Scenario — PV
Old house to improve Austria - Inning 48.182, 15.417

Name	Slope °	Azimuth °	Wp	Wall d/h m	Face	Bifacial	Wp counted
Garage roof	1	0	10,740	—	front	—	yes
Garage side wall south	90	0	3,475	5 / 4	front	—	yes
Garage side wall north	90	180	3,475	5 / 4	front	—	yes
Garage door side	90	90	700	5 / 4	front	—	yes
Garage back side	90	-90	2,540	5 / 4	front	—	yes
Total counted			20,930				

Location: My most visited location in “lower Austria”, just at the Tesla SuC.
Database PVGIS-SARAH3 2005–2023 loss 14 % azimuth 0 = south, 90 = west, −90 = east.
Price bands and charts use UTC+1 from longitude (15° per hour), not the political time zone.
Peak hour 2021-04-23 11:10 local (10:10 UTC) 10,733 W 0.513 W/Wp of 20,930 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=Austria+-+Inning&simname=EWG+max+PV+-+special+heat+pump+solution&lat=48.182&lon=15.417&startyear=2005&endyear=2023&loss=14.0&raddatabase=auto&usehorizon=1&outdir=%2Fhome%2Ffounder%2Finternet%2F

Scenario — house, heat pump, battery
Old house to improve Austria - Inning 48.182, 15.417

Chapter	Parameter	Value
Building	Design out / in / heat	-10.0 °C / 20.0 °C / 4,000 W
	Heat on / cool on / ground	21.0 °C / 26.0 °C / 10.0 °C
	Curve / flow min / max	1.0 / 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 62.0 °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	45.0 kWh C 0.5 5 / 95 / 50 %
	Nameplate	—
	Charge / discharge η	95 % / 90 %
Grid	Inverter / grid connection	12.0 kW / 12.0 kW
	Max export	12.0 kW
	Import cap Jan–Jun kW	Jan 7 Feb 6 Mar 5 Apr 3 May 3 Jun 3
	Import cap Jul–Dec kW	Jul 3 Aug 3 Sep 3 Oct 3 Nov 6 Dec 7
Cars	Lunch DC / night AC	0.0 kWh @ 30.0 kW night 10.0 kWh @ 4.0 kW

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

Records 1–10 contribution of each PV
Austria - Inning 48.182, 15.417

PV	2021-04-23 10:10	2005-04-22 10:10	2020-05-07 10:10	2005-04-22 11:10	2006-05-01 10:10	2022-04-04 10:10	2020-05-24 10:10	2012-05-18 10:10	2020-04-21 10:10	2017-04-30 10:10
Garage roof	7,920	7,815	8,024	8,152	7,973	7,413	8,175	8,050	7,720	7,877
Garage side wall south	2,078	2,075	1,842	2,180	1,941	2,378	1,648	1,711	2,072	1,937
Garage side wall north	124	135	152	115	113	131	168	195	154	149
Garage door side	25	27	31	80	23	26	34	39	31	30
Garage back side	587	593	564	84	562	655	567	583	600	576
Watt at record	10,733	10,645	10,612	10,612	10,611	10,604	10,592	10,578	10,577	10,568
Percent of installed peak	51.3	50.9	50.7	50.7	50.7	50.7	50.6	50.5	50.5	50.5

Values are watts at that hour. Date and time are UTC. Record 10,733 W (51.3 % of 20,930 Wp).

Hours at or above a share of the record
Austria - Inning 48.182, 15.417

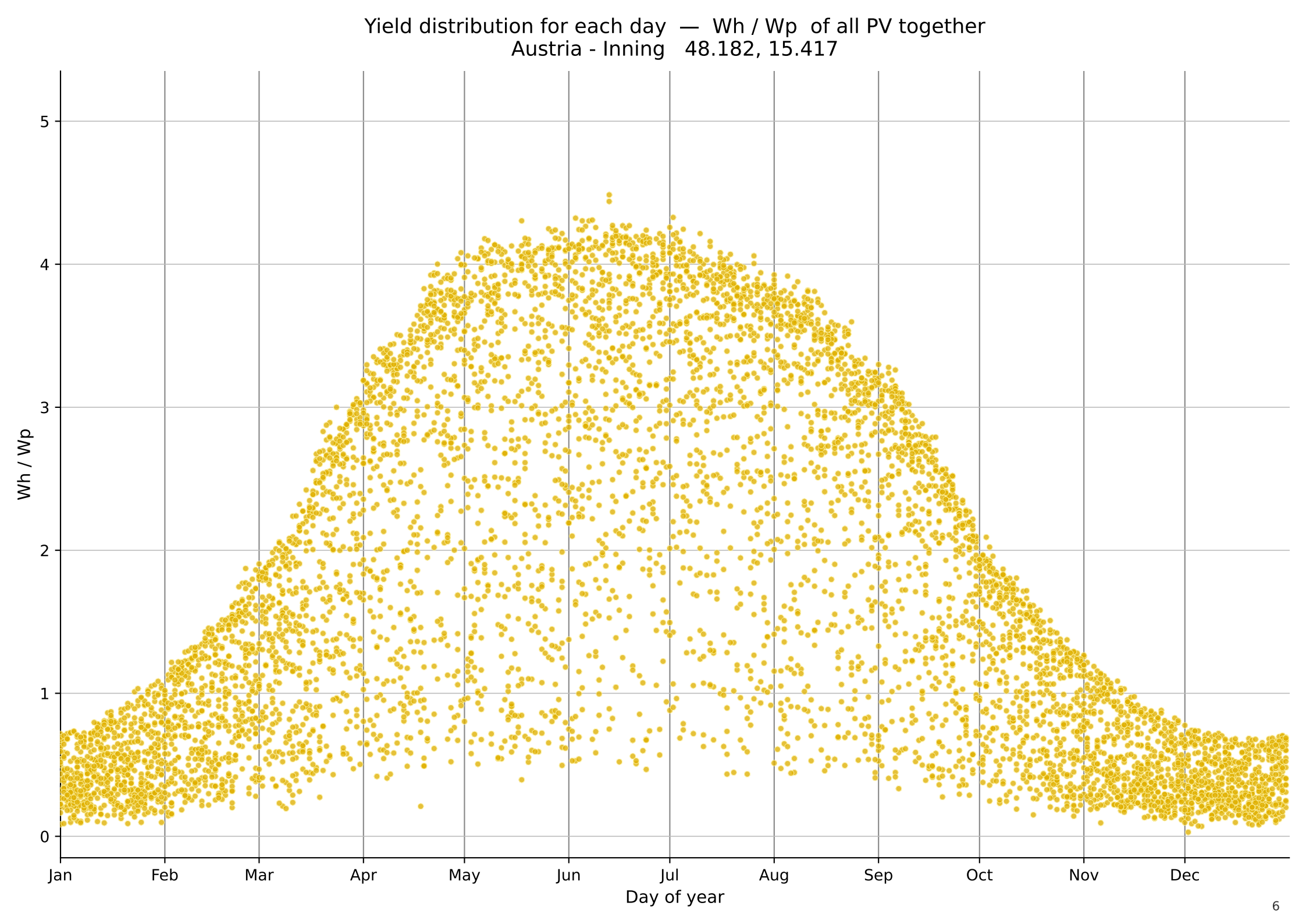
Of the record	Hours	Watts
98 %	12	10,518 W
96 %	75	10,303 W
94 %	236	10,089 W
92 %	599	9,874 W
90 %	1,245	9,659 W

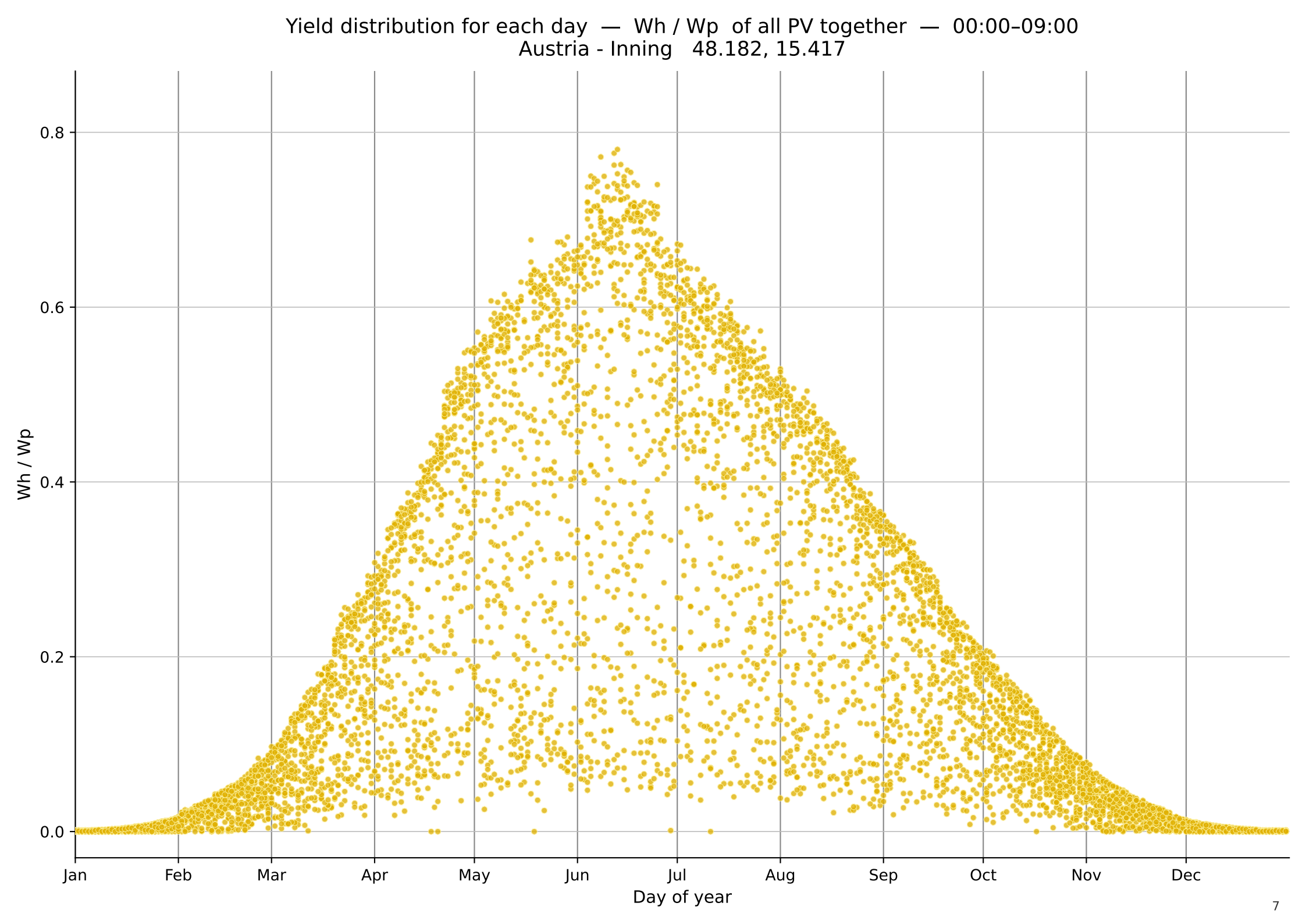
Record hour = 10,733 W combined.

