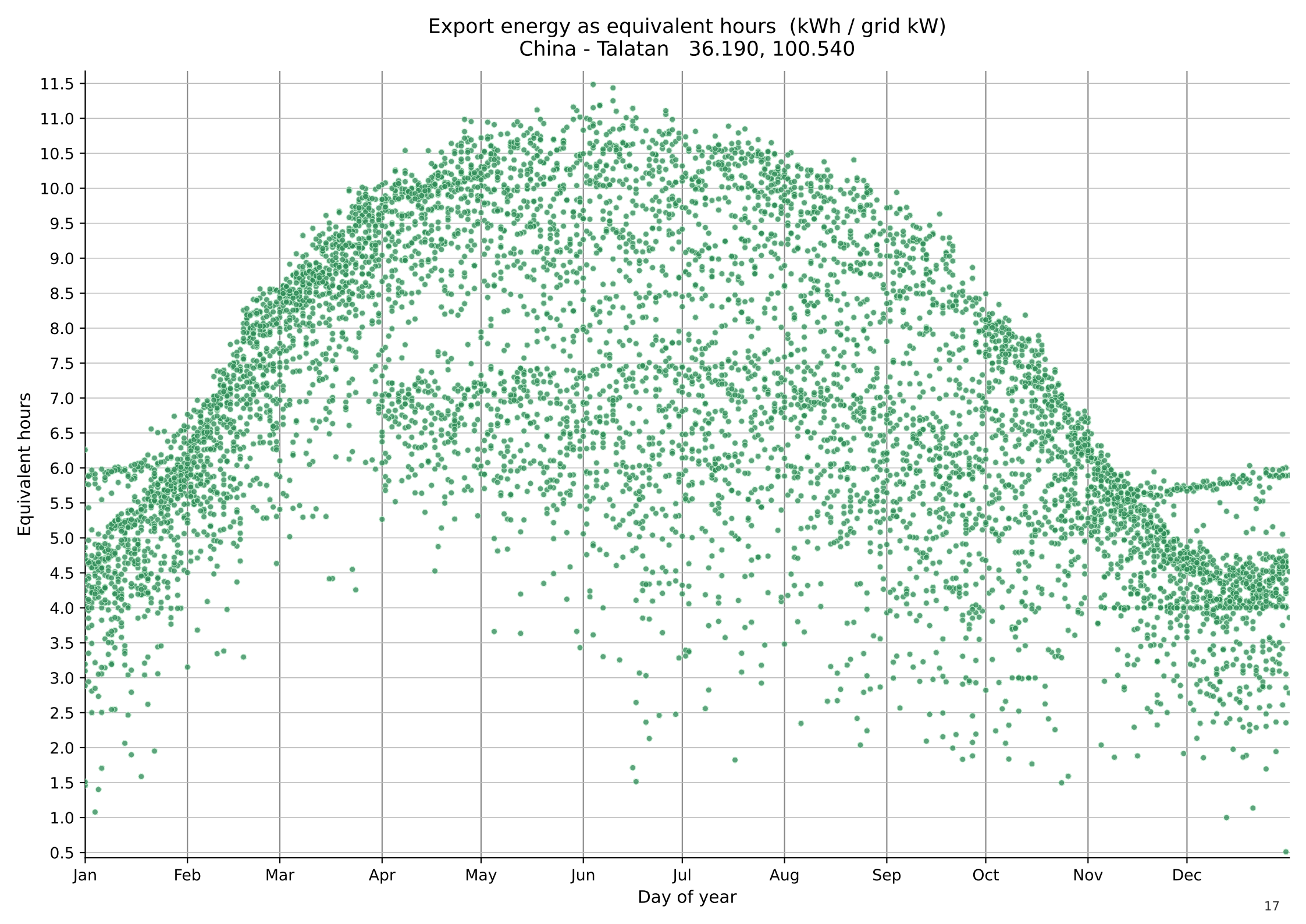
Month / year		Roof East 22°/-90° 19,800 Wp	Roof West 22°/90° 19,800 Wp	Terrace railing south 90°/0° 4,620 Wp	Terrace railing north 90°/180° 4,620 Wp	share central structure east 8°/-90° 20,460 Wp	share central strucure west p 8°/90° 20,460 Wp	All together
January	Maximum	94.38	91.45	12.47	12.47	94.66	93.30	84.32
	average	90.05	88.83	8.56	8.56	91.04	90.44	81.71
	minimum	82.63	83.39	6.81	6.81	84.15	84.47	76.34
February	Maximum	113.43	111.21	46.74	15.09	114.40	113.36	104.21
	average	106.28	103.14	41.60	11.04	107.17	105.73	97.43
	minimum	97.70	96.17	38.32	9.11	98.96	98.54	90.61
March	Maximum	156.06	148.91	97.20	18.80	157.94	155.08	143.68
	average	146.78	140.38	92.65	15.95	149.25	146.60	136.37
	minimum	142.54	133.23	88.74	11.74	145.08	140.80	132.44
April	Maximum	168.40	159.69	88.88	23.30	171.55	167.75	155.23
	average	160.95	152.78	85.61	20.95	163.76	160.31	148.56
	minimum	151.48	146.90	80.00	19.17	155.37	153.88	141.84
May	Maximum	172.13	166.74	63.87	29.52	176.22	174.04	158.47
	average	160.18	154.94	60.38	27.03	164.64	162.60	148.60
	minimum	148.33	142.25	57.71	25.63	151.78	149.44	137.32
June	Maximum	166.21	155.44	47.78	29.39	168.70	164.12	150.48
	average	144.21	140.90	44.52	27.53	148.63	147.40	134.08
	minimum	126.09	126.82	40.61	25.23	131.05	131.34	118.98
July	Maximum	165.87	160.03	49.83	25.26	170.58	167.67	152.20
	average	145.27	145.06	46.97	23.11	151.13	151.10	136.54
	minimum	122.53	125.98	43.41	21.27	128.44	129.89	117.21
August	Maximum	153.04	148.88	69.93	21.04	157.25	155.42	142.24
	average	135.38	135.15	62.49	18.28	140.06	139.87	127.64
	minimum	120.39	123.93	54.44	16.42	125.84	127.25	115.30
September	Maximum	126.26	130.39	80.71	16.64	131.33	133.21	121.75
	average	108.37	112.55	69.32	14.94	112.93	114.74	104.97
	minimum	95.31	100.10	60.08	13.36	99.33	101.44	92.77
October	Maximum	115.20	115.43	68.06	13.22	118.68	118.67	108.97
	average	103.41	104.40	61.33	11.96	106.74	107.08	98.35
	minimum	91.03	93.83	52.81	9.60	94.49	95.49	87.52
November	Maximum	93.61	93.35	13.50	11.39	94.37	94.24	84.99
	average	88.15	87.11	10.13	8.18	88.89	88.44	80.02
	minimum	81.32	81.23	8.02	6.60	82.30	82.25	74.45
December	Maximum	81.97	82.64	9.05	9.05	82.69	82.54	74.59
	average	78.75	80.37	6.90	6.90	79.92	80.27	72.32
	minimum	75.08	76.90	5.88	5.88	76.61	77.04	69.39
All years	Maximum	1,515.9	1,477.6	613.8	202.1	1,550.3	1,534.1	1,405.2
	average	1,467.8	1,445.6	590.5	194.4	1,504.2	1,494.6	1,366.6
	minimum	1,413.2	1,410.0	567.7	185.9	1,453.1	1,451.5	1,324.5

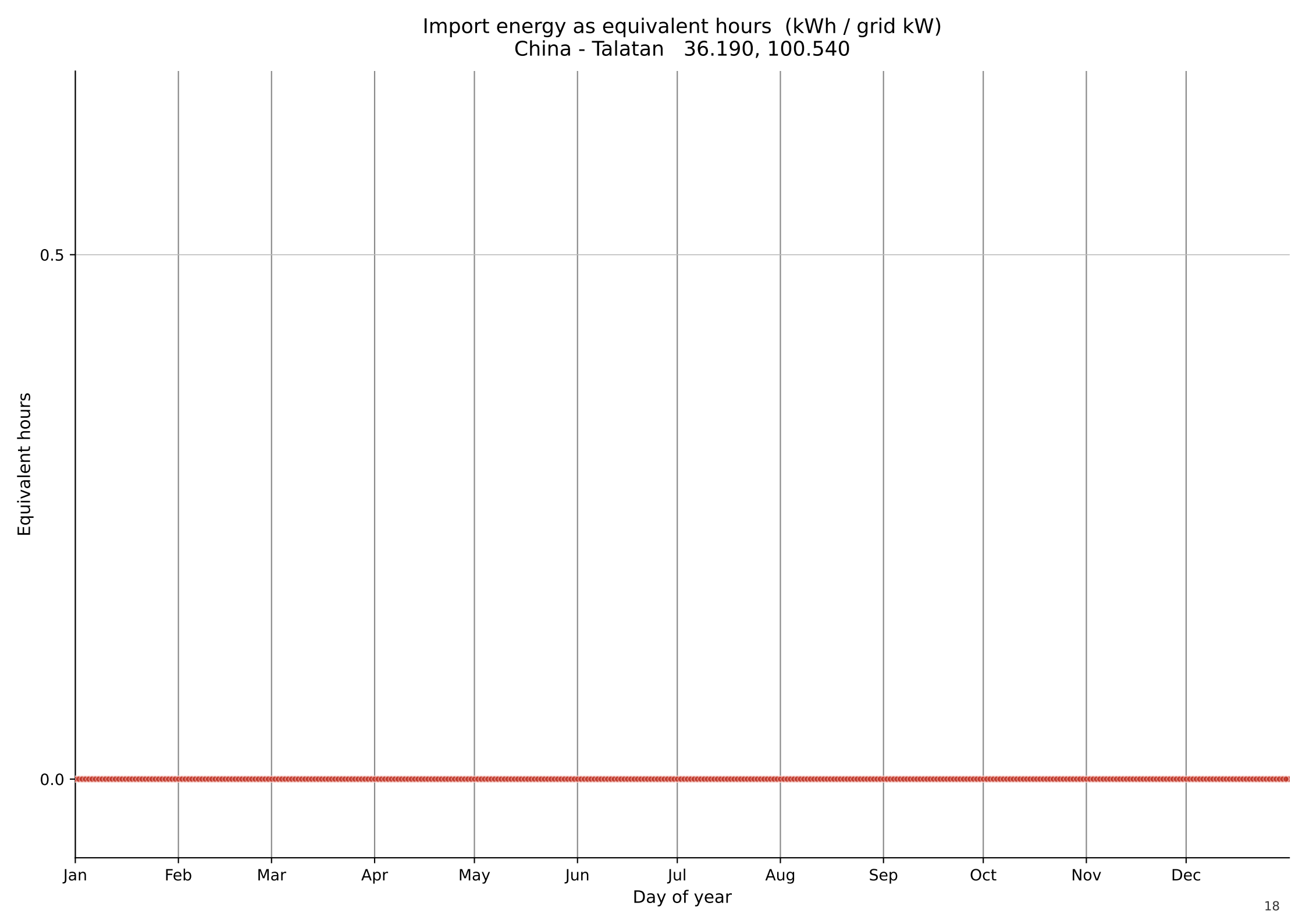
Highest combined yield hour: 2010-04-25 05:30 UTC 72,980.5 W (0.813 W/Wp) of 89,760 Wp installed. Use this hour to size battery charge power.