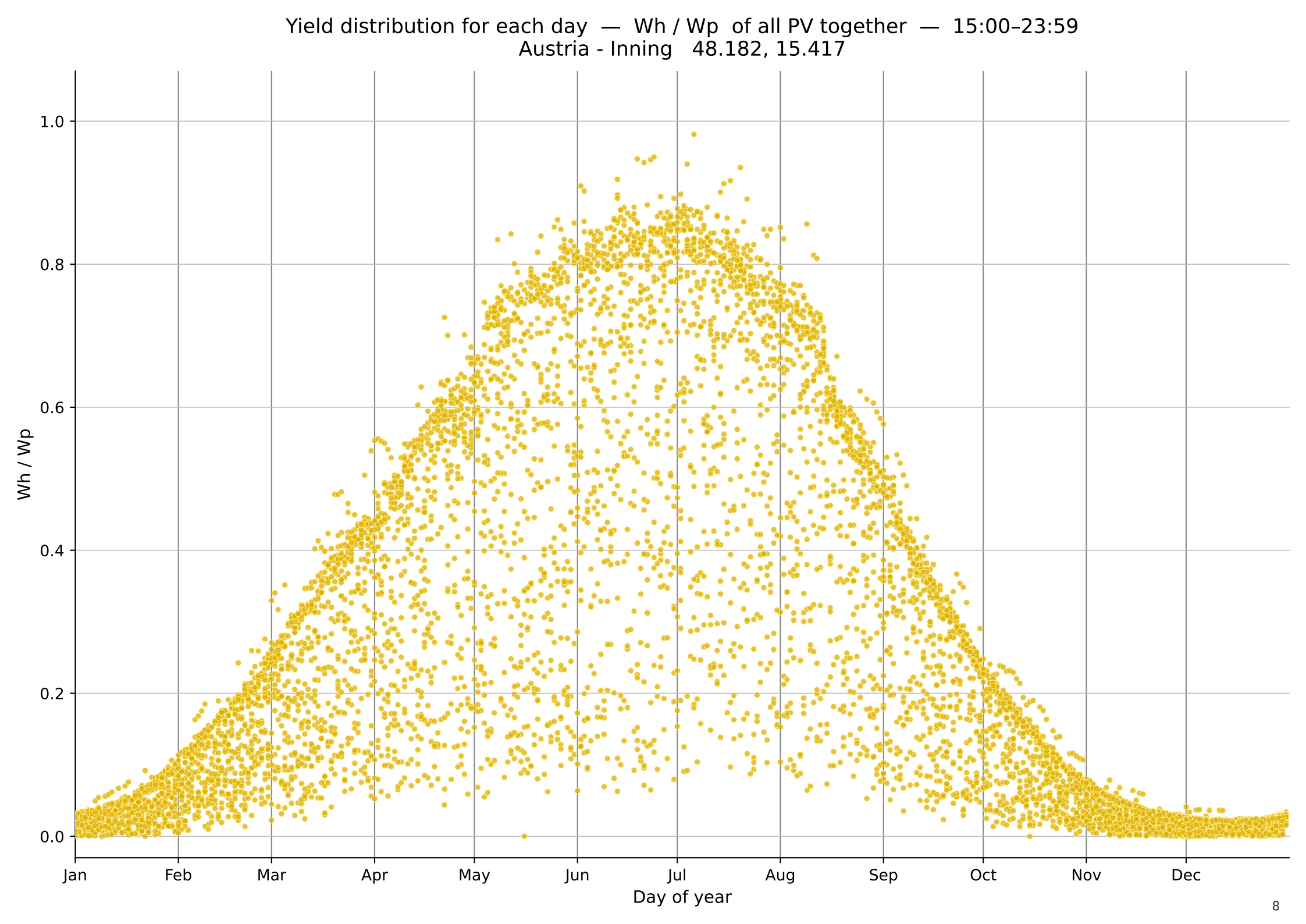
Records of each photovoltaic field
Austria - Inning 48.182, 15.417

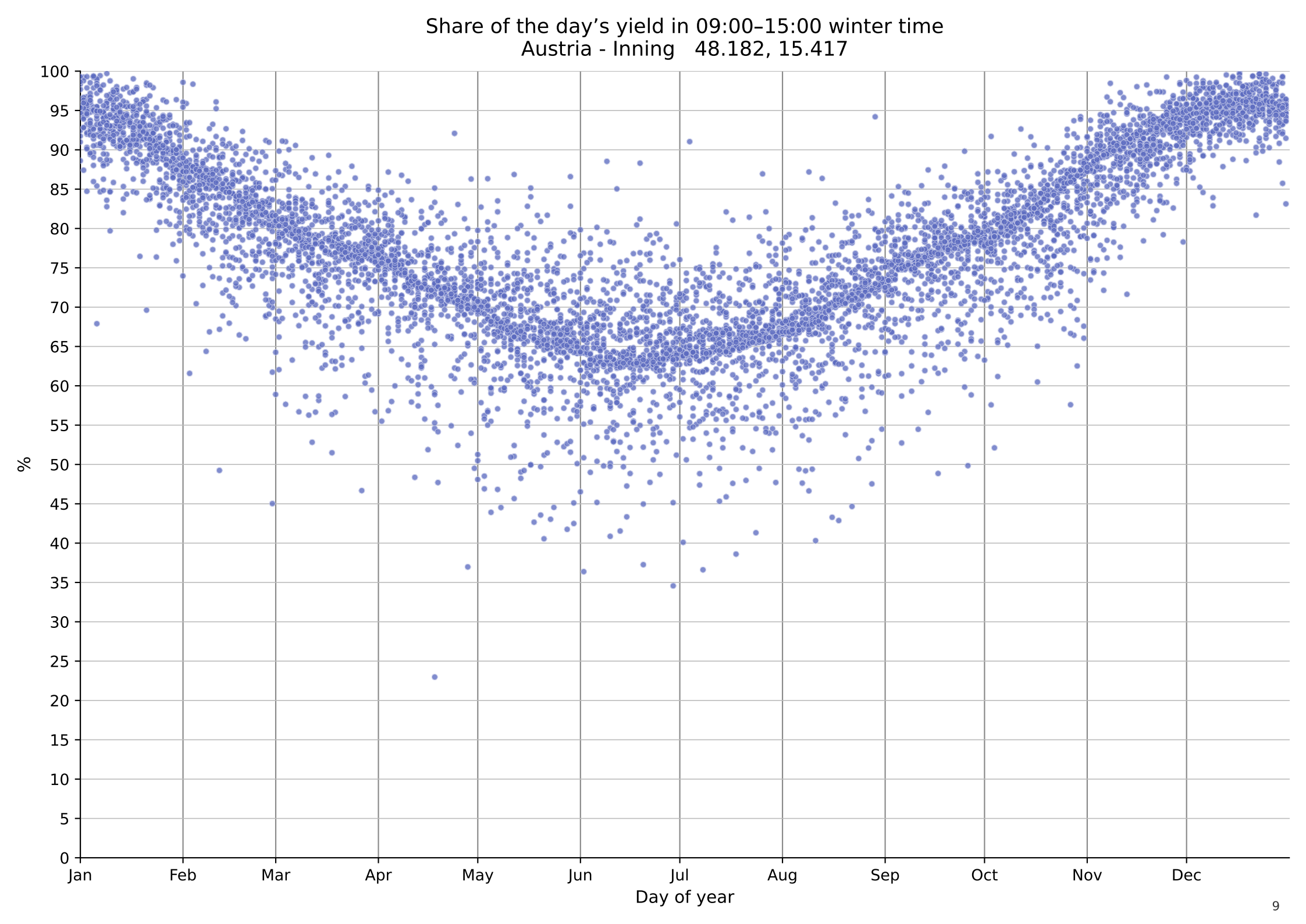
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Garage roof	2009-06-13 11:10	8,369	77.9	8	33	112	320	671
Garage side wall south	2009-03-22 11:10	2,638	75.9	8	17	26	45	75
Garage side wall north	2023-06-13 05:10	611	17.6	1	8	25	50	108
Garage door side	2005-05-08 14:10	473	67.6	1	3	5	16	49
Garage back side	2009-06-13 07:10	1,695	66.7	3	8	16	44	84