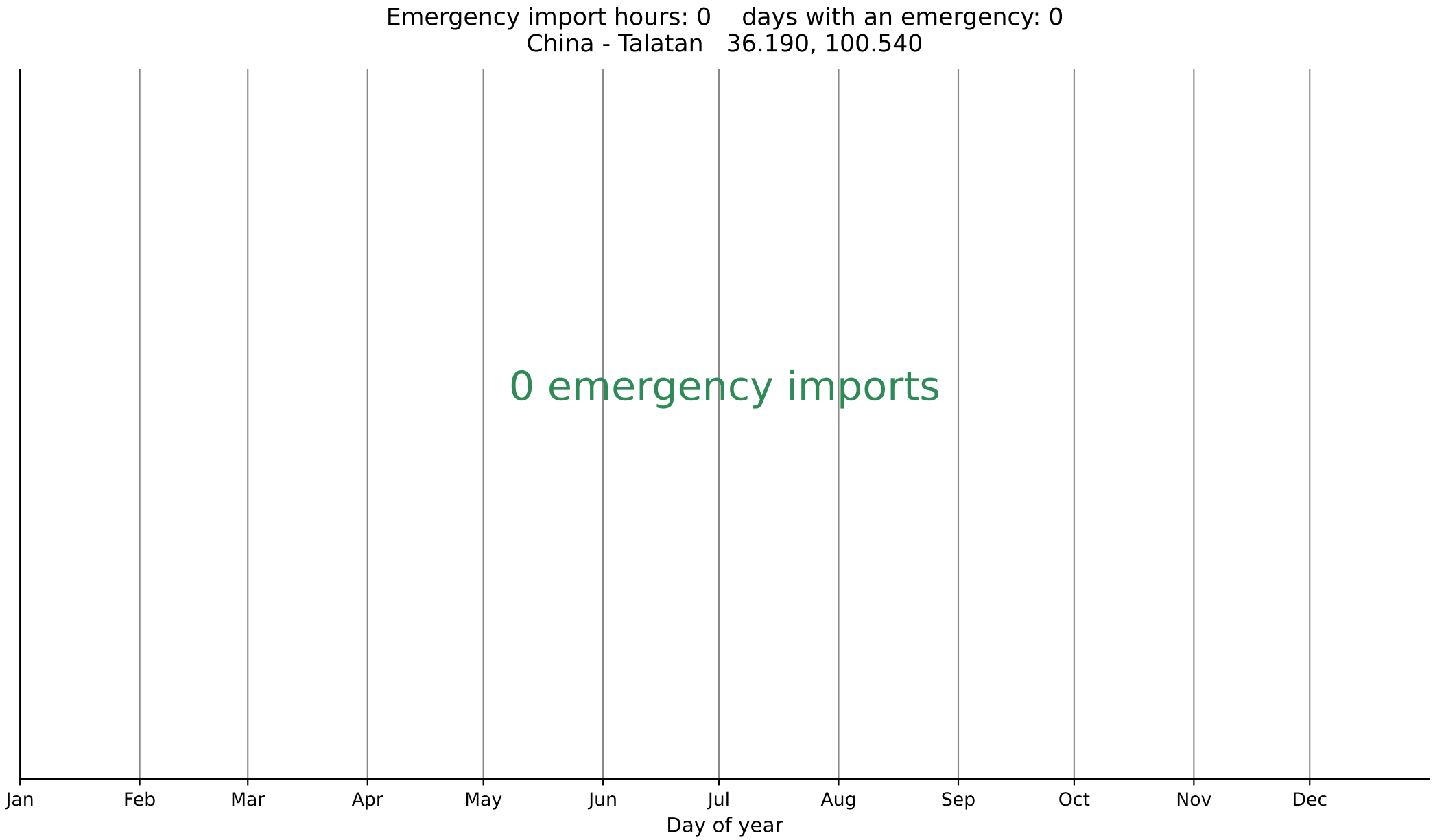
Monthly and yearly total yield (kWh)
China - Talatan 36.190, 100.540

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	1,868.70	1,810.68	57.62	57.62	1,936.82	1,908.94	7,568.53
	average	1,782.91	1,758.74	39.54	39.54	1,862.77	1,850.46	7,333.96
	minimum	1,636.00	1,651.11	31.45	31.45	1,721.69	1,728.29	6,852.33
February	Maximum	2,245.92	2,202.05	215.95	69.72	2,340.72	2,319.25	9,353.44
	average	2,104.25	2,042.23	192.21	51.00	2,192.61	2,163.32	8,745.63
	minimum	1,934.39	1,904.17	177.04	42.10	2,024.70	2,016.19	8,133.07
March	Maximum	3,089.90	2,948.39	449.08	86.84	3,231.46	3,172.97	12,896.48
	average	2,906.20	2,779.49	428.04	73.71	3,053.59	2,999.36	12,240.39
	minimum	2,822.23	2,637.88	410.00	54.23	2,968.28	2,880.72	11,887.75
April	Maximum	3,334.40	3,161.81	410.64	107.66	3,509.87	3,432.24	13,933.76
	average	3,186.79	3,025.06	395.51	96.80	3,350.56	3,279.88	13,334.60
	minimum	2,999.26	2,908.58	369.58	88.58	3,178.86	3,148.38	12,731.63
May	Maximum	3,408.16	3,301.39	295.06	136.37	3,605.49	3,560.84	14,223.93
	average	3,171.50	3,067.74	278.97	124.89	3,368.61	3,326.88	13,338.60
	minimum	2,937.02	2,816.63	266.61	118.39	3,105.36	3,057.49	12,325.63
June	Maximum	3,290.96	3,077.66	220.75	135.80	3,451.63	3,357.80	13,507.09
	average	2,855.36	2,789.75	205.67	127.18	3,041.06	3,015.74	12,034.77
	minimum	2,496.51	2,510.98	187.64	116.55	2,681.24	2,687.16	10,680.07
July	Maximum	3,284.20	3,168.62	230.22	116.69	3,490.17	3,430.54	13,661.63
	average	2,876.27	2,872.26	217.01	106.77	3,092.12	3,091.48	12,255.92
	minimum	2,426.03	2,494.49	200.56	98.28	2,627.80	2,657.53	10,521.03
August	Maximum	3,030.17	2,947.81	323.08	97.19	3,217.24	3,179.90	12,767.31
	average	2,680.57	2,676.01	288.72	84.46	2,865.54	2,861.73	11,457.04
	minimum	2,383.77	2,453.76	251.53	75.84	2,574.59	2,603.54	10,349.20
September	Maximum	2,499.86	2,581.73	372.88	76.90	2,686.95	2,725.47	10,928.59
	average	2,145.80	2,228.46	320.27	69.03	2,310.47	2,347.68	9,421.72
	minimum	1,887.06	1,981.94	277.56	61.71	2,032.37	2,075.50	8,327.10
October	Maximum	2,280.91	2,285.42	314.44	61.07	2,428.10	2,427.97	9,781.20
	average	2,047.52	2,067.11	283.36	55.24	2,183.89	2,190.76	8,827.88
	minimum	1,802.38	1,857.80	243.98	44.36	1,933.19	1,953.66	7,855.88
November	Maximum	1,853.51	1,848.33	62.39	52.62	1,930.77	1,928.09	7,628.27
	average	1,745.45	1,724.81	46.78	37.78	1,818.78	1,809.40	7,183.00
	minimum	1,610.10	1,608.33	37.07	30.50	1,683.96	1,682.85	6,682.55
December	Maximum	1,622.99	1,636.24	41.82	41.82	1,691.90	1,688.79	6,695.21
	average	1,559.17	1,591.28	31.88	31.88	1,635.11	1,642.28	6,491.62
	minimum	1,486.58	1,522.52	27.17	27.17	1,567.39	1,576.29	6,228.50
All years	Maximum	30,014.8	29,256.5	2,835.8	933.5	31,718.8	31,387.5	126,127.4
	average	29,061.8	28,623.0	2,728.0	898.3	30,775.1	30,579.0	122,665.1
	minimum	27,981.5	27,918.5	2,622.8	859.0	29,730.9	29,697.0	118,883.2

Highest combined yield hour: 2010-04-25 05:30 UTC 72,980.5 W (0.813 W/Wp) of 89,760 Wp installed. Use this hour to size battery charge power.