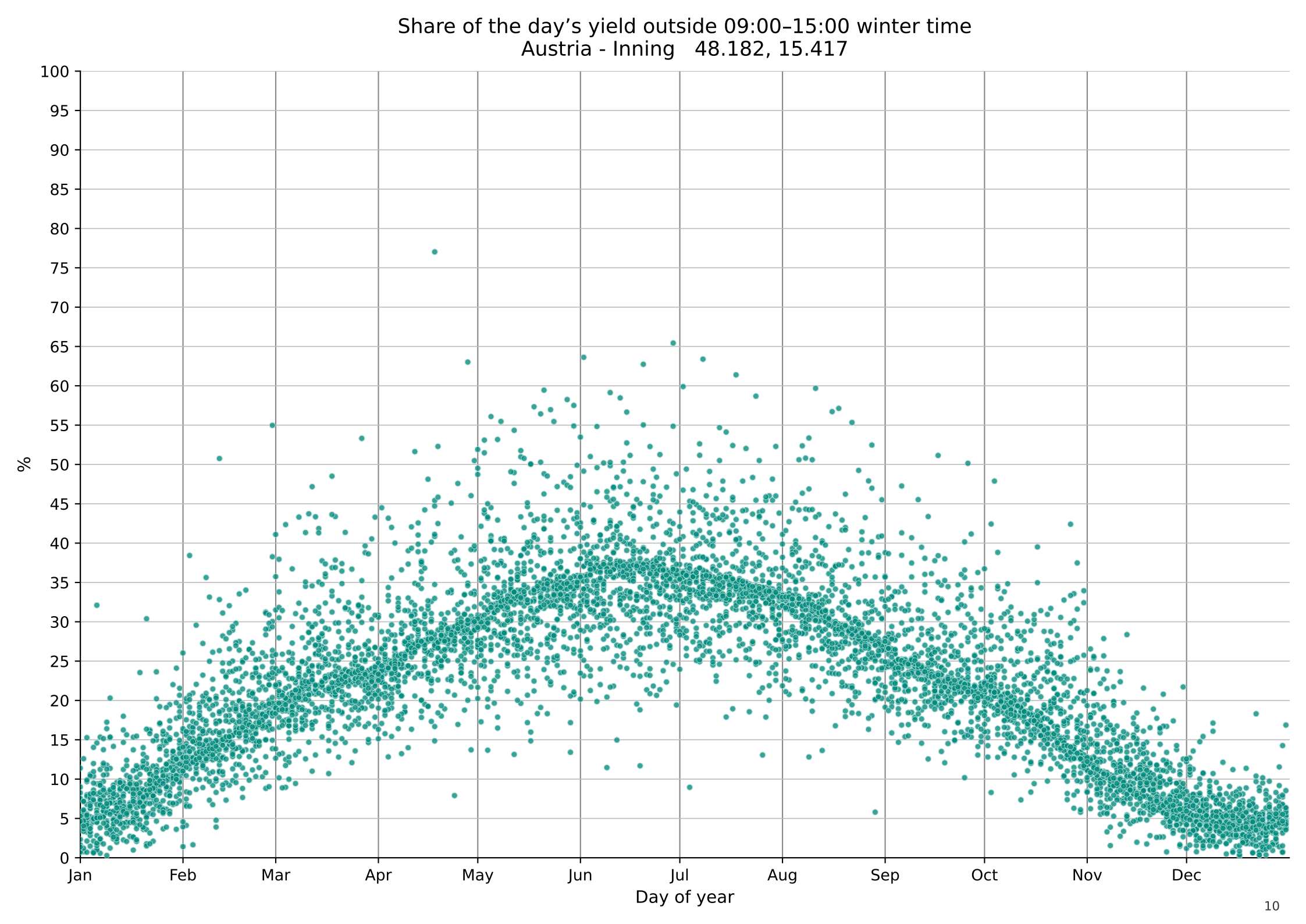
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

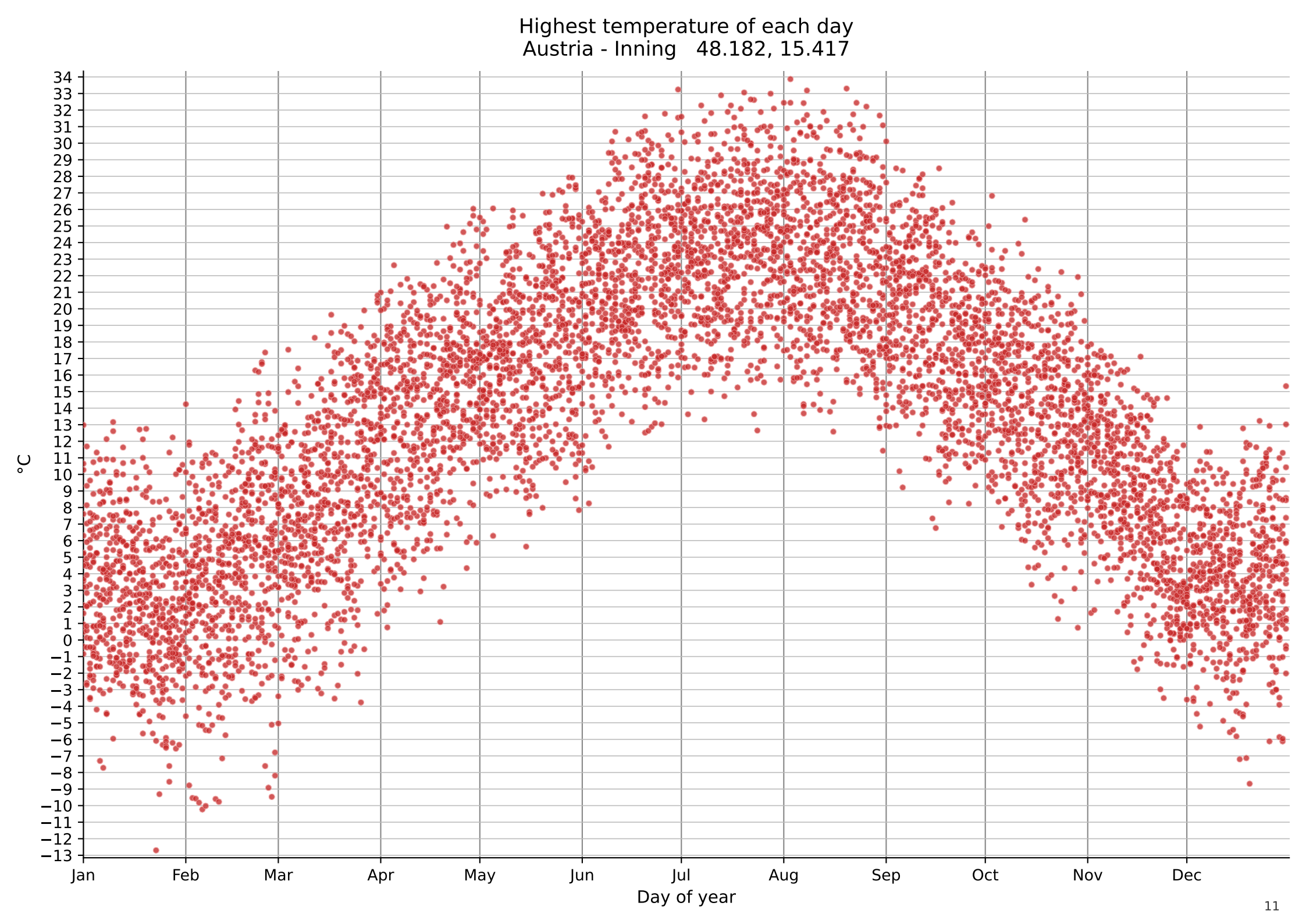

Yield distribution for each day — Wh / Wp of all PV together
Austria - Inning 48.182, 15.417
Wh / Wp
0
1
2
3
4
5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

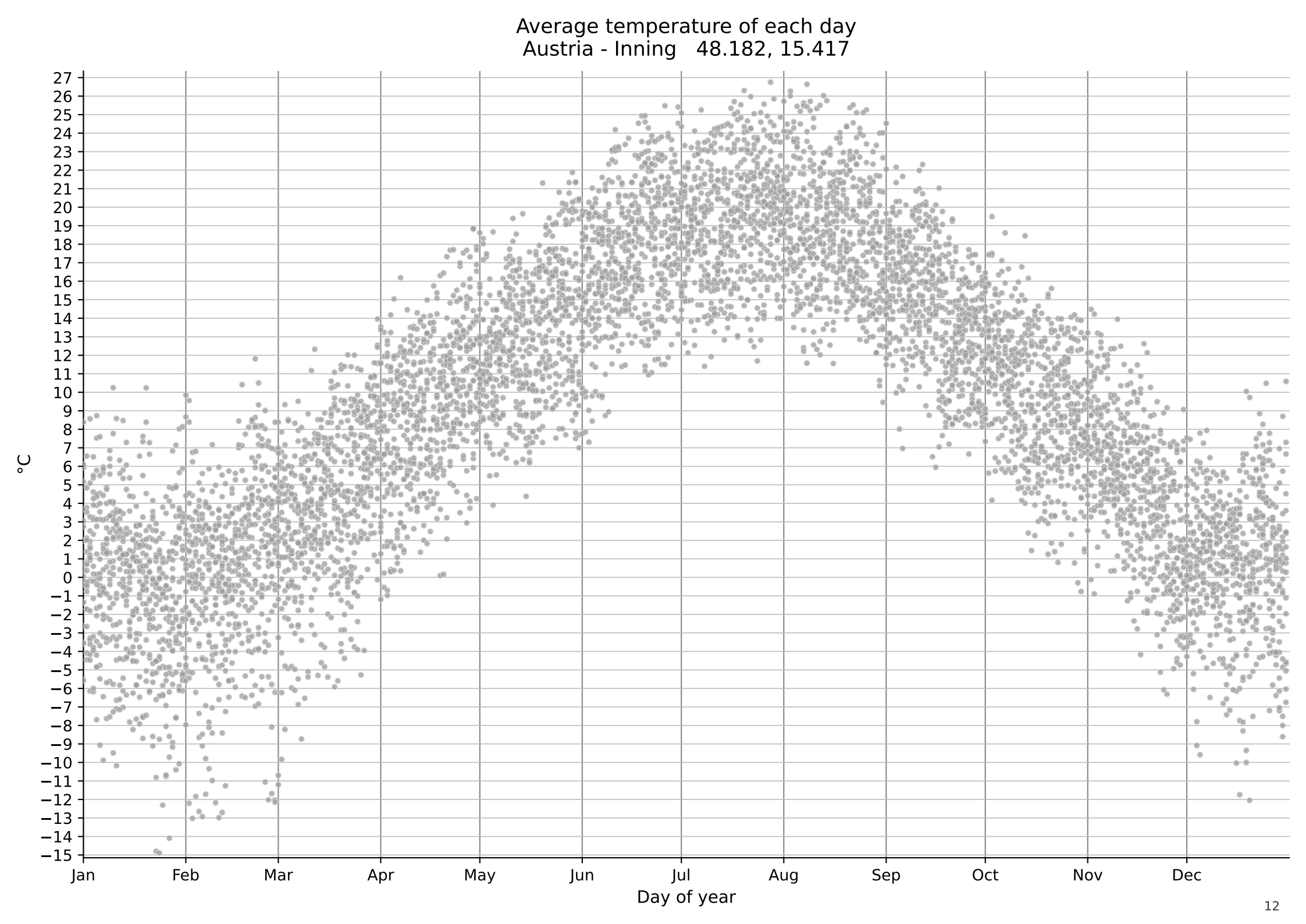

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Austria - Inning 48.182, 15.417
Wh / Wp
0.0
0.2
0.4
0.6
0.8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