Export energy as equivalent hours (kWh / grid kW)
China - Talatan 36.190, 100.540
Equivalent hours
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
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Import energy as equivalent hours (kWh / grid kW)
China - Talatan 36.190, 100.540
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
China - Talatan 36.190, 100.540

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export to grid													
month Maximum	6,329	8,076	10,979	10,610	10,966	10,496	10,686	10,228	8,873	8,521	6,396	5,434	101,887
month average	6,066	7,531	10,452	10,241	10,358	9,573	9,811	9,312	7,821	7,610	5,972	5,238	99,985
month minimum	5,580	6,965	10,173	9,831	9,606	8,551	8,825	8,466	6,894	6,690	5,517	5,007	97,867
day Maximum	269.6	342.4	400.8	439.4	446.5	459.4	435.5	420.4	397.6	339.6	268.5	241.3	459.4
day average	195.7	267.0	337.2	341.4	334.1	319.1	316.5	300.4	260.7	245.5	199.1	169.0	273.8
day minimum	43.1	126.1	170.3	181.1	137.2	60.6	72.9	81.5	73.3	59.9	74.5	20.4	20.4
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	785	728	702	616	592	541	534	540	552	647	707	767	7,488
month average	756	658	677	604	578	525	518	517	544	633	669	735	7,412
month minimum	731	634	646	587	561	513	502	494	527	621	649	711	7,307
day Maximum	27.3	27.0	24.8	22.6	22.3	21.4	20.9	20.6	20.3	22.6	25.7	26.6	27.3
day average	24.4	23.3	21.8	20.1	18.7	17.5	16.7	16.7	18.1	20.4	22.3	23.7	20.3
day minimum	16.1	20.6	18.4	15.6	15.5	15.4	15.2	15.2	15.3	17.9	20.4	21.9	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
China - Talatan 36.190, 100.540

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export													
month Maximum	1,173	1,287	1,479	1,242	1,267	1,211	1,243	1,292	1,261	1,348	1,204	1,053	14,629
month average	1,117	1,222	1,446	1,220	1,226	1,159	1,214	1,232	1,168	1,255	1,120	1,013	14,392
month minimum	1,069	1,172	1,398	1,187	1,155	1,114	1,157	1,163	1,102	1,138	1,039	966	14,165
day Maximum	52.4	55.3	57.0	51.8	53.0	53.2	52.2	53.7	51.6	53.9	51.2	52.4	57.0
day average	36.0	43.3	46.7	40.7	39.5	38.6	39.2	39.8	38.9	40.5	37.3	32.7	39.4
day minimum	9.0	17.7	25.1	21.8	18.7	13.3	12.6	14.5	10.5	11.2	12.9	2.0	2.0
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	1,173	1,287	1,479	1,242	1,267	1,211	1,243	1,292	1,261	1,348	1,204	1,053	14,629
month average	1,117	1,222	1,446	1,220	1,226	1,159	1,214	1,232	1,168	1,255	1,120	1,013	14,392
month minimum	1,069	1,172	1,398	1,187	1,155	1,114	1,157	1,163	1,102	1,138	1,039	966	14,165
day Maximum	52.4	55.3	57.0	51.8	53.0	53.2	52.2	53.7	51.6	53.9	51.2	52.4	57.0
day average	36.0	43.3	46.7	40.7	39.5	38.6	39.2	39.8	38.9	40.5	37.3	32.7	39.4
day minimum	9.0	17.7	25.1	21.8	18.7	13.3	12.6	14.5	10.5	11.2	12.9	2.0	2.0

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
China - Talatan 36.190, 100.540

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export total													
month Maximum	6,329	8,076	10,979	10,610	10,966	10,496	10,686	10,228	8,873	8,521	6,396	5,434	101,887
month average	6,066	7,531	10,452	10,241	10,358	9,573	9,811	9,312	7,821	7,610	5,972	5,238	99,985
month minimum	5,580	6,965	10,173	9,831	9,606	8,551	8,825	8,466	6,894	6,690	5,517	5,007	97,867
day Maximum	269.6	342.4	400.8	439.4	446.5	459.4	435.5	420.4	397.6	339.6	268.5	241.3	459.4
day average	195.7	267.0	337.2	341.4	334.1	319.1	316.5	300.4	260.7	245.5	199.1	169.0	273.8
day minimum	43.1	126.1	170.3	181.1	137.2	60.6	72.9	81.5	73.3	59.9	74.5	20.4	20.4
Export during high price hours													
month Maximum	5,629	5,931	6,121	5,231	5,261	4,954	5,490	5,783	5,949	6,291	6,030	5,299	66,190
month average	5,497	5,707	6,046	5,100	5,050	4,850	5,155	5,415	5,510	5,996	5,650	5,105	65,080
month minimum	5,213	5,499	5,935	4,992	4,902	4,640	4,932	5,015	5,092	5,511	5,292	4,895	63,788
day Maximum	235.6	222.8	217.5	214.9	216.5	216.8	220.3	218.1	217.7	217.2	229.6	236.2	236.2
day average	177.3	202.3	195.0	170.0	162.9	161.7	166.3	174.7	183.7	193.4	188.3	164.7	178.2
day minimum	40.0	126.1	153.7	139.2	127.7	60.6	72.9	81.5	73.3	59.9	73.1	13.0	13.0
Export during medium price hours													
month Maximum	649	1,203	2,263	3,156	3,532	3,456	3,440	2,875	1,710	918	366	185	20,965
month average	521	1,040	1,975	2,898	3,112	2,827	2,877	2,306	1,257	732	288	133	19,966
month minimum	334	880	1,780	2,657	2,650	2,321	2,100	1,943	937	483	208	110	18,629
day Maximum	39.5	63.5	111.4	141.5	152.9	158.7	157.2	137.2	115.9	55.6	28.4	18.0	158.7
day average	16.8	36.9	63.7	96.6	100.4	94.2	92.8	74.4	41.9	23.6	9.6	4.3	54.7
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
Export during low price hours													
month Maximum	118	958	2,775	2,558	2,498	2,469	2,283	2,009	1,507	1,318	69	0	16,277
month average	48	784	2,432	2,242	2,196	1,896	1,779	1,591	1,054	882	34	0	14,939
month minimum	11	476	2,264	1,857	1,695	1,276	1,235	1,352	613	404	7	0	13,676
day Maximum	70.1	80.0	120.0	150.9	158.4	160.0	142.9	132.6	120.0	94.1	31.1	0.0	160.0
day average	1.6	27.8	78.4	74.7	70.8	63.2	57.4	51.3	35.1	28.5	1.1	0.0	40.9
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

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
China - Talatan 36.190, 100.540

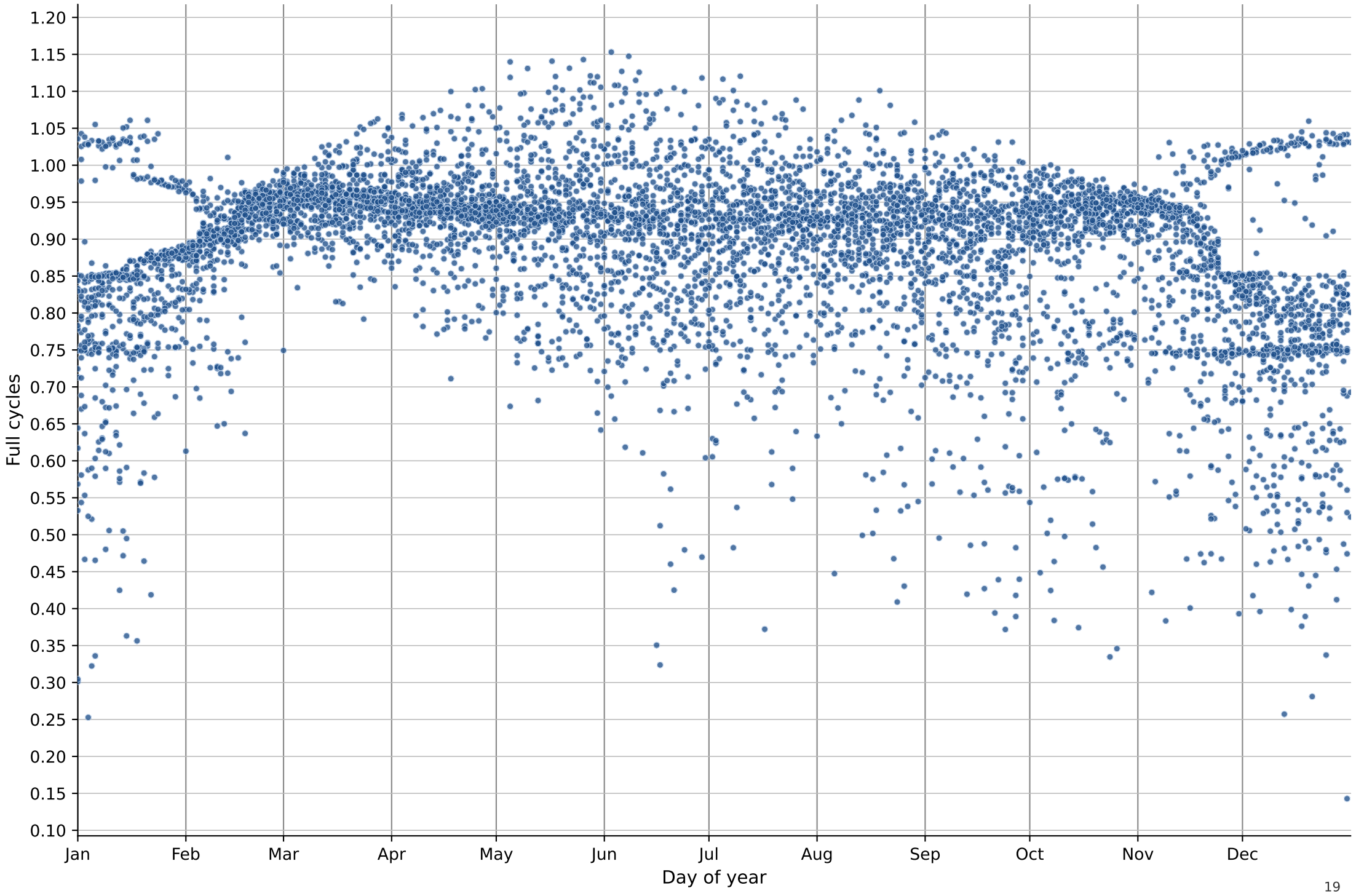
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	285	261	202	141	104	70	56	62	86	152	227	271	1,711
month average	256	203	178	130	91	56	41	41	79	138	189	239	1,640
month minimum	231	183	148	114	75	46	28	19	64	127	169	215	1,544
day Maximum	11.2	10.9	8.7	6.8	6.4	5.7	5.5	5.3	4.8	6.6	9.7	10.6	11.2
day average	8.2	7.2	5.7	4.3	2.9	1.9	1.3	1.3	2.6	4.5	6.3	7.7	4.5
day minimum	0.0	4.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	2.1	4.5	5.9	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	66	62	66	55	54	50	44	44	46	62	60	62	665
month average	66	60	65	54	53	49	42	43	45	61	60	62	660
month minimum	66	59	63	53	51	47	41	41	43	60	60	62	653
day Maximum	2.1	2.1	2.1	1.9	1.9	1.9	1.6	1.6	1.7	2.0	2.0	2.0	2.1
day average	2.1	2.1	2.1	1.8	1.7	1.6	1.4	1.4	1.5	2.0	2.0	2.0	1.8
day minimum	2.1	2.0	1.8	1.5	1.5	1.4	1.2	1.2	1.3	1.7	1.9	2.0	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