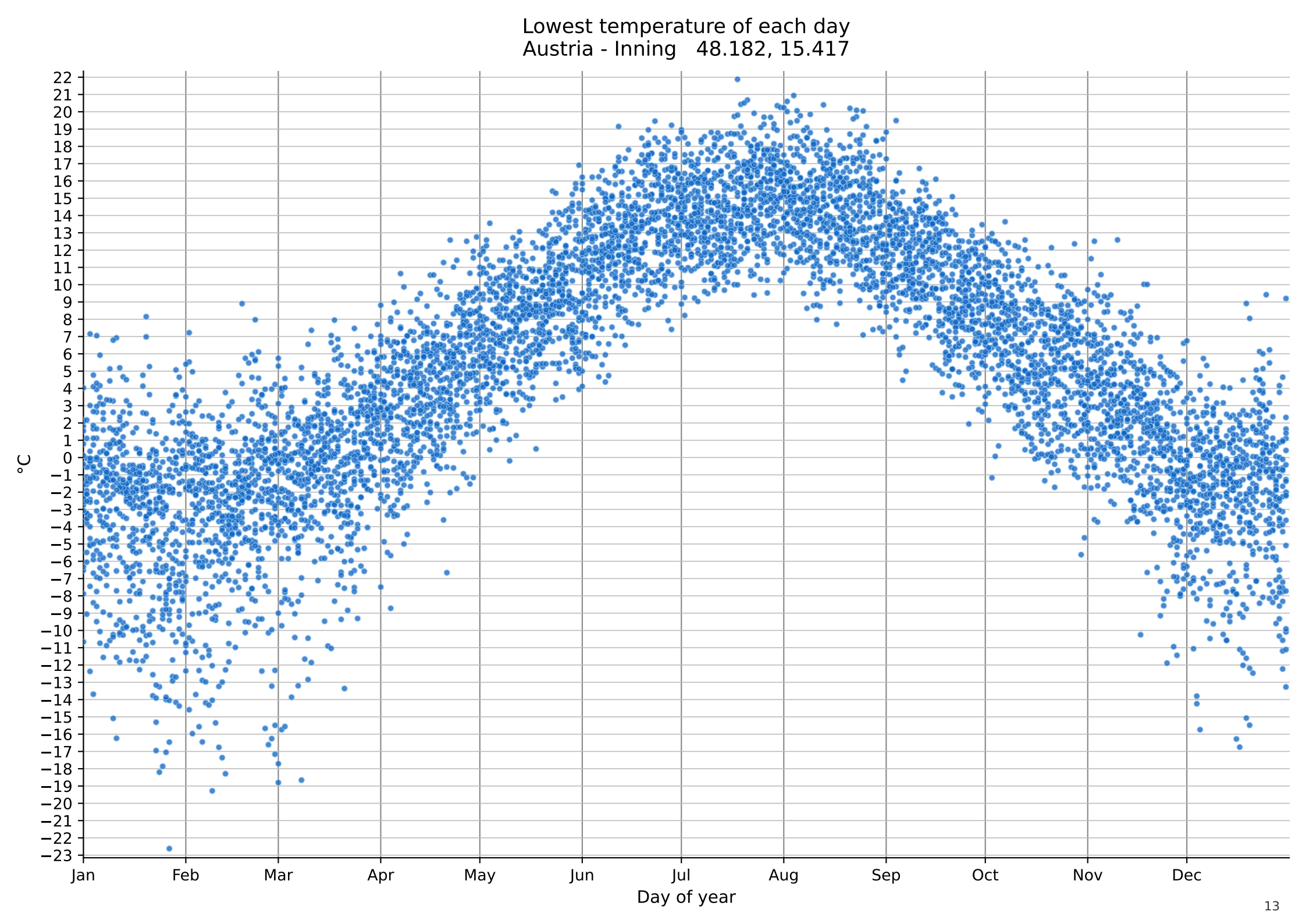

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
Austria - Inning 48.182, 15.417
1.0
0.8
0.6
0.4
0.2
0.0
Wh / Wp
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

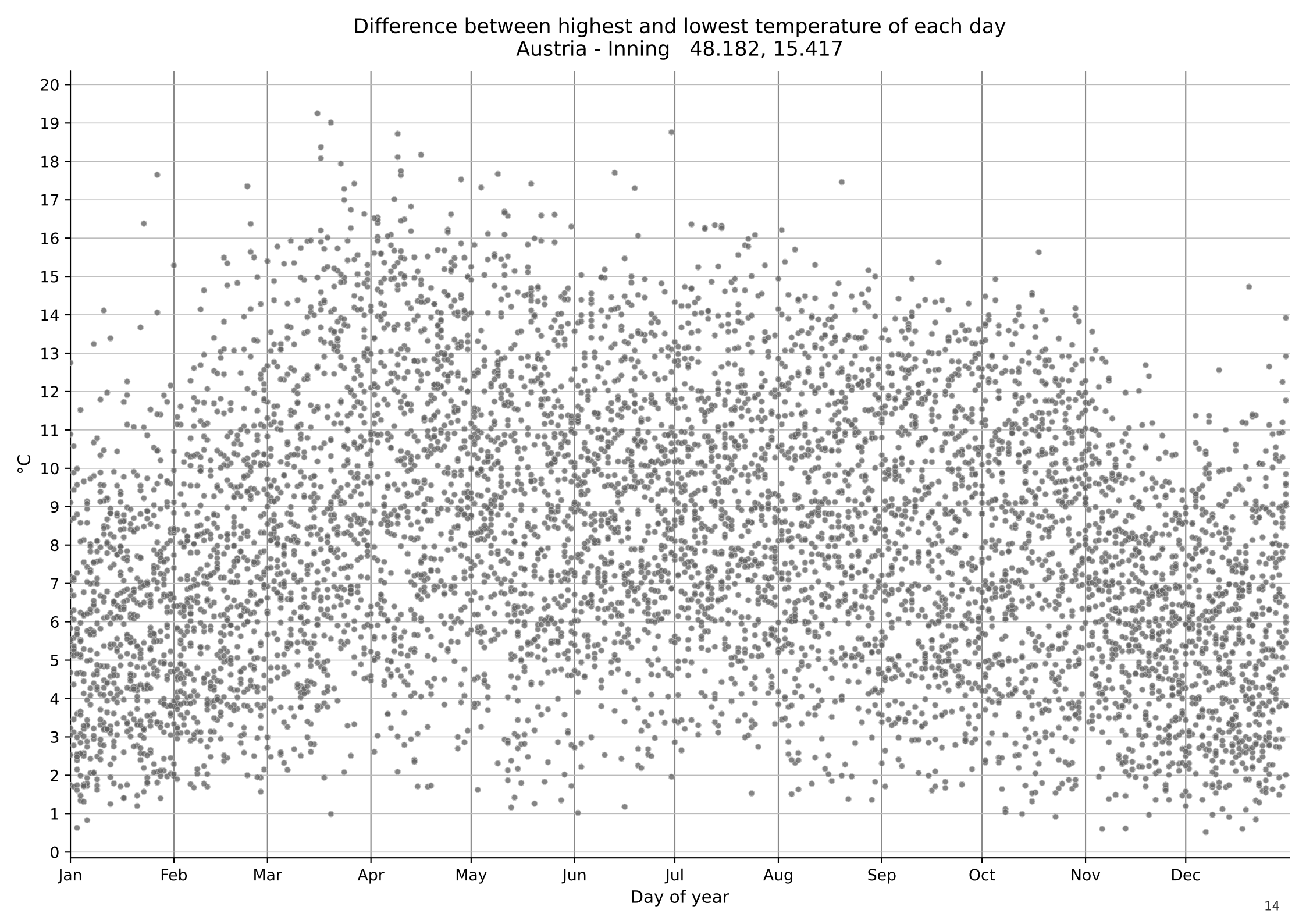

Share of the day’s yield in 09:00–15:00 winter time
Austria - Inning 48.182, 15.417
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Share of the day’s yield outside 09:00–15:00 winter time
Austria - Inning 48.182, 15.417
%
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
Austria - Inning 48.182, 15.417
°C
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
7
6
5
4
3
2
1
0
−1
−2
−3
−4
−5
−6
−7
−8
−9
−10
−11
−12
−13
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Average temperature of each day
Austria - Inning 48.182, 15.417
°C
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
−13
−14
−15
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Lowest temperature of each day
Austria - Inning 48.182, 15.417
°C
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
−19
−20
−21
−22
−23
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Difference between highest and lowest temperature of each day
Austria - Inning 48.182, 15.417
°C
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

Monthly and yearly specific yield (kWh/kWp = Wh/Wp)
Austria - Inning 48.182, 15.417

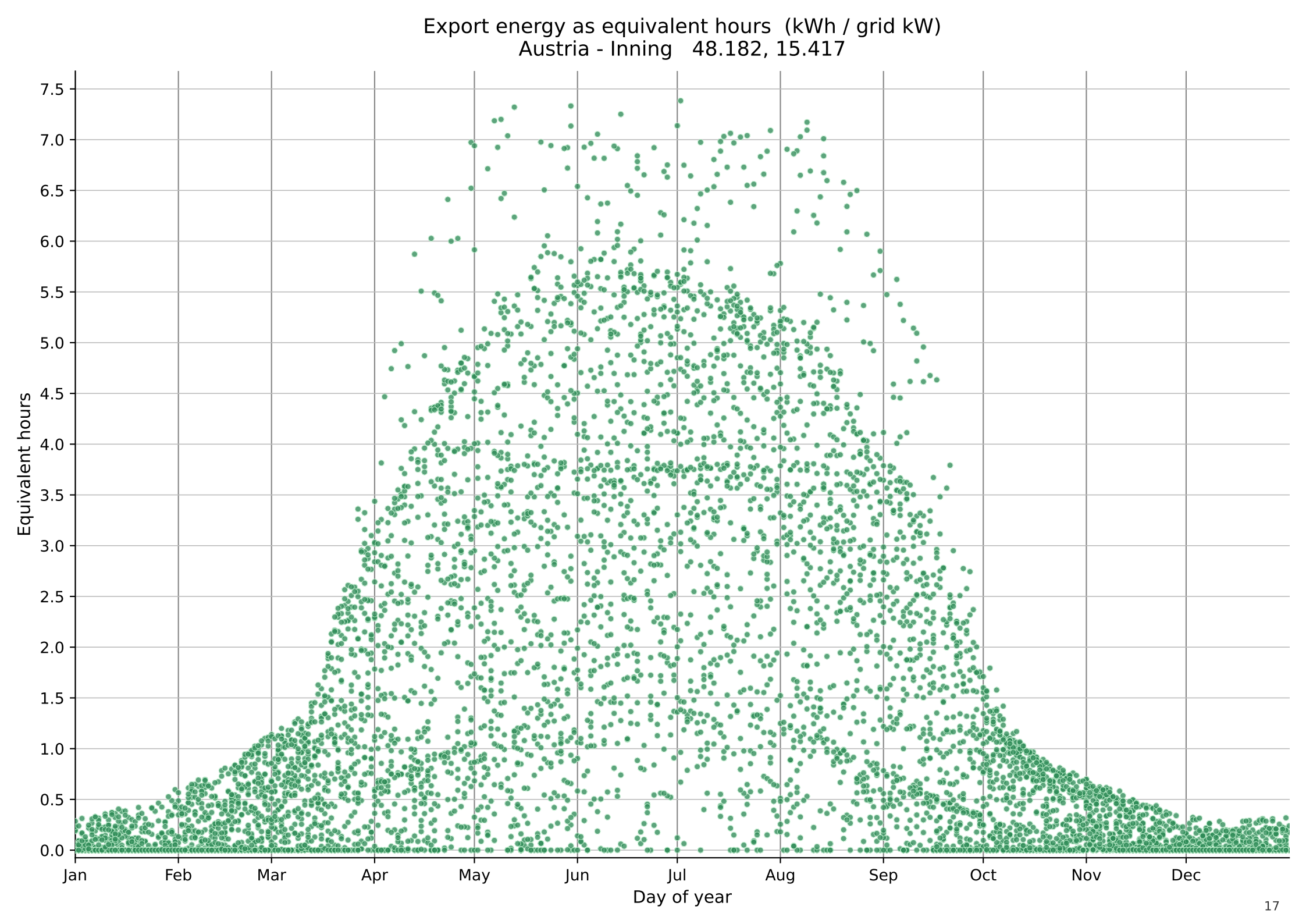
Month / year		Garage roof 1°/0° 10,740 Wp	Garage side wall south 90°/0° 3,475 Wp	Garage side wall north 90°/180° 3,475 Wp	Garage door side 90°/90° 700 Wp	Garage back side 90°/-90° 2,540 Wp	All together
January	Maximum	32.84	7.26	7.26	8.02	9.10	19.76
	average	23.62	5.26	5.26	5.93	6.73	14.88
	minimum	17.95	4.09	4.09	4.60	5.29	11.80
February	Maximum	51.56	9.78	9.78	11.74	11.07	30.57
	average	41.81	8.23	8.23	10.69	9.69	25.72
	minimum	30.53	7.01	7.01	9.55	8.85	20.23
March	Maximum	103.67	40.02	16.17	20.69	20.57	64.78
	average	78.18	32.13	14.12	18.52	18.64	50.68
	minimum	60.95	23.96	12.21	16.23	16.11	40.73
April	Maximum	138.59	85.87	20.80	35.62	37.00	93.94
	average	110.61	68.54	18.98	32.57	33.18	76.41
	minimum	87.14	54.04	16.79	27.32	27.21	60.77
May	Maximum	144.59	75.98	26.21	49.99	44.67	97.69
	average	124.01	66.13	24.16	43.00	39.77	84.89
	minimum	91.48	48.94	22.30	34.42	32.92	64.02
June	Maximum	163.28	73.17	28.27	50.65	56.41	108.79
	average	135.71	62.75	26.40	45.09	48.98	91.89
	minimum	109.40	51.97	24.08	39.28	41.53	75.44
July	Maximum	158.88	77.19	27.83	49.85	48.86	106.24
	average	138.27	67.74	25.64	45.09	43.52	93.25
	minimum	102.76	50.02	23.06	36.77	33.52	70.23
August	Maximum	132.11	79.19	22.99	40.50	40.39	90.31
	average	117.75	70.61	19.99	36.73	36.67	81.14
	minimum	102.53	60.77	17.60	32.59	33.27	71.64
September	Maximum	104.79	59.73	16.42	24.07	22.91	69.54
	average	86.69	49.11	14.08	21.48	20.85	58.22
	minimum	69.95	40.19	11.80	18.89	18.24	47.76
October	Maximum	68.41	11.30	11.26	12.90	12.98	40.16
	average	54.55	9.83	9.80	11.44	11.69	33.06
	minimum	37.60	8.60	8.60	9.79	9.93	23.68
November	Maximum	33.54	6.47	6.47	7.53	7.71	20.26
	average	26.62	5.75	5.75	6.77	6.86	16.63
	minimum	20.26	5.33	5.33	6.04	6.01	13.13
December	Maximum	25.37	5.19	5.19	5.84	6.52	15.15
	average	19.18	4.19	4.19	4.82	5.42	12.05
	minimum	15.84	2.90	2.90	3.46	3.86	9.68
All years	Maximum	1,005.5	478.1	182.9	291.4	295.1	670.0
	average	957.0	450.3	176.6	282.1	282.0	638.8
	minimum	908.1	423.9	171.8	274.0	269.5	609.6

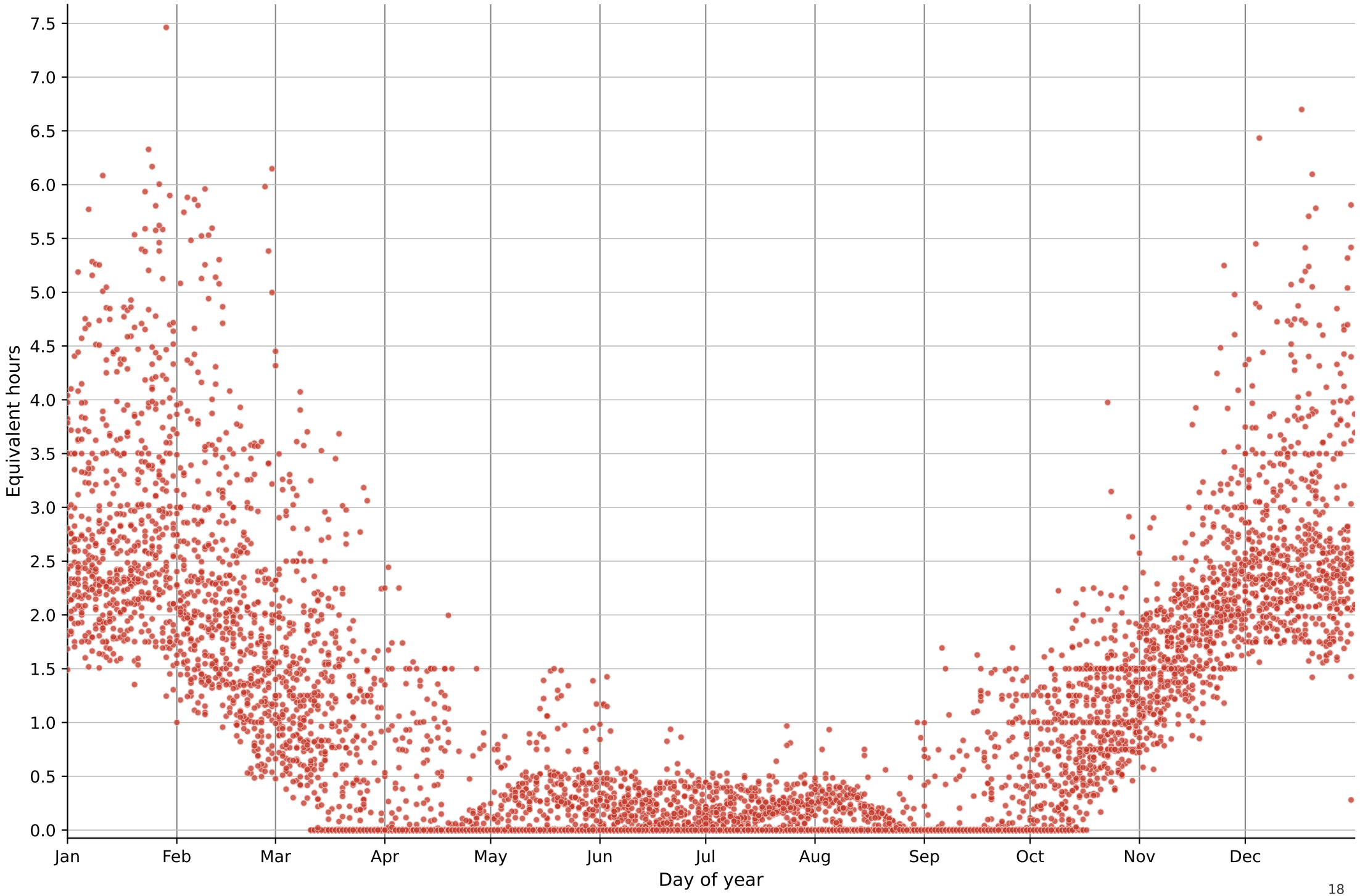
Highest combined yield hour: 2021-04-23 10:10 UTC 10,732.7 W (0.513 W/Wp) of 20,930 Wp installed. Use this hour to size battery charge power.