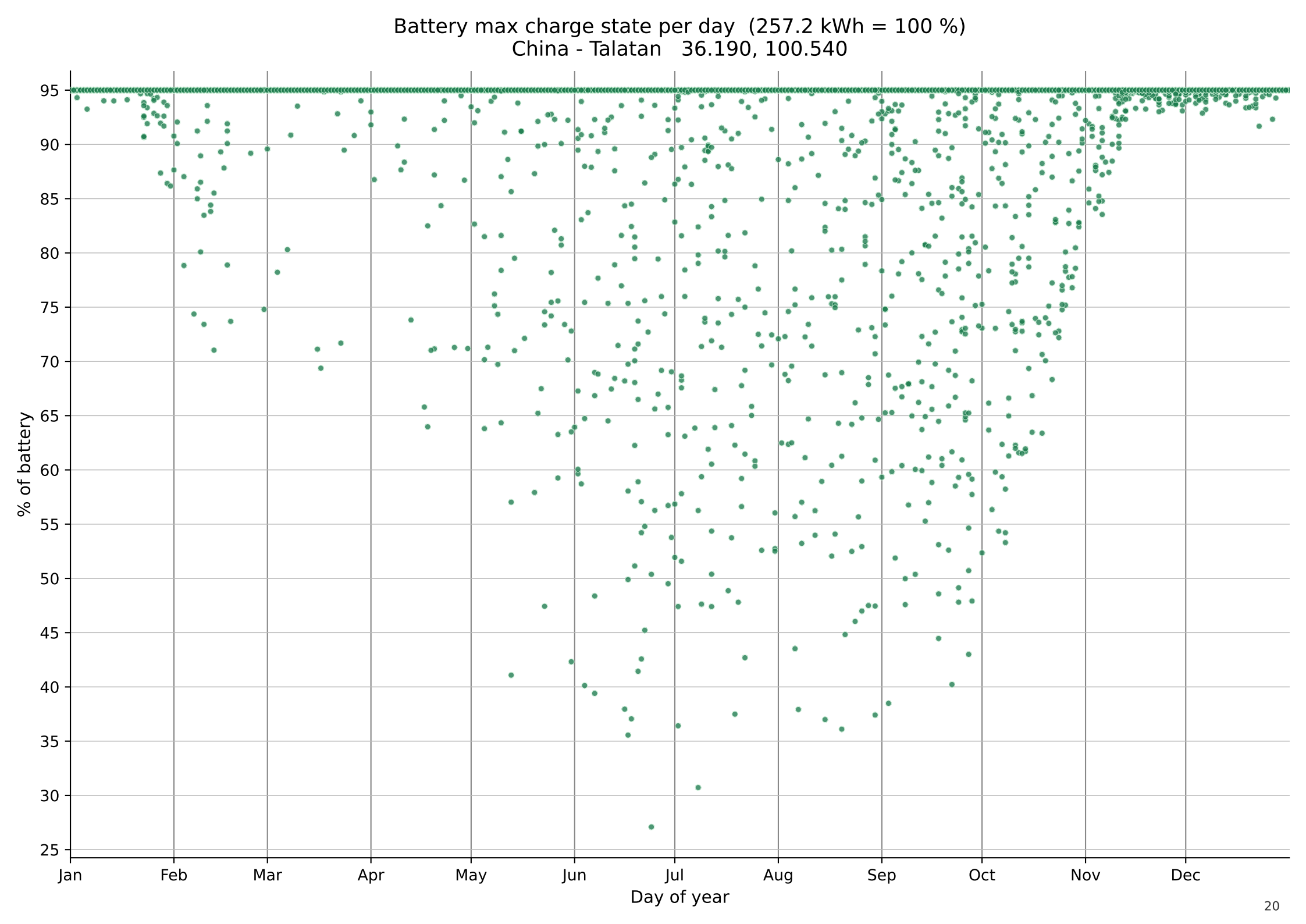
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