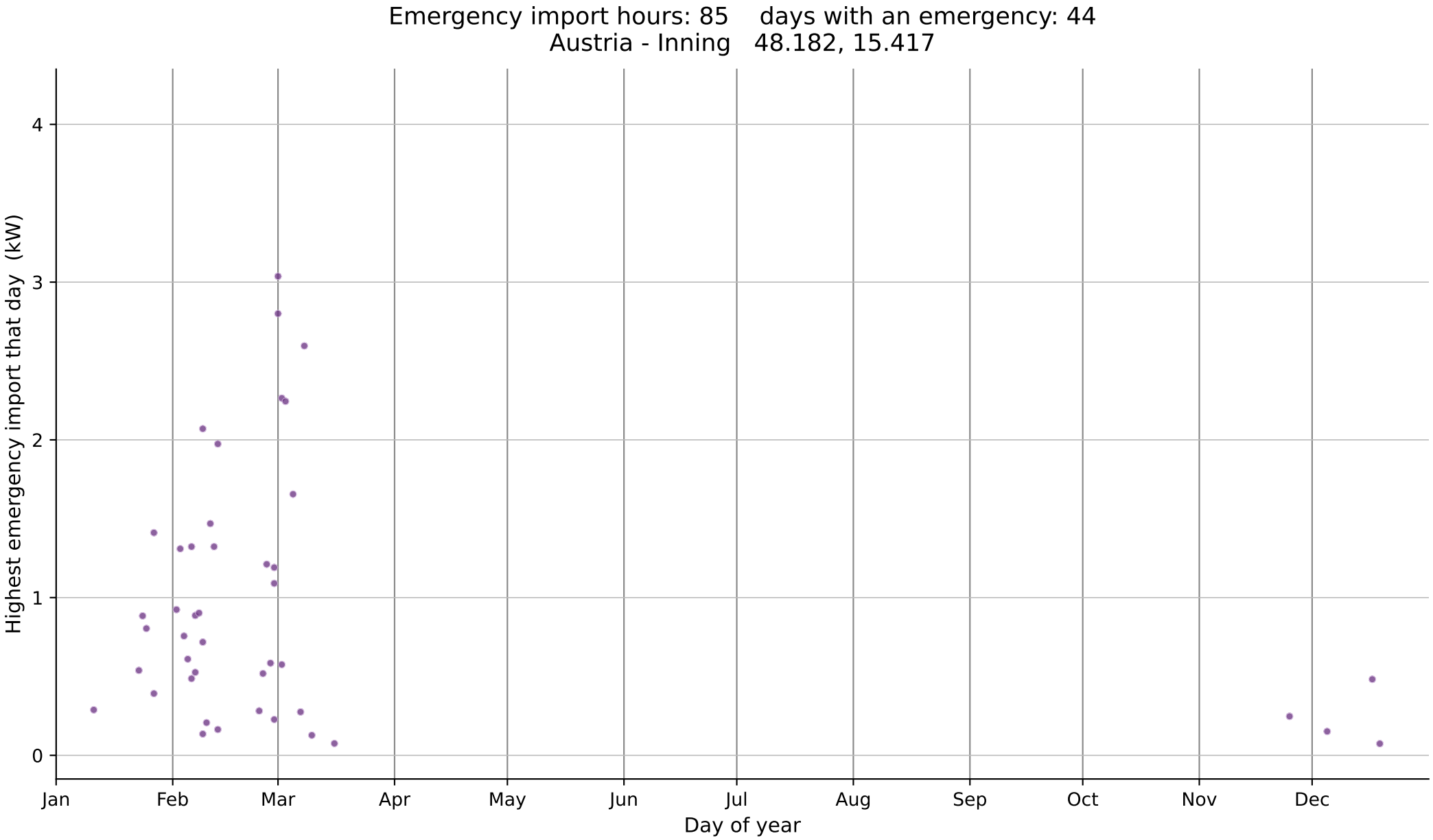
Monthly and yearly total yield (kWh)
Austria - Inning 48.182, 15.417

Month / year		Garage roof 1°/0° 10,740 Wp	Garage side wall south 90°/0° 3,475 Wp	Garage side wall north 90°/180° 3,475 Wp	Garage door side 90°/90° 700 Wp	Garage back side 90°/-90° 2,540 Wp	All together
January	Maximum	352.68	25.23	25.23	5.62	23.10	413.65
	average	253.64	18.29	18.29	4.15	17.08	311.46
	minimum	192.81	14.22	14.22	3.22	13.43	246.88
February	Maximum	553.71	34.00	34.00	8.22	28.11	639.85
	average	449.02	28.61	28.61	7.49	24.62	538.35
	minimum	327.93	24.35	24.35	6.69	22.49	423.49
March	Maximum	1,113.39	139.08	56.20	14.49	52.24	1,355.76
	average	839.69	111.66	49.08	12.97	47.33	1,060.72
	minimum	654.63	83.28	42.43	11.36	40.91	852.38
April	Maximum	1,488.40	298.38	72.30	24.93	93.97	1,966.17
	average	1,188.00	238.16	65.95	22.80	84.27	1,599.17
	minimum	935.83	187.80	58.33	19.13	69.12	1,271.96
May	Maximum	1,552.93	264.04	91.09	34.99	113.45	2,044.63
	average	1,331.89	229.81	83.95	30.10	101.03	1,776.77
	minimum	982.45	170.05	77.49	24.10	83.62	1,339.85
June	Maximum	1,753.66	254.25	98.25	35.46	143.28	2,277.02
	average	1,457.52	218.06	91.75	31.57	124.41	1,923.30
	minimum	1,174.96	180.59	83.68	27.49	105.48	1,578.92
July	Maximum	1,706.42	268.23	96.72	34.89	124.10	2,223.52
	average	1,485.03	235.41	89.09	31.56	110.53	1,951.63
	minimum	1,103.61	173.81	80.15	25.74	85.15	1,469.84
August	Maximum	1,418.83	275.17	79.90	28.35	102.58	1,890.21
	average	1,264.60	245.38	69.46	25.71	93.15	1,698.29
	minimum	1,101.14	211.18	61.15	22.81	84.50	1,499.39
September	Maximum	1,125.43	207.56	57.06	16.85	58.18	1,455.52
	average	931.05	170.64	48.91	15.04	52.95	1,218.59
	minimum	751.23	139.67	41.01	13.22	46.33	999.64
October	Maximum	734.70	39.26	39.13	9.03	32.97	840.56
	average	585.91	34.17	34.07	8.01	29.69	691.84
	minimum	403.85	29.90	29.87	6.86	25.23	495.71
November	Maximum	360.26	22.49	22.49	5.27	19.59	424.02
	average	285.88	19.98	19.98	4.74	17.43	348.00
	minimum	217.55	18.50	18.50	4.22	15.26	274.79
December	Maximum	272.47	18.04	18.04	4.09	16.56	317.14
	average	206.03	14.54	14.54	3.38	13.77	252.26
	minimum	170.14	10.09	10.09	2.42	9.80	202.54
All years	Maximum	10,798.9	1,661.5	635.6	204.0	749.6	14,022.5
	average	10,278.3	1,564.7	613.7	197.5	716.3	13,370.4
	minimum	9,753.0	1,472.9	597.2	191.8	684.5	12,759.0

Highest combined yield hour: 2021-04-23 10:10 UTC 10,732.7 W (0.513 W/Wp) of 20,930 Wp installed. Use this hour to size battery charge power.


Export energy as equivalent hours (kWh / grid kW)
Austria - Inning 48.182, 15.417
Equivalent hours
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)
Austria - Inning 48.182, 15.417
Equivalent hours
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



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
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export to grid													
month Maximum	52	159	494	1,073	1,326	1,605	1,601	1,231	771	249	93	48	7,138
month average	24	88	342	740	1,001	1,242	1,282	1,030	529	183	62	18	6,542
month minimum	0	19	180	422	602	896	730	785	338	100	29	3	5,740
day Maximum	7.2	13.3	40.3	83.7	88.0	87.0	88.6	86.1	67.5	21.5	8.4	3.9	88.6
day average	0.8	3.1	11.0	24.7	32.3	41.4	41.4	33.2	17.6	5.9	2.1	0.6	17.9
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
Import from grid													
month Maximum	1,510	1,268	592	160	123	86	55	44	165	451	913	1,508	5,653
month average	1,075	732	345	58	59	45	42	27	50	299	679	1,001	4,412
month minimum	815	486	176	0	18	17	28	8	0	187	565	728	3,662
day Maximum	89.5	73.8	53.4	29.3	18.0	17.1	11.6	12.0	20.3	47.7	63.0	80.4	89.5
day average	34.7	25.9	11.1	1.9	1.9	1.5	1.4	0.9	1.7	9.7	22.6	32.3	12.1
day minimum	14.9	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	3.4	0.0
Total energy used for house													
month Maximum	1,722	1,607	1,211	827	721	591	575	591	661	823	1,061	1,640	11,040
month average	1,247	1,080	976	742	661	549	530	539	602	744	884	1,127	9,682
month minimum	981	831	826	635	592	500	507	505	533	662	796	913	9,051
day Maximum	91.6	84.4	76.8	41.0	29.0	26.2	24.5	24.2	26.8	39.7	58.8	79.9	91.6
day average	40.2	38.3	31.5	24.7	21.3	18.3	17.1	17.4	20.1	24.0	29.5	36.4	26.5
day minimum	16.3	22.4	20.7	15.7	15.6	15.6	15.5	15.5	15.5	17.2	20.2	23.3	15.5

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
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export													
month Maximum	3	9	39	123	179	221	230	171	102	14	5	2	913
month average	1	5	25	75	125	174	182	139	57	11	3	1	799
month minimum	0	1	12	25	69	128	94	93	24	5	2	0	688
day Maximum	0.5	0.9	5.0	13.6	14.2	14.4	14.7	14.9	10.2	2.6	0.5	0.2	14.9
day average	0.0	0.2	0.8	2.5	4.0	5.8	5.9	4.5	1.9	0.3	0.1	0.0	2.2
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
Import													
month Maximum	375	327	150	30	23	17	13	9	27	105	222	381	1,358
month average	257	176	82	10	12	10	10	6	8	70	158	237	1,036
month minimum	193	113	40	0	3	4	6	2	0	43	130	169	846
day Maximum	21.3	20.6	15.5	6.1	3.2	2.5	2.1	2.2	3.8	12.8	17.5	22.3	22.3
day average	8.3	6.2	2.6	0.3	0.4	0.3	0.3	0.2	0.3	2.3	5.3	7.6	2.8
day minimum	3.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.7	0.0
Peak grid fee													
month Maximum	54	51	51	19	19	19	19	19	19	19	40	48	353
month average	45	40	35	17	18	13	11	14	18	19	38	44	312
month minimum	44	38	32	0	11	9	8	7	0	19	38	44	293
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	424	378	202	49	42	36	29	28	46	124	262	428	1,710
month average	303	216	116	27	30	24	21	20	26	89	196	281	1,348
month minimum	237	151	72	0	20	15	17	9	0	62	168	214	1,146
day Maximum	21.3	20.6	15.5	6.1	3.2	2.5	2.1	2.2	3.8	12.8	17.5	22.3	22.3
day average	8.3	6.2	2.6	0.3	0.4	0.3	0.3	0.2	0.3	2.3	5.3	7.6	2.8
day minimum	3.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.7	0.0
Balance													
month Maximum	-234	-141	-35	116	148	194	206	155	86	-49	-163	-211	-342
month average	-301	-211	-91	48	96	150	161	119	31	-78	-193	-280	-549
month minimum	-424	-376	-180	-18	32	98	69	82	-10	-119	-259	-428	-1,022
day Maximum	-3.2	-0.6	5.0	13.6	14.2	14.4	14.7	14.9	10.2	2.6	-1.2	-0.7	14.9
day average	-8.3	-6.0	-1.8	2.2	3.6	5.4	5.5	4.3	1.6	-1.9	-5.2	-7.6	-0.6
day minimum	-21.3	-20.6	-15.1	-6.1	-3.1	-2.4	-2.1	-2.1	-3.8	-12.8	-17.5	-22.3	-22.3

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
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export total													
month Maximum	52	159	494	1,073	1,326	1,605	1,601	1,231	771	249	93	48	7,138
month average	24	88	342	740	1,001	1,242	1,282	1,030	529	183	62	18	6,542
month minimum	0	19	180	422	602	896	730	785	338	100	29	3	5,740
day Maximum	7.2	13.3	40.3	83.7	88.0	87.0	88.6	86.1	67.5	21.5	8.4	3.9	88.6
day average	0.8	3.1	11.0	24.7	32.3	41.4	41.4	33.2	17.6	5.9	2.1	0.6	17.9
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 high price hours													
month Maximum	0	0	72	492	737	950	998	733	426	16	0	0	3,769
month average	0	0	29	276	517	751	785	583	217	1	0	0	3,159
month minimum	0	0	1	72	259	529	394	387	61	0	0	0	2,676
day Maximum	0.0	0.0	18.9	56.8	59.7	61.6	62.1	62.6	41.7	8.1	0.0	0.0	62.6
day average	0.0	0.0	0.9	9.2	16.7	25.0	25.3	18.8	7.2	0.0	0.0	0.0	8.6
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
Export during medium price hours													
month Maximum	8	45	131	214	258	279	305	245	148	67	9	1	1,453
month average	3	26	93	165	200	234	253	206	114	39	5	0	1,339
month minimum	0	7	58	114	141	182	183	176	71	16	0	0	1,214
day Maximum	1.4	3.7	7.5	10.3	12.6	12.4	12.7	12.0	8.8	4.0	1.1	0.5	12.7
day average	0.1	0.9	3.0	5.5	6.5	7.8	8.2	6.7	3.8	1.3	0.2	0.0	3.7
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	46	121	299	423	386	377	311	322	243	182	89	48	2,290
month average	21	63	220	299	283	258	244	241	199	142	57	18	2,045
month minimum	0	7	113	207	185	179	154	176	165	84	24	3	1,777
day Maximum	5.9	9.9	28.7	43.0	50.6	42.7	39.2	40.4	40.7	15.5	7.7	3.8	50.6
day average	0.7	2.2	7.1	10.0	9.1	8.6	7.9	7.8	6.6	4.6	1.9	0.6	5.6
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

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
Austria - Inning 48.182, 15.417

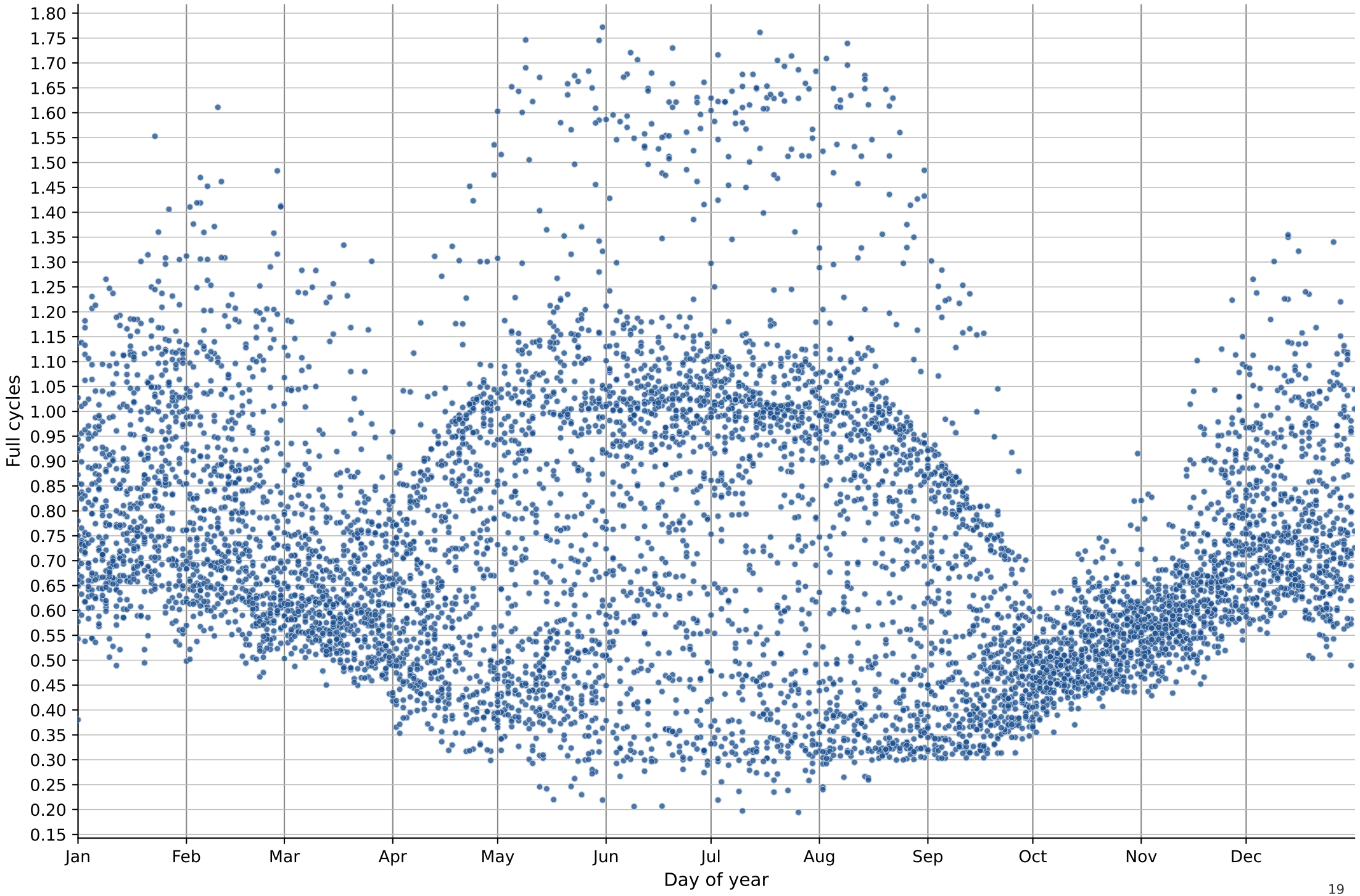
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	1,211	1,125	706	346	226	116	89	104	186	325	578	1,139	5,205
month average	743	620	474	263	168	76	47	55	130	249	401	628	3,852
month minimum	477	376	324	160	102	30	24	22	65	169	314	414	3,227
day Maximum	72.7	66.8	60.0	24.9	12.9	10.3	8.7	8.3	10.8	23.5	42.7	63.1	72.7
day average	24.0	22.0	15.3	8.8	5.4	2.5	1.5	1.8	4.3	8.0	13.4	20.2	10.5
day minimum	0.0	6.3	4.8	0.0	0.0	0.0	0.0	0.0	0.0	1.5	4.3	7.3	0.0
Cooling													
month Maximum	0	0	0	0	0	0	4	4	0	0	0	0	4
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	0
day Maximum	0.0	0.0	0.0	0.0	0.0	0.0	4.4	3.0	0.0	0.0	0.0	0.0	4.4
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	77	76	70	62	61	55	52	53	54	64	63	67	726
month average	71	64	69	59	59	53	49	50	52	62	63	66	716
month minimum	70	63	68	55	55	50	48	48	48	59	62	65	705
day Maximum	5.2	3.6	2.8	2.1	2.1	2.1	1.9	2.0	2.0	2.1	2.1	3.0	5.2
day average	2.3	2.3	2.2	2.0	1.9	1.8	1.6	1.6	1.7	2.0	2.1	2.1	2.0
day minimum	2.2	2.1	1.9	1.6	1.6	1.6	1.5	1.5	1.5	1.7	1.9	2.0	1.5
Direct electric													
month Maximum	670	650	278	30	0	0	0	0	0	16	169	606	1,762
month average	259	199	83	7	0	0	0	0	0	1	39	162	750
month minimum	52	11	2	0	0	0	0	0	0	0	0	17	252
day Maximum	54.6	48.6	42.0	9.5	0.1	0.0	0.0	0.0	0.0	7.4	24.9	44.9	54.6
day average	8.4	7.0	2.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.3	5.2	2.1
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