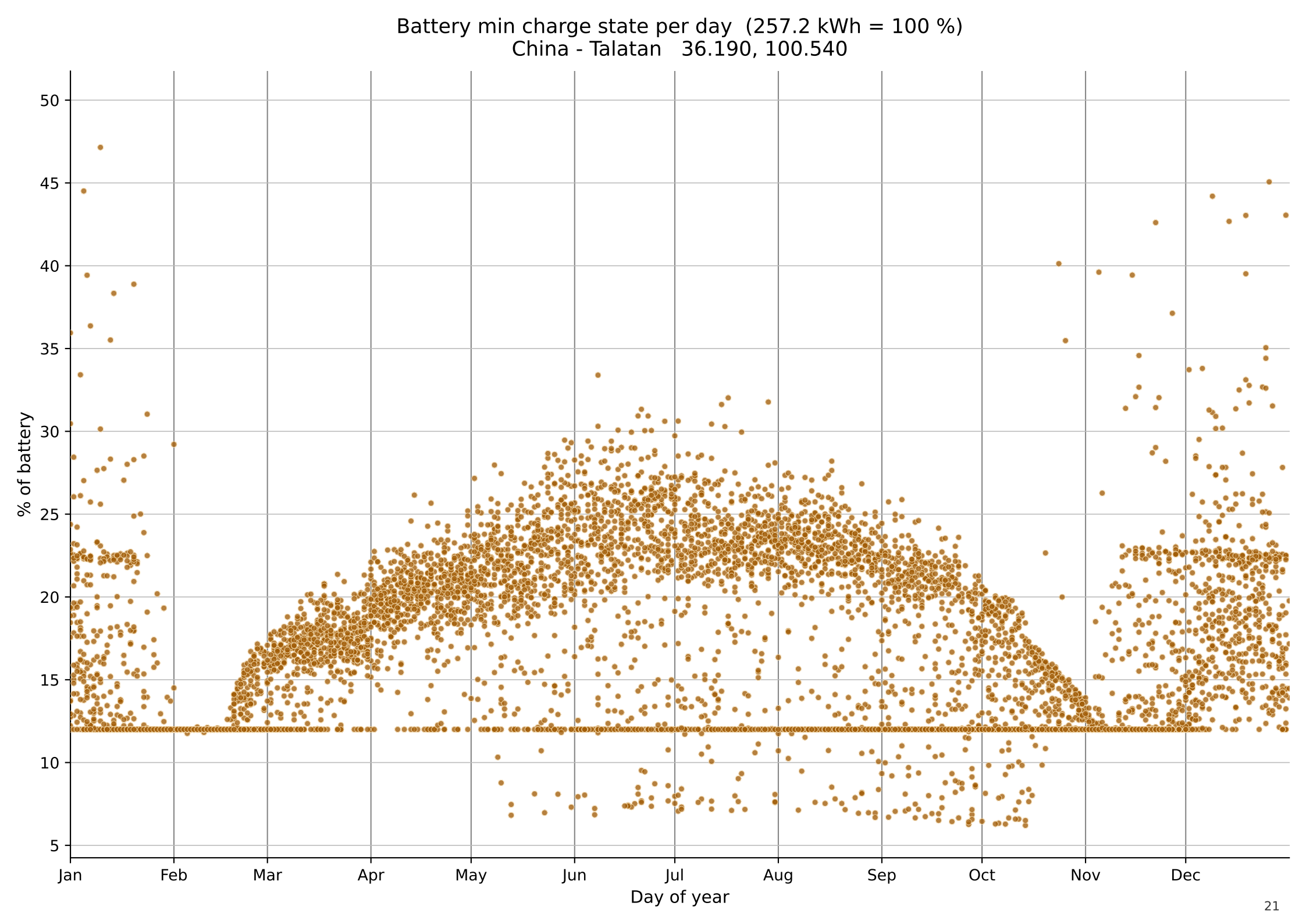
Battery
China - Talatan 36.190, 100.540

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	0	45	695	2,301	2,208	1,927	1,892	1,629	912	58	0	0	10,545
month average	0	18	498	1,903	1,798	1,361	1,346	1,042	513	18	0	0	8,496
month minimum	0	1	391	1,541	1,395	915	591	594	228	0	0	0	6,968
day Maximum	0.0	13.5	61.6	250.2	226.1	200.5	188.5	169.2	144.8	11.9	0.0	0.0	250.2
day average	0.0	0.6	16.1	63.4	58.0	45.4	43.4	33.6	17.1	0.6	0.0	0.0	23.3
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	26	27	30	28	29	28	29	29	28	29	27	25	328
month average	25	26	29	28	29	27	28	28	26	27	26	24	324
month minimum	24	25	29	28	28	26	27	26	25	25	24	23	319
day Maximum	1.1	1.0	1.1	1.1	1.1	1.2	1.1	1.1	1.0	1.0	1.0	1.1	1.2
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	0.3	0.6	0.7	0.7	0.6	0.3	0.4	0.4	0.4	0.3	0.4	0.1	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	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
day average	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2
day minimum	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Discharge 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	0.2	0.2	0.2	0.2	0.2	0.2	0.2
day minimum	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1

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)
China - Talatan 36.190, 100.540
Full cycles
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
Jan
Feb
Mar
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Oct
Nov
Dec
Day of year


Battery max charge state per day (257.2 kWh = 100 %)
China - Talatan 36.190, 100.540
% 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 %)
China - Talatan 36.190, 100.540
% 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