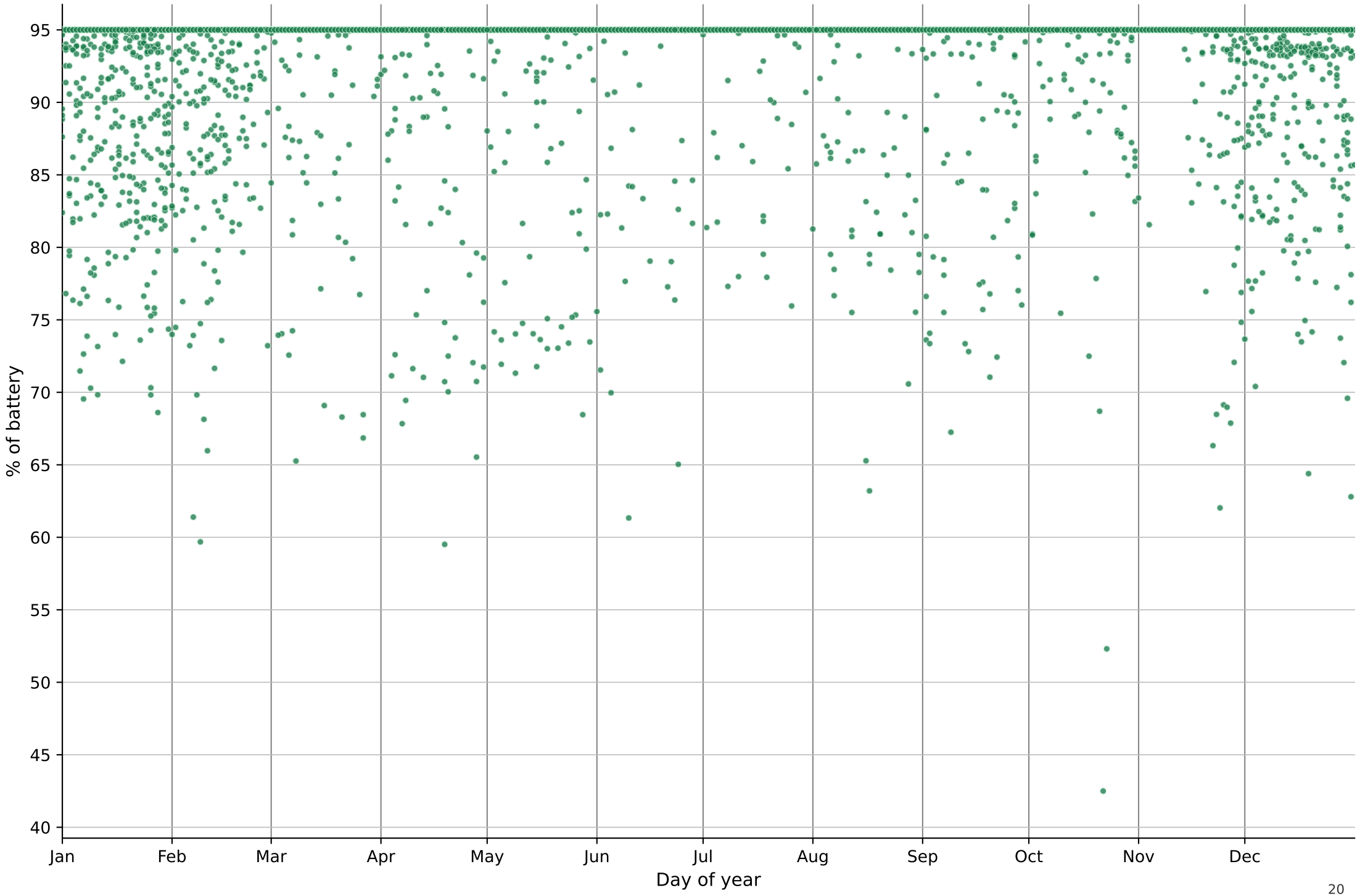
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

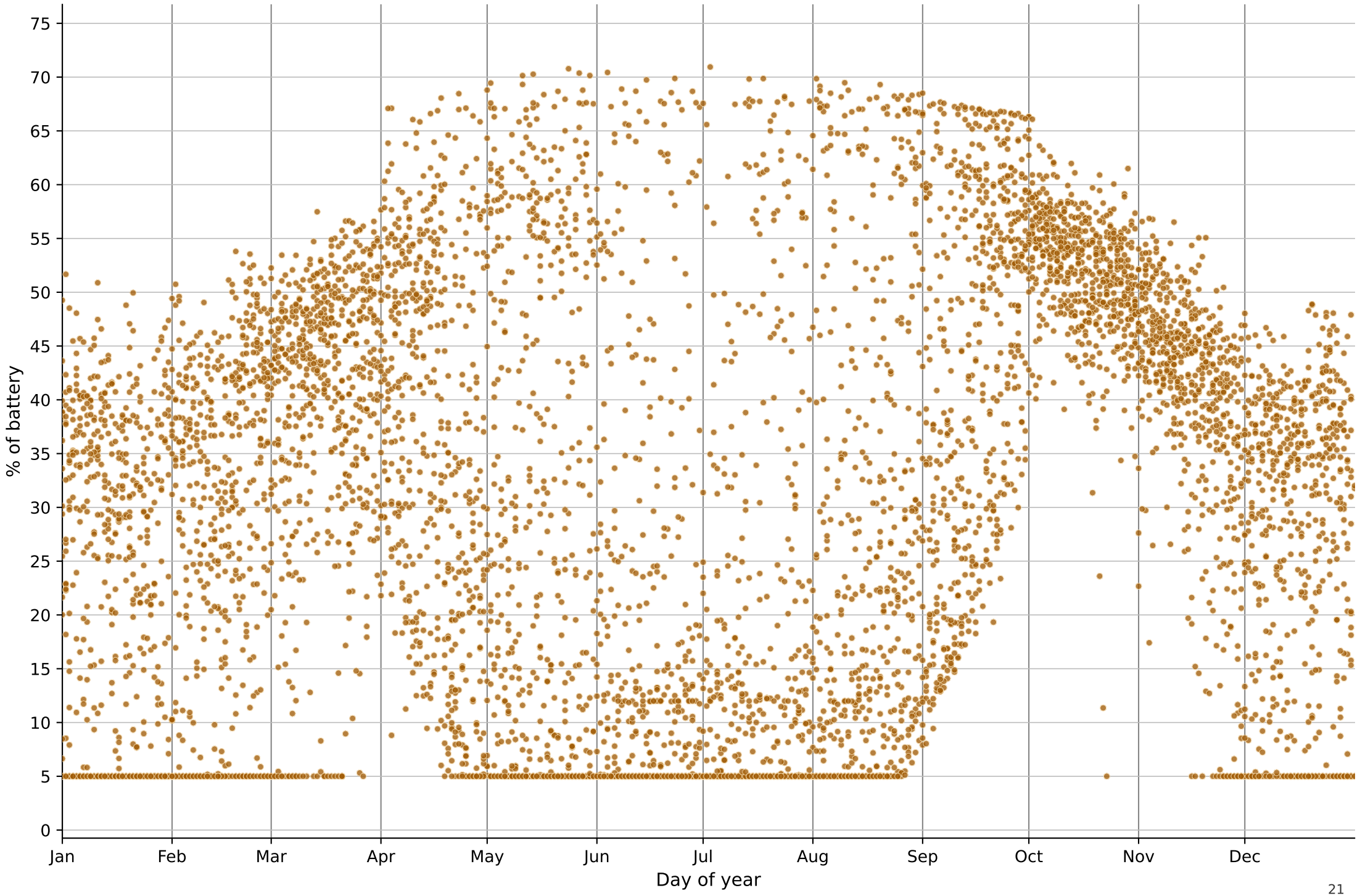
Battery
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	0	0	0	174	119	160	111	95	92	0	0	0	589
month average	0	0	0	100	91	84	78	61	61	0	0	0	475
month minimum	0	0	0	43	58	32	34	24	30	0	0	0	368
day Maximum	0.0	0.0	0.0	39.2	37.0	51.8	25.5	33.8	28.9	0.0	0.0	0.0	51.8
day average	0.0	0.0	0.0	3.3	2.9	2.8	2.5	2.0	2.0	0.0	0.0	0.0	1.3
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	32	30	26	24	28	30	31	26	21	18	23	31	279
month average	26	23	21	21	23	26	26	23	17	16	19	24	267
month minimum	21	17	18	17	19	22	19	20	15	14	18	20	248
day Maximum	1.6	1.6	1.3	1.6	1.8	1.7	1.8	1.7	1.3	0.9	1.2	1.4	1.8
day average	0.8	0.8	0.7	0.7	0.8	0.9	0.9	0.7	0.6	0.5	0.6	0.8	0.7
day minimum	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.2
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	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2
day average	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1
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
Discharge 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	2
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	2
day Maximum	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.3
day average	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1
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 / 45 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 / 45 kWh)
Austria - Inning 48.182, 15.417
Full cycles
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
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
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Battery max charge state per day (45 kWh = 100 %)
Austria - Inning 48.182, 15.417
% of battery
95
90
85
80
75
70
65
60
55
50
45
40
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Battery min charge state per day (45 kWh = 100 %)
Austria - Inning 48.182, 15.417
% of battery
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